

Beyond Words and Phrases: A Unified Theory of Predicate Composition

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Dedication

To my parents
Vico and Goorik

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List of Abbreviations

1	1st Person	INDEF	Indefinite
2	2nd Person	INESS	Inessive Case
3	3rd Person	INF	Infinitival
ABL	Ablative Case	INST	Instrumental Case
ACC	Accusative Case	LOC	Locative Case
AFF	Unidentified Affix	NEG	Negation
AOR	Aorist Affix	NOM	Nominative Case
ASP	Aspect	OM	Object Marker
CAUS	Causative	PART	Partitive Case
CL	Classifier	PASS	Passive
CLIT	Clitic	PAST	Past
COMP	Comparative	PERF	Perfective
COND	Conditional	PL	Plural
DAT	Dative Case	POSS	Possessive
DEF	Definite	PP	Past Participle
DIM	Diminutive	PPART	Past Participle
DIR	Direct Case	PRES	Present
DUR	Durative	REDUPL	Reduplication Affix
EZ	Ezafe	RES	Resultative Affix
FUT	Future	SG	Singular
GEN	Genitive Case	SUBJ	Subjunctive
IMP	Imperfect	TH	Thematic Vowel
IMPER	Imperative	TOP	Topic
INCH	Inchoative	VN	Verbal Noun

The characters k' , t' , p' represent unaspirated voiceless phonemes.

Abstract

One of the ongoing debates in linguistic theory has centered around the notion of “word”. Much research has been carried out in generative linguistics to distinguish the component of word-formation and the module responsible for the formation of phrases in order to characterize the relation between morphology and syntax. This dissertation investigates cross-linguistic phenomena that lie at the interface of these two components and proposes to capture the distinct properties of verbal constructions within a computational model that consists of parallel nominal and verbal domains and which provides uniform principles of predicate composition.

By studying complex predicates, such as causatives in Eastern Armenian and Japanese and light verb constructions in Persian, this dissertation isolates the primitive atoms used to encode meaning in the syntactic code and argues for a single computational domain responsible for the formation of predicates. In the model proposed, syntactic principles are used to form predicates by combining the primitive grammatical features. The notion of word is thus defined as a level in the syntactic structure and the distinction between a “word” and a “phrase” is characterized by the structural complexity of the constituents involved in the formation of a particular predicate. The dissertation further argues that the distinct morphological, syntactic and semantic properties of words and phrases can be captured straightforwardly from the resulting configuration and the interface conditions. In the computational model developed, the lexicon consists of a list of the primitive atoms of meaning and of unordered sets of associated atoms. These lexical entries, combined with the spell-out node to the PF component, determine the parameters for language variation and can derive the structure-meaning mismatches observed in verbal predicates.

A close examination of the projection of arguments in Eastern Armenian and Finnish leads to the development of parallel nominal and verbal primitive features that account for the direct correlation between the assignment of object case, word order and semantic interpretation. In addition, an investigation of the nominal elements in Persian complex predicates provides a three-way distinction between predicate modifiers, non-specific objects and specific arguments, based on the syntactic configuration in the verb phrase.

The dissertation formalizes a restrictive theory of the computational system within the framework of Parallel Domains (Vergnaud and Zubizarreta, 2001), whereby all predicate composition is achieved by combining primitive assemblies of feature sets that are used to encode meaning in natural language. This combinatorial system allows us to capture the compositionality of verb phrase formation and the direct correlation between syntactic configuration and semantic interpretation without positing richly annotated lexical entries. In addition, the dissertation provides a computational model of predicate composition that is able to derive the distinct properties of “words” and “phrases” within a single component of grammar and its interface conditions, thus providing an insight into the interaction between morphology and syntax.

Theoretical Issues

“It is quite easy to think of approaches to these problems that give up everything. For example, suppose that in the face of syntactic words, we simply imported syntax into morphology, creating one grand science of the word/phrase, with no separation. [...] Or suppose that in the face of the facts concerning coanalyzed structures, we introduced into syntax parts or all of morphology.”

On the Definition of Word

Di Sciullo and Williams (1987, p. 110)

There is an ongoing debate in generative linguistics on what should be considered a “word”, and what component of language is responsible for its formation. Words have been defined as phonological units, as the basic elements in the lexicon, as the output of a morphological component or as the indivisible terminal elements of syntactic structure. One of the central issues in this debate is the relation between morphology and syntax, which have often been characterized as two distinct yet parallel components of grammar responsible for the formation of linguistic objects. More recent studies have questioned whether such a distinction should be drawn at all.

Since Chomsky (1970) and the acceptance of the Lexicalist Hypothesis, which claims that syntax does not have access to the internal form of words, a view of the architecture of grammar has emerged in which two distinct and autonomous components of morphology and syntax coexist. Since the Lexicalist Hypothesis asserts that syntax cannot combine morphemes into words, an independent and separate mechanism had to be posited. Past approaches in the field have often argued that morphology is a distinguishable subtheory of language with principles and vocabulary items that are distinct from the principles and atoms in syntax or phonology. Hence, in the generative framework, morphology or a morphological lexicon is traditionally treated as the component of word-formation. The resulting “morphological words” behave as an atomic entity in syntax and syntactic principles cannot manipulate their internal structures. Syntactic objects, however, are not syntactically atomic and their parts are visible to the principles of syntax. This split in behavior based on the component in which an element is formed has led to the standard dichotomy between words and phrases, where words are created in a morphology component while phrases are formed by operations in syntax.

The strict word/phrase division, however, does not hold under scrutiny. Many linguistic phenomena raise challenges for this view and cross-linguistic studies have shown that certain linguistic constructions seem to cut across the word/phrase boundary, with phrases that behave as lexical or morphological units (e.g., deverbal nominalization) and morphological words that have the meanings usually related to clauses or phrases (e.g., in polysynthetic languages). The dual properties of linguistic objects that behave as “words” in some contexts and as “phrases” in other situations have blurred the boundary between what constitutes a word and what includes a phrase and raise a challenge for lexicalist models

that insist in the formation of words and phrases in two distinct components. The linguistic variation with respect to the concept of “word” has resulted in an attempt to redefine this notion, and to rethink the interaction between morphology and syntax in the context of the duality of linguistic objects and the mismatches between meaning and surface realization.

This dissertation investigates verbal constructions across several languages, in particular valency changing phenomena in Persian and Eastern Armenian, and argues to eliminate the strict separation between components responsible for the formation of words and phrases. It proposes a notion of “word” defined as a level in syntax, the internal structure of which is visible to syntactic principles. The model proposed shares the main ideas of recent syntactic approaches such as Distributed Morphology (Halle and Marantz, 1993; Marantz, 1997) and the various systems developed in Travis (1991), Hale and Keyser (1993) and Vergnaud (2000), and argues for a single computational domain in grammar which is responsible for the formation of all linguistic objects. By investigating the internal structure of verbal predicates, the thesis isolates the atoms used to encode meaning in natural language and formalizes a theory of the morphology-syntax interface.

In the following section, I will present some of the past research on the interface of morphology and syntax that has set the stage for this dissertation. The main theoretical issues that arise in an investigation of the notion of “word” are developed in Section 1.2. Section 1.3 introduces the basic proposal of this dissertation and presents the architecture of grammar that emerges as a result. The last section provides the outline of the dissertation.

1.1 Historical Background

The nature of the interaction between syntax and the component responsible for word-formation was an important aspect of the generative works in the 1960s and 1970s. Generative Semanticists stressed the importance of transformations in forming linguistic objects and argued for the existence of an under-specified lexicon. They proposed a powerful syntactic component, in which transformations could derive various syntactic as well as morphological structures (cf. Lees, 1960). On the other hand, proponents of the Lexicalist approach argued for an enriched, list-like lexicon that constituted an independent component of word-formation; this approach entailed a less complex transformational system. The debate then centered around finding a balance between the various components of grammar, which seemed to tilt towards the Lexicalist approach with Chomsky’s ‘Remarks on Nominalization’ in (1970).

The debate on the interface between syntax and the word-formation component was rekindled in the 1980s. Developments within various subfields of linguistics, however, have allowed the question to be recast in a new light. Influenced by the work of generative semanticists, research on the lexicon has resulted in important insights into the internal structure of words and the nature of word formation. Works in generative syntax, on the other hand, have given rise to systems that can handle word-formation within the syntactic component. For instance, formal operations such as head-to-head movement allow the formation of words by combining stems and affixes in syntax.

Hence, since the start of generative grammar, linguists have debated whether there is a distinct component of word-formation, different from syntax, or whether the process of word-formation should be subsumed under syntax using syntactic operations? Any theory of word-formation should also characterize the nature of the interface between the syntactic and morphological or lexical components.

In the frameworks that argue for an autonomous component of word-formation, the interface with syntax occurs at a single point and it is argued that the internal structure of “words” is invisible to syntactic operations. In these systems, the output of the word-formation component, i.e., morphological words, constitutes the input to syntax. This idea is expressed as the Lexical Integrity Hypothesis of Lapointe (1979), the Lexical Integrity Principle of Bresnan and Mchombo (1995), or the Atomicity

Thesis formulated in Di Sciullo and Williams (1987, p.49) and shown in (1):

- (1) *Atomicity Thesis*: Words are “atomic” at the level of phrasal syntax and phrasal semantics. The words have “features”, or properties, but these features have no structure, and the relation of these features to the internal composition of the word cannot be relevant in syntax.

Thus, researchers who adopt one version of the Lexicalist Hypothesis or the Atomicity Thesis argue for the existence of an independent module for word-formation, usually as part of the lexicon or as a morphological component parallel to syntax. In these approaches, the internal structure of words is syntactically opaque, which entails that all argument structure modification needs to be carried out within the word-formation component. The syntactic component is unable to “look into” the structure of the verb phrase, for instance, in order to access and modify the argument structure. These models usually have richly annotated lexical entries with morphological and syntactic information. Under the Strong Lexicalist Hypothesis, both inflectional and derivational morphology is performed within the word-formation component prior to reaching syntax (cf. Bresnan and Kanerva, 1989) and syntax is reduced to mapping operations that cannot be encoded in the lexicon.

Syntactic models, on the other hand, have argued that word-formation phenomena follow syntactic constraints and interact with syntactic operations and therefore they should be subsumed within the syntactic component (Baker, 1988; Lieber, 1992). The drive in these approaches is to derive the properties observed in word-formation phenomena using the formal devices that are used to derive sentences. If it can be shown that syntactic operations may form words, then the formal necessity for an autonomous word-formation component is significantly weakened.

Lieber (1992) notes that heads, subcategorization and projections which are used in deriving morphological words parallel the formal devices in syntax. She then tries to reduce the morphological formalism to the syntactic one, thus unifying the formation of words and phrases. Similarly, Baker (1988) shows that argument structure changing processes and complex inflected forms can be derived in syntax, generated by *head-to-head movement* (Travis, 1984) of lexical items through a succession of affixes occupying functional heads.

Recent syntactic models have also attempted to either import syntactic operations within the lexicon (e.g., Hale and Keyser, 1993) or derive words and phrases within a unified computational model (e.g., Halle and Marantz, 1993; Travis, 1999a). In these systems, the internal structure of the “word” is directly reflected in the structural configuration and is visible to syntactic operations; morphological words are formed in syntax when the basic elements forming the predicate are combined using principles of grammar that already exist for independent reasons (cf. Borer, 1994; Ghomeshi and Massam, 1994; Kratzer, 1994; Travis, 1994; Harley, 1995; Ritter and Rosen, 1998; van Hout and Roeper, 1998). In most of these approaches, the lexicon is very much reduced, often consisting of a non-computational list of basic elements or underspecified entries. Major support for syntactic approaches comes from the correlation between syntactic structure and lexical semantics of verbal constructions, allowing a direct mapping of the decomposed verbal structure onto functional projections.

Any model investigating the nature of predicate formation needs to provide an answer to the following questions:

1. Is there a distinct component of word-formation or should all predicate-formation be subsumed in a single computational domain?
2. What information is encoded in each component?
3. How is the interface between the different components characterized?

In what follows, I will review a few of the theories that have played an important role in defining the morphology-syntax interface and which provide the background for the issues raised within this

dissertation. There is, no doubt, a vast amount of literature dealing with the notions of “word” and “phrase”. In this section, however, I will present linguistic models that target empirical phenomena at the interfaces, in particular data concerning valency changing operations in verbal predicates.

I will first present the main issues raised in Chomsky (1970) which has come to be known as the birthplace of Lexicalism, and I will discuss the monograph ‘On the definition of word’ by Di Sciullo and Williams (1987), which is dedicated to the study of the place of morphology in the architecture of grammar. I will then review several structural approaches to predicate composition: Baker (1988) is a very systematic model arguing for a syntactic approach to valency-changing operations. Hale and Keyser (1993) develop an articulated structure for the verb phrase and argue for a lexical component of word-formation that includes syntactic principles. The last section presents the model of grammar developed in Distributed Morphology (Halle and Marantz, 1993; Marantz, 1997 and consequent work). The ideas developed in this dissertation have benefited from each of these theories; however, Distributed Morphology represents the basis for the theoretical framework developed in this dissertation.

1.1.1 ‘Remarks on Nominalization’

In ‘Remarks on Nominalization’, Chomsky contrasts the properties of gerundive nominals in *-ing* with those of derived nominals and he argues that the systematic differences between the two constructions cannot be accounted for if they are both formed in an identical way. Although ‘Remarks’ has come to be known as the beginning of lexicalism, it actually does not argue for a generative component of word formation distinct from syntax, but instead points to a distinction that has come to be characterized as the derivational/inflectional distinction.

Chomsky (1970) points out that gerundive nominals (e.g., *criticizing*, *refusing*, *growing*) have the internal structure of a verb phrase, they appear in verbal structures and their meaning is closely related to that of the verb. Hence, it is reasonable to analyze them as involving a grammatical transformation from an underlying sentence-like structure. The derived nominals such as *criticism*, *refusal* or *growth*, on the other hand, possess the internal structure of a noun phrase and not of a VP, they do not contain aspectual features and their meaning cannot be directly obtained from the related verb form. In addition, these nominals have the distributional properties of a noun. Given the systematic differences between the two types of nominal constructions, Chomsky argues that the derived nominals cannot be obtained from the same underlying verbal source using transformational rules. In order to capture the properties of the derived nominals, Chomsky proposes to extend the base component, which consists of the context-free grammar generating phrase-markers (or X-bar theory).

Hence, the solution provided by Chomsky (1970) is not to create a generative component of word-formation in the lexicon. Instead, he separates the lexicon from the categorial component of the base and proposes to enter a category-neutral element (e.g., *refuse* or *destroy*) in the lexicon which is not predetermined for category [noun] or [verb] and carries a fixed set of selectional and subcategorization features. The neutral lexical entry is then interpreted as a noun when it appears in a nominal context in the base component of syntax, and as a verb when it is inserted in a verbal context. This approach allows to capture the related distributional properties of derived nominals such as *refusal* and of the verb *refuse*.

Thus, Chomsky assumes a system with three distinct components of grammar: the lexicon, the base and the transformational component, where the base and the transformational rules constitute the syntax. In an organized system, Chomsky points out, the enrichment of one component of the grammar will give rise to simplification in another component. Hence, Chomsky argues that the proper balance between the components is an empirical issue. What Chomsky (1970) refers to as the “lexicalist position” is an extension of the base rules to accommodate the derived nominal, thus simplifying the power of the transformational component.

Thus the notion of “lexicalism” defined in ‘Remarks on Nominalization’ is very different from its

current usage. According to the lexicalist analysis in Chomsky (1970), a category-neutral item appears in the lexicon “with certain contextual features that indicate the range of complements it can accept and the choice of items that may appear in these associated phrases.” In fact, this analysis seems to be a precursor to the approach developed in some of the current syntactic theories, such as Distributed Morphology, where the lexicon contains a category-neutral root element which is interpreted as a noun or verb depending on the structural environment in which it appears. As Marantz (1997) points out, Chomsky’s ‘Remarks’ theory can be restated in the following way: Derived nominalizations like *growth* and *destruction* in (2) are never “verbs” at any stage in the derivation and hence their noun phrases are not transformationally related to the sentences in (3). In contrast to these, the gerundive nominals in (4) are derived from an underlying sentence-like structure such as the ones illustrated in (3).

- (2) a.the growth of the tomatoes
 b.the destruction of the city
- (3) a.that John grows tomatoes
 b.that John destroyed the city
- (4) a.the growing of the tomatoes
 b.the destroying of the city

Despite the interpretation provided here, ‘Remarks on Nominalization’ has often been identified as the paper that started Lexicalism. In fact, Borer (1998b) states that “In [...] restricting argument-structure modification to the [word-formation] component, proponents of strong lexicalist models, such as Lexical Functional Grammar [...] thus carry to its logical conclusion the research program launched by Chomsky (1970)”. However, as mentioned earlier, one of the main issues in Chomsky (1970) was to argue that the derived and gerundive nominalizations should be obtained in different components of the grammar in order to capture their distinct properties, whereas in the strong lexicalist approaches, such as LFG, all linguistic objects are formed in the lexicon. Hence, calling LFG the logical consequence of ‘Remarks’ seems to be an inaccurate statement since it simply reflects the mirror image of the conceptual problem discussed in Chomsky (1970). It is nonetheless true that at the time of its publication, Chomsky (1970) tilted the debate between lexicalist and transformational approaches in favor of Lexicalism.

1.1.2 The Atomicity Thesis

In the theory developed in Di Sciullo and Williams (1987) a clear distinction is drawn between morphology and syntax. In this model, each component has its own subtheory of grammar with distinct sets of atoms and rules of predicate-formation. Di Sciullo and Williams (henceforth DSW) also distinguish three concepts of “word”. Hence, the atoms of the morphological component consist of a list of morphemes which are combined through morphological rules of formation to create words or morphological objects. Similarly, the syntactic component manipulates syntactic atoms, representing a second notion of word, using syntactic operations. These syntactic words are the indivisible primes of syntax (X^o elements) that could consist of the output of morphology or listed idiomatic expressions. The two disciplines are distinct and the rules of formation used in syntax cannot operate on the atoms of morphology. A third notion of word refers to *listemes*, the listed units in the lexicon.

One of the main tenets of the theory is the idea of the Atomicity Thesis (a version of the Lexicalist Hypothesis) which states that the internal composition of a word (X^o) is not relevant to syntax. DSW point out that the Atomicity Thesis is not an independent principle posited in the system, but that it is a logical consequence of the strict division between the two disciplines of morphology and syntax, since syntactic rules lack the vocabulary for analyzing morphological objects, such as stems or affixes: “Morphology and syntax are different (though similar) sciences about different objects, so the idea that the derivations in one could get mixed up with those of the other should not arise in the first place.”

Although the system laid out in DSW is traditionally categorized as a lexicalist model, it differs from the traditional lexicalist systems with respect to the organization of the lexicon. DSW claim that the lexicon is merely a storage space for the “lawless”, namely linguistic objects that do not abide by the rules of morphology or syntax are listed in the lexicon. Crucially, DSW argue that there is no structure or theory in the lexical component and no predicate-formation takes place at this level. What is undoubtedly “lexicalist” in DSW’s model, however, is the complete separation of the component responsible for the formation of words and the component for composition of phrases. In addition, DSW take a strong stand with respect to the dichotomy by arguing against a distinction between derivational and inflectional morphology. In their system, all morphemes are manipulated within the same component. In order to capture the fact that inflectional affixes can participate in syntax and that they need to appear external to derivational morphemes, DSW posit that participation in syntax is an ‘intrinsic’ property of the affix.

The central point defended by Di Sciullo and Williams (1987) is the Atomicity Thesis or the separation between the components responsible for forming phrases and the component of word-formation. There are, however, certain cases involving interaction between the two components, which challenge the strict dichotomy. DSW point out that syntax and morphology seem to have a “shared terminology”, which allows a limited interaction between the two components. Hence, categorial features (e.g., Noun, Verb, Adj) and concepts like ‘+tensed’ or ‘+plural’ belong to both components. DSW admit that perhaps it is misleading to uphold the syntactic atomicity of words given these facts (cf. their p. 48) but they dismiss the idea by making the following distinction: “... although syntactic rules can access the categorial status or argument structure of a lexical item, they will never depend on how that categorial status or argument structure was arrived at through morphological derivation or on the internal constituency of words. The rules of syntax can see that a word has such and such properties, but they cannot see how it came to have those properties.” DSW discuss, however, two types of phenomena that present a stronger challenge to the separation between morphology and syntax: *syntactic words* and *coanalysis* are two cases that seem to blur the boundary between the two subtheories.

Syntactic words are phrases (i.e., are composed of more than one morphological word) but display the properties of an X^0 element: Examples of such constructions are compounds in Romance languages as illustrated in (5) and (6), which contain a verb-complement structure but behave as nouns.

- (5) a.V+N: *essuie-glace*
 wipe-window
 ‘windshield wiper’
 b.V+A: *gagne-petit*
 gain-small
 ‘low wage earner’
 c.V+Adv: *passe-partout*
 pass-everywhere
 ‘master key’
- (6) a.V+N: *copri-fuoco*
 cover-fire
 ‘curfew’
 b.V+N: *rompi-testa*
 break-head
 ‘puzzle’

DSW suggest the reanalysis rule $N \rightarrow VP$ to account for these data. In order to maintain the Atomicity Thesis and the strict separation of syntax and morphology, they argue that “the few cases that remain”

of syntactic words such as Romance compounds and English verb-particle constructions like *push-up* and *breakdown* are best regarded as instances of phrases that have been reanalyzed as words by the rule $Y \rightarrow XP$. This rule is marked and is part of the periphery of grammar (the core being morphological word-formation rules).

The second set of phenomena that blur the syntax-morphology boundary are the linguistic constructions classified as coanalysis in DSW. Coanalysis, a concept introduced in Williams (1979), occurs when languages choose to simultaneously demarcate a phrase by two distinct syntactic mechanisms. Syntax provides two methods for analyzing a phrase: An element can attach to the phrase as a whole or be marked on the head of the phrase. DSW claim that in certain cases, two parallel analyses are provided which allow a certain affix or word to ambiguously appear as affixed to the head or adjoined to the entire phrase. Such structural ambiguity, DSW argue, can be used to analyze French causative constructions, deverbal nominalizations, and Italian restructuring.

The departing point of this dissertation is the investigation of the very two types of phenomena discussed in Di Sciullo and Williams (1987) that raise a challenge for the strict division between morphology and syntax, namely syntactic words (such as light verb constructions) and causative constructions. DSW propose the mechanisms of reanalysis and coanalysis to account for these cases but in order to maintain the Atomicity Thesis in the face of the intermingling of syntax and morphology, they treat the reanalysis rule and the mechanism of coanalysis as external to the domain of core grammar. Note that such “peripheral” constructions consist of a great number of linguistic phenomena including Romance causatives and analytic Japanese causatives, the English possessive, deverbal nominalizations, Italian restructuring predicates, Romance compounding, serial verbs and light verb constructions.

Spencer (1991) refers to Di Sciullo and Williams (1987) as “one of the most thoroughgoing defences of the Lexicalist Hypothesis”. He adds that, according to DSW, “[...] lexicalism is not merely a hypothesis about the way language might be organized, it is the only logically possible way in which language could be organized.”

Interestingly enough, this statement is inaccurate when one considers the conclusion of the monograph by Di Sciullo and Williams. As illustrated in the quotation at the beginning of this chapter, DSW note that given the empirical data, one may also choose a theory that consists of the union of the principles of syntax and morphology. Such a system will still need to account for the evidence that indicates that words are often opaque to syntactic principles; but crucially, DSW point out that such a model, which does away with the strict separation between the two components that they have suggested in their monograph, is a logical possibility.

1.1.3 Theory of Incorporation

Baker (1988) investigates complex predicates such as Passives, Causatives, Applicatives and Possessor raising in a number of languages and proposes the process of Incorporation to capture the unity of the various grammatical function changing rules that had been put forth in each case. He succeeds in arguing for a syntactic theory of predicate formation which holds that all of the phenomena examined are instances of incorporation of syntactic heads into morphological or lexical categories. A morphological causative, for instance, is formed when the verb of the underlying predicate incorporates (via head-to-head movement) into the affix representing causation.

Baker presents a theory in which morphological processes can be obtained through a syntactic derivation, which conforms to principles and constraints that exist in syntax. Baker (1988) argues that incorporation respects the Head Movement Constraint (HMC) which was originally formulated in Travis (1984) and which states that a head may only incorporate elements that it properly governs. This constraint, in effect, rules out the incorporation of a subject or an adverb with the verb. The strength of Baker’s theory lies in the fact that he is able to unify seemingly distinct linguistic phenomena as well as subject-object asymmetries attested under a very simple syntactic process. Furthermore, the theory

prohibits the occurrence of certain unattested forms of complex predicates.

Baker's syntactic approach to word-formation gains further support from the direct correlation between the meaning and structure of predicates. Baker formulates a principle that he names the Uniformity of Theta Assignment Hypothesis (UTAH) given in (7).

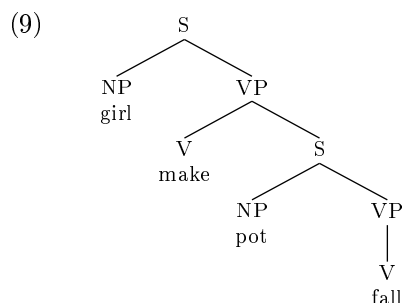
(7) *The Uniformity of Theta Assignment Hypothesis:*

Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

Hence, in a valency-changing operation such as causativization, UTAH states that the thematic relation between the underlying verb and its argument remains the same. Given the periphrastic causative (8a) in the Bantu language Chichewa and its morphological counterpart (8b), Baker suggests that in both sentences, the argument 'waterpot' bears the same thematic role (Theme) which is assigned by the verbal root *gw* 'fall'. According to UTAH, this means that these elements must be in the same structural relationship in the D-structure representation of both (8a) and (8b).

- (8) a. Mtsikana a-na-chit-its-a kuti mtsuko u-gw-e.
 girl do-CAUSE that waterpot fall
 'The girl made the waterpot fall.'
- b. Mtsikana a-na-gw-ets-a mtsuko.
 girl fall-CAUSE waterpot
 'The girl made the waterpot fall.'

The D-structure for both clauses is represented in (9), where the verbal root is an independent constituent in both cases. The affixation observed in (8b) is the result of an incorporation process in syntax. In other words, UTAH suggests that (8a) and (8b) are different surface realizations of the same structure.

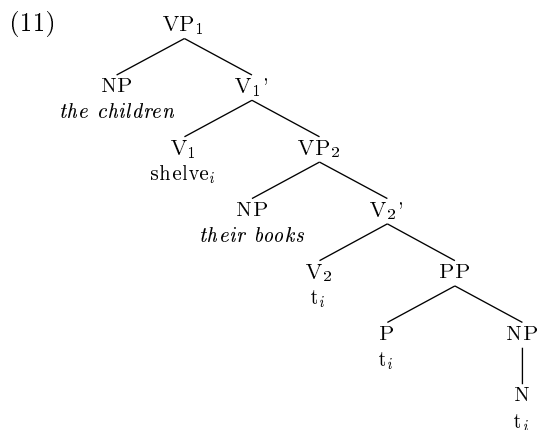
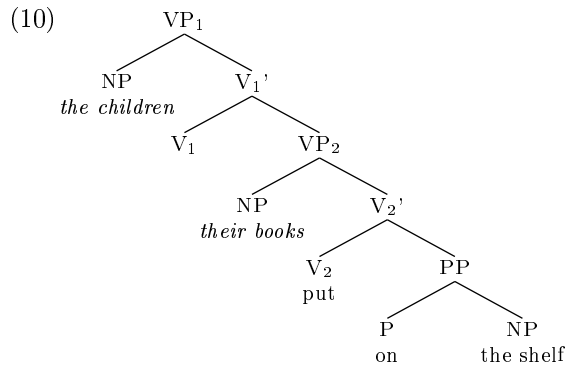


A number of counter-arguments to this version of UTAH have been discussed in the literature, pointing out that in alternation verbs, such as causative alternations or the *spray/load* alternation, the thematic role associated with the external argument of the underlying predicate differs from the role it bears in the bigger clause.

1.1.4 The Articulated VP-shell

Hale and Keyser (1993) and subsequent work on argument structure by these authors develop a lexical representation of argument structure that is subject to syntactic principles. Within this lexical component, which Hale and Keyser refer to as l-syntax, lexical items are decomposed into basic, atomic units which are put together by syntactic mechanisms of complementation and adjunction. As in Baker (1988), the derivations of lexical items therefore abide by principles of syntactic well-formedness, such as the Head Movement Constraint (Travis, 1984) and the Empty Category Principle or ECP (Chomsky, 1981).

Following the VP-shell structure that Larson (1988) proposed for verbs such as *put*, whereby the verbal predicate is decomposed into two distinct verbal heads each projecting an argument in a binary branching structure as shown in (10), Hale and Keyser suggest the l-syntax derivation of the denominal verb *shelve* shown in (11). In the analysis proposed by Hale and Keyser (1993), the verb *shelve* is derived through the combination of four distinct syntactic heads – the noun *shelf*, the preposition *on*, and two Vs – via incorporation (Baker, 1988).



According to the analysis provided by Hale and Keyser, all of these heads contribute meaning to the verb: P represents the locative relation and *shelf*, the complement of P, corresponds to the endpoint in a change of location. The lower verb contributes the concept of BE/BECOME while the higher verb denotes a causation or CAUSE. Thus, the verb *shelve* can be viewed as meaning 'CAUSE x to BE on a SHELF'.

Hale and Keyser argue that syntactic constraints on incorporation can account for the fact that certain denominal verbs cannot exist in English. Thus, the sentences in (12) are ungrammatical because they involve the incorporation of a subject into the verb, whereas it is well known that an external argument cannot incorporate into the verb that heads its predicate, since it would violate the ECP (Baker, 1988).

- (12) a.*It cowed a calf.
(cf. A cow had a calf. A cow calved.)
b.*It dusted the horses blind.
(cf. The dust made the horses blind. The dust blinded the horses.)

Similarly, a noun cannot move past an intervening head to incorporate into V as illustrated in the

following example:

(13) *The librarian shelved the books on.

Furthermore, Hale and Keyser argue that thematic roles of the verbal arguments will be determined by the structure in which they appear. Thus, Agents will always be associated with the specifier of a V which takes a VP complement. Meanwhile, Patients or Themes will always appear in the specifier of a V that takes a PP or AP complement. Hale and Keyser therefore move to eliminate the notion of thematic roles, since the concepts that these roles are supposed to capture can be predicted directly from the structural configuration.

To sum up, Hale and Keyser provide a conception of the verbal predicate, in which the verb is decomposed into several basic elements represented within the syntactic structure and carrying semantic content. Various verbs are formed as a result of the different combinations of these basic elements. In addition, the placement and meaning roles of arguments are predictable from the configuration.

Hale and Keyser devise a model in which the internal organization of the argument structure of a lexical entry is viewed as a ‘syntax’ governed by syntactic principles and constraints. Although this model brings syntax into the lexicon, it still maintains two distinct lexical and syntactic components named l-syntax and s-syntax. The properties of l-syntax items that distinguish them from syntactic elements are listed in (14).

(14) An l-syntax item:

- i. possesses the same argument structure as a single verb such as *put*.
- ii. involves change in grammatical category; ex. shelf (N) → shelve (V).
- iii. has a defined meaning – The sentence ‘the librarian shelved the books’ means that the librarian put the books on the shelves in an orderly fashion. It cannot mean the librarian threw the books on the shelf helter skelter.
- iv. is subject to morphophonological changes; ex. f → v [+voice] in deriving ‘shelve’ from the noun ‘shelf’.
- v. does not result from productive derivation. Hence, the entry ‘table’ is not available as in ‘*The decorator tabled the flowers.’ meaning that the decorator put the flowers on the table.

Hale and Keyser thus distinguish the two components l-syntax and s-syntax. In this model, a denominal verb such as *shelve* is formed in l-syntax following syntactic operations and then inserted within a syntactic configuration in s-syntax.

1.1.5 Distributed Morphology

Halle and Marantz (1993) introduced the theory of Distributed Morphology (DM) which proposed that mechanisms that have traditionally been attributed to morphology are not concentrated within a single component of grammar, but rather are “distributed” among several different components. Hence, according to this approach, all word formation occurs in syntax, as a result of the syntactic combination of heads. Processes such as head-movement and merger operations manipulate abstract morphosyntactic elements in syntax and combine them to form linguistic objects. However, the assignment of phonological features to these morphosyntactic elements takes place after the syntactic component at the level of Vocabulary Insertion. Thus, DM adopts a version of Separationism (cf. Beard, 1995; Chomsky, 1965). Furthermore, DM “explodes” the lexicon into three distributed, non-computational lists. Figure 1 illustrates the architecture of grammar proposed by the theory of Distributed Morphology.

The framework of DM splits the lexicon into three lists which enter the computation at different levels as shown in the figure. The ‘narrow lexicon’ contains the basic units of language that syntax operates with. This list consists of atomic roots and bundles of functional features such as T or *v*. The second

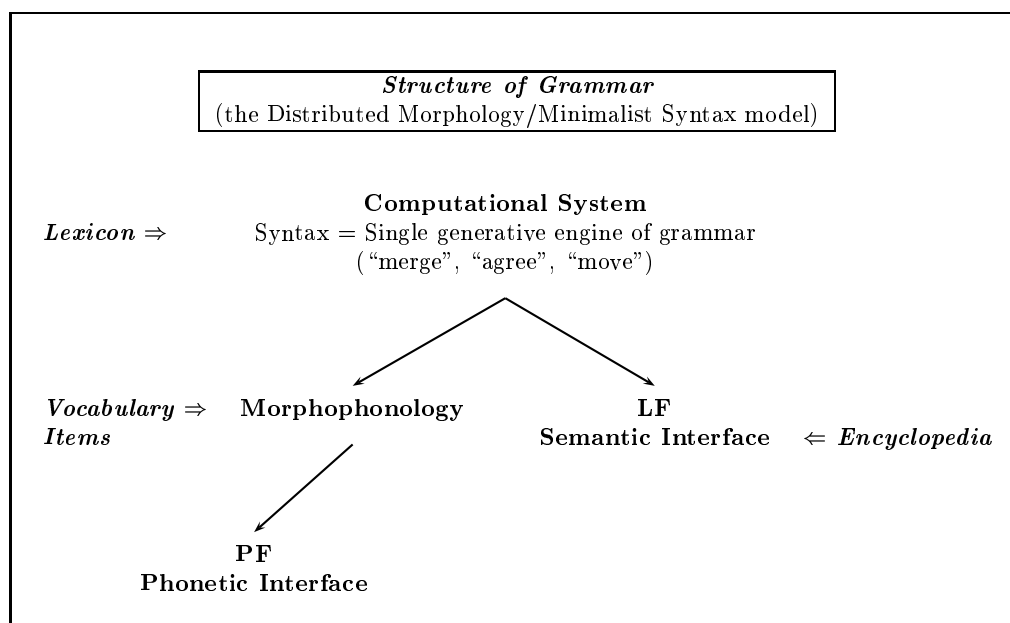


FIGURE 1 The structure of grammar (the Distributed Morphology/Minimalist Syntax model)

list corresponds to the Vocabulary which applies after syntax and which supplies the phonological forms to the terminal nodes in the structure. Hence the Vocabulary determines the relation between terminal nodes represented by morphosyntactic features and their phonological realization. These Vocabulary Items are underspecified, i.e., they don't necessarily carry all the grammatical features specified by a terminal node. However, the Vocabulary Item that satisfies the features of the terminal node the best wins the competition. The final list, the Encyclopedia, is a list of idiosyncratic meanings or 'idioms'. Crucially for Distributed Morphology, there is no special status for word-sized units with respect to the idiomatization process. Linguistic expressions of any size may be part of the Encyclopedia.

The most important aspect of DM, at least for our purposes, is perhaps the claim that no computation is carried out in the lexicon and that there is no component of word-formation separate from Syntax. As Marantz (1997, p.205) points out: "whether you get a "zero-level category" (word-like unit) or a phrasal category by merging two constituents is a function of the (categories of the) constituents involved, not of the "merger" operation itself." Hence, according to DM, the same mechanism used to combine words into phrases can be used to combine morphemes into words and no distinct components are needed for the composition of words vs. phrases. Thus, DM unequivocally rejects the Lexicalist Hypothesis.¹

Let us now consider each list and its relation to syntax in more detail. The 'narrow lexicon' contains, in effect, only roots and functional features which combine in syntax to form words by the same mechanisms that are used to construct phrases. Thus, these 'morphemes' or abstract morphosyntactic categories are represented as terminal nodes arranged in a hierarchical structure (as diagrammed, for instance, by a binary branching tree).

Harley and Noyer (1998) refer to the *l-Morpheme Hypothesis* which contends that the traditional categories such as Noun, Adjective or Verb have no universal significance and are in fact derived from more basic elements. Hence, a category-neutral root element becomes a 'noun' when it appears in the context of a feature D for determiner. Similarly, a root may become a 'verb' in the environment of

¹The case against the Lexicalist Hypothesis has been made most aptly in Marantz (1997).

a *v*. More specifically, a root that is c-commanded by the functional features *v*, Aspect and Tense is interpreted as a ‘verb’; if the Tense feature is lacking, it is interpreted as a ‘participle’ (Embick, 1997; Harley and Noyer, 1999). The empirical reality of this hypothesis, however, is left as an open question within the framework (Marantz, 1997, p.204). As previously mentioned, this idea of category-neutral elements and the syntactic determination of lexical categories was also proposed in Chomsky (1970).

Spell-out is the point in the computation at which Vocabulary Items (phonological features) are inserted into morphemes. Note that until Spell-out or Vocabulary Insertion, essentially nothing distinguishes the two Vocabulary Items *cat* and *dog* since they are both represented with the same terminal nodes in the syntax. A certain Vocabulary Item is chosen if the feature content on the terminal node is satisfied by the specification on the Vocabulary Item itself. The Vocabulary Item is essentially a relation between the phonological features and the phonological string. Hence, a Vocabulary Insertion could be defined as in (15), indicating that the phonological string on the left is to be inserted within a [+plural] context.

(15) /i/ ↔ [—, +plural]

According to the theory developed in DM, all Vocabulary Items may compete for insertion at any terminal node. It is, in general, the Vocabulary Item with the most corresponding features that will win. This is expressed in the Subset Principle from Halle (1997):

(16) *Subset Principle*: The phonological exponent of a Vocabulary Item is inserted into a morpheme. If the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. When several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

The relation between Vocabulary Items and morphemes is usually one-to-one. However, in certain contexts, certain morphological operations, such as *fission* or *impoverishment*, may disrupt this relation.²

The third list in DM, the Encyclopedia, is essentially a list of special meanings (regardless of the size of the linguistic object) which are not predictable from the structural configuration (Marantz, 1997). Hence, the expression *kick the bucket* is an idiom meaning ‘die’; but in addition, the expression *cat* is also an idiom meaning something like ‘a fuzzy animal, mammal’.

The framework of DM captures the derivational/inflectional distinction in syntax, without positing two distinct components. Marantz (2001) shows that there exists a distinction between “derivational” and “inflectional” morphology, which is related to the distinct properties of the resulting linguistic objects (see Section 1.2.2 for discussion). In DM, this distinction is not captured by separating the components responsible for formation of derived vs. inflected expressions, nor does DM pre-classify affixes as derivational or inflectional. Marantz (2001) points out that the distinct properties noted can be recast in terms of an ‘inner’ vs. ‘outer’ morphology, where inner and outer refer to the relative structural position, inner being closer to the root. Hence if an affix attaches to the root element, it will behave as an ‘inner morpheme’. On the other hand, if an affix attaches outside the functional head that determines the syntactic category of the root (such as *v*), it will display properties of an ‘outer morpheme’.

Thus, according to DM, the distinction between a standard derivational affix (such as the nominalizing morpheme) and a traditional inflectional affix (such as tense) is not due to the inherent properties of these affixes, but rather to the relative structural position they occupy within the syntactic configuration.

²Since these post-syntactic operations are not relevant to the main proposal in this dissertation, I will not discuss them here. The interested reader is referred to Embick (1997) and Harley and Noyer (1999).

1.1.6 Summary and Discussion

There exists a massive literature on the interface between morphology and syntax, and I do not claim to do justice to all these works within this thesis. The current work focuses on a central aspect of this discussion, namely the dichotomy between what constitutes a word and what forms a phrase and the existence of two distinct components of predicate formation within linguistic theory. In this section, I have reviewed some of the major works in the literature on word-formation that have contributed to the theory developed in this dissertation. The research has often centered around finding the balance between the various modules of grammar involved in forming words and phrases. In particular, linguists have debated whether there is a component of word-formation distinct from syntax and if so, how do we characterize the interface between syntax and this component.

I discussed several syntactic approaches such as Baker (1988), Hale and Keyser (1993) and Halle and Marantz (1993). Although the view of the lexicon is very different in each case, they all argue for a model that allows the formation of words using syntactic principles. The rest of the section was devoted to the discussion of Chomsky (1970) and Di Sciullo and Williams (1987). These two proposals have often been treated as works that defend the lexicalist approach to predicate-formation and demonstrate that the alternative approach would not be able to account for the data observed. However, I have presented several points that counter these conclusions. I have argued that Chomsky (1970) has been misinterpreted in the literature and the notion of “lexicalism” described in that work is very different from its current usage. In ‘Remarks’, Chomsky proposes to reduce the power of the transformational component but crucially, he does not argue for a powerful computational lexicon. Instead, in order to account for derived nominalizations, he suggests to enrich a third component, the base, the domain of context-free grammar rules. A closer examination actually shows that ‘Remarks’ could be considered as the beginning of X-bar theory. Furthermore, Chomsky proposes listing category-neutral elements (i.e., roots) in the lexicon with a fixed set of selectional features. Thus, I will argue that the logical conclusion of the research started in ‘Remarks on Nominalization’ is not the theory of LFG (as suggested in Borer, 1998b) but is rather the framework of Distributed Morphology.

Di Sciullo and Williams (1987) argues for a strict adherence to the lexicalist hypothesis and the separation between morphology and syntax. However, Di Sciullo and Williams note on the last page of their monograph that an approach that decides to eliminate the division between the two components is a possible treatment of the empirical data. Di Sciullo and Williams note that their “conservative treatment” forces them to treat a great number of linguistic phenomena, such as coanalyzed structures and syntactic words, as peripheral to grammar. They also point out that a different theory, which would consist of a single predicate-formation domain (as suggested in this dissertation) would be able to include syntactic words and coanalysis as part of the grammar.

As already pointed out, a proposal that eliminates the strict dichotomy between words and phrases is consistent with the analysis proposed in Di Sciullo and Williams (1987). Thus, even though Di Sciullo and Williams argue to distinguish the two components of morphology and syntax, and thereby to maintain the division between words and phrases, their results support a system that consists of a single computational domain. Since, for independent reasons, syntactic principles are needed in linguistic analysis (e.g., for forming sentences) this dissertation argues to import morphology into syntax, thus forming what Di Sciullo and Williams (1987) refer to as “one grand science of the word/phrase”. Di Sciullo and Williams enumerate a number of elements that will need to be explained within this framework, such as the opacity of words and the fact that the internal structure of certain linguistic elements is not visible to higher syntactic operations. I will show, in the following chapters, that these generalizations can be accounted for in the model proposed in this thesis.

1.2 Basic Issues

In this section, I will further develop some of the central issues discussed in the previous section that arise in connection with the development of a theory of predicate composition. In particular, I will focus on the challenges these phenomena raise for a lexicalist approach that adheres to a strict division between the components of word and phrase formation. These issues have been at the center of the debate between the various approaches investigating the morphology-syntax interface or the notion of “word”.

1.2.1 Notion of Word

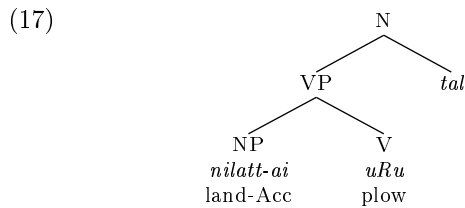
It has often been argued that there are a number of significant differences between morphological operations and operations that take place in syntax. These differences and the distinct properties of words and phrasal elements have been used to maintain that morphology and syntax constitute two distinguishable domains of grammar that are represented as two independent components for which separate theories are required. The resulting architecture of grammar then consisted of a morphological component, which is responsible for the formation of words³ and a syntactic component, the domain in which syntactic Phrase Markers are constructed and in which words are treated as irreducible elements.

Hence, one of the main differences between a word and a phrase is syntactic atomicity. Syntactic operations can manipulate the internal structure of phrases (e.g., a movement operation can apply to one of the arguments of a verb phrase moving it to a higher position in the structure for Subject agreement) but the internal elements of a word are not visible to syntax rules (e.g., the derivational affix *-ion* in *transmission* cannot be targeted by a movement operation independent of the whole noun). Furthermore, derivational rules in morphology can alter the grammatical category of elements whereas syntactic processes are *syncategorematic* (i.e., they do not have the power to change lexical category in the sense of Anderson, 1992). In addition, words are argued to have certain characteristics that are lacking in linguistic objects formed in the syntactic component. For instance, words can have a special or idiosyncratic meaning (i.e., are noncompositional) and therefore need to be listed in the lexicon; phrasal elements, on the other hand, are compositional in meaning and are not subject to arbitrary exceptions.

In the standard view, a “word” is expressed as a morphophonologically integrated element and appears with a synthetic form. Linguistic elements that consist of more than one such item are treated as “phrases” and are part of the syntactic domain. Morphological or lexical rules are therefore constrained to relate objects with a morphological status; in other words, they apply to affixes that provide information associated with such categories as Verb, Noun or Adjective. This traditional division of words and phrases based on the synthetic or analytic form of the linguistic object has been the focus of many discussions in the generative field since there exist a number of phenomena across languages that seem to violate the proposed dichotomy, with phrases that behave as a lexical word and words with phrasal properties. Some of these mismatches are discussed below.

Dual Behavior: Certain linguistic constructions consist of phrasal elements that undergo morphological processes. These constructions clearly raise a challenge for a lexicalist model in which morphology must apply prior to the appearance of words within phrases. An instance of such phenomena is nominalization, a process that operates on the VP phrasal constituent, such as the Tamil example below from Subramanian (1988).

³Morphological operations correspond to what is traditionally called derivational, although some models (such as Di Sciullo and Williams, 1987 or LFG) also include inflectional processes within the domain of morphology.



In this nominalized construction, the affix *tal* has applied to the verbal phrase structure deriving a nominal lexical element. The underlying VP consists of a noun *nilatt* ‘land’, which is case-marked by the verbal element and is interpreted as its direct object.

Another instance of dual phrasal and lexical properties is the case of phrasal predicates that appear as two distinct words which may be separated from each other in syntax, yet constitute a single verbal meaning. An example is given below from Ackerman and Le Sourd (1996) for Hungarian, in which the preverbal element *rá* ‘onto’ combines with the verb *kiáltott* ‘shouted’ forming a phrasal predicate as shown in (18b).

- (18) a. Az anya **kiáltott** a gyerekek / *a gyerekre
 the mother shouted the child-Dat / the child-Subl
 ‘The mother shouted to the child.’
- b. Az anya **rá kiáltott** *a gyerekek / a gyerekre
 the mother onto shouted the child-Dat / the child-Subl
 ‘The mother shouted at the child.’
- c. Az anya nem **kiáltott rá** a gyerekre
 the mother not shouted onto the child-Subl
 ‘The mother did not shout at the child.’

Since, according to the Lexicalist Hypothesis, only lexical or morphological processes are able to modify the argument structure and lexical semantics of a verb, the phrasal predicate resulting from the combination of the preverb and the verbal element behaves as a lexical element as shown in the contrast between (18a) and (18b). The simple predicate in (18a) means ‘shout’ and appears with an adjunct in dative case. When the preverb *rá* is added to the structure, a two-place complex predicate is formed which takes an argument with Sublative case. The example in (18c) shows that the preverb can appear in a postverbal position in the context of sentential negation indicating that it can be moved from its canonical preverbal position. The sentences in (18) show that the addition of a preverbal element in Hungarian correlates with changes in semantic interpretation, valence and case-assignment, which correspond to properties of morphological objects or their argument structures. On the other hand, the complex predicate displays characteristics of a syntactic object since the internal elements are visible to syntactic processes such as movement.

Similar data have been presented from such diverse languages as Hindi, Urdu, Dutch, German, English, Persian and Estonian, creating a paradox for the traditional lexicalist approaches.

The “Expression Problem”: Causative constructions also challenge the validity of the sharp divide between words and phrases. For instance, Alsina (1996) studies the syntax of causative constructions in both Chicheŵa (Bantu) and Catalan (Romance) and shows that they display identical semantic readings and valency information. However, the two languages differ at the level of phrase structure since the causatives in Chicheŵa are expressed as one single verb whereas the causative predicates in Catalan appear as two verb forms, as illustrated in (19).

- (19) a. Njōvu i-na-sék-éts-a aḿisi (*Chicheŵa*)
 IX elephant IX S-PA-laugh-CAUS-FV II hyenas
 ‘The elephant made the hyenas laugh.’
- b. L’elefant fa riure les hienes. (*Catalan*)
 the elephant makes laugh the hyenas
 ‘The elephant makes the hyenas laugh.’

This mismatch between form and meaning often observed among complex predicates is referred to as the *Expression Problem* by Ackerman and Webelhuth (1998), which states that the information associated with a linguistic predicate can find very different surface expressions in the world’s languages. Similar data from passives, future markers, aspectual markers, applicatives, etc. clearly show that the same information can be expressed analytically or synthetically, creating a challenge for the Lexicalist Hypothesis.

To account for the problems raised by these complex predicates, recent work in the lexicalist model allows operations on the argument structure of a predicate to occur in syntax (cf. Alsina, 1993; Butt, 1995; Hinrichs and Nakazawa, 1994). Hence, predicate composition can take place either in the lexicon or syntax, contrary to what has generally been assumed in lexicalist theories. These accounts reset the boundary between morphology (or lexicon) and syntax, and redefine the notion of word. In the traditional lexicalist approaches, a word coincided with morphologically integrated units corresponding to the meaning of a full predicate. In more recent works, however, the input to the syntactic component or X^o need not represent a full predicate or word in that sense but can include incomplete predicates that need to combine with other elements in syntax in order to form full predicates. Thus, in Alsina’s analysis, the causative element is an incomplete predicate. In Catalan, it is instantiated as an independent word and predicate composition occurs in syntax; but in Chicheŵa, the causative predicate must be an affix and predicate composition takes place in the lexicon. According to the analysis, this difference is due to parameter setting.

Ackerman and Webelhuth (1998), on the other hand, decide to maintain the Lexicalist Hypothesis. In their system, all complex predicates are created in the morphological lexicon. To capture the mismatches between the form and meaning of these constructions, they argue for the separation of content and surface expression, which allows functionally equivalent predicates (i.e., predicates with the same semantic and argument structure information) to be projected or expressed differently across languages.

What is common to all these approaches is the creation of distinct levels (or subcomponents) within the lexicon to account for the mismatches observed between meaning and surface expression as well as the dual phrasal/lexical behavior of certain complex predicates in the world’s languages.⁴

Periphrasis Alternations: Another related problem is the phenomenon known as *periphrasis alternation* which occurs within the same language.

Marantz (2001) argues that periphrasis alternations raise a challenge for the strict division between words and phrases since, though they are expressed as morphemes in one context, they are realized as periphrastic words in another syntactic context.

- (20) a. John **cried**. vs. **Did** John cry?
 b. John is **bigger**. vs. John is **more** intelligent.
 c. John **leapt**. vs. John **took a leap**

In the examples above, however, both realizations of the periphrasis alternation represent the same or similar meaning. If we maintain that the morphological words are formed in the lexicon whereas the

⁴Other multi-dimensional lexicalist analyses are the one proposed by Mohanan and Mohanan (1999), which argues for generalizations at different linguistic levels, and the one put forth by Manning (1996) within the HPSG framework.

phrasal constructions are formed in syntax, we will need to argue that the examples to the left in (20) and those on the right are created in different components.

1.2.2 Derivational vs. Inflectional Morphology

An important factor in determining the definition of a word is the distinction between derivational and inflectional morphemes. Several researchers have argued for a distinction between these affixes, based on the different properties they display as well as their relative positioning within the structure of the word (cf. Anderson, 1992; Dubinsky and Simango, 1996). It has also been argued that these morphemes belong to distinct components of language; namely, derivational morphology correlates with properties associated to words formed in the lexicon (such as special meaning, changing of lexical category, lack of interaction with syntactic rules), while inflectional morphology corresponds to elements that are associated with syntactic properties (no idiomatic meaning or category modification, can interact with syntactic rules).

Wasow (1977) argued that the domain of formation of the adjectival passive in English, as in the example *uninhabited island*, is different from the domain of formation of the syntactic passive, such as *John was given a book*. The former is argued to be associated with properties of the lexical domain while the syntactic passive is associated with syntactic properties. Hence, it is argued that the morpheme that forms the adjectival passive in English is derivational and is distinct from the morpheme used to form the syntactic passive, which is an inflectional morpheme. This distinction is apparent in the properties of the two resulting passives, even if the morphology seems similar. Dubinsky and Simango (1996) confirm this distinction by showing that in Chicheŵa, which has two different morphemes for the adjectival and syntactic passive formation, the resulting verbal constructions display very different behavior, paralleling the syntactic vs. lexical distinction discussed in Wasow (1977). For instance, the suffix used for the Adjectival passive (*Stat*) gives rise to an idiomatic interpretation as shown in (21a), while the suffix used to form the Syntactic passive (*Pass*) does not as illustrated in (21b), clearly distinguishing the two constructions.

- (21) a. Chimanga chi- ku- gul- ika ku-msika
 corn Agr- Prog- buy- **Stat** at-market
 ‘Corn is cheap at the market.’
 b. Chimanga chi- ku- gul- idwa ku-msika
 corn Agr- Prog- buy- **Pass** at-market
 ‘Corn is being bought at the market.’

Similarly, it has been argued that the morphemes used in forming causative verbs in Japanese can be split into derivational and inflectional based on the properties of the resulting causative construction, even though the surface realization seems to be identical. Hence, on certain verbs, the addition of the *-(s)ase* morpheme gives rise to an idiomatic interpretation and direct causation of the underlying event (22a). Meanwhile, the addition of the suffix *-(s)ase* to other verbs does not bring about a special meaning and the predicate is interpreted as an indirect causation (i.e., the causee is still agentive or has volition) as shown in (22b).

- (22) a. tob-ase “fly-make” → demote to a remote post
 b. suw-ase “smoke-make” → make someone smoke

The strict lexicalist analyses, which adopt the Strong Lexicalist Hypothesis, do not distinguish derivational vs. inflectional morphology and argue that all single words, regardless of morpheme type, are formed within the morphological component (cf. Levin and Rappaport Hovav, 1986; Di Sciullo and Williams, 1987; Bresnan and Kanerva, 1989; Lieber, 1992). However, there exists a real difference between the two morpheme types with very distinct behavior. If both types of morphemes form words in

the Lexicon, such as in the analysis proposed by Levin and Rappaport Hovav, then it does not explain the different properties that we have discussed in this section, where “lexical” properties correspond to *inner* morphology and the “syntactic” properties correlate with *outer* morphology⁵ (cf. Marantz, 2001).

1.2.3 The Lexicon and the Projection of Arguments

Ever since Chomsky (1965; 1970), it has been standard to postulate a component called the Lexicon. In most current generative syntactic theories (i.e., the body of work building on GB, LFG and HPSG), the lexical entries include certain information which is projected into syntax usually as an irreducible and syntactically atomic unit. It is generally accepted that the semantic features of lexical elements, such as the verb or the noun, determine the information that is encoded in the entry.

There is no doubt that there exists a strong correlation between syntactic position of an argument and its grammatical relations or semantic properties. There is overwhelming cross-linguistic evidence, for instance, that subjects of unergatives and transitives have an agentive role, while subjects of unaccusatives as well as objects of transitives behave as a patient or theme. This distinction clearly correlates with the difference between internal and external argument positions in syntax whereby the external arguments are agents and the internal arguments are themes (cf. Williams, 1981). The debate surrounding argument projection centers on the method in which this mapping or correlation of meaning and structure actually takes place.

In lexicalist approaches to verb-formation, the correlation between the lexical representation of verbal entries and the syntactic structure is obtained by a linking mechanism. Verbal entries are compositionally formed in the lexicon and then the arguments and elements are *linked* or *projected* to specific positions within syntax. Thus, the lexical entry is fully annotated containing information needed for the mapping or projection of the arguments into the syntactic structure. In these systems, argument structure is the mediator between the lexical information and the clausal realization of the verb’s arguments. Although the various approaches differ as to the type and amount of information contained in the lexical entry, they all share a certain notion of argument structure which predetermines the projection of the verb and its arguments conditioned by the underlying semantic factors. The type of information that is often contained within the lexical entry of the verb include *adicity* or the number and type of arguments a verb projects. In certain approaches, a distinction is also made between the external and internal arguments since it is argued that they play distinct roles within the predicate structure (cf. Williams, 1981; Zubizarreta, 1985). The argument structure often carries information on the thematic relations of the verb’s arguments as well as the type of case to be assigned. Some recent works have argued that argument structure should also contain aspectual information, in order to provide the pertinent features of verb meanings to the syntactic structure. Ramchand (1998) proposes, for instance, that principles for argument linking be formulated in terms of aspectual semantics rather than thematic roles. The Lexical Conceptual Structure or LCS, a “deeper” semantic level which is itself projected to the argument structure is sometimes assumed as well (cf. works within the LFG framework, Grimshaw, 1991; Jackendoff, 1990; Levin and Rappaport Hovav, 1995).

In most theories of the lexicon, in addition to the syntactic, morphological and semantic information encoded within the lexical entries, this component also contains morphological principles or lexical rules of word-formation. In addition, recent lexicalist approaches have argued for the existence of several different levels of linguistic representation within the lexicon, which correspond to a semantic level, a functional level, a constituent level, argument structure, event structure, etc., and a mapping mechanism to relate these different levels. Hence, the lexicon is not simply a storage space representing idiosyncratic properties but has become, in most lexicalist theories, a very powerful component consisting of heavily annotated entries expressed within several levels of representation, with various mapping mechanisms

⁵Note that a lexicalist system which distinguishes layers within the lexicon with different operations associated with each part can account for the derivational/inflectional distinction (cf. Aranovich and Runner, 2002).

and capable of carrying out a great number of predicate formation processes.

1.3 ‘One Grand Science’

Section 1.2 addressed some of the challenges raised for lexicalist approaches. It has been argued that the strict division between the components responsible for the formation of words and phrases does not hold when faced with certain crosslinguistic evidence such as nominalizations, causatives and periphrasis alternations. In order to account for these data within lexicalism, several researchers have argued for a multi-dimensional lexicon and have proposed mapping mechanisms to capture the relation among the various levels. The derivational/inflectional distinction cannot be accounted for under Strong Lexicalism. However, there is ample cross-linguistic evidence distinguishing the properties of linguistic objects formed by the combination of an ‘inner’ (derivational) morpheme or an ‘outer’ (inflectional) morpheme. With the exception of Di Sciullo and Williams (1987), the lexicon has become extremely complex within lexicalist theories, containing very detailed semantic, morphological and syntactic information as well as linking rules, which determine the projection of the argument structure of verbal elements into the syntactic structure. A number of theories also include mapping mechanisms between lexical layers or lexical rules, thus creating a very powerful computational module.

In this dissertation, I propose a model in which the word-formation component of grammar is not an independent module. In this system, principles of word-formation are not distinct from syntactic operations; the notion of word is defined as a level in the syntax, the internal structure of which is visible to syntactic rules. By focusing on verbal predicates in Eastern Armenian and Persian, I argue that these constructions can be obtained by combining the primitive atoms, representing the basic units of verb meaning, in syntax. Different combinations of these primitive elements of grammar give rise to different verbal predicates. The lexicon is therefore reduced to a small, non-computational list containing only these primitive atoms or an unordered set of associated atoms. The distinct properties of words and phrases, as well as the difference between ‘derived’ and ‘inflected’ forms, can be captured from the resulting configuration and the interface relations.

In Section 1.1 it was stated that any theory of predicate-formation should provide an answer to the following three questions:

1. Is there a distinct component of word-formation or should all predicate-formation be subsumed in a single computational domain?
2. What information is encoded in each component?
3. How is the interface between the different components characterized?

In the rest of this section, I will develop in more detail the model proposed in this work addressing each of these questions separately.

1.3.1 Component of Word-Formation

This dissertation argues to eliminate the distinction between the component responsible for the creation of words and the component of phrasal formation. The proposed model differs from the lexicalist approaches by arguing that morphological principles are not distinct from syntactic operations, and that the word-formation component of grammar is not an independent and separate component. It maintains, however, that linguistic objects display distinct properties and it is this difference that has led to the traditional split between words and phrases. It is argued that the distinct characteristics between what are known as morphological objects and elements known as syntactic objects can be derived from the resulting syntactic structure. A *word* is therefore defined with respect to the structural level that it encompasses.

Thus, as in Distributed Morphology, what distinguishes a *word* from a *phrase* is based on the constituents involved in the formation of the predicate and not on the operations used in predicate compo-

sition. This approach is different from the multi-level analyses in lexicalist works since it does not posit additional layers of representation for each predicate with an arbitrary mapping mechanism. Instead, the proposed analysis derives the relation between meaning and structure of surface form in a very constrained and systematic model.

Similarly, the analysis proposed in this thesis can account for the distinct properties of derivational and inflectional morphology without positing two distinct components of word-formation, and without assuming layers or subcomponents within the lexicon. The difference is instead captured within the syntactic structure. In other words, whether the word-formation principles in syntax produce a derived or “lexical” object or an inflected or “syntactic” object depends solely on the level of structure of the constituent.

This dissertation examines two types of complex predicate formation phenomena that question the strict word/phrase division. Chapter 2 looks at causativization and contrasts the distinct syntactic properties and semantic interpretations of causative constructions in Japanese, Malagasy and Eastern Armenian. Chapter 3 studies the light verb constructions in Persian, which show a dual lexical/syntactic behavior. Both types of complex predicates raise a challenge for the dichotomy between words and phrases by clearly displaying mismatches between form and meaning, and they go against the traditional lexicalist approaches by composing new verbal predicates in syntax. In this thesis, I will show that a model which posits a single computational domain can account for these complex predicates without assuming a multi-dimensional representation as in more recent lexicalist approaches.

1.3.2 Information Encoded in Each Component

In the model proposed, syntax is the only computational domain responsible for the formation of predicates. The syntactic component therefore consists of the principles of grammar, such as head to head movement and related constraints, that already exist in the system for independent reasons. The lexicon, on the other hand, is reduced to a non-computational component used for the storage of listed information and does not have the ability to manipulate linguistic expressions.

In this dissertation, I adopt a version of the “exploded lexicon” model in the sense of Distributed Morphology, in which the traditional structure of the lexicon is divided into three distinct, non-computational lists. The theory of Distributed Morphology distinguishes the following three lists:

- A grammatical *Lexicon* which contains the basic units of language and these include the atomic roots and bundles of functional features such as T (for tense) or *v* (for light verb). The basic items in this lexicon combine in the computational domain (i.e., syntax) to form words, phrases or sentences.
- The *Vocabulary* is a list that applies at the post-syntactic level but prior to the phonetic interface PF, and provides the phonological forms for the terminal nodes in syntactic structure.
- Finally, the *Encyclopedia* applies at LF or the level of semantic interface and includes the list of special meanings or idiomatic interpretations.

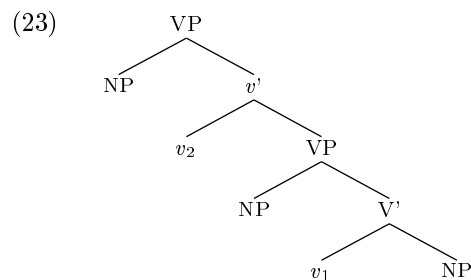
Thus, in Distributed Morphology the information that is usually associated with the lexical entry in lexicalist approaches is distributed among three distinct non-computational lists which apply at different levels of linguistic generation. In this work, I will only discuss the grammatical lexicon, which I will simply refer to as the Lexicon, and based on evidence from Persian and Eastern Armenian, I will develop a theory of the contents of a *basic lexical item*.

Following Distributed Morphology, I propose a lexicon that does not have an internal organization or levels of representation: In this system, all computation is performed within the syntactic domain and the lexicon contains only the most basic lexical items. The impetus of this work is to determine the least amount of information that needs to be included in the lexicon and to instead derive as much of the properties of the predicates as possible from syntactic principles that already exist in the system for independent reasons. In this dissertation, the notion of *basic lexical item* then consists of the minimum

amount of information that is required in order to project and compose the structure of the verbal predicates and not all verbs (or words in general) are stored in the same representation. The proposal developed in the current thesis diverges from the original view of Distributed Morphology, however, since it distinguishes between the concept of *primitive elements* of the syntactic code and the notion of *basic lexical item*.

The investigation of complex predicate phenomena in Eastern Armenian and Persian leads to the conclusion that all predicates can be formed in syntax by the combination of the primitive units of language such as atomic roots and functional and categorial features. However, Chapter 4 shows that the lexicon cannot only contain the primitive elements of grammar and certain cross-linguistic variations (such as the distinct properties of the verbs *break* and *dry*) can only be explained if the lexical items are stored differently across languages. I propose that the items listed in the lexicon of the language may consist of the primitive units or they may be constituted of a combination of these elements. Hence, it is argued that verbs may be listed only as decomposed roots and features, or their lexical entry may contain an unordered set that includes the associated functional features that combine to form the verb. The result is a lexicon that is not as “minimalist” as the one suggested in the theories of Distributed Morphology, but which includes, however, only the least amount of information needed to project a verbal predicate.

The grammatical lexicon does not contain any thematic or adicity information. I argue that the verbal predicates are formed compositionally within syntax, given the basic lexical items, and the final argument structure is derived from the syntax. In other words, the argument structure of a verbal predicate and the related linking mechanisms that predetermine the projection of the arguments in lexicalist theories are not listed in the grammatical lexicon. However, each verbal head *v* projects a specifier position that may house the nominal argument of the predicate. This is illustrated in (23).



I adopt the split-*vP* hypothesis (Travis, 1991; Chomsky, 1994) which is essentially based on the VP-shell structure proposed in Hale and Keyser (1993). The syntactic configuration is formed by combining the decomposed verbal elements, i.e., roots and categorial and functional heads. The lower (or inner) verbal structure or VP corresponds to events denoting a change of state or location; the higher (or outer) structure or *vP* represents causation events and its argument usually denotes a causer or agent. Hence, though the information about the arguments of the verbal predicate and their mapping is not available in the lexicon, the interpretation of the nominal arguments and the meaning of the resulting event is directly linked to the syntax and can be derived from the final configuration. In a regular transitive or causative construction as illustrated in (23), each verbal head *v* projects a specifier position that can host a NP argument in syntax. Whether this argument is internal or external, patient or agent, etc. can only be determined from its relative position in the final syntactic structure.

The structural position and meaning of nominal elements is further developed in Chapter 5 which develops a theory of argument projection, drawing heavily from the ideas in Vergnaud (2000) and

Vergnaud and Zubizarreta (2001), in which the nominal arguments are not treated as part of the verbal domain at all. Two parallel structures coexist in this system representing the verbal or temporal domain on the one hand and the nominal or physical domain on the other. The relation between the two domains is established structurally through a checking mechanism, not unlike the specifier-head agreement.

The correspondence of two verbal and nominal domains allows us to capture the parallels observed between the VP and the NP, such as the close relation between case and aspect in Finnish and between the object case-assignment that corresponds to the specificity and cardinality of the argument in Persian and Eastern Armenian. This model can also provide a straightforward explanation for the generalization noted in the literature that the position a nominal argument occupies within the syntactic configuration is in direct relation to the amount of structure in the NP itself. Hence, cross-linguistic studies have argued that the bigger the NP structure, the higher it will appear in syntax. This correlation is predicted by the current proposal.

1.3.3 Interface Conditions

In the proposed system, the notion of a *word* consists of an LF-word corresponding to the meaning of the predicate and a PF-word representing the surface realization (a similar distinction has been formulated in Chomsky, 1994 and Travis, 1999a). LF-word and PF-word represent the part of the computational structure that is delivered to the Conceptual-Intentional and the Articulatory-Perceptual system, respectively.

Hence, the concept of *word* should be viewed as the merging of two distinct notions of LF-word and PF-word. In other words, the word vs. phrase dichotomy can be resolved once we realize that the mismatches that have been observed across the world's languages with respect to the correlation of meaning and surface structure are due to the fact that the concepts of LF-word and PF-word do not necessarily coincide. It is argued that the mapping node for LF-word is universal while spell-out for a PF-word can vary from one language to another depending on the parameter that sets the spell-out node. These results have a direct bearing on defining the process of "derivation by phase" (Chomsky, 1999) and Multiple Spell-Out (Uriagereka, 1999), since the proposed analysis claims that the phase that delivers the syntactic constituent to LF is distinct from the phase that spells it out to PF. These ideas will be discussed in the final chapter of the dissertation, where I suggest that the division between *words* and *phrases* has arisen from viewing solely the surface realization of linguistic objects. Hence, a *word* is traditionally defined based on the notion of PF-word, and the mismatches between form and meaning are due to the fact that the boundary of LF-word does not necessarily correspond to the boundary of the PF-word.

Chapter 4 of this dissertation examines the interface relations between syntax and the PF and LF components and proposes two parameters to account for the distinct surface realizations of verbal elements across languages or even within the same language. It is argued that the representation of the entry within the lexicon (or the "basic lexical item") combined with the PF spell-out node in the structure can capture the form and meaning mismatches discussed in the preceding chapters. The fact that the internal structure of certain linguistic objects cannot be manipulated by higher syntactic operations is also explained since once a structure is spelled-out to the PF component, its internal elements are not visible to the syntactic principles.

1.4 Dissertation Structure

This dissertation discusses several crosslinguistic phenomena that seem to challenge the sharp division between the two components and argues that the word vs. phrase dichotomy should be reconstructed along different lines than in standard lexicalist approaches. The rest of the thesis then shows that a system which assumes one single computational domain with a unique set of principles of predicate composition can account for the problems raised for a dichotomous system within a conceptually simple

yet powerful architecture of grammar.

The dissertation is structured as follows: The following two chapters examine linguistic phenomena that question the validity of the sharp divide between *words* and *phrases*. Chapter 2 discusses causative constructions in Japanese and in Eastern Armenian. Causatives are interesting since the same meaning can be represented differently across languages causing a mismatch between the semantic interpretation and surface realization. In addition, causative alternations challenge the claim that argument structure modification is confined to the lexical or morphological component. Chapter 3 investigates complex predicates in Persian that display a dual behavior, blurring the strict division between syntax and morphology. By focusing on causative alternation verbs, I isolate the universal primitive elements of grammar that are used to encode meaning in verbal predicates across languages. The discussion in these two chapters demonstrates that a syntactic analysis assuming a single computational system and using a decomposition of the verbal predicate into primitive lexical items can straightforwardly account for the properties of the complex predicates studied. Chapter 4 further develops the notion of *basic lexical item* as an unordered set of associated items and distinguishes it from the concept of *primitive elements* of the syntactic code. In addition, this Chapter addresses the issue of how languages package the same features of meaning into morphophonological units of different sizes based on the existence of two parameters: The basic lexical item and the node at which the structure is spelled out to the interfaces. Chapter 5 investigates the projection of arguments. A proposal is put forth for the existence of two distinct structural positions for the interpretation of the direct object, and the argument status of the nominal element in complex predicates is examined. It is argued that the correlation between meaning and structure can be captured by developing two parallel domains for verbal and nominal constructions. The final chapter describes the emerging architecture of grammar and touches on some of the theoretical implications.

Causatives

Causative constructions refer to complex predicates formed by the combination of a causative event with an underlying predicate. The addition of the causative verbal element also adds a new participant (a causer), which initiates or controls the event of the underlying predicate⁶. Typologically, several diverse methods are used for forming causatives, and the properties of these constructions vary from one language to another. Some causative constructions appear as a single morphological word, while others are formed periphrastically by adding a causative verb to the base predicate. Structurally, certain causative predicates behave as monoclausal constructions denoting direct causation, while others display properties of a biclausal construction and represent an indirect causation of the underlying event. There exist, however, certain cross-linguistic parameters marking the correlation between the mechanism used for forming a causative and the resulting meaning of the predicate (Comrie, 1989; Dixon, 2000). This chapter closely examines the causative constructions in Eastern Armenian and tries to provide an explanation for some of these correlations.

In the literature on causative constructions, morphologically formed causatives have traditionally been analyzed as composed within the morphological or lexical component, while the creation of periphrastic or analytic causatives is associated with the syntactic domain. The surface form and the meaning or structural properties of causative constructions, however, do not always coincide. Hence, it is not the case that a morphological causative would always correspond to a monoclausal structure or that an analytic causative should always be interpreted as an indirect causation. It has been argued, in fact, that the morphological causatives in languages such as Japanese (Harley, 1995) or Malagasy (Travis, 1999a) behave like predicates that contain two eventive verbs; and although Urdu permissive constructions and Italian causatives appear as two independent verbs, they behave as a simple predicate (Butt, 1995 for Urdu and Di Sciullo and Williams, 1987 for Italian among others).

This chapter begins with an introduction to causative constructions in Japanese, which clearly demonstrate mismatches between the surface form and the meaning of these complex predicates since the morphological causative in this language sometimes shows biclausal properties. In this chapter, I argue that such mismatches between form and meaning raise an important problem for the strict division between the component responsible for the formation of morphological words and the component responsible for creating phrases and sentences. I will then present data from Eastern Armenian. An investigation of causatives in this language provides some insight into the distinct structures and properties of these constructions since Eastern Armenian is ‘well-behaved’ in that it shows a direct correlation between surface realization and underlying structure. A syntactic analysis is developed that accounts for the different causative types in the languages discussed and captures the distinct surface realizations of causative constructions based on the resulting syntactic configuration. This approach does not need to posit several levels or subcomponents within the lexicon and provides a unified solution for different causative types,

⁶Here, I use *event* in a pretheoretical sense; it can refer to any activity, action, state or process.

while providing an account for their distinct properties.

The chapter is organized as follows: Section 2.1 introduces data from Japanese causatives which show a clear mismatch between form and meaning. Section 2.2 presents the distribution of the morphological and analytic causatives in Eastern Armenian. By studying the syntactic properties of the two constructions in Section 2.3, it is concluded that they are, in fact, distinct clausal structures and that the differences can be explained if the morphological causative contains only one “event” or light verb *v* in its structure, while the analytic causative includes two distinct events or light verbs. Section 2.4 provides a uniform analysis for the two causative types within syntax, and argues that the boundary between the morphological and analytic predicate subdomains can be represented based on the resulting syntactic structure. The analysis maintains, however, that the two causative predicates have very distinct characteristics. This is shown in Section 2.5, which investigates the semantic properties of the two constructions, such as the agency of the causee and the availability of idiosyncratic meaning, and shows that a syntactic analysis of complex predicate formation, which takes into account the number of events and the presence of the external argument, can capture the readings obtained and hence, there is no need to posit two distinct components of verb-formation. Section 2.6 applies the proposed analysis to the Japanese data and proposes an analysis using “derivation by phase” (Chomsky, 1999) to provide an account for the distinct surface realizations of similar causative constructions in Eastern Armenian and Japanese based on the interface relations. The final section summarizes the discussion and provides a classification of causative types that is suggested by the proposed analysis.

2.1 Japanese Causatives

In Japanese, a predicate can become causativized by the addition of the suffix *-sase* to the base verb. This causative morpheme forms a single morphophonological unit with the verb to which it is attached. The literature on Japanese has distinguished two types of causatives known as the ‘let’ or permissive causative and the ‘make’ or coercive causative. The main difference between these two constructions relates to the case-marking possibilities of the subject of an embedded intransitive. As shown below, when the resulting morphological causative is used as a ‘let’ causative, the causee bears a *-ni* or dative marking as in (1a), whereas in the ‘make’ causative, the causee receives the *-o* or accusative marking.

- (1) a. John-wa Mary-**ni** ik-(s)ase-ru
 John-Top Mary-Dat go-Caus
 ‘John lets Mary go.’
- b. John-wa Mary-**o** ik-(s)ase-ru
 John-Top Mary-Acc go-Caus
 ‘John makes Mary go.’

The different case-marking on the subject of the embedded intransitive directly correlates with the interpretation of the causee. In (1a), the causee *Mary-ni* is willing to perform the action represented by the base verb, while in (1b), the causee *Mary-o* is forced to do it by the matrix subject (Kuroda, 1965; Dubinsky, 1994).

The difference in case-marking of the causee does not surface on the subject of a transitive as illustrated in (2); in both instances, the causee is marked as dative and the base object receives accusative case.

- (2) Jon-wa Biru-**ni** soba-o tabe-sase-ta
 John-Top Biru-Dat soba.noodles-Acc eat-Caus-Past
 ‘John made/let Biru eat Soba noodles.’

It has long been noted that the sentences in (1) display certain biclausal properties as exemplified by the ambiguity of adverbial scope in the following sentence:

- (3) Ken-ga damatta Naomi-o suwar-ase-ta
 Ken-Nom silently Naomi-Acc sit-Caus-Past

(i) 'Ken silently made Naomi sit.'

(ii) 'Ken made Naomi sit silently.'

Hence, the morphological causative in Japanese exhibits properties related to a biclausal structure, which is usually associated to syntactic phrases. In addition, the same morpheme gives rise to two distinct analytic constructions with different case-marking and agency patterns on the causee.

These are not all the variations that can be seen with the Japanese morpheme *-sase*, however. It has been noted that, in addition to the two analytic constructions discussed, there exists also a third type of causative interpretation which exhibits properties of a monoclausal structure. Matsumoto (1996) argues that causatives of ingestive verbs (or what he refers to as self-directed process verbs) consist of a single predicate. Harley (1995) also discusses certain causative constructions that display monoclausal behavior. I will treat both types of monoclausal causatives as belonging to a single category and following Harley, I will refer to these constructions as 'lexical causatives'⁷.

Consider the sentences below from Matsumoto, 1998, representing a *let* causative, a *make* causative and a causative of an ingestive verb, respectively. These examples show that the pronoun *kare* 'he' can be bound by the matrix subject in the two analytic constructions in (4a) and (4b), in clear contrast with the lack of coreference in the lexical causative in (4c). Since *kare* must be referentially disjoint from its clausemate, these results suggest that the structure in (4c) is monoclausal and confirms the biclausal nature of the 'make' and 'let' causatives. In addition, the agent-oriented reflexive *karejishin* 'himself', which must be bound within its clause, exhibits a behavior complementary to *kare*, thus confirming the clausal contrasts observed.

- (4) a. Taro_i-wa Jiro_o_j-ni sonomama kare_{i,*j}/karejishin_{*i,j} o bengo s-asete oi-ta
 Taro-Top Jiro-Dat as.it.is he/himself Acc defend do-Caus put-Past

'Taro appears to let Jiro continue to defend him(self).'

- b. Taro_i-wa Jiro_o_j-ni muriyari kare_{??i,*j}/karejishin_{?i,j} o bengo sase-ta oi-ta
 Taro-Top Jiro-Dat forcibly he/himself Acc defend do-Caus put-Past

'Taro appears to make Jiro continue to defend him(self).'

- c. Anpanman_i-wa akachan-ni kare_{*i} / karejishin_i o tabe-sase-ta
 Anpanman-Top baby-Dat he / himself Acc eat-Caus-Past

'Anpanman gave his own body to (feed) the baby.'

Based on passivization, control, subject honorification and the relative scope of agent-oriented adverbs such as 'happily', Matsumoto presents additional arguments for the monoclausal nature of the lexical causative in direct contrast with the 'make' and 'let' causatives in Japanese. Furthermore, in contrast with the analytic counterparts, the lexical causative can have an idiomatic interpretation (Miyagawa, 1989, p.125). The examples in (5) show intransitive verbs that obtain an idiomatic reading when they become causativized.

⁷Lexical causative is being used here as a descriptive term and does not imply that the causative is formed in the lexical component.

three-way classification of these constructions. Focusing on the distinction between ‘lexical’ and ‘analytic’ causatives, evidence was provided to show that although these constructions look identical on the surface, the lexical causatives can only be formed on intransitive and ingestive transitives, can have an idiomatic reading as shown in the examples in (5), undergo lexical blocking illustrated in (6), behave like a single predicate and their causees lack control or agentive readings as illustrated in (4). The analytic causatives, on the other hand, do not allow idiomatic interpretation, do not undergo lexical blocking and behave as if the verbal elements head two separate clauses. The causees in these constructions are often agentive or have internal control.

The two sets of distinguishing facts just described fall into the debate over the two *word* vs. *phrase* categories in generative linguistics, since the properties associated with the lexical causative in Japanese seem to correlate with linguistic objects formed in the morphological component, while the analytic causative properties mentioned belong to the syntactic domain. It is clear that the fact that a single surface realization, i.e., Verb+*sase*, can have three distinct sets of syntactic and semantic properties raises a problem for the traditional approaches to predicate composition. In these approaches, the lexical causative would be associated with the morphological or lexical component and the analytic causative (although it appears as a morphological word) would need to be formed in syntax.

In the rest of this chapter, I investigate the morphological and analytic causative constructions in Eastern Armenian and show that they display distinct syntactic properties. Based on evidence from binding, adverbial scope and valence alternations, it is argued that the morphological causative behaves as a single clause, whereas the analytic causative consists of two independent predicates. I propose, however, that this difference in clausal structure need not be captured by distinguishing the domains of formation of the two causative types or by positing two different causative verbs. In the analysis proposed, both causative constructions are complex predicates formed in syntax, where the causative verb takes the underlying predicate as an argument. This allows for a uniform account of the syntax of causative constructions in languages such as Eastern Armenian and Japanese, since the configuration of the causative constructions remains the same in both language types. The distinction between the two causative constructions arises from the nature of the base predicate. In particular, using a decomposed analysis of the verbal structure (cf. Chomsky, 1995; Hale and Keyser, 1993), I argue that the underlying predicate in the analytic causative is more complex than the structure of the base predicate in the morphological causative. In particular, I claim that in the analytic construction, the causative verb is added on a full verbal projection *vP*, whereas in the morphological causative, the causative verb combines with a smaller verbal structure (*VP*) to form a single predicate. The analysis presented correctly accounts for the constraints on the formation of the morphological causative and explains the productivity observed with the analytic causative construction. In addition, I will show that the distinct causee interpretations in the two types of causation in Armenian are directly linked to their clausal structures. Hence, the meaning of the causative predicate can be derived from the resulting syntactic structure and is not predetermined in the argument structure.

2.2 Causatives in Eastern Armenian

In Eastern Armenian (an independent family of Indo-European languages)⁹, causative constructions can be formed in two ways: The examples in (7) illustrate a morphological causative (MC) construction. The sentence in (7a) contains an intransitive verb, whose causative variant is formed through the affixation of the bound morpheme *ats(n)* or *ets(n)* to the verbal root as illustrated in (7b). The sentences in (8) illustrate the analytic causative (AC) in which the causation is obtained when the verb *t'al* (give) is added to the underlying predicate, as shown in (8b). In each of these sentence pairs, the subject of the

⁹There are two main dialects of Armenian, Eastern (spoken mainly in Armenia and Iran) and Western (spoken among the Armenian diaspora almost everywhere else). The data presented here are mainly from the Eastern Armenian dialect spoken in Iran.

underlying predicate in (7a) and (8a) is expressed as the causee in the causative predicate and is marked with Dative case.

- (7) a. *šor-er-ə* *čor-an-um* *en*
 dress-pl-Nom dry-Inch-Imp be-3pl
 ‘The clothes are drying.’
 b. *Nairi-n* *šor-er-ə* *čor-atsn-um* *e*
 Nairi-nom dress-pl-Nom dry-Caus-Imp be-3sg
 ‘Nairi is drying the clothes.’
- (8) a. *yerexa-n* *p’at’uhan-ə* *bats-ets*
 child-Nom window-Acc open-Aor.3sg
 ‘The child opened the window.’
 b. *yerex-in* *p’at’uhan-ə* *bats-el* ***t’v-ets-i***
 pro child-Dat window-Acc open-Inf give-Aor-1sg
 ‘I made the child open the window.’

In Eastern Armenian, the formation of Morphological causatives seems to be more constrained than the formation of the analytic causatives. In particular, the verbs that undergo morphological causativization can be classified under the following three groups:

The first group consists of deadjectival predicates that denote a change of state, as illustrated in the second column below. These verbs are intransitives, often referred to as *inchoatives* or *anti-causatives*, and have the interpretation ‘BECOME Adjective’. These verbs behave as transitives when they are causativized, as shown in the third column in (9).

(9)	<u>Adjective</u>	⇒	<u>Change of State</u>	⇒	<u>CAUSE change of state</u>
	<i>čor</i> (dry)		<i>čoranal</i> (dry)		<i>čoratsnel</i> (dry)
	<i>metz</i> (big)		<i>metzanal</i> (grow)		<i>metzatsnel</i> (grow, bring up)
	<i>arag</i> (fast)		<i>araganal</i> (quicken)		<i>aragatsnel</i> (accelerate)
	<i>čağ</i> (fat)		<i>čağanal</i> (become fat)		<i>čağatsnel</i> (fatten)
	<i>sev</i> (black)		<i>sevanal</i> (blacken)		<i>sevatsnel</i> (blacken, darken)
	<i>k’armir</i> (red)		<i>k’armrel</i> (redde)		<i>k’armratsnel</i> (redde, sautee)

As an example consider (10a), representing an inchoative verb denoting the change of state. In the causative alternant in (10b), the new subject argument (*Anuš*) brings about the resulting state in the original predicate.

- (10) a. *p’at’-er-ə* *sev-ats-an*
 wall-pl-Nom black-Inch.Aor-3pl
 ‘The walls blackened / darkened.’
 b. *Anuš-ə* *p’at’-er-ə* *sev-atsr-el* *e*
 Anuš-Nom wall-pl-Acc black-Caus-Perf is
 ‘Anuš has blackened the walls.’

The second group consists of verbs denoting activities or actions. These verbs are unergatives that form their causatives morphologically.

- | | | | | | |
|------|-----------|---------------|---|---------------|--------------------------|
| (11) | latsel | (cry) | ⇒ | latsatsnel | (make cry) |
| | vazel | (run) | | vazatsnel | (make run) |
| | tzitzaqel | (laugh) | | tzitzaqatsnel | (make laugh) |
| | xosel | (speak, talk) | | xosetsnel | (make speak, make talk) |
| | knel | (sleep) | | knatsnel | (put to sleep, marinate) |
| | xaqal | (play) | | xaqatsnel | (make play) |

In these cases, the argument added by the causation is interpreted as the causer of the whole event. Hence, in the following sentence pair, *tzaqratzu* (clown) in (12b) causes the event in the base predicate, i.e., Ara's laughing.

- (12) a. Ara-n tzitzaq-um e
 Ara-Nom laugh-Imp is
 'Ara is laughing.'
- b. tzaqratzu-n Ara-in tzitzaq-etsn-um e
 clown-Nom Ara-Dat laugh-Caus-Imp is
 'The clown is making Ara laugh.'

Finally, a small group of transitive verbs can form morphological causatives, exemplified below. As in Japanese, the transitive verbs that allow morphological causatives are members of the ingestive verbs, physically such as *xmel* (drink) or figuratively such as *hask'anal* (understand).

- | | | | | | |
|------|-----------|--------------|---|-------------|-------------------|
| (13) | xmel | (drink) | ⇒ | xmetsnel | (make drink) |
| | ut'el | (eat) | | ut'etsnel | (make eat) |
| | hask'anal | (understand) | | hask'atsnel | (make understand) |
| | sovorel | (learn) | | sovoretsnel | (teach) |

Psych-verbs do not form a uniform category with respect to causation, since they can form either a morphological causative or an analytic one. Hence, the intransitive verb *vaxenal* (fear) can be transitivized using the causative morpheme, resulting in the verb *vaxetsnel* (frighten). Other psych-predicates that are based on adjectival roots also form their transitives the same way the change of state verbs do as shown in (14). The second group of psych-predicates behave like normal transitives as discussed below.

- | | | | | | | | | |
|------|-------|-----------|---|-----------|----------------|---|-------------|--------------|
| (14) | vax | (fear) | ⇒ | vaxenal | (fear) | ⇒ | vaxetsnel | (frighten) |
| | urax | (happy) | | uraxanal | (become happy) | | uraxatsnel | (make happy) |
| | jqayn | (angry) | | jqaynanal | (become angry) | | jqaynatsnel | (make angry) |
| | zguyš | (caution) | | zguyšanal | (be careful) | | zguyšatsnel | (warn) |

Analytic causatives, on the other hand, are formed on regular transitive verbs. Hence, most transitives can become causatives by adding the verb *t'al* to the base predicate. Hence, verbs such as *open*, *write* and *kill* can only form analytic causatives in Eastern Armenian as illustrated in the examples in (15):

- (15) a. yerex-in p'at'uhan-ə bats-el t'v-ets-i
 pro child-Dat window-Acc open-Inf give-Aor-1sg
 'I made the child open the window.'
- b. zinvor-ə bandark'yal-in ays namak'-ə grel t'v-ets
 soldier-Nom prisoner-Dat this letter-Acc write-Inf give-Aor.3sg
 'The soldier made the prisoner write this letter.'
- c. kontra-ner-i metz-ə ir j̄oqvrt-in sp'anel t'v-ets
 Contra-pl-Gen head-Nom his people-Dat kill-Inf give-Aor.3sg
 'The head of the Contras made his own people be killed.'

All these verbs appear as transitives in their morphologically unmarked form as exemplified in (16). The intransitive form of these verbs, however, is derived from the transitive form and appears with the passive/reflexive morpheme *-v*, as shown in the second column below. Note also that some psych-verbs such as *sirel* (like/love) or *at'el* (hate) behave similar to this class of verbs, in the sense that they appear unmarked in the transitive form and with a passive/reflexive morpheme in the intransitive variant.

(16)	<u>Transitive</u>	⇒	<u>Intransitive</u>
	k'ot'rel (break)		k'ot'rvel (break-Intr)
	poxel (change)		poxvel (change-Intr)
	haqtel (defeat)		haqtvel (be defeated)
	sirel (like/love)		sirvel (be liked/loved)
	at'el (hate)		at'vel (be hated)
	p'ašt'el (admire/worship)		p'ašt'vel (be admired/worshipped)

Light verb constructions (predicates composed of a nominal or adverbial preverbal element and a light verb) can only form analytic causatives. In the sentence in (17a), the light verb construction *man gal* (walk come = 'walk') can only be causativized by adding the verb *t'al* (give) to the predicate. Similarly, the light verb construction in (17b), *het' k'anchel* (back call = 'call back') can only form an analytic causative.

- (17) a. yere_x-in yer_k'ar man gal t'v-ank
 pro child-Dat long walk come-Inf give-Aor.1pl
 'We made the child walk for a long time.'
- b. Ara-i mayr-ə iren hyur-er-in het' k'anch-el t'v-ets
 Ara-Gen mother-Nom him guest-pl-Dat back call-Inf give-Aor.3sg
 'Ara's mother made him call the guests back.'

In addition, most verbs that form morphological causatives can also appear in an analytic construction, but with distinct syntactic and semantic properties. In the following section, I will investigate the properties of the two causative types in Eastern Armenian and will show that they are distinct constructions. I will propose a syntactic analysis that correctly predicts the constraints on the formation of morphological causatives and can account for the relative productivity of the analytic variant.

2.3 Clausal Properties of Armenian Causatives

2.3.1 Binding Facts

Subject-oriented anaphors in Armenian are bound by the closest *c*-commanding subject antecedent as the following examples illustrate. In (18), the anaphor in the postpositional phrase can only refer to the matrix subject and not to the Dative element. In the examples in (19) and (20) two subjects are available, but only the first *c*-commanding subject, i.e., the embedded subject, is able to bind the embedded anaphor.

- (18) Ara-n_i enk'er-oč-e_j [inkn ir_{i/*j} ta'n meč] handip'-ets
 Ara-Nom friend-Dat self-Gen house-Gen inside met-3sg
 'Ara_i met his friend_j in his_{i/*j} own house.'
- (19) Vrej-ə_i uzum er [vor Armen-ə_j inkn ir_{*i/j} das-ə gri]
 Vrej-Nom wanting was that Armen-Nom self-Gen lesson-Acc write-Subj/3sg
 'Vrej_i wanted Armen_j to write his_{*i/j} own homework.'
- (20) Vrej-ə_i tzaqratzu-in_j asets [vor PRO_j inkn iren_{*i/j} xpi]
 Vrej-Nom clown-Dat said that PRO self-Acc hit-Subj.3sg

‘Vrej_i told the clown_j to hit himself_{*i/j}.’

The binding possibilities of subject-oriented anaphors within causative constructions show that morphological causatives differ from their analytic counterparts with respect to the ‘subjecthood’ of the causee. In morphological causatives, the anaphor can only corefer with the matrix subject, whereas the causee of the analytic causatives acts as an antecedent to the anaphor, suggesting that the underlying predicate contains a subject.

The contrastive behavior of the causee in the two causatives is illustrated in the examples in (21) and (22) below. In morphological causatives, a subject-oriented reflexive that appears in the lower clause can only have the causer, i.e., the matrix subject, as an antecedent as example (21) shows:

- (21) a. Ara-n_i pokr t’q-in_j inkn ir_{i/*j} deq-ə xm-ets-rets
 Ara-Nom little boy-Dat self-Gen medication-Acc drink-Caus-Aor.3sg
 ‘Ara_i made the little boy_j drink his_{i/*j} own medication.’
- b. Yes Njde-in inks im / *inkn ir das-ə sovor-ets-rets-i
 I Nejdeh-Dat self(1sg) / self(3sg) lesson-Acc learn-Caus-Aor-1sg
 ‘I taught Nejdeh my/*his own lesson.’

In analytic constructions, however, the reflexive which appears in the lower clause can only be bound by the causee (i.e., the lower subject).

- (22) a. Yes Njde-in *inks im / inkn ir yexp’or-ə sp’anel t’v-ets-i
 I Nejdeh-Dat self(1sg) / self(3sg) brother-Acc kill gave-1sg
 ‘I made Nejdeh kill *my/his own brother.’
- b. Ara-n_i yerex-in_j inkn ira_{*i/j} senyak’-ə dasavorel t’vets
 Ara-Nom child-Dat self-Gen room-Acc organize gave.3sg
 ‘Ara_i made the child_j clean up his_{*i/j} own room.’

Hence, subject-oriented anaphors in the lower clause can only have the causee as antecedent in the analytic causatives and the matrix subject in the morphological causatives. Since the anaphor is always bound by the closest *c*-commanding subject in the clause, then we can conclude that there exists a distinction between the two causees based on their agency or subjecthood properties. I suggest that the analytic causatives form bi-predicative structures with the embedded predicate acting as a syntactic and semantic argument of the causative verbal element. The subject of the embedded clause is the causee in these constructions and has agentive properties. The morphological causatives, on the other hand, are monoclausal and only the matrix subject possesses agentive properties.

2.3.2 Adverbial Scope

The scopal interpretation of temporal and manner adverbs supports the distinction in clausal structure suggested in the previous section. Adverbs are able to modify the causation event independently of the basic predicate in analytic causatives, but can only refer to the whole predicate in the morphological causative. Thus, in the morphological causatives in (23), the adverbs refer to the whole event consisting of the cause+verb unit. In the analytic counterparts in (24), the adverbs can modify either event independently.¹⁰ For instance, the sentence in (24a) could mean that Ara quickly made Anuš speak (so that no one else at the meeting would have the chance to speak first), or it could mean that Ara

¹⁰The genitive-dative case on *voj’i* (foot-Gen/Dat) in (23b) and (24b) indicates a goal as shown below with the infinitival verb:

- (i) gnum enk hats arnel-u
 going are bread buy-Gen/Dat
 ‘We are going to buy bread.’

made Anuš speak fast (since there wasn't much time left)¹¹. These distinct interpretations follow from a bi-predicative analysis of the analytic causatives in (24), since the relative scope of the adverb can be determined based on the constituent that the adverb attaches to. Hence, if the adverbial attaches to the underlying predicate, it will take scope over the inner event only, but if it is attached to the causation predicate, the whole verbal event is modified. Similarly, there is no scopal ambiguity in the morphological causative in (23c) but the sentence in (24c) could be interpreted as shown in the translation in (i) where this sentence means that the doctor made a slow or quiet motion to the prisoner to sit. The interpretation in (ii) is also possible, however, meaning that the doctor made the prisoner sit down slowly (so that he wouldn't make any false moves!).

- (23) a. Ara-n Anuš-in *arag* xos-ets-rets
 Ara-Nom Anuš-Dat fast speak-Caus-Aor/3sg
 'Ara quickly had Anuš speak.'
- b. usutsič-ə ašak'ert'-in *norits* vot'-i k'angn-ats-rets
 teacher-Nom student-Dat again foot-Dat stand-Caus-Aor/3sg
 'The teacher made the student stand up again.'
- c. bjišk'-ə bandark'yal-in *k'amats* nst'-ats-rets
 doctor-Nom prisoner-Dat slow sit-Caus-Aor/3sg
 'The doctor sat the prisoner down slowly.'
- (24) a. Ara-n Anuš-in *arag* xos-el t'vets
 Ara-Nom Anuš-Dat fast speak-Inf gave-3sg
 (i) 'Ara quickly made Anuš speak.'
 (ii) 'Ara made Anuš speak fast.'
- b. usutsič-ə ašak'ert'-in *norits* vot'-i k'angn-el t'vets
 teacher-Nom student-Dat again foot-Gen stand-Inf gave.3sg
 (i) 'Once again, the teacher made the student stand up.'
 (ii) 'The teacher made the student stand up once more.'
- c. bjišk'-ə bandark'yal-in *k'amats* nst'-el t'vets
 doctor-Nom prisoner-Dat slow sit-Inf gave.3sg
 (i) 'The doctor slowly/quietly made the prisoner sit down.'
 (ii) 'The doctor made the prisoner sit down slowly.'

Certain adverbs in Eastern Armenian can have different interpretations depending on the position they occupy in the syntactic structure. *Vst'ah* is one such adverb, which could mean 'certainly' or 'surely' as a sentential adverb or it could have the meaning 'with confidence' as a manner adverb as shown below.¹²

- (25) a. Ara-n vot'anavor-ə *vst'ah* e art'asanel
 Ara-Nom poem-Acc (confident) is recited
 'Ara recited the poem with confidence.'
- b. Ara-n *vst'ah* vot'anavor-ə art'asanel e
 Ara-Nom (confident) poem-Acc recited is
 'Ara certainly recited the poem.'

If the adverb appears within the verb phrase as in (25a), a manner reading obtains, denoting the manner in which the subject of the clause carried out the action. If the adverb is high in the clause,

¹¹There are, of course, distinct intonation patterns corresponding to the different interpretations.

¹²*Vst'ah* is also an adjective meaning 'confident'.

however, as in (25b), it is interpreted as a sentential adverb. When *vst'ah* appears in a sentence containing a morphologically causativized verb, it can be interpreted as a sentential adverb (interpretation (i) in (26)) or as a manner adverb (interpretation (ii)). Note, however, that the manner adverb refers to *Ara*, the subject of the matrix clause and not to the causee.

- (26) Ara-n Nairi-in *vst'ah* xos-ets-rets
 Ara-Nom Nairi-Dat (confident) speak-Caus-Aor/3sg
 (i) 'Ara certainly made Nairi speak.'
 (ii) 'With confidence, Ara made Nairi speak.' (i.e., Ara was confident, not Nairi)

In analytic causatives, the adverb *vst'ah* can also have both the sentential and the manner reading as illustrated in (27). In this case, however, the manner adverb is interpreted as referring to the causee. Although the manner adverb may also refer to the causer, this reading is not prominent.

- (27) a. Ara-n *vst'ah* Nairi-in xos-el t'vets
 Ara-Nom confident Nairi-Dat speak-Inf gave-3sg
 'Ara certainly made Nairi speak.'
 b. Ara-n Nairi-in *vst'ah* xos-el t'vets
 Ara-Nom Nairi-Dat confident speak-Inf gave-3sg
 (i) 'Ara certainly made Nairi speak.'
 (ii) 'Ara made Nairi speak with confidence.' (i.e., Nairi was confident, not Ara)
 (iii) ??? 'With confidence, Ara made Nairi speak.' (i.e., Ara was confident)

The combination of scopal relations of adjuncts and anaphoric binding confirms the clausal distinction of the two causative constructions as illustrated in the following examples. When the subject-oriented anaphor occurs within an instrumental adjunct in the lower clause of a morphological causative, only the subject of the matrix clause can act as an antecedent for the reflexive.

- (28) a. Bjišk'-ə_i hivand-in_j [inkn ir_{i/*j} bartsraxos-ov] xos-ets-rets
 doctor-Nom patient-Dat self-Gen loudspeaker-Inst speak-Caus-Aor.3sg
 'The doctor_i made the patient_j speak with his_{i/*j} own loudspeaker.'
 b. Yes k'aren-in [inks im / ?*inkn ir jur-i aman-ov] tats-ats-retsi
 I Garen-Dat self(1sg) / self(3sg) water-Gen container-Inst wet-Caus-Aor.1sg
 'I wet Garen with my own / ?*his own water container.'
 c. tzaqratzu-n_i Ara-in_j [inkn ir_{i/*j} k'uk'la-y-ov] tzitzaq-ats-rets
 clown-Nom Ara-Dat self-Gen doll-Inst laugh-Caus-Aor.3sg
 'The clown_i made Ara_j laugh with his_{i/*j} own doll.'

In the analytic causative construction, on the other hand, the anaphor in the adjunct phrase can refer to either the embedded subject (the causee) or the matrix subject (the causer). As (29) shows, although preference is given to the causee, i.e., *ašak'ert'* (student), acting as antecedent to the reflexive, the latter can also be bound by the causer, i.e., *profesor* (professor).

- (29) profesor-ə_i ašak'ert'-in_j [inkn ir_{??i/j} herat'esil-ov] ast'qer-ə nayel t'vets
 professor-Nom student-Dat self-Gen telescope-Inst stars-Acc watch gave.3sg
 'The professor_i made the student_j watch the stars with his_{??i/j} own telescope.'

These results confirm the biclausal nature of the analytic causative. Since the adjunct is able to attach to either clause, we expect to obtain distinct interpretations. Thus, if the instrumental adjunct attaches to the embedded clause, the lower subject or the causee acts as the antecedent to the anaphor; but if

the adjunct attaches to the higher clause, then the matrix subject or the causer binds the anaphor. The following contrast illustrates this:

- (30) a. *zinvor-ə_i* *Ńjde-in_j* [*inkn ir_{??i/j}* *grič-ov*] *tuxt-ə* *st'oragrel* *t'vets*
 soldier-Nom Nejdeh-Dat self-Gen pen-Inst paper-Acc sign gave.3sg
- ‘The soldier_i made Nejdeh_j sign the paper with his_{??i/j} own pen.’
- b. *zinvor-ə_i* *Ńjde-in_j* [*inkn ir_{i/??j}* *at'rc'anak'-ov*] *tuxt-ə* *st'oragrel* *t'vets*
 soldier-Nom Nejdeh-Dat self-Gen gun-Inst paper-Acc sign gave.3sg
- ‘The soldier_i made Nejdeh_j sign the paper with his_{i/??j} own gun.’

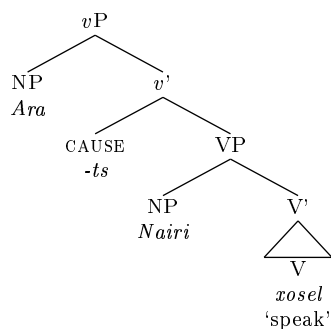
In (30a), the most prominent reading is that the soldier made Nejdeh sign the paper with Nejdeh’s own pen and the pen is interpreted as the instrument of the ‘signing’ event. Hence, the adjunct is attached to the lower clause and the causee behaves as the antecedent to the anaphor. In (30b), however, the most salient reading is that the soldier, with his gun, forced Nejdeh to sign the paper. In this case, the gun is interpreted as the instrument of the causation event, so the adjunct is attached to the higher clause and the causer acts as the antecedent to the reflexive.

The generalizations obtained in this section can be summarized as follows:

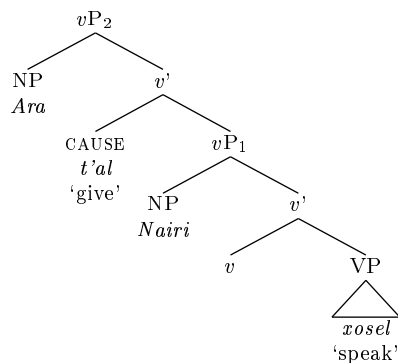
- In the morphological causative:
 1. A subject-oriented anaphor in the base predicate or within an adjunct phrase corefers with the matrix subject (or causer).
 2. A subject-oriented anaphor within an adjunct phrase corefers with the matrix subject (or causer).
 3. An adverb takes scope over the whole causative event.
- In the analytic causative:
 1. A subject-oriented anaphor in the base predicate corefers with the embedded subject (or causee), although coreference with matrix subject is also possible.
 2. A subject-oriented anaphor within an adjunct phrase corefers with the embedded subject (or causee), although coreference with the matrix subject is also possible.
 3. An adverb within a base predicate can be interpreted as
 - (i) a high adverb, with scope over the whole event, or
 - (ii) as a manner or low adverb, with scope over the base predicate only.

These interpretations can be explained if the morphological causative and the analytic causative have distinct clausal structures. The schematic configurations in (31) and (32) illustrate these two constructions. Agentive interpretation on an argument is linked to the external argument, which is traditionally assumed to occupy the specifier of *vP* position. In the morphological causative in (31), only the causer (*Ara*) appears in the [Spec, *vP*] but in the analytic causative configuration in (32) both the causer and the causee occupy a [Spec, *vP*] position.

(31) Morphological Causative



(32) Analytic Causative



The distinct configurations in (31) and (32) explain the coreference possibilities in causative constructions in Eastern Armenian since they predict that a subject-oriented anaphor would be able to take the causee (*Nairi*) as an antecedent in the analytic causative but not in the morphological causative.

In addition, the distinct configurations in (31) and (32) can account for the adverbial interpretations discussed in the context of the examples in (26) and (27), repeated below as (33) and (34), respectively:

- (33) Ara-n Nairi-in *vst'ah* xos-ets-rets
 Ara-Nom Nairi-Dat (confident) speak-Caus-Aor/3sg

(i) 'Ara certainly made Nairi speak.'

(ii) 'With confidence, Ara made Nairi speak.' (i.e., Ara was confident, not Nairi)

- (34) Ara-n Nairi-in *vst'ah* xos-el t'vets
 Ara-Nom Nairi-Dat confident speak-Inf gave-3sg

(i) 'Ara certainly made Nairi speak.'

(ii) 'Ara made Nairi speak with confidence.' (i.e., Nairi was confident, not Ara)

(iii) ??? 'With confidence, Ara made Nairi speak.' (i.e., Ara was confident)

Following Potsdam (1999), I assume that the manner adverb interpretation is obtained when the adverb adjoins to a verb phrase (*vP*) while sentential adverbs adjoin to the TP. In the morphological causative in (33) represented by the structure in (31), the adverb *vst'ah* attaches to the *vP* and it is interpreted as a manner adverb; it refers to the subject of the clause to which it is adjoined or the causer, namely *Ara*. In the analytic causative in (34) represented by the configuration in (32), the adverb *vst'ah* can attach to either *vP*₁ or *vP*₂. If the adverb is adjoined to *vP*₁, it will refer to the actions performed by the causee, *Nairi*. If attached to *vP*₂, it could refer to the manner in which the causer (*Ara*) performed

the action. Hence, the adverbial scope is ambiguous in an analytic causative but not in a morphological causative construction.

In what follows, I will look at several other clausal characteristics which clearly show that the two causative constructions have distinct phrasal configurations.

2.3.3 Negation

In analytic causatives, the negative morpheme can be attached either to the causative verb or to the underlying predicate, giving rise to different interpretations. Hence, in (35a), the negative affix appears on the causative verb and it has scope over the whole causative predicate. In (35b), the negative morpheme is attached to the underlying verb. In this example, negation only has scope over the inner clause, meaning that Ara told the kids not to open the windows. (35c) shows that both clauses may be negated independently.

- (35) a. Ara-n yerexerk-in p'at'uhan-ner-ə batsel č-t'vets
 Ara-Nom children-Dat window-pl-Acc open Neg-gave
 'Ara didn't make the kids open the windows.'
- b. Ara-n yerexerk-in p'at'uhan-ner-ə č-batsel t'vets
 Ara-Nom children-Dat window-pl-Acc Neg-open gave
 'Ara made the kids not open the windows.'
- c. Ara-n yerexerk-in p'at'uhan-ner-ə č-batsel č-t'vets
 Ara-Nom children-Dat window-pl-Acc Neg-open Neg-gave
 'Ara didn't make the kids not open the windows.'

(36) and (37) are similar pairs, which illustrate once more that either the causative verb or the underlying predicate can be negated in analytic causative constructions.

- (36) a. usutsič-ə ašak'ert'-ner-in ays girk-ə k'art-al č-i t'vel
 teacher-Nom student-pl-Dat this book-Acc read-Inf Neg-is given
 'The teacher hasn't made the students read this book.'
- b. usutsič-ə ašak'ert'-ner-in ays mi girk-ə č-k'art-al t'vel
 teacher-Nom student-pl-Dat this one book-Acc Neg-read-Inf gave
 'The teacher made the students not read this one book.'
- (37) a. Davit-ə mez ir brazil-i nk'ar-ner-ə nay-el č-t'vets
 David-Nom us his Brazil-Gen picture-pl-Acc watch-Inf Neg-gave
 'David didn't make us watch his pictures of Brazil.'
- b. ?Davit-ə mez ir brazil-i nk'ar-ner-ə č-nay-el t'vets
 David-Nom us his Brazil-Gen picture-pl-Acc Neg-watch-Inf gave
 'David made us not watch his pictures of Brazil.'

In morphological causatives, however, the verb+cause form a single morphological unit and the negative morpheme is attached to the verbal complex. In this construction, there is only one interpretation whereby negation modifies the whole event as illustrated in the following examples:

- (38) Ara-n ir horə č-jqayn-ats-rets
 Ara-nom his father/Dat Neg-angry-Caus-Aor.3sg
 'Ara hasn't made his father angry.'
- (39) yes Narbe-in ir nor das-ə č-sovor-ets-rets-i
 I Narbe-Dat his new lesson-Acc Neg-habit-Caus-Aor-1sg
 'I haven't taught Narbe his new lesson.'

The fact that the embedded predicate cannot be negated in the morphological causative, as opposed to the analytic causative, suggests that causation is an independent predicate in the latter but not in the morphological causative constructions.

Additional support for the existence of two distinct predicates in analytic causative constructions is provided by the following examples:

- (40) a. *yes ašak'ert'-ner-in ays girk-ə k'art-al ei t'vel, bayts der mi t'oq el*
 I student-pl-Dat this book-Acc read-Inf was given but yet one line even
č-en k'artatsel.
 Neg-are read
 'I had made the students read this book, but they haven't yet read a single line.'
- b. *čar t'qe-n mezi amen p'at'uhan-ner-ə k'ot'rel er t'vel, bayts vst'ah em vor*
 brat boy-Nom us every window-Pl-Acc break was given but certain am that
voč mek'-ən el č-enk k'otr-i
 not one-Def also Neg-are break-Subj
 'The bratty boy made us break all the windows but I am sure that we will not break any.'

These examples show that the underlying (i.e., caused) predicate is independent of the causation of that event. Hence in (40a), although the event of 'reading' has been caused, it does not necessarily need to have taken place and can be negated. Contrast these examples with the morphological causative constructions below. In these sentences, the basic predicate cannot be interpreted independently from the causative predicate, as shown by the ungrammaticality obtained when the caused event is negated. These examples suggest that the caused predicate and the causation form a single event.

- (41) a. **doktor-ə indz ayt' vat' ham-ov deq-ə xm-ets-rets, bayts der č-em*
 doctor-Nom me that bad taste-Inst medication-Acc drink-Caus-Aor but yet Neg-am
xmel
 drunk
 'The doctor made me drink that bad-tasting medication, but I haven't drunk it yet.'
- b. **usutsič-ə Ara-in ays girk-ə k'art-ats-rets, bayts der mi t'oq el č-i*
 teacher-Nom Ara-Dat this book-Acc read-Caus-Aor but yet one line even Neg-is
k'artatsel
 read
 'The teacher made Ara read this book, but he hasn't yet read a single line.'
- c. **verčap'es iren das-ə hask'-ats-rets-in, bayts der voroš baner-ə č-i*
 finally him/her lesson-Acc understand-Caus-Aor-3pl but yet some things Neg-is
hask'anum
 understanding
 'They finally made him understand the lesson, but he still doesn't understand some things.'

2.3.4 Embedded Passives

Although not completely felicitous, the passive morpheme can appear on the underlying predicate of an analytic causative (42), but it may not be embedded within a morphological causative (43):¹³

- (42) a. *usutsič-ə ašak'ert'-ner-in t'arvagr-k-i hamar nk'ar-v-el t'vets*
 teacher-Nom student-pl-Dat yearbook-Gen for photograph-Pass-Inf gave

¹³There exist a few exceptions in which the morphologically unmarked form is missing. In these predicates, the intransitive includes the passive/reflexive morpheme (i) and in the transitive the causative morpheme is added on top of the passive -v (ii). As (iii) shows, the unmarked forms of these verbs do not exist. I believe that these few exceptions constitute "lexicalized" verbs and are not formed in syntax.

‘The teacher made the students be photographed for the yearbook.’

b.ʔkʻrv-its het’o, naxagah-ə šenk-er-ə het’ sark-v-el t’vets
war-Abl after president-Nom building-pl-Acc back build-Pass-Inf gave

‘After the war, the President had the buildings rebuilt / made the buildings be rebuilt.’

- (43) a.*Ara-n šor-er-ə čorats-v-ets-rets
Ara-Nom clothes-Acc dry-Pass-Caus-Aor/3sg

‘Ara made the clothes be dried.’

b.*usutsič-ə ašak’ert’-in xos-v-ets-num e
teacher-Nom student-Dat speak-Pass-Caus-Inf is

‘The teacher is making the student be spoken.’

The contrast between the examples in (42) and (43) clearly shows that the two causative constructions have distinct syntactic structures. Furthermore, these results can be accounted for if the analytic causative is seen as consisting of two independent clauses, thus allowing the embedded clause to take a passive morpheme while the higher clause provides the causation of the embedded event. The morphological causative, on the other hand, consists of a single clause.

2.3.5 Embedded Causatives

Causativization of a causative predicate can only be formed using the analytic causative. As illustrated in (44), if a predicate already contains a causative morpheme (i.e., it is a morphological causative) as in (44a), it cannot be causativized again using another causative morpheme (44b). It can, however, form a causative by the addition of the verb *t’al* (give) and an external argument as shown in (44c).

- (44) a.Anuš-ə yerex-in kn-ats-rets
anush-Nom child-Dat sleep-Caus-Aor.3sg

‘Anuš put the child to sleep.’

b.*Ara-n Anuš-in yerex-in kn-ats-ats-rets
Ara-Nom Anuš-Dat child-Dat sleep-Caus-Caus-Aor.3sg

‘Ara made Anuš put the child to sleep.’

c.Ara-n Anuš-in yerex-in kn-ats-nel t’vets
Ara-Nom Anuš-Dat child-Dat sleep-Caus-Inf gave

‘Ara made Anuš put the child to sleep.’

It is interesting to note that the analytic causative must be used with verbs that are traditionally analyzed as “lexical causatives” such as *sp’anel* (kill) as exemplified:

- (45) a.*na zinvor-in palestunts-un sp’an-ets-rets
he/she soldier-Dat palestinian-Dat kill-Caus-Aor.3sg

b.na zinvor-in palestunts-un sp’an-el t’vets
he/she soldier-Dat palestinian-Dat kill-Inf gave

-
- (i) k’in-ə geĵ-v-ets
woman-Nom mad-Pass-Aor.3sg
‘The woman went mad.’
- (ii) čar yerexe-n mor-ə geĵ-v-ats-rets
brat child-Nom mother(Dat) mad-Pass-Caus-Aor.3sg
‘The bratty kid drove his mother crazy.’
- (iii) *k’in-ə geĵ-ets
woman-Nom mad-Aor.3sg

‘He/she made the soldier kill the Palestinian.’

In addition, only the analytic causative can be used with transitivity alternation verbs such as *batsel* (open), *xort’ak’el* (sink/drown), *k’ot’rel* (break). These verbs have also been analyzed as containing a CAUSE event by Levin and Rappaport Hovav (1995), among others.¹⁴

- (46) a.*Ara-n Nj̇de-in p’at’uhan-ə kar-ov k’ot’r-ets-rets
 Ara-Nom Nejdeh-Dat window-Acc stone-Inst break-Caus-Aor.3sg
 b.Ara-n Nj̇de-in p’at’uhan-ə kar-ov k’ot’r-el t’vets
 Ara-Nom Nejdeh-Dat window-Acc stone-Inst break-Inf gave
 ‘Ara made Nejdeh break the window with a stone.’

We can therefore formulate the generalization that the analytic causative is used when the underlying predicate contains a causation event. As we will see in section 2.5, this is not the whole story and in fact, the projection of the external argument position also plays a crucial role in determining the resulting causative construction. In the following section, I will present an analysis whereby both causative structures are formed using the same process of verb-formation in syntax.

2.4 Domain of Formation

In the previous section, we looked at evidence from anaphoric binding, adverbial interpretation and derivational properties of embedded predicates such as negation, passivization and causativization. The data discussed so far in this chapter support the claim that the clausal structures of the two causative constructions are different. In the morphological causative, the causative morpheme affixes to the underlying verb, with which it forms a single predicate. In the analytic causative, however, the causative predicate and the underlying verbal clause behave as two independent predicates. Based on evidence from causativization presented in Section 2.3.5, I suggested that the analytic causative is obtained when the base predicate already contains a CAUSE event, and the morphological causative is formed when the underlying predicate lacks the CAUSE event.

Studies on event structure, be it from a syntactic, lexical or semantic perspective, have converged on the idea that there exist two subevents within the verbal predicate. According to these analyses, there is an *inner event*, which represents the change of state in the predicate and an *outer event*, which denotes causation and agency (cf. Tenny and Pustejovsky, 1999). Recent syntactic analyses have also argued for a decomposition of the verbal domain into an inner and outer level, which roughly corresponds to the structural decomposition of events. In this dissertation, I adopt an analysis based on verbal decomposition as suggested by Chomsky (1995), Hale and Keyser (1993), Travis (1992a), among others, where the substantive part of the VP-shell is denoted in the inner verbal domain or the VP node, which projects the change of state information and the internal arguments. In this structural configuration, causation is represented by a light verb *v*; the latter corresponds to the outer event and projects the external argument. Hence, a causative construction would include a little-*v* head providing the CAUSE information for the predicate. Consider the sentences below.

- (47) Ara-n p’at’-er-ə sev-ats-rets
 Ara-Nom wall-Pl-Acc black-Caus-Aor.3sg
 ‘Ara blackened the walls.’
 (48) a.Narbe-n Ara-in p’at’-er-ə sev-ats-n-el t’vets
 Narbe-Nom Ara-Dat wall-Pl-Acc black-Caus-Inf gave
 ‘Narbe made Ara blacken the walls.’

¹⁴These constructions will be discussed at length in Chapter 4.

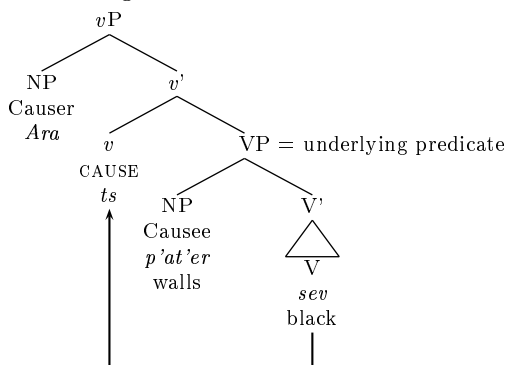
b.Narbe-n Ara-in baĵak'-ə k'ot'R-el t'vets
 Narbe-Nom Ara-Dat glass-Acc break-Inf gave

‘Narbe made Ara break the glass.’

(47) represents a morphological causative and (48) two analytic causative sentences. The main distinction between the morphological and the analytic causative lies in the structure of the underlying predicate. In the morphological causative shown in (49), the underlying predicate consists only of the lower VP node; it does not include a little-*v* representing causation. In this construction, *v_{cause}* takes the VP structure as a complement and forms a full verbal phrase or *vP* with the underlying predicate. If *v_{cause}* takes a full *vP* as complement, however, the analytic causative configuration in (50) obtains and the causation is realized as the causative verb *t'al* (give). In other words, the distinction between the two causative constructions resides in whether the higher causative event is part of the verbal complex as in the morphological causative in (49) or if it is added as a separate event on a full verbal predicate as in the analytic causative in (50).

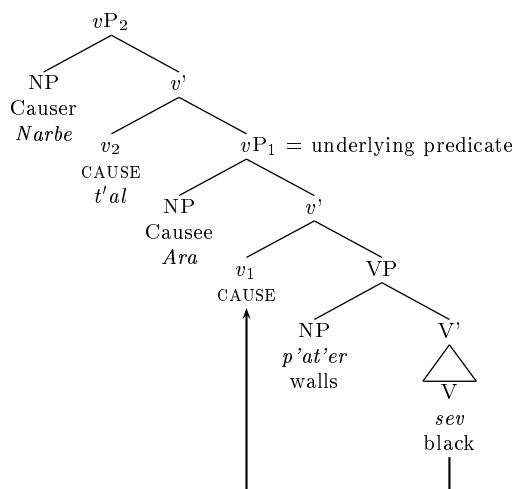
Note that, in this analysis, *causer* and *causee* are not pre-determined semantic roles as traditionally assumed, but are directly obtained from the resulting configuration. In each instance, the NP argument occupying the specifier of the higher *vP* position behaves as the causer of the event by virtue of being the external argument of the main CAUSE head. The subject of the underlying predicate, on the other hand, is interpreted as the causee in the new structure.¹⁵

(49) Morphological Causative



(50) Analytic Causative

¹⁵A more detailed analysis of the underlying predicates is postponed until Chapter 4.

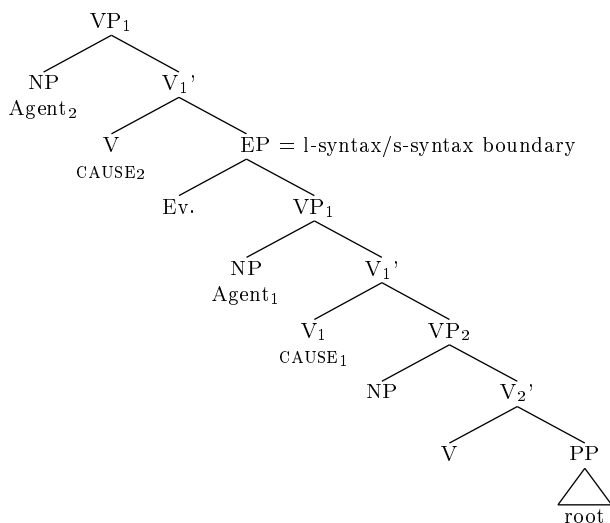


Traditionally, morphological and analytic causatives have been distinguished based on the component in which they are formed (Williams, 1996; Di Sciullo and Williams, 1987). According to these approaches, the morphological causatives are formed within the component responsible for morphological derivations. The analytic causative, on the other hand, is formed within the syntactic component which is responsible for creating phrases. Thus, the architecture of grammar consists of two separate components that form objects with very distinct properties.

In the analysis proposed here, however, the morphological and analytic causatives are both formed within the same computational system following a uniform set of word-formation principles. I argue that there is no need to distinguish the two causatives depending on the module in which they are formed (e.g., lexicon vs. syntax), since they both are the result of complex predicate formation in syntax. In both cases, the light verb v_{cause} is combined with a verbal predicate, giving rise to a causative construction. The distinction between the two causatives lies in the properties of the underlying predicate; in particular, it has to do with whether the base predicate contains a full verbal element consisting of a light verb v (denoting the causation event) and an external argument. If there is no v , then v_{cause} occupies that position and forms a single predicate with the underlying verbal element. On the other hand, if the basic predicate is a full vP with an external argument, then v_{cause} appears attached to the vP . Thus, CAUSE denoted by the verb *t'al* (give) is a distinct and independent predicate whereas with the causative morpheme, the CAUSE and result are part of the same complex predicate. In the analysis proposed, the distinction between the two causative constructions is therefore structural, in the sense that there is a limit to the number of v_{cause} that can appear within a predicate. Hence, the first v_{cause} head can form a verbal predicate with the underlying VP, giving rise to a vP structure. Any additional v head, however, will be considered external to the main verbal predicate.

A similar analysis has been provided by Travis (1999a) in which, following the terminology introduced in Hale and Keyser (1993), she makes a distinction between an *l-syntax* (lexical) causative and an *s-syntax* (productive) causative in Malagasy and Tagalog, based on the structural position of the causative morphemes. Travis proposes the phrase structure configuration in (51) in which l-syntax roughly corresponds to the domain of words and s-syntax includes phrase-level syntax; the two levels are separated by the phrase structure node of Event Phrase.

(51) l-syntax vs. s-syntax



Note that in this configuration VP_1 corresponds to my *vP*, and VP_2 represents the lower VP. While causatives may iterate in Tagalog and Malagasy, Travis argues that the first use of the causative (and the first agent) is introduced through l-syntax, whereas all further iterations of the causative morpheme take place in s-syntax. In other words, the domain of l-syntax can include at most one CAUSE event and one agent or instigator.

The analysis put forth here for Armenian is very similar to the one proposed by Travis for Malagasy and Tagalog, since it is argued that what has classically been treated as a division between word-formation components is in fact part of the same computational domain. Hence, the distinction between a “morphological” (l-syntax) and an “analytic” (s-syntax) causative can be reduced to the position occupied by the causation verb within the phrase structure.

While I argue that the computational domain is uniform for both causative constructions, with the same syntactic principles applying throughout, it is also maintained that the morphological causative and the analytic causative in Eastern Armenian (or the l-syntax and s-syntax causatives of Travis) are part of two different subdomains and display distinct syntactic and semantic properties. The following section discusses some of the ways in which the morphological causative differs from the analytic causative. I will argue that the distinct properties of the two causative constructions are not due to different word-formation components of language but can be derived from the syntactic structure proposed in this chapter.

2.5 L-Syntax vs. S-Syntax Causatives

2.5.1 Agency, Volition and Interpretation

An important distinction between the two causative constructions in Eastern Armenian lies in the interpretation of the causee. The causee in an analytic causative has agentive properties and seems to behave volitionally. The causee in a morphological causative, on the other hand, acts as a theme or patient. This difference in interpretation can be clearly seen in the causative formation of verbs that allow both the morphological and the analytic constructions.

The sentences in (52) to (56) on the next page represent verbs that usually form their causative morphologically, as shown in the (a) sentences, but which may also form a causative analytically with the use of the verb *t'al* as shown in the (b) clauses. In all of these example pairs, the causees in the analytic constructions (AC) are more agentive, whereas the causees of the morphological causative (MC) structures seem to undergo the action and lack volition. In the morphological constructions the action is

being done to the causee without his or her agreeing. In the analytic constructions, there is the meaning in which the causee is performing the action or event on his or her own (even though he/she was made to do it), hence acting as an agent. This second interpretation is traditionally referred to as indirect causation. Thus, there is a strong semantic distinction depending on which causative structure is chosen. To illustrate, consider the two sentences in (52). In (52a), the verb *mt'nel* (enter) is causativized by attaching the morpheme *'ts'* to the verbal root, deriving the morphological causative verb, *mt'tsnel*. In this sentence, the interpretation is that the soldier forcefully pushed the student into the car. In contrast, the analytic causative of the verb *mt'nel* (enter) in (52b) allows an agentive interpretation of the causee. In this example, the student is still forced to enter the car but he or she enters the car on his or her own.

- (52) a. *zinvor-ə ašak'ert'-in mekena-yi meč mt'-ts-rets (MC)*
 soldier-Nom student-Dat car-Gen inside enter-Caus-Aor/3sg
 'The soldier pushed the student in the car.'
- b. *zinvor-ə ašak'ert'-in mekena-yi meč mt'nel t'vets (AC)*
 soldier-Nom student-Dat car-Gen inside enter gave
 'The soldier made the student enter the car.'
- (53) a. *Ara-n šun-er-in vaz-ats-rets (MC)*
 Ara-Nom dog-pl-Dat run-Caus-Aor/3sg
 'Ara had the dogs run.'
- b. *Ara-n yerexa-ner-in t'an šurj-ə vazel t'vets (AC)*
 Ara-Nom child-pl-Dat house/Gen around-Acc run gave
 'Ara made the children run around the house.'
- (54) a. *menk Ara-in lav xm-ats-rank (MC)*
 we Ara-Dat good drink-Caus-Aor/1pl
 'We made Ara drink a lot (i.e., we made Ara get drunk).'
- b. *menk Ara-in lav xmel t'vank (AC)*
 we Ara-Dat good drink gave
 'We made Ara drink a lot.'
- (55) a. *Naira-in hey pt't'-ats-rank minčev vor enk'av (MC)*
 pro Naira-Dat continually turn-Caus-Aor/1pl until that fell-3sg
 'We kept turning/rotating Naira until she fell.'
- b. *Naira-in hey pt't'-el t'vank minčev vor enk'av (AC)*
 pro Naira-Dat continually turn-Inf gave-1pl until that fell-3sg
 'We made Naira turn until she fell.'
- (56) a. *?zinvor-ə bandark'yal-in deq-ə ut'e-ts-rets (MC)*
 soldier-Nom prisoner-Dat medication-Acc eat-Caus-Aor/3sg
 'The soldier made the prisoner eat the medication.'
- b. *zinvor-ə bandark'yal-in deq-ə ut'el t'vets (AC)*
 soldier-Nom prisoner-Dat medication-Acc eat gave
 'The soldier made the prisoner take the medication.'

The meaning of certain verbs forces a non-agentive reading on the subject. Such verbs are generally analyzed as unaccusatives in syntax in which the subject occupies the internal argument position and behaves as an experiencer or patient in the thematic structure. The verbs *hivandanal* (become sick) and *meɾnel* (die) are such verbs, where the subject is non-agentive. So far we have argued that the

morphological causative is formed on a base predicate that lacks a *v_{cause}* head and therefore lacks an external argument or agent. The analytic causative, on the other hand, is formed on a full *vP* with a little-*v* head and an agent argument. To the extent that the generalization suggested here holds, we would expect not to be able to form an analytic causative on unaccusative verbs, since they lack an agentive subject. However, as the examples below illustrate, both morphological and analytic causatives are possible constructions.

- (57) a. Ara-n Grikor-in hivand-ats-rets
 Ara-Nom Grigor-Dat sick-Caus-Aor/3sg
 ‘Ara made Grigor sick.’ (ie., was contagious)

b. Ara-n Grikor-in hivand-anal t’vets
 Ara-Nom Grigor-Dat sick-become gave

‘Ara made Grigor pretend to be sick.’

- (58) a. reĵisor-ə Grikor-in sp’anets
 director-Nom Grigor-Dat killed

‘The director killed Grigor.’

b. reĵisor-ə Grikor-in mernel t’vets
 director-Nom Grigor-Dat die gave

‘The director had Grigor die.’ (i.e., on the set)

These examples, however, do not constitute a counter-argument to the proposal which relates agency and analytic causative constructions. In these cases, the causee in the morphological or lexical causatives in the (a) examples is a thematic patient and undergoes or experiences the action as expected. In the analytic causative constructions, the only reading possible is the one in which the causee is forced to pretend. Thus the use of the analytic causative forces the agentive reading on the causee.

Further evidence for the close correlation of agency and the causee of the analytic causative comes from the following example, which shows that the causee of the analytic cannot be inanimate (cf. (52)).

- (59) a. yerexa-n k’uk’la-in mt’-ts-rets t’an meč
 child-Nom doll-Dat enter-Caus-Aor/3sg house(Gen) inside

‘The child pushed the doll into the house.’

b. ?*yerexa-n k’uk’la-in t’an meč mt’nel t’vets
 child-Nom doll-Dat house(Gen) inside enter gave

‘The child made the doll enter the house.’

2.5.2 Idiosyncratic meaning

Morphological causatives sometimes have an idiomatic meaning, in the sense that the meaning of the causative form of a verb does not necessarily mean ‘cause to V’ but takes on a special (though often semantically related) meaning. So, for instance, *knatsnel*, the causative form of the Armenian verb *knel* (sleep) can mean ‘to put to sleep’, but it also has the idiomatic reading ‘to marinate’. (60) illustrates some of these constructions that, in addition to their compositional meaning, also give rise to idiosyncratic interpretations.

(60)	trnel	(fly)	⇒	trtsnel	(steal)
	tzaqk'el	(bloom)		tzaqk'atsnel	(embellish)
	pt't'el	(turn)		pt't'atsnel	(take on a tour, carry around)
	knel	(sleep)		knatsnel	(marinate)
	xaqal	(play)		xaqatsnel	(mess with, mock)
	neqanal	(thin, shrink)		neqatsnel	(disturb, bug)
	paxnel	(escape)		paxtsnel	(kidnap)
	sovorel	(learn)		sovoretsnel	(teach)
	hishel	(remember)		hishetsnel	(remind)

Following the observations in Marantz (1984) and Marantz (1997) (which is itself based on work in Ruwet, 1991) I suggest that the external argument is not part of the idiomatic reading available in a verbal predicate. Marantz (1984) points out that there is a closer relation between a verb and its internal arguments than between the verb and the subject or external argument. Hence, the choice of the direct object can express a wide range of predicates as shown in (61). However, varying the subject of the verbal predicate does not give rise to similar idiosyncratic or idiomatic readings as shown in (62), nor does it produce a range of predicates on objects.

- (61) a.throw a baseball
 b.throw support behind a candidate
 c.throw a boxing match
 d.throw a party
 e.throw a fit

- (62) a.The policeman threw NP.
 b.The boxer threw NP.
 c.The social director threw NP.
 d.Aardvarks threw NP.
 e.Throw NP!

Marantz (1984) argues that there are a large number of object idioms in English such as *kick the bucket* while subject idioms (with a free object position) are extremely rare. The idiomatic expressions like *The shit hit the fan* that have a fixed subject do not serve as counter-arguments to this claim, since the objects in such expressions are also fixed. Hence, Marantz points out that the idiomatic interpretation disappears when the object is modified as in *The shit hit the air conditioner*.

Based on the preponderance of object over subject idioms, Marantz argues for an asymmetric representation of the verbal structure, whereby external arguments are projected by a separate verbal head *v* and are not directly related to the verbal root. On the other hand, the internal arguments are in close relation with the verbal root.

For our present purposes, this analysis indicates that external arguments are never included within the domain of idiomatic readings. Or put differently, the domain of idiomatic or idiosyncratic interpretation is below the syntactic position of the external argument. This in effect predicts that idiomatic readings will only be possible with morphological causatives since the *v_{cause}* of analytic causatives is outside the domain of the first external argument or first agent. This prediction is borne out as illustrated below. In (63a), the morphological causative gives rise to an idiomatic reading; the latter disappears, however, in the analytic causative construction in (63b).

- (63) a. Ara-n trčun-in tr-ts-rets
 Ara-Nom bird-Dat fly-Caus-Aor/3sg
 (i) ‘Ara made the bird fly.’
 (ii) ‘Ara stole the bird.’
 b. Ara-n trčun-in trnel t’vets
 Ara-Nom bird-Dat fly gave
 (i) ‘Ara made the bird fly.’
 (ii) * ‘Ara stole the bird.’

2.5.3 Productivity

The previous subsections argued that morphological causatives are formed when the underlying predicate lacks a causative *v* head, allowing *v_{cause}* to occupy that position. Since there is a limit of one CAUSE per *vP*, any additional *v_{cause}* is realized analytically since it appears outside the first *vP* domain.

It is clear then that the morphological causative is subject to restrictions that the analytic causative does not need to abide by. The analytic causative is therefore more productive than the morphological construction, since the *v_{cause}* can be added on top of a predicate that is already causative thus forming an analytic causative. The examples below illustrate an analytic causative formed on top of a morphological causative in (64a) and on an analytic causative in (64b):

- (64) a. Ara-n ir kr-oče yerex-in kn-ats-nel t’v-ets
 Ara-Nom his sister-Dat child-Acc sleep-Caus-Inf give-Aor.3sg
 ‘Ara made his sister put the child to sleep.’
 b. ?Ara-n ir kr-oče dur-ə bats-el t’al t’v-ets
 Ara-Nom his sister-Dat door-Acc open-Inf give-Inf give-Aor.3sg
 ‘Ara made his sister to have the door opened.’

The morphological causative, on the other hand, cannot be used iteratively as illustrated below:

- (65) *Ara-n ir k’n-oče yerex-in kn-ats-rets-rets
 Ara-Nom his wife-Dat child-Acc sleep-Caus-Caus-Aor.3sg
 ‘Ara made his wife put the child to sleep.’

2.5.4 Summary

The study of the two causative constructions in Eastern Armenian has led us to the following generalizations: Morphological causatives contain one causative light verb, contain only one agentive subject, can have idiomatic readings and are not iterative. The analytic causatives, on the other hand, are bi-predicative (i.e., consist of two *v_{cause}* heads), contain more than one agentive subject (more specifically, the subject of the embedded clause is agentive), do not give rise to idiomatic readings and are iterative.

The question is how can the proposed analysis maintain that both causatives are formed within the same computational domain, subject to the same syntactic principles while still arguing that they are part of distinct subdomains and have different properties?

As already discussed in Section 2.3, the clausal distinctions between the two causatives follows from the fact that the morphological causative contains only one *v* head marking the outer event (as shown in (49)) while the analytic causative has two *v_{cause}* heads (shown in (50)). Since *v_{cause}* also projects the external argument or agent position, it follows that the morphological causative has one agent, namely the matrix subject, whereas the analytic causative has two distinct agentive subjects (i.e., the embedded and the matrix subjects). Since the domain of idiomatic interpretation is bounded by the agent (i.e., the first external argument projected in the structure), only the morphological causative can give rise to

an idiomatic interpretation. The iterativity of the analytic causative construction is also accounted for: If a predicate already contains a *v_{cause}*, its causative can only be realized as an analytic causative thus restricting the morphological causative to base predicates that lack an outer event structure.

Hence, the analysis proposed can account for the distinct semantic and syntactic properties of the morphological and analytic causatives in Eastern Armenian, without positing two different modules of verb-formation. The current proposal uses only one computational system and a single set of syntactic rules of word-formation, which mainly consist of head-movement. Simply taking into account a notion of economy, such an approach is an improvement over a model that needs to posit distinct components of predicate composition, each with its own set of principles, in order to account for the two types of causatives. In this system, we do not need to assume two distinct word-formation components for a seemingly similar process of causativization within the same language. In addition, the current approach derives all the relevant properties of the causatives without having to depend on fully annotated lexical entries, complete with syntactic and semantic features, which predetermine the projection of the verbal predicates. As will be shown in Chapter 4, the structural distinction between the morphological and analytic causatives is to be derived from the difference in the basic lexical item on which the base predicate is formed. More precisely, the distinction between various lexical items is captured through the level of structure contained in each entry. Hence, in this analysis, the morphological vs. analytic causative distinction ultimately reduces to what constitutes the basic lexical item for the verbs in the language.

In the following section, I will show that the proposed structural analysis, which distinguishes the two causative types in Eastern Armenian based on their syntactic configuration, can also derive all the differences discussed between the lexical and the analytic causatives in Japanese. In addition, the section puts forth an account for the distinct surface forms of causatives in Eastern Armenian, Japanese and Malagasy based on parameters on interface conditions.

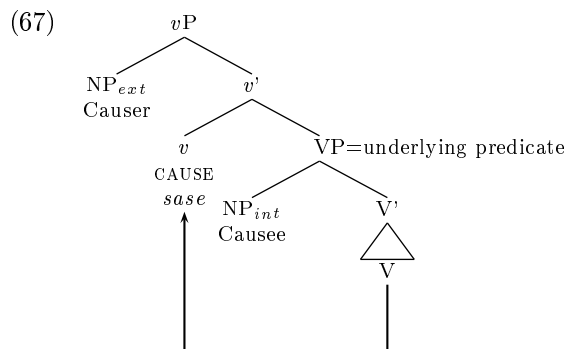
2.6 Surface Realization and Interface Conditions

The structural analysis provided in this chapter can also account for the distinct properties of lexical and analytical causatives in Japanese. Recall from Section 2.1 that the Japanese lexical causative displays the following properties:

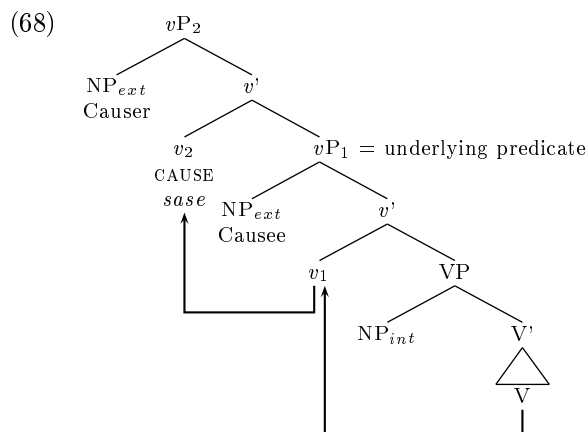
(66) Lexical Causatives

- monoclausal
- causee is not agentive
- may have idiomatic reading
- is subject to lexical blocking

These properties parallel the behavior observed with the morphological causative in Eastern Armenian, as well as the lexical (or l-syntax) causatives in Malagasy and Tagalog, as described in Travis (1999a). Hence, the configuration for a Japanese lexical causative will be similar to the structural configuration proposed in the last section as illustrated below:



The resulting configuration is a single predicate consisting of the little-*v* head representing causation and the underlying verbal element, hence the monoclausal behavior observed. The causee in the specifier of VP is unable to behave as a true subject since it appears within the *inner event* in the final verbal predicate; only the matrix subject, which occupies the external argument position can act as an agent with respect to anaphoric binding or adverbial scope. As previously discussed, the domain of idiomatic interpretation is below the first agent argument, hence such readings are expected with the lexical causative. In addition, the formation of lexical *sase* causative is blocked by the existence of other or zero-affix causatives. This lexical blocking effect can also be captured within the given system. A causative element always includes a *v*-head indicating the causing event. Once another causative verb is formed in the language, *sase* affix cannot appear on the verb since the causativizing slot in the configuration has already been filled.¹⁶ The analytic causatives in Japanese would then be represented as consisting of two distinct *v_{cause}* heads thus forming two separate verbal predicates. In these constructions, *sase* appears in the *v₂* position as shown in the configuration below. I assume that the base verb incorporates into *v₁* which contains a zero affix and then incorporates further into the causative morpheme in *v₂*.



The analysis provided in this chapter can capture the common properties of distinct causative types in the languages discussed, by providing a uniform account regardless of the surface realization of these constructions. The proposed system does not assume the existence of distinct components of word-

¹⁶This is in a way similar to the analysis in Miyagawa (1994) in which *sase* is treated as a transitive affix which fills in an argument in the grid of the verb if it is not occupied.

formation or distinct layers of analysis. Moreover, the resulting syntactic and semantic properties are derived without having to posit two different sets of word-formation principles that apply within the *word* or within the *phrase* domain.

The analysis as it stands, however, cannot explain the distinct surface realizations across languages. In other words, why is it that the same structural configuration is realized as a morphological causative in one language and as a phrasal or analytic surface structure in another? Based on the notion of cyclicity of spell-out (Uriagereka, 1999) or “phase” (Chomsky, 1999), I suggest that the different surface realizations of predicates can be captured by a language parameter that determines the spell-out to the PF interface in each instance.

Chomsky (1998) attempts to eliminate the overt and covert distinction developed in earlier work, by allowing the possibility of multiple spell-outs. In this framework, an operation Spell-Out still delivers the structure that has already been formed to the phonological component, which converts it to PF. The distinction is in the fact that Spell-Out can now be applied at various phases in the derivation, where phases are defined at the boundaries of independent syntactic objects. The features that have been deleted within the cyclic computation remain until the phase level is reached, at which point the derived phrase is passed on to the phonological component. This allows the deleted features to disappear from syntax, thus allowing the syntactic phrase to converge at LF, while at the same time the phonetic effects of the features are processed in a parallel PF component. A phase is defined as a relatively independent syntactic object which is “propositional”, such as verbal phrases with full argument structure and CP with force indicators. One of the main evidences for the choice of phases is provided by the degree of phonetic independence displayed by the syntactic object. Chomsky therefore suggests that CP or *v*P are phases, but the VP verbal phrase is not.

Similar models have been proposed by Uriagereka (1999) and Grohmann (2000). In Uriagereka’s model, spell-out applies every time a command unit or a left-branch is formed, at which point the syntactic information is sent to both LF and PF interfaces. Grohmann (2000) divides the computational system into three domains which he refers to as Prolific Domains consisting of projections of the same type. In this model, the linguistic object formed at each Prolific Domain is sent to the PF and LF components cyclically. Both models, despite some (mostly technical) differences, posit a unique node that determines the point of spell-out for language. I will propose, however, that spell-out node to PF should be taken as a parameter across languages in order to capture the distinct surface realizations. In addition, I will adopt a “derivation by phase” system closer to the one proposed in Chomsky (1999) which only requires a cyclic derivation that delivers the linguistic object formed to the phonological component. The spell-out to the LF component, on the other hand, is considered distinct from the PF phase.

The reason for separating the PF and LF phases is due to the fact that the cross-linguistic data discussed in this chapter have demonstrated that there is a direct correlation between the structure of a causative construction and the meaning obtained, and that this correlation seems to be shared by Eastern Armenian and Japanese, as well as Malagasy and Tagalog. Languages differ, however, with respect to the overt realization of the structure, since in Japanese, Malagasy and Tagalog, all causatives are formed morphologically, while in Eastern Armenian the surface forms of the morphological and analytic causatives are different.

I propose that the phase relations to the interfaces of the language module are not unique, but should be divided into a notion of PF-phase (Φ_{PF}) and a notion of LF-phase (Φ_{LF}). I will assume that Φ_{LF} , which marks the interface to the logico-semantic component through LF, is constant in all languages and applies at nodes that Chomsky refers to as “strong” phases. In terms of the configuration proposed by Travis (1999a) (see (51)), Φ_{LF} would correspond to the boundary point between l-syntax and s-syntax. Φ_{PF} , on the other hand, varies from one language to another (and perhaps within the same language depending on the construction) and thus gives rise to diverse surface forms and mismatches between

form and meaning.¹⁷ Hence, for causatives in Eastern Armenian, Φ_{PF} will apply at the structural node vP . All structure below vP will then be realized as a single morphological word (or PF-word), while the causative v head above vP will be realized as a separate (light) verb. In the case of Japanese, Malagasy and Tagalog, the phase Φ_{PF} applies at a higher level, extending the domain of the morphological word. In these languages, the verbal elements (little- v heads) incorporate into each other until the Φ_{PF} node has been reached. This analysis and its implications will be discussed further in Chapter 6.

Travis (1999a) argues for a similar distinction in her investigation of Malagasy and Tagalog causatives. She proposes to distinguish morphological words or m-words and syntactic/semantic words or s-words. M-words correspond to what I refer to as PF-words; they can vary from one language to another and depend on the lexical and/or morphological inventory of the languages. S-words correspond to my LF-words and are universal. In the configuration I propose for the causative structures, the LF-word corresponds to the first vP node and can contain at most one v_{cause} head. Any mismatch between form and meaning is due to the universality of the LF-word and the language-particular character of the PF-word.

2.7 Conclusion

The distinct surface realizations of causatives across languages (i.e., as words or as phrases), or within the same language in the case of Armenian, cannot be captured by the traditional strict lexicalist approaches which attempt to form all complex predicates in the lexicon (cf. discussion in Ackerman and Le Sourd, 1996; Alsina, 1993). More recent approaches within the lexicalist frameworks need to posit a multi-dimensional lexicon with mappings between the various levels, giving rise to a very complex lexical structure. In other classical generative approaches, the morphological and analytic causatives have been distinguished based on their domain of formation. In particular, the morphological causative is treated as belonging to the lexical or morphological component of grammar, while periphrastic and analytic causatives are formed in syntax. Other analyses have captured the distinct properties of the two causative constructions by positing two different causative verbal elements in the lexicon (Moore, 1997). Depending on the verb chosen, a morphological or analytic causative is formed.

In this chapter, I delineated the distinct syntactic and semantic properties of two types of causative constructions. It was shown that the causatives investigated differ with respect to their clausal properties. In particular, it was argued that the morphological causative in Eastern Armenian and the lexical causative in Japanese are monoclausal, while what I referred to as the analytic causative in Eastern Armenian and Japanese consists of two independent predicates. I provided an analysis in which both causative types are treated as complex predicates formed in syntax, where the causative verbal element v takes the underlying predicate as a complement. The different resulting structures (i.e., whether it contains one v head or two) depends on the complexity of the underlying predicate. It was suggested that the complexity of the base predicate lies in the lexical representation of the base verb; this notion of *basic lexical item* will be discussed in detail in Chapter 4.

In this system, there is no need to posit separate components of word-formation to capture the distinguishing characteristics of the two causatives, since the different properties of the two constructions can be derived from the resulting syntactic structure. In addition, it was argued that mismatches between form and meaning can be accounted for if we have distinct spell-out nodes to the LF and PF interfaces.

The configurational analysis proposed for causative constructions has certain implications for a classification of causatives across languages. It is clear that linguistic variation in causative formation is a very complex issue but I believe that the current proposal, correlating the structure and meaning of the predicates, and the attempt to capture the surface realization as independent from the meaning part, can benefit from a detailed typological study of languages while at the same time shedding some light on the properties to look for in a cross-linguistic examination of causative constructions.

¹⁷Presumably, another Φ_{LF} would occur at the node distinguishing overt from covert syntax (cf. Grohmann, 2000).

The analysis in this chapter has distinguished four main types of causatives classified based on their structural representation, which provides an integrated account of their semantic, syntactic and morphological properties:

1. **vP or l-syntax causatives:**

These causatives behave as a single predicate (i.e., are monoclausal) and may give rise to idiosyncratic interpretations. These constructions contain only one *v_{cause}* in their structure and the causee lacks agentive properties. The morphological causative in Eastern Armenian and the lexical causative in Japanese are members of this group.

Depending on the spell-out node into the PF-component, the l-syntax causatives can be realized either as a single morphological word or the *v_{cause}* can be realized as an independent verb. In the first case, the causative undergoes a morphological process. In this chapter, I have only discussed an affixation process,¹⁸ but causatives may also be formed through consonant doubling, vowel lengthening, reduplication, or tone change. In the second case, the causative predicates appear as two distinct morphological words but behave as a single predicate (see the discussion of complex predicates in Persian in the following chapter.)

2. **vP₂ or s-syntax causatives:**

S-syntax causatives refer to constructions formed of more than one *v_{cause}* head, each belonging to a separate predicate. Crucially, I make a distinction between these causatives and the periphrastic causatives below. Even though I have referred to these predicates as “biclausal” following the traditional terminology, I suggest that this term is misleading since s-syntax causatives do not form two distinct clauses but rather two distinct predicates each consisting of a *v* head. Perhaps a better term for these causatives could be *bi-predicative* or *bi-causal* causatives.

The analytic causative in Eastern Armenian and the *make* causative in Japanese belong to this category. These predicates do not allow idiomatic readings and the causee has agentive properties since it occupies the external argument position of the lower *vP*.

Again, these causatives can be realized as a single morphological word as in Japanese or as two distinct morphological words behaving as heads of two separate predicates as in Eastern Armenian. If the causative appears as a morpheme on the verb, the analysis predicts that it will not be able to undergo certain morphological processes that take place within the first *vP* domain as pointed out by Travis (1999a, p. 159) for Malagasy. This is borne out in Japanese where the first *s* of *sase* is deleted when the verbal root ends in a consonant in a l-syntax causative but not in a s-syntax causative.¹⁹

3. **Periphrastic causatives:**

This category of causatives, which are not discussed in this dissertation, are the true bi-clausal constructions in which the two distinct verbs behave as if they belong in separate clauses. Examples of this class include ‘force’ or ‘allow’ in English, which take an infinitival subordinate clause. I suggest that periphrastic causatives differ from s-syntax causatives in that they have more structure within the base predicate. In particular, the *v_{cause}* in these predicates does not appear with a *vP* complement but a TP or CP complement.²⁰

4. **Lexical causatives:**

The term *lexical causative* will only be used as an expository term in this work to refer to verbs that lack an overt causative marker but behave as “inherently” transitive. These verbs are argued

¹⁸I assume that it is an inherent property of the affix that determines whether it is a prefix, suffix, infix or circumfix.

¹⁹The English causative ‘make’ forms s-syntax causatives. However, it also appears in l-syntax causative constructions, suggesting that it may be in a diachronic shift to becoming an l-syntax or a “same predicate” causative verb like the French ‘faire’ (cf. Dixon, 2000, p. 37).

²⁰The *-ni* or “let” causative in Japanese may belong to this category but further investigation is needed before such a conclusion is drawn.

to be formed in syntax; however, they may be stored as a causative in the lexicon of the language. These constructions will be discussed in Chapter 4.

The classification of causatives proposed here parallels in big part the categories distinguished by Dixon (2000), but differs with it in one important aspect. The current proposal makes a distinction between s-syntax and periphrastic causatives, whereas Dixon (2000) treats both constructions as “periphrastic”. Further study is needed to determine whether the proposed classification is justified typologically.

This chapter examined the distinct properties of l-syntax and s-syntax causatives. The following chapter focuses on complex predicates in Persian that belong to the l-syntax category. These are constructions formed of a single *v_{cause}*, but realized as two separate morphological words. A close examination of these complex predicates allows to distinguish the information contributed by each constituent within these constructions and to isolate the primitive elements forming these verbal predicates.

The Unbearable Lightness of Verbs

The preceding chapter investigated one type of form and meaning mismatch, in which the same surface realization seems to display distinct syntactic and semantic properties indicating that they belong to different structural configurations. This was the case, for instance, in Japanese where the same morpheme *-sase* forms three distinct causative constructions. In this chapter, we will examine a second type of mismatch which arises in languages forming complex verbal constructions. In these languages, verbal predicates are created by combining a light verb element with another predicate which usually provides the substantive information to the complex construction. Examples of such complex predicates are light verb constructions in Indo-Iranian languages, particle verb constructions in Hungarian, and serial verbs. These verbal constructions always form complex predicates containing more than one grammatical element, each of which contributes part of the information that is ordinarily associated with a single head or morphological word in other languages. The challenge these complex verbal predicates raise for the word/phrase dichotomy assumed in lexicalist approaches is twofold: If a strict division between the morphological and the syntactic components is assumed, the theory will have difficulties in accounting for the observation that the same information can be represented as a single word in one language or as several independent words (i.e., phrases) in another. If all verbal meaning features are already available in the lexical entry, then how does the system capture the fact that different languages opt to project the lexical information into distinct components of grammar? Furthermore, complex verbal predicates often display dual properties sometimes functioning as a lexical item and at other times behaving as a syntactic object. This, of course, raises a dilemma if the theory clearly distinguishes between linguistic objects formed in the lexicon and those created in syntax.

Persian is an Iranian language that employs light verb constructions. The language uses a productive method of verb formation which creates complex predicates consisting of a preverbal element and a light verb. The preverbal element can be a noun, an adjective, an adverb or a preposition phrase, which combines with a verb to form a single syntactic predicate. Persian light verb constructions (also known as compound verbs or complex verbs) are directly relevant to the discussion of the word/phrase dichotomy, since they behave as single verbal predicates but are represented as two distinct morphophonological words. In addition, these constructions show an overt decomposition of the verb as proposed in many generative frameworks. Determining the syntactic and semantic contributions of these two components lies at the center of the investigation of compound verbs. In the literature on these constructions in Persian, it has been suggested that light verbs are semantically empty and it is the preverbal nominal element that lends its arguments to the complex verb (Mohammad and Karimi, 1992). Others have argued that light verbs contribute aspectual information but not argument structure (Karimi-Doostan, 1997). Barjasteh (1998), Vahedi-Langrudi (1996), Dabir-Moghaddam (1997) and Ghomeshi and Massam (1994) treat the preverbal element as an argument of the verbal component. Karimi (1997), however, has argued that each component of the complex verb contributes a thematic structure; these two structures

undergo a semantic fusion after incorporating at LF.

Another issue that is directly related to the current discussion is the dual behavior of Persian complex predicates as lexical and syntactic elements. These verbal constructions undergo nominalization, adjectival formation and have a single primary stress, which has led some researchers to suggest that they are lexical units. On the other hand, complex predicates are visible to syntactic and morphological processes: The components of these verbs can often be separated by negation and inflectional affixes, auxiliaries, modals and emphatic elements. Furthermore, certain preverbal elements can act as full-fledged noun phrases, since they may be modified, gapped or relativized.

In this chapter, I investigate the causative/inchoative alternation in Persian and propose an analysis in which the arguments are not projected from the lexicon but formed compositionally by combining the basic components of the complex predicate in syntax. I suggest an analysis based on a syntactic decomposition of the verbal construction, following ideas developed in Marantz (1997), Chomsky (1995), Vergnaud (2000) and Hale and Keyser (1993), whereby the verbal structure is formed by the conjunction of the root element and functional components. I argue that the substantive aspects of the predicate are contributed by the preverbal element, while the event information (such as causation) is carried by the light verb. In addition, Aspect is closely related to the choice of the light verb. It is argued that aspectual properties and the interpretations of the arguments can be derived from the resulting syntactic configuration (Borer, 1994; Ritter and Rosen, 1998). The analysis proposed can also capture the dual nature of complex predicates in Persian: Since word formation takes place in syntax, the fact that the internal structure of a complex verb is visible to syntactic and morphological processes follows naturally from this analysis. Nominalizations and adjectival formations, which have been used to argue for the lexical behavior of complex predicates, are a process of word formation and are derived in syntax (see van Hout and Roeper, 1998, among others). If word-formation is not confined to the lexicon, complex predicates may undergo nominalization in syntax, without having to be treated as lexical or X^o units.

The chapter is organized as follows: Section 3.1 introduces the light verb constructions in Persian and presents their dual properties sometimes behaving as words and at other times functioning as phrases. Section 3.2 investigates the syntactic and semantic properties of complex predicates in Persian and isolates the contributions of each component. In this section, the causative/inchoative alternation verbs, *kærdæn* and *šodæn*, are studied in detail and it is argued that a finer decomposition is needed to account for their event structures leading to a syntactic, compositional analysis of these complex predicates. Based on these results, section 3.3 provides a syntactic analysis for verb-formation in Persian. Section 3.4 reviews the evidence presented by Karimi-Doostan (1997) in favor of a close relation between the choice of the light verb in Persian and the corresponding verb phrase aspect. It is shown that the resulting aspectual interpretation can be accounted for in this model based on the resulting structural configuration and there is no need to posit aspectual roles within the lexicon. Section 3.5 concludes the chapter.

3.1 Light Verb Constructions in Persian

In addition to simple verbs, Persian employs a wide variety of complex predicates, which consist of a non-verbal constituent, such as a noun, adjective, adverb, past participle or preposition phrase, and a verbal constituent. These verbal elements are usually referred to as *light verbs* since their semantic or thematic content is partially or completely bleached. They can, however, carry tense, aspect or negation morphology like simple verbs. Each of the light verbs in Persian corresponds to a ‘heavy’ or fully thematic verb. A list for the verbs that most commonly appear in light verb constructions is provided in (1):

(1)	kærdæn	'do, make'
	daštæn	'have'
	dadæn	'give'
	zædæn	'hit, strike'
	šodæn	'become'
	xordæn	'eat'
	yaftæn	'find'
	amædæn	'come'
	aværdæn	'bring'
	oftadæn	'fall'
	ændaxtæn	'throw, drop'
	kešidæn	'pull, drag'
	gereftæn	'catch, take'
	ræftæn	'go'
	didæn	'see'
	bordæn	'take'
	gozaštæn	'put'

Some of these verbs also have certain stylistic variations, often used in more literary contexts. Several examples are given below:

(2)	dadæn	'give'	⇒	bæxšidæn	'offer'
	šodæn	'become'	⇒	gærdidæn	'turn'
	kærdæn	'do, make'	⇒	nemudæn	'show'

These light verbs can combine with various types of non-verbal items such as Nouns, Adjectivals or Prepositional phrases to form complex predicates, as shown in the following examples from Dabir-Moghaddam (1997).

(3)	<u>Noun + LV</u>		
	telefon	kærdæn (telephone do)	'to telephone'
	šane	zædæn (comb hit)	'to comb'
	ney	zædæn (flute hit)	'to play the flute'
	dærd	kešidæn (pain pull)	'to hurt (intrans.)'
	hæmam	kærdæn (bathing do)	'to bathe'
	šekæst	dadæn (defeat give)	'to defeat'
	duš	gereftæn (shower take)	'to shower'
	vojud	daštæn (existence have)	'to exist'
	zendegi	kærdæn (life do)	'to live'
(4)	<u>Adjective/Past Participle + LV</u>		
	delxor	kærdæn (annoyed make)	'to annoy'
	delxor	šodæn (annoyed become)	'to be annoyed'
	tælx	kærdæn (bitter make)	'to make bitter'
(5)	<u>Prepositional phrase + LV</u>		
	be donya	amædæn (to world come)	'to be born'
	æz beyn	ræftæn (from between go)	'to vanish'
	æz beyn	bordæn (from between take)	'to destroy'
	be xun	kešidæn (to blood pull)	'to kill, to massacre'
	be yad	daštæn (to remembrance have)	'to remember'

Khanlari (1986, p.395-8) provides a list of all Persian simple verbs currently in usage in the dialect of Persian spoken in Iran. The list contains 279 verbs, yet Mohammad and Karimi (1992) have reported that only 115 verbs are used as simple verbs in modern colloquial and standard Persian. In fact, the majority of simple verbs in Persian have been replaced by light verb constructions as shown in (6).

(6)	<u>Old Persian</u>		<u>Modern Persian</u>	
	agahanidæn	‘inform’	⇒	agah kærdæn (informed make)
	piruzinidæn	‘make victorious’	⇒	piruz gærdandæn (victorious turn-Caus)
	peydaginidæn	‘show’	⇒	nešan dadæn (sign give)
	aqazidæn	‘begin’	⇒	aqaz kærdæn (beginning do)
	rowšaninidæn	‘turn on, light’	⇒	rowšæn kærdæn (bright make)
	ayasidæn	‘remember’	⇒	be yad aværdæn (to remembrance bring)

Furthermore, some of the existing simple verbs also have complex counterparts as illustrated in (7), which are often preferred in colloquial speech.

(7)	zistæn	‘live’	⇒	zendegi kærdæn (life do)
	geristæn	‘cry’	⇒	gerye kærdæn (cry do)
	pærdaxtæn	‘pay’	⇒	pærdaxt kærdæn (payment do/make)
	kušidæn	‘try’	⇒	kušeš kærdæn (try do/make)
	qæltidæn	‘roll (intrans)’	⇒	qælt xordæn (roll eat)
	færiftæn	‘trick, fool’	⇒	færib dadæn (trick give)

In fact, the formation of complex verb forms in Persian is highly productive. Dabir-Moghaddam (1997) points out that the number of simple verbs formed on the basis of Arabic borrowings into Persian is very small and most verbs based on an Arabic noun, adjective or participle are complex predicates. This suggests that complex verb formation was the dominant tendency in Early Modern Persian (i.e., around the time of the Arabic invasion of Persia, 7th to 11th century A.D.). Moreover, all new loan words are used as verbs through combination with a light verb:

(8)	telefon	kærdæn	(telephone do)	‘to telephone’
	fæks	kærdæn	(fax do)	‘to fax’
	telegraf	zædæn	(telegraph hit)	‘to telegraph’
	imeyl	zædæn	(email hit)	‘to email’
	klik	kærdæn	(click do)	‘to click (on a mouse)’
	masaj	dadæn	(massage give)	‘to massage’
	montaj	kærdæn	(editing/assembly do)	‘to edit’
	sigar	kešidæn	(cigarette pull)	‘to smoke’

In addition, multilingual speakers often codeswitch by using a preverbal element from a foreign language combined with a Persian light verb. The data in (9) illustrate a few of these cases and confirm the very productive nature of these light verb constructions, in particular with the light verb *kærdæn* ‘do, make’. The example in (10), overheard on Persian radio in Los Angeles, demonstrates that the preverbal element itself could be a complex verbal predicate.

(9)	<i>cancel</i> =kærdæn	‘to cancel’
	<i>announce</i> =kærdæn	‘to announce’
	<i>introduce</i> =kærdæn	‘to introduce’

(10)	mæn	<i>take-a-chance</i> =kærdæm
	I	take-a-chance=did
		‘I took a chance.’

Persian light verb constructions display a dual nature. They behave like a single word with respect to certain phenomena, while they function as a phrase in other contexts. It is precisely this duality that raises a challenge for syntactic theories that draw a clear distinction between morphological and syntactic objects. In this section, I will present the lexical and syntactic properties of these complex predicates that have been the center of much debate in the literature.

3.1.1 Lexical Properties of Light Verb Constructions

Persian light verb constructions can function like simple verbs predicating the same number of arguments in the clause. They can undergo morphological derivations and their internal structure is opaque to syntactic operations.

The following examples illustrate complex verbal constructions and their simple counterparts. As can be seen from these sentences, the complex predicate and the single heavy verbs both project the same number and types of arguments.

- (11) a.mæn pul-ra pærdaxt=kærd-æm
 I money-OM payment=do.PAST-1SG
 ‘I paid the money.’
 b.mæn pul-ra pærdaxt-æm
 I money-OM pay.PAST-1SG
 ‘I paid the money.’
- (12) a.doxtær-æk dær guše-i gerye=mi-kærd
 girl-DIM in corner-INDEF cry=DUR-do.PAST.3SG
 ‘The little girl was crying in a corner.’
 b.doxtær-æk dær guše-i mi-geri-st
 girl-DIM in corner-INDEF DUR-cry-PAST.3SG
 ‘The little girl was crying in a corner.’

Complex predicates can undergo nominalization and can be used to form adjectives and adverbs, which suggests that these constructions are to be treated as lexical or X^o units. These operations are illustrated in the following examples. Gerundive nominals can be formed by adding the morpheme *-æn* to the past stem of the complex predicate as shown in (13), while agentive nominals are formed by combining the suffix *-ænde* or a null suffix to the present stem of the verbal part (14).²¹

- (13) Gerundive nominalization:
 a.sigar=kešid-æn-e in bæče xætærnak æst
 cigarette=pull-INF-EZ this child dangerous is
 ‘This child’s smoking is dangerous.’ (i.e., ‘The fact that this child smokes is dangerous.’)
 b.dad=zæd-æn-e hæmsaye-ha-mun ma-ro zelle=kærde (æst)
 shout=hit-INF-EZ neighbor-PL-POSS.1PL we-OM weary=make.PPART (is)
 ‘Our neighbor’s screams have made us weary.’
 (Lit: ‘The screamings of our neighbors have made us weary.’)
- (14) Agentive noun formation:²²
 a.tæzahorat=kon-ænde-gan
 demonstrations=do-AFF-PL

²¹The *ezafe* morpheme EZ is used in Persian to link the head of the noun phrase to its modifiers and complements. For recent studies of the *ezafe* construction, the reader is referred to Ghomeshi (1996) and Kahnemuyipour (2001).

²²In the gloss, AFF stands for Affix and is used whenever an overt morpheme is used to derive the various word formations; the affix used in each process is not distinguished at this level.

‘(the) demonstrators’

b.bazi=kon-an

play=do-Ø-PL

‘(the) players’

c.gozareš=dæh-ænde

report=give-AFF

‘reporter’

In Persian, adjectivals can be formed by adding the suffix *-i* on the present stem as in (15) and participials are obtained when the particle *-e* combines with the past stem of the verbal predicate as in (16).

(15) Adjectival formation:

In kelid peyda=šodan-i n-ist.

this key found=become-AFF NEG-is

‘This key is not to be found.’ (Lit.: ‘This key is not findable.’)

(16) Participial adjective formation:

lebas-ha-ye xošk=šod.e

dress-PL-EZ dry=become.PPART

‘(the) dried clothes’

In addition, complex predicates may form a manner adverbial when the suffix *-an* is attached to the present stem of the verbal element as in (17).

(17) Adverb formation:

Hæmid šena=kon-an be xoški resid

Hamid swim=do-AFF to land arrive.PAST.3SG

‘Hamid swam to land.’ (Lit.: ‘Hamid reached land swimming.’)

The following examples show that all of these morphological operations apply to simple verbs:

(18) a. Gerundive nominalization

ræqsidæn-e mojde ma-ro xændand

dancing-EZ Mojde we-OM laugh.CAUS.PAST.3SG

‘Mojde’s dancing made us laugh.’

b. Agentive noun formation:

šenæv-ænde-gan væ bin-ænde-gan-e æziz

listen-AFF-PL and watch-AFF-PL-EZ dear

‘dear listeners and viewers’

c. Adjectival formation:

xand-æn-i-ha va danest-æn-i-ha

read-INF-AFF-PL and know-INF-AFF-PL

‘worth reading and knowing’ (Lit.: ‘readables and knowables’)

d. Participial adjective formation:

tars-ide

fear.PPART

‘afraid’

e. Manner adverb formation:

gery-an væ lærz-an

cry-AFF and tremble-AFF

'(while) crying and trembling.'

Furthermore, these processes can only target fully thematic verbs; light verbs alone (with the light verb meaning and not as heavy verbs) cannot undergo these morphological formations as exemplified below:

(19) a. kærdæn 'do/make':

*konænde 'doer/maker' vs. telefon=konænde (phone=doer) 'caller'

b. šodæn 'become':

*šode 'become.PPART' vs. xošk=šode (dry=become.PPART) 'dried'

The components of light verb constructions usually resist separation. An adverbial cannot appear between the preverbal element and the light verb as shown in (20). In such cases, the adverb should precede the complex predicate as illustrated in (21).

(20) a.?* ranændegi tond kærd-æm
driving fast do.PAST-1SG

'?* I drove fast.'

b.?* qeymæt-ha æfzayeš šædidæn yafte-ænd
price-PL increase intensely find.PPART-PAST.3PL

'?* The prices have increased intensely.'

c.?* dær-ro baz yævaš kærd-æm
door-OM open slowly do.PAST-1SG

'?* I opened the door slowly.'

(21) a. tond ranændegi=kærd-æm
fast driving=do.PAST-1SG

'I drove fast.'

b. qeymæt-ha šædidæn æfzayeš=yafte-ænd
price-PL intensely increase=find.PPART-PAST.3PL

'The prices have increased intensely.'

c. dær-ro yævaš baz=kærd-æm
door-OM slowly open=do.PAST-1SG

'I opened the door slowly.'

In most cases, the direct object of a transitive predicate cannot intervene between the two parts of a light verb construction as shown in (22) but the sentences are felicitous if the object precedes the complex predicate as illustrated in the contrasting examples in (23).²³

(22) a.?* setayeš æli-ro kærd-æm
praise Ali-OM do.PAST-1SG

'?* I praised Ali.'

b.* kamyab baz dær-ro kærd
Kamyab open door-OM do.PAST.3SG

²³It should be noted, however, that in certain cases the direct object may appear as a complement to the preverbal element forming a noun phrase. In these cases, the direct object appears to be intervening between the two components of the light verb construction. See section 3.1.2 for discussion.

- * Kamyab opened the door.’
 c.* færhad neĵat širin-ro dad
 Farhad save Shirin-OM give.PAST.3SG
 * Farhad saved Shirin.’
- (23) a.æli-ro setayeš=kærd-æm
 Ali-OM praise=do.PAST-1SG
 ‘I praised Ali.’
- b.kamyab dær-ro baz=kærd
 Kamyab door-OM open=do.PAST.3SG
 ‘Kamyab opened the door.’
- c.færhad širin-ro neĵat=dad
 Farhad Shirin-OM save=give.PAST.3SG
 ‘Farhad saved Shirin.’

In addition, complex predicates in Persian carry a single primary stress which usually appears on the preverbal element as illustrated in (24), which has been argued to be an indication that the primary stress assignment rule treats complex predicates as unified wholes (Dabir-Moghaddam, 1997; Ghomeshi and Massam, 1994; Vahedi-Langrudi, 1996).

- (24) a.mojġan bæĉe-ro delxór=kærd
 Mojġan child-OM offended=make.PAST-3SG
 ‘Mojġan offended the child.’
- b.særbaz-ha mærdom-e dehkæde-ro tæhdíd=kærd-ænd
 soldier-PL people-EZ village-OM threat=do.PAST.3PL
 ‘The soldiers threatened the villagers.’
- c.bombaran saxteman-e sazman melæl-ra æz=beyn=bórd
 bombing building-EZ United Nations-OM from=between=take.PAST.3SG
 ‘The bombing destroyed the United Nations building.’
- d.ma sal-ha dær in šæhr qósse=xord-im
 we year-PL in this city grief=eat.PAST.1PL
 ‘We grieved for years in this town.’

These properties have led several researchers to argue that complex predicates are formed in the lexicon (Dabir-Moghaddam, 1997; Karimi-Doostan, 1997; Barjasteh, 1998) or are to be treated as X^0 heads (Ghomeshi and Massam, 1994). However, the internal constituents of Persian light verb constructions may undergo syntactic operations and complex predicates may be broken up by intervening morphological or syntactic items. These properties are discussed in the following section.

3.1.2 Syntactic Properties of Light Verb Constructions

Despite the “lexical” properties presented in the previous section, the internal elements of a complex predicate can be separated from each other and are subject to syntactic operations. The components of the predicate can be separated from each other by intervening morphemes, auxiliaries, modals or direct objects; certain preverbal elements can be modified; preverbal elements may be coordinated or relativized and either constituent may be gapped in certain constructions. This section examines the so-called syntactic properties of the light verb constructions in Persian.

Inflectional prefixes such as the negative affix *ne-* or *-næ-*, the imperative and subjunctive prefix *be-*, the progressive or durative *mi-* and the imperative negative prefix *mæ-* all attach to the verbal component

in complex predicates, thus intervening between the two verbal parts as shown in (25).

- (25) a. guš=**mi**-kon-im
 ear=DUR-do-1PL
 ‘We are listening.’
 b. mašin æli-ro zir=**næ**-gereft
 car Ali-OM under=NEG-catch.PAST.3SG
 ‘The car didn’t run over Ali.’

As illustrated in (26), adjectival preverbal elements can also receive comparative morphology:

- (26) pro sæbr=kærd-æm ta lebas-e mæn xošk-tær=šod
 wait=do.PAST-1SG until dress-EZ my dry-COMP=become.PAST.3SG
 ‘I waited until my dress got drier.’

In addition to morphological elements, the auxiliary of the future tense *xastæn* ‘want’ can intervene between the two complex verb constituents as shown in (27). The auxiliary carries the number and agreement. Similarly, the modal-like verb *təvanestæn* or *tunestæn* ‘be able’ and the progressive modal *daštæn* ‘have’ may separate the two constituents (shown in (28) and (29), respectively).

- (27) polis hæt-mæn bæče-ha-ra peyda *xahæd* kærd
 police definitely child-PL-OM found want.PAST.3SG do.PAST
 ‘The police will definitely find the children.’
 (28) in gonješk pærvaz *ne-mi-tun-e* bo-kon-e
 this sparrow fly NEG-DUR-can-3SG SUBJ-do-3SG
 ‘This sparrow cannot fly.’
 (29) a. morad zæmin *dašt* mi-xord ke mæn gereft-æm-eš
 Morad ground have.PAST.3SG DUR-eat that I catch.PAST-1SG-POSS.3SG
 ‘Morad was falling when I caught him.’
 b. qeymæt-ha payin *dar-æn(d)* mi-a-(a)n
 price-PL down have-3PL DUR-come-3PL
 ‘The prices are falling.’

(30) shows emphatic elements intervening between the two verbal elements:

- (30) pro gerye *ke* mi-kærd mæn hæm ba u mi-nalid-æm
 cry that DUR-do.PAST.3SG I also with him/her DUR-groan.PAST.1SG
 ‘Whenever he/she cried, I also groaned with him/her.’ (from *muryane* by Bozorg Alavi)

Recall from the previous section that adverbs cannot intervene between the preverb and the light verb as was shown in (20), also illustrated in (31). However, the same meaning can be expressed by modifying the nominal preverbal element with an adjectival as shown in the corresponding examples in (32) and the example in (33). Note that in these constructions the preverb and the adjective form a NP.

- (31) a. ?* ranændegi tond kærd-æm
 driving fast do.PAST-1SG
 ‘*? I drove fast.’
 b. ?* qeymæt-ha æfzayeš šædidæn yafte-ænd
 price-PL increase intensely find.PPART-PAST.3PL
 ‘*? The prices have increased intensely.’

- c.?* zendani šekænje væhšætñak xorde bud
 prisoner torture horrendous eat-PPART was
 ‘?* The prisoner had been tortured horrendously.’
- (32) a.? [NP ranændegi-e tond-i] kærd-æm
 driving-EZ fast-INDEF do.PAST-1SG
 ‘? I drove fast.’ (Lit: ‘I did a fast drive’)
- b.qeymæt-ha [NP æfzayeš-e šædid-i] yafte-ænd
 price-PL increase-EZ intense-INDEF find.PPART-PAST.3PL
 ‘The prices have increased intensely.’ (Lit: ‘The prices have had an intense increase’)
- c.zendani [NP šekænje-ye væhšætñak-i] xorde bud
 prisoner torture-EZ horrendous-INDEF eat-PPART was
 ‘The prisoner had undergone a horrendous torture.’
- (33) kimea [NP ye zæmin-e sæxt-i] xord
 kimea a ground-EZ hard-INDEF eat.PAST.3SG
 ‘Kimea had a bad fall.’ (Lit: ‘Kimea hit a hard floor’) (from Karimi, 1997)

In the previous section, it was shown that the direct object of a light verb construction cannot intervene between the two verbal components as illustrated in (34), providing evidence for the lexical behavior of complex predicates in Persian.

- (34) a.?* setayeš æli-ro kærd-æm
 praise Ali-OM do.PAST-1SG
 ‘?* I praised Ali.’
- a.?* xab bæče-ro did-æm
 dream child-OM see.PAST-1SG
 ‘?* I dreamt of the kid.’

However, the direct object may appear as a complement to the preverbal element as shown in (35). In these examples, the preverbal element and its complement form a noun phrase similar to the previous examples with adjectival modifiers.

- (35) a.[NP setayeš-e æli-ro] kærd-æm
 praise-EZ Ali-OM do.PAST-1SG
 ‘I praised Ali.’
- a.[NP xab-e bæče-ro] did-æm
 dream-EZ child-OM see.PAST-1SG
 ‘I dreamt of the kid.’

Furthermore, in transitive constructions, the direct object clitic may appear between the preverbal element and the light verb, as in (36).

- (36) a.mæn baz-eš kærd-æm
 I open-CLIT.3SG do.PAST-1SG
 ‘I opened it.’
- b.ma rowšæn-ešun kærd-im
 we light-CLIT.3PL do.PAST-1PL
 ‘We turned them on/We lit them.’

This pronominal clitic is directly related to the stress pattern; it attaches to the element bearing the primary stress. Although it may also attach to the whole light verb construction as in (37), the clitic oftentimes appears on the preverbal element.

- (37) ma rowšæn kærd-im-ešun
 we light do.PAST-1PL-CLIT.3PL
 ‘We turned them on/We lit them.’

Since the clitic cannot be inserted inbetween the syllables of a morphological word, even following a stressed morpheme boundary as illustrated by the ungrammaticality of (38b), the examples in (36) are strong indication that the preverbal and light verb elements demonstrate phrasal behavior.

- (38) a. díd-im-es
 see.PAST-1PL-CLIT.3SG
 ‘We saw him/her/it.’
 b. *díd-es-im
 see.PAST-CLIT.3SG-1PL
 ‘We saw him/her/it.’

Based on evidence showing that the nominal preverbal element may be pluralized, modified and take a PP complement as illustrated in the examples in (39), Heny and Samiian (1991) argue that the preverbal elements are actually X^{max} s.

- (39) a. hæšæn dær næql-e in dastan eštebah=kærd
 Hasan in telling this story mistake=do/make.PAST.3SG
 ‘In telling the story, Hasan made a mistake.’
 b. ? hæšæn [_{NP} eštebah-at-e færavan-i] [_{PP} dær næql-e in dastan] kærd
 Hasan mistake-PL-EZ numerous in telling this story do/make.PAST.3SG
 ‘? Hasan made many errors in telling the story.’

Vahedi-Langrudi (1996) provides the following contrast to show that PP complements and modifiers may intervene between the two constituents of the complex verb:

- (40) a. unha æz æmir be gærmi esteqbal=kærd-ænd
 they from Amir with warmth welcome=do.PAST-3PL
 ‘They gave Amir a warm welcome.’
 b. unha [_{NP} esteqbal-e gærm-i] [_{PP} æz æmir] kærd-ænd
 they welcome-EZ warm-INDEF from Amir do.PAST-3PL
 ‘They gave Amir a warm welcome.’

The two components of a complex predicate can also be separated from each other by various syntactic processes, clearly indicating that the elements of the complex verb do not form a lexical or incorporated unit. The sentence in (41) illustrates a gapping construction. In (41a), the light verb *kærdæn* has been gapped from the second predicate *ehsas kærdæn* (feeling do = ‘to feel’) and in (41b) *dadæn* is gapped from the first light verb construction *šekanje dadæn* (torture give = ‘to torture’).

- (41) a. ta diruz ne-mi-tævanest-æm hæ anče fekr mi-kærd-æm væ ehsas
 until yesterday NEG-DUR-can.PAST-1SG whatever thought DUR-do.PAST-1SG and feeling
 boruz dæh-æm
 reveal give-1SG
 ‘Until yesterday, I couldn’t reveal what I thought or felt.’ (from *muryane* by B. Alavi)

b.sal-ha sasan-ra šekænje va æzab dad-ænd
 year-PL Sasan-OM torture and torment give.PAST-3PL

‘They tortured and tormented Sasan for years.’ (from Karimi-Doostan, 1997)

With certain complex predicates, the preverbal element can be a noun phrase as exemplified for *šo’ar dadæn* (slogan give = ‘to chant (slogans)’) in (42a) or it can develop into a relativized DP as shown for the complex verb *lætme zædæn* (damage hit = ‘to damage’) in (42b).

- (42) a.pro mæra tæšviq kærd hæz ruz [_{NP} šo’ar-i tond.o.tiz-tar]
 me encourage do.PAST-3SG every day slogan-INDEF pungent-COMP

be-dæh-æm

SUBJ-give-1SG

‘He encouraged me to give more pungent slogans every day.’ (from *muryane* by B. Alavi)

b.[_{NP} lætme-i-ra ke tægærg be baq-e mæn zæd] bavær
 damage-INDEF-OM that hail to garden-EZ my hit.PAST.3SG belief

næ-kærdæn-i bud

NEG-do.INF-AFF was

‘The damage that the hail caused to my garden was unbelievable.’ (from Karimi-Doostan, 1997)

These data have led certain researchers to argue for a syntactic analysis of complex predicates (e.g., Heny and Samiian, 1991).

3.1.3 Dual Behavior

The previous sections clearly show that complex predicates in Persian can behave as lexical or X^o items in certain cases, while they display syntactic properties with respect to other phenomena. The interaction of complex predicates with derivational morphological processes on one hand and the separability of the constituents of these predicates on the other, present the current syntactic theories with a serious dilemma. Researchers who decide to treat the complex predicates as lexical or zero-level items fail to account for the separability of the constituents. On the other hand, the analyses that argue that these complex predicates are X^{max} elements fail to capture the syntactic atomicity of these constructions. Certain approaches provide a lexicalist analysis, but postulate that the predicates formed in the lexicon are still visible to the syntactic and morphological operations; this is, in essence, the approach followed by Karimi-Doostan (1997). Others provide a syntactic analysis, in which complex predicates are formed compositionally in syntax. But in order to account for the lexical behavior observed, the complex verbs have to be generated under a X^o node (see, for instance, Ghomeshi and Massam, 1994). I suggest that the duality problem witnessed in Persian light verb constructions is a theory-internal problem. In other words, I argue that any theory that does not distinguish between the component responsible for word-formation and the component responsible for creating phrases will not face a problem in light of the evidence presented in this section. The lexical and syntactic properties of complex predicates can easily be captured within a system that assumes a single computational domain for manipulating linguistic elements.

Before we can begin to develop a theory to account for the dual properties of light verb constructions, a closer examination of the contribution made by each constituent of the predicate is needed. In the following section, I will investigate the syntactic and semantic properties contributed by the preverbal and light verb elements in the construction and I will propose a decomposition of the verbal predicate into its most primitive elements of meaning.

3.2 Primitive Elements of the Verbal Predicate

3.2.1 Contribution of Verbal Components

One of the main issues in the study of complex predicates consists of determining the amount of information contributed by each component. Most approaches in Persian literature have treated light verbs as bleached elements that do not contribute to the argument structure of the resulting predicate. In these analyses, the number of arguments in the complex predicate and their alignment to grammatical functions is determined solely by the preverbal element. I argue, however, to further decompose the components of the light verb constructions into smaller units of meaning. I then propose that the arguments of these complex verbs are introduced not by the preverbal constituent but rather by the light verbs themselves. Furthermore, I will show that the lexical root components of the preverbal elements contribute the core meaning of the predicate while light verbs provide information on the eventuality expressed.

It is a well-known fact that the light verbs used in complex predicate constructions do not have the same argument structure as their heavy counterparts as exemplified in the contrast between (43), representing the full thematic verb *dadæn* (give) and (44), representing the light verb *dadæn*. In (43), the ditransitive verb appears with a direct and an indirect object, similar to its English counterpart. In the examples in (44), however, the argument structure is modified based on the preverbal element used. In (44a), the resulting structure is intransitive, but in (44b) the complex predicate takes a direct object, and (44c) requires both a direct object and a locative PP. These examples show that the argument structure of the complex predicate is not determined by the verbal element in the construction but varies based on the choice of the preverbal element.

- (43) Nader ketab-ro be hušang dad.
 Nader book-OM to Hushang give.PAST.3SG
 ‘Nader gave the book to Hushang.’
- (44) a. Nader estefa’=dad.
 Nader resign=give.PAST.3SG
 ‘Nader resigned.’
- b. Nader in pesar-ro neĵat=dad.
 Nader this boy-OM rescue=give.PAST.3SG
 ‘Nader rescued this boy.’
- c. Nader ketab-ro ru-ye miz qærar=dad.
 Nader book-OM on-EZ table setting=give.PAST.3SG
 ‘Nader put the book on the table.’

Following an analysis by Grimshaw and Mester (1988) for Japanese *suru*, Mohammad and Karimi (1992) argue that Persian light verbs are semantically empty. According to this analysis, known as the Argument Transfer Hypothesis, the entire semantic content of the compound verb comes from the nominal element. This claim is supported by examples such as (45) and (46), where changing the light verb does not influence the meaning of the complex verb.

- (45) a. mæĵbur=kærdæn (obliged=do/make) ‘to force’
 b. mæĵbur=nemudæn (obliged=show) ‘to force’
- (46) a. æfzayeš=*dadæn* (increase=give) ‘to increase’
 b. æfzayeš=bæxšidæn (increase=offer) ‘to increase’

The difference between (45a) and (45b) is only of a stylistic nature since the latter has a more formal reading. A similar distinction is present in the pair in (46) where (46b) is usually used in literary or

journalistic prose. Mohammad and Karimi (1992) propose that the preverbal nominal element in these examples lends its arguments to the empty light verb, which is then turned into a theta-marker.

This analysis faces a problem when the preverbal element is an adjectival or adverbial as pointed out in Karimi (1997) and Goldberg (1995), since these elements are not usually associated with thematic roles. In addition, pairs such as the ones shown in (45) and (46) are very rare and the formal uses are limited mainly to literary contexts.

Karimi-Doostan (1997) and Vahedi-Langrudi (1996) also claim that light verbs are semantically bleached elements that are not associated with particular thematic roles and do not affect the argument structure of the verbal predicate. The transitivity of the verbal complex, Vahedi argues, is determined by the preverbal element. Hence, if the preverbal element is intransitive as in (47), the resulting predicate is also intransitive. If the preverbal element is transitive, however, as in the example in (48), the complex predicate is also transitive.

- (47) a.gerye=kærdæn
 cry=do
 ‘to cry’
 b.gerye-ye bæče
 cry-EZ child
 ‘child’s cry’
- (48) a.pærdaxt=kærdæn
 payment=do
 ‘to pay’
 b.pærdaxt-e pul be hæmsaye (tævæsot-e æli)
 payment-EZ money to neighbor (by-EZ Ali)
 ‘payment of money to the neighbor (by Ali)’

There exist numerous examples, on the other hand, in which a change in the light verb does result in a change in the interpretation and syntax of the complex predicate, suggesting that light verbs are not semantically empty and that they contribute to argument structure. The (a) sentences in the following examples are transitive clauses formed with the light verbs *dadæn* (give) and *zædæn* ‘hit’. When these light verbs are replaced by their unaccusative counterparts, such as *didæn* ‘see’, *xordæn* ‘eat, collide’ or *yaftæn* ‘find’ in the (b) sentences, the resulting clause is intransitive. Hence, in all of these sentence pairs, the choice of the light verb can determine whether a sentence is transitive or intransitive.

- (49) a.Særbaz-ha golesorxi-ro dær زندان šekænje=dadænd.
 soldier-PL Golesorkhi-OM in prison torture=give.PAST-3PL
 ‘The soldiers tortured Golesorkhi in prison.’
 b.Golesorxi dær زندان šekænje=did.
 Golesorkhi in prison torture=see.PAST.3SG
 ‘Golesorkhi was tortured in prison.’
- (50) a.Hušæng nader-ro gul=zæd.
 Hushang Nader-OM deceit=hit.PAST.3SG
 ‘Hushang deceived Nader.’
 b.Nader gul=xord.
 Nader deceit=eat.PAST.3SG
 ‘Nader was deceived.’

- (51) a. Pezešk mæriz-ro šæfa=dad.
 doctor patient-OM cure=give.PAST.3SG
 ‘The doctor cured the patient.’
 b. Mæriz šæfa=yaft.
 patient cure=find.PAST.3SG
 ‘The patient was cured.’

In these constructions, the preverbal element remains the same, while the light verb is modified triggering a change in the argument structure of the predicate. More specifically, the choice of the light verb determines whether an external argument is projected. Hence, in the alternation pair in (49), the light verb *dadæn* ‘give’ in (49a) projects an external argument, *særbaz-ha*, which is not present in the sentence formed with the light verb *didæn* ‘see’ in (49b). The internal arguments, however, remain unchanged in both sentences. In addition, the main meaning of the complex verb remains untouched, suggesting that the preverbal element provides the main core of the meaning. For instance, in both examples in (49), the main verb is ‘to torture’ regardless of the light verb used. Another alternating pair in Persian consists of the causative light verb *kærdæn* ‘make’ and the inchoative *šodæn* ‘become’, illustrated below, which will be discussed at length in Section 3.3.

- (52) a. Mani dær-ro baz=kærd.
 Mani door-OM open=make.PAST.3SG
 ‘Mani opened the door.’
 b. Dær baz=šod
 door open=become.PAST.3SG
 ‘The door opened.’

Once again, the core meaning of the predicate (i.e., opening of a door) remains constant but the choice of the light verb affects the transitivity of the verbal complex. Thus, while the preverbal element provides the substantive content of the complex predicate in Persian, the light verb indicates the logical content of the predicate, such as causation, and may project an external argument.

As was argued in detail in Karimi-Doostan (1997), Persian light verbs directly affect the aspectual interpretation of the complex verb. One of the widely accepted methods for distinguishing bounded and unbounded predicates is to combine the sentence with the temporal adverbials *in an hour* and *for an hour*. If a predicate is bounded, it will be felicitous when combined with the frame adverbial *in an hour*. But since this adverbial requires that the event be terminated or bounded, it cannot occur with an unbounded predicate. On the other hand, the durative adverbial *for an hour* is compatible with an unbounded aspect but not with a bounded one. This test then suggests that the sentence in (53) is bounded whereas the one in (54) is unbounded. The distinct aspectual readings in these two sentences are associated with the choice of the light verb, since the preverbal element remains the same in both instances. Thus, the combination of *dærd* (pain) with the light verb *gereftæn* (take, catch) gives rise to a bounded predicate. When the light verb is changed to *kešidæn* (pull), the aspectual reading is also modified, resulting in an unbounded reading. In fact, light verbs generally contribute aspectual properties such as inception, repetition and completion to the verbal predicate.

- (53) Dæst-e daryuš dær yek saniye / ?*sa’æt-ha dærd=gereft.
 hand-EZ Dariush in one second / hour-PL pain=catch.PAST.3SG
 ‘Dariush’s hand (started to) hurt in one second / ?*for hours.’
 (54) Daryuš ?* dær yek saniye / sa’æt-ha dærd=kešid.
 Dariush in one second / hour-PL pain=pull.PAST.3SG
 ‘Dariush hurt ?*in one second / for hours.’

Bashiri (1981) also states that the choice of the light verb causes a significant change in the aspectual interpretations of the same phenomenon. He notes that “some speakers, for instance, identify the repetitive nature of *zædæn* (hit, strike) with the concept of a ‘prolonged’ or ‘drawn out’ action. They then replace *zædæn* with *kešidæn* ‘to pull, to drag’.” The examples in (55) illustrate this distinction. Hence, the light verb constructions used with the light verb *zædæn* ‘hit’ provide a repetitive reading, while the use of *kešidæn* ‘pull’ focuses on the duration of the event.

(55)	<u>repetitive</u>	<u>prolonged</u>	
	jar zædæn	jar kešidæn	‘call (someone’s name)’
	dad zædæn	dad kešidæn	‘shout’
	sær zædæn	sær kešidæn	‘pay a short visit’
	næfæs zædæn	næfæs kešidæn	‘breathe’
	dar zædæn	dar kešidæn	‘string up on the gallow, hang’

The verb *zædæn* in general reflects a sudden or repetitive action, whereas *kešidæn* denotes a durative reading. Hence, the distinction in meaning between *dar zædæn* and *dar kešidæn* is that the first predicate focuses on the event of hanging as a sudden action while the second emphasizes more the duration of the event. Similarly, *næfæs zædæn* has the meaning of ‘panting’ whereas *næfæs kešidæn* means ‘to breathe’.

The preverbal element also plays a role in determining the aspect of the complex verb. Consider the contrast in the following examples:

- (56) Hale *dær ærz-e nim sa’æt / sa’æt-ha gerye=kærd.
 Haleh in half hour / hour-PL cry=do/make.PAST.3SG
 ‘Haleh cried *in half an hour / for hours.’
- (57) Hale dær ærz-e nim sa’æt/#sa’æt-ha qoff-e dær-ro baz=kærd.
 Haleh in half hour/hour-PL lock-EZ door-OM open=do/make.PAST.3SG
 ‘Haleh opened the door lock in half an hour / #for hours.’

In (56), *gerye=kærdæn* ‘cry’ represents an unbounded event as demonstrated by the acceptability of the durative adverbial *sa’æt-ha* ‘(for) hours’. Changing the preverbal element to the adjective *baz* ‘open’, however, results in a bounded reading as shown in (57). The durative adverbial in this case can only be felicitous in a repetitive reading (indicated by #), in which *Haleh* keeps unlocking the door over and over again.

TABLE 2 Contribution of complex predicate components

<p>Preverbal element:</p> <ul style="list-style-type: none"> - substantive information - internal arguments - aspect <p>Light verb:</p> <ul style="list-style-type: none"> - external arguments - aspect and event information (causation, change of state, duration, inception)

Table 2 summarizes the generalizations obtained in this section. It was shown, in line with most current analyses of complex predicate formation in Persian, that both parts of the light verb construction contribute to the argument structure and aspectual interpretation of the verb phrase. Moreover, the

preverbal element provides the core lexical meaning of the predicate, whereas the light verb contributes to the logical content or event information of the complex verb. However, based on an examination of causative/inchoative alternations in the following section, I will argue that the preverbal and verbal elements in Persian are to be further decomposed into lexical and functional parts. Hence, I will show that both internal and external arguments are contributed by the verbal functional elements and not by the preverb. The causative predicates in these alternation pairs consist of two functional verbs and it is the lower light verb that provides a position for the internal argument of the complex verb.

3.2.2 Transitivity Alternations: *kærdæn* vs. *šodæn*

As already shown in Section 3.2, the choice of the light verb can affect the transitivity of the clause. In this section, I will investigate one such alternation observed between the light verb pair *kærdæn* ‘do/make’ and its unaccusative counterpart *šodæn* ‘become’ as illustrated in the following examples. The (a) sentences in these examples, formed with the light verb *šodæn*, are intransitive and denote a change of state. When the light verb is replaced by *kærdæn*, however, the sentence becomes transitive as seen in the (b) sentences. Thus, (58b), (59b) and (60b) refer to the causation of the change of state depicted in their (a) counterparts.

- (58) a. Adæm=bærfi ab=šod.
 man=snowy water=become.PAST.3SG
 ‘The snowman melted.’
 b. Aftab adæm=bærfi-ro ab=kærd.
 sun man=snowy-OM water=make.PAST.3SG
 ‘The sun melted the snowman.’
- (59) a. Dær baz=šod.
 door open=become.PAST.3SG
 ‘The door opened.’
 b. Hušæng dær-ro baz=kærd.
 Hushang door-OM open=make.PAST.3SG
 ‘Hushang opened the door.’
- (60) a. Pesær-e kučæk dær dærya qærq=šod .
 boy-EZ little in sea drown=become.PAST.3SG
 ‘The little boy drowned in the sea.’
 b. Mi-guy-ænd ke in mærd pesær-e kučæk-o qærq=kærd.
 DUR-say-3PL that this man boy-EZ little-OM drown=make.PAST.3SG
 ‘They say that this man drowned the little boy.’

The complex verbs in Persian that undergo this transitivity alternation correspond in large part to the English verbs known as causative alternation verbs (Jackendoff, 1990; Levin, 1993) such as *open*, *dry*, *sink*, *redde*n. In English, the same form of the verb can be used to denote an intransitive or a transitive as shown below. In the intransitive use, the subject undergoes a change of state, hence in (61a) the door becomes open. The transitive counterpart in (61b) depicts the causation of the change of state that the object undergoes. In this sentence, the subject John has caused the door to open.

- (61) a. The door opened.
 b. John opened the door.
- (62) a. The boat sunk.
 b. The enemy sunk the boat.

The objects of the transitive clauses (*door* in (61b) and *boat* in (62b)) are equivalent to the subjects of the corresponding unaccusative constructions. Thus, the transitive and unaccusative variants depicted in these examples are clearly related semantically as well as syntactically, and the analysis provided should be able to capture this relatedness.

Levin and Rappaport Hovav (1995) provide a lexical representation for the transitive alternation based on an analysis of their event structure. In their approach, the change of state is decomposed into an event BECOME and a resulting STATE; causation is represented as a CAUSE event. Levin and Rappaport Hovav (1995) present the structure in (63) as the underlying representation of a causative alternation verb such as *break*; (63) is argued to be the representation for both the transitive and the intransitive variants of this verb.

(63) *break*: [[x DO-SOMETHING] CAUSE [y BECOME Broken]]

In this analysis, the transitive alternant of the verb *break* consists of an action (x does something) that causes y to undergo a change of state (become broken). The intransitive alternant is then derived by the application of lexical rules. Levin and Rappaport Hovav propose that the unaccusative variant of the verb is obtained when the verb is *detransitivized*, which prevents the cause argument to project into the argument structure of the verb; the cause argument is thereby not realized in syntax. This analysis, as well as the analysis proposed by Dowty (1991), suggests that the transitive use of an alternating verb consists of two events of CAUSE and BECOME.

Harley (1996) has argued against this analysis based on evidence from Japanese, a language with overt morphological realization of the CAUSE and BECOME events, but which shows no stacking of event morphology. Instead, the morphemes corresponding to cause and change of state events are in complementary distribution, suggesting that CAUSE and BECOME are not both present in the event structure of the transitive verb. Harley provides the following underlying representations for the intransitive and transitive *open*, respectively, where the causative event (which projects an external argument) occupies the same position as the BECOME event.

(64) a. *open* - intrans. [BECOME [y open]]
 b. *open* - trans. [x CAUSE [y open]]

At first consideration, the surface realization of Persian complex predicates seems to support Harley's analysis, as illustrated in (64). In the Persian examples discussed so far, the change of state event is represented by the light verb *šodæn* 'become' and the causative event is denoted by the light verb *kærdæn* 'make'.

These two light verbs can never occur within the same predicate in Persian, and behave as if they are in complementary distribution. Thus, the causative light verb *kærdæn* always replaces the change of state light verb *šodæn*.²⁴

(65) a. Dær baz=šod.
 door open=become.PAST.3SG
 'The door opened.'
 b. dær-ro baz=kærd.
 pro door-OM open=make.PAST.3SG
 'He/she opened the door.'

Drawing on the parallelism with other transitivity alternation pairs in Persian, however, I claim that the correct underlying structure of the causative verb in (65b) includes both CAUSE and BECOME. The

²⁴The verb *šodæn* can also be used in forming passives in Persian. In this usage, it may appear with *kærdæn* forming the passive *kærde šod* (was done). In passives, *šodæn* behaves as an auxiliary and not a light verb (see Karimi-Doostan, 1997 for discussion).

b. Transitive: [x CAUSE-BECOME [y State]]

Unlike the event structures put forth by Levin and Rappaport Hovav (1995) and Pustejovsky (1995), where the transitive verb is considered to be the underlying form in the lexicon from which the intransitive variant is derived, I propose two independent structures for the intransitive and transitive alternants. In this analysis, both verb forms are built in the syntactic structure by combining the various components. The close relation between the alternating forms is obtained from the fact that the internal structure of the intransitive verb is a subset of the transitive verbal structure.

The structure in (69) also differs from the representation proposed by Levin and Rappaport Hovav (1995), Dowty (1991) and Alsina (1999), in that I do not assume an Activity event for causative alternation verbs. In these constructions, the activity that brings about the change of state is not specified and therefore need not be represented in the verbal structure. In addition, as pointed out by Fong (1999), there are causative constructions in which the causer does not perform any action on the causee as illustrated in (70).

(70) The sun dried the linen.

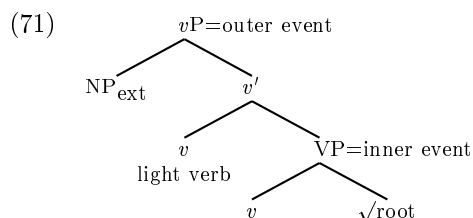
In the sentence in (70), there is no real activity performed by the sun. It is, however, the causer of the change of state and should be represented in the event structure as the external argument of a CAUSE event.²⁶

In this section, I investigated the properties of the *kærdæn* vs. *šodæn* alternation pair and argued that the transitive predicate is formed when a CAUSE event is added on top of the underlying intransitive structure. In the model developed in Chapter 2, the suggested internal structure of the verb can easily be mapped into the structural configuration, where the events CAUSE and BECOME are each represented by a functional verbal feature *v* and the information represented by the STATE is denoted by the adjectival preverbal element. In Section 3.3, I present a syntactic analysis for the proposed structures based on the approach proposed in Chapter 2. The discussion of Persian complex predicates and their decomposition into primitive elements of grammar provide a more articulated *vP* structure.

3.3 Syntactic Configuration and the Lexicon

3.3.1 *vP* Structure

The decomposition of Persian verbal constructions into two distinct parts is reminiscent of recent analyses that decompose the event structure of verbs into an outer or process event and an inner or result event (Pustejovsky, 1995; Travis, 1991, among others). Moreover, following the seminal work by Larson (1988) and Hale and Keyser's series of papers on argument structure, current syntactic approaches adopt the layered verb phrase structure, which parallels a decompositional view of the verbal predicate as illustrated in the configuration in (71). Based on the discussion of the properties of light verb constructions, it is clear that a split-*vP* analysis for verbal formation, where a *vP* projection is added on top of the base VP, straightforwardly captures the structure of Persian complex predicates presented in this chapter.



²⁶Also see Fong (1999) for arguments against the *work scope* reading proposed by Alsina as evidence for the presence of the Activity event.

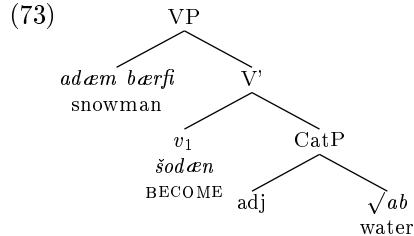
Chomsky (1995) suggests that *vP* represents the projection of a “light verb”, which bears the functional information in the verbal construction and projects the external argument. The lower VP projection, on the other hand, is responsible for projecting the internal arguments. The head of the base VP is a *root* in the sense of Marantz (1997) or an *encyclopedic item* in the sense of Borer (2000a), which combines with a functional element *v* to form a verb.

3.3.2 Inner and Outer *v*

In line with these theories of verb formation and in light of the analysis provided in the previous section for the causative alternation verbs *kærdæn* ‘make’ and *šodæn* ‘become’, I propose that a functional element *v* is projected within each component of the layered *vP* structure. The upper head of *vP*, little *v*, denotes the event CAUSE and is responsible for projecting the external argument in the complex predicate. But in addition, a lower functional head is available in the lower VP projection, which contributes the internal argument of the verbal construction and represents the change of state or BECOME event. Consider the causative alternation pair for the verb ‘melt’, repeated below as example (72):

- (72) a. Adæm=bærfi ab=šod.
 man=snowy water=become.PAST.3SG
 ‘The snowman melted.’
 b. Aftab adæm=bærfi-ro ab=kærd.
 sun man=snowy-OM water=make.PAST.3SG
 ‘The sun melted the snowman.’

The structure that I propose for the inchoative/intransitive variant in (72a) is very similar to the one in Hale and Keyser (1996) and is illustrated in (73).²⁷



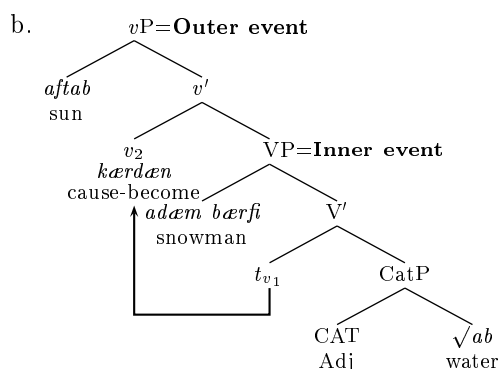
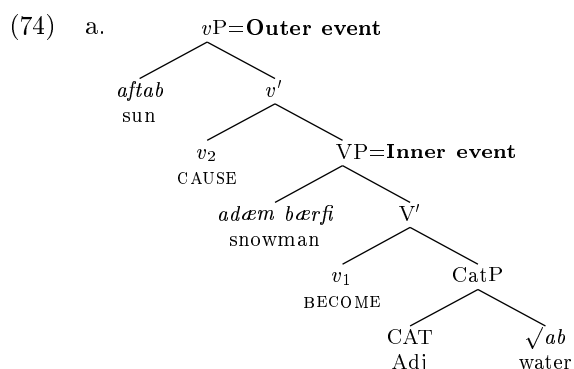
VP, the inner event, is a predicate representing the change of state undergone by the internal subject *adæm=bærfi* (snowman). The resulting state (i.e., the end result of the change of state) is denoted by the root element \sqrt{ab} which combines with a functional category *adj* forming an adjectival predicate (cf. Marantz, 1997). The phrasal category CatP or Category Phrase²⁸ may in turn combine with the functional head *v*₁, denoting a BECOME event, thus forming a verbal predicate which represents a change of state. As shown in (73), I claim that each light verb head *v* is projected with a specifier position. In this example, the NP *adæm=bærfi* (snowman) occupies the [Spec, VP] position and is interpreted as the element undergoing the change of state. As pointed out in Marantz (2001), within the VP projection, the meaning of the argument NP is closely connected to the aspectual class or selectional restrictions of the root. Hence, the NP *adæm=bærfi* (snowman) has to be able to undergo a process which will result in it being in a watery or liquidy state; in other words, the argument in the [Spec, VP] position should be meltable. No such relation is present between the root element and the arguments outside of the VP

²⁷In the configuration proposed, I am abstracting away from the word order in Persian. I follow Distributed Morphology in postponing linearization of the surface order to the domain of Spell-out of PF.

²⁸CatP could also be represented as *adjP* in this example.

projection (i.e., external arguments) in the corresponding causative constructions.

The causative variant of the alternating pair is obtained by adding the “outer event” on top of the VP projection as illustrated in (74a). This outer event consists of a verbal functional head v_2 , which also projects a specifier position. The resulting structure represents a causal relation: the change of state introduced by VP is now interpreted as caused, the event denoted by v_2 has the meaning of CAUSE and the argument NP occupying the [Spec, vP] position acts as the causer of the change of state. As illustrated in (74b), I claim that the verbal head v_1 then incorporates into the higher verbal element v_2 , giving rise to the newly formed light verb v which consists of the events CAUSE + BECOME. In the case of Persian, I suggest that the combination of the two verbal heads is overtly realized as the light verb *kærdæn* with the meaning of ‘make’.



In the analysis proposed in this section, the unaccusative in (72a) corresponds to a VP projection, whereas the transitive variant is obtained when the higher verbal projection v_{cause} combines with VP to form a vP structure. The analysis thus suggests that transitives consist of at least two event components and each component contains a verbal head v , which projects an argument position.²⁹ Whether the

²⁹I am not suggesting that all transitive verbs contain a CAUSE event in their higher projections, but I do believe that all transitives consist of two functional elements representing the verbal component: v_1 and v_2 . In addition, I am abstracting away from functional projections representing Aspect or Voice (see Borer, 1994 or Kratzer, 1994), or any higher functional

projected NP arguments are to be interpreted as ‘internal’ (i.e., undergoing the action) or ‘external’ (i.e., causer) is not predetermined in the description of the lexical item, but it is rather derived from the resulting structural position in which the NP appears.

In Marantz (1997) roots listed in the lexicon are category-neutral elements that can combine with a functional category in syntax to form a phrase representing an adjectival or a nominal. The fact that the root element \sqrt{ab} ‘water’, which is usually a noun, is used in the examples discussed in this section as an adjectival denoting a watery or liquidy state seems to support the category-neutrality of root elements. In the model proposed, certain roots are listed as category-neutral entries but I also suggest that syntactic roots may already be present with a designated category associated with them within the lexicon (as proposed by Hale and Keyser, 1993). This association, however, does not prevent roots from combining with different functional and categorial features in syntax, giving rise to new interpretations.

3.3.3 Decomposed Predicates and Lexical Entries

Recall from Section 3.2.1 that complex predicates in Persian have traditionally been analyzed as consisting of two distinct components, one headed by the preverbal element and the other headed by the light verb. This was, in effect, the internal structure proposed for complex predicates in Persian in Table 2. It was argued that the light verb provides the aspectual and event information in complex predicates and projects the external arguments. The preverbal component, on the other hand, contributes the core meaning of the verb and is related to the internal arguments. The discussions in the previous sections now lead to a further decomposition of the verbal components in Persian as illustrated in Table 3, in which I propose to redistribute the properties of the complex predicate among the primitive syntactic components. The relation between light verbs and aspect will be discussed in section 3.4.

TABLE 3 Contribution of complex predicate components (revised)

Root element:	- substantive information
Category:	- determines root category (Adj, Noun)
Inner Light verb (v_1):	- inner event (e.g., BECOME) - internal arguments - aspect
Outer Light verb (v_2):	- outer event (e.g., CAUSE) - external arguments - aspect

Table 3 distinguishes between the inner and outer light verb components. In the analysis proposed, the preverbal element (which includes the root) is still responsible for the substantive information of the predicate, but it does not contribute any arguments to the complex verb. I have argued that the internal arguments are in fact provided by the inner light verb component.

This analysis goes against most of the past literature on complex predicates in Persian. Based on examples such as the contrasting pair in (75), Vahedi-Langrudi (1996), Karimi-Doostan (1997) and others have argued that the component that projects the internal arguments is the preverbal element. The component that remains constant between (75a) and (75b) is the preverbal element *baz* (open),

projections such as Tense in this section.

while the light verb is modified. And as the examples show, the internal argument *dær* (door) is present in both instances, suggesting that it is related to the preverb.

- (75) a. Dær baz=šod
 door open=become.PAST.3SG
 ‘The door opened.’
 b. Hušæng dær-ro baz=kærd.
 Hushang door-OM open=make.PAST.3SG
 ‘Hushang opened the door.’

I propose, however, that the component responsible for the projection of the internal argument *dær* (door) is the light verb of the intransitive clause, *šodæn* (become). The latter, I argue, is present in both (75a) and (75b), but the reason it is not overtly visible in the latter is due to the fact that it is incorporated into the CAUSE light verb in the transitive clause, which is then realized as the verb *kærdæn* (make) (cf. (74b)).

In the analysis proposed, verbs are compositionally formed in syntax by combining the information from the two separate phrasal projections *vP* and *VP*. In this view, the Persian lexicon does not contain a list of possible verbal constructions that are provided as input to the syntactic computation. Instead, the basic units in the lexicon consist of roots, such as \sqrt{baz} (= \sqrt{open}) and $\sqrt{xænd}$ (= \sqrt{laugh}), and bundles of functional features, such as *T*, *Asp*, *v* or *n*. Verbs are formed when roots and functional features are combined in syntax. These ideas will be developed further in the following chapter.

3.3.4 Level of Formation

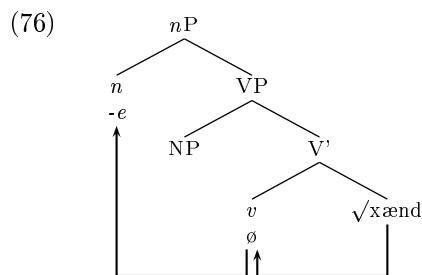
The fact that the internal structure of light verb constructions is visible to syntactic operations is straightforwardly accounted for if one adopts a syntactic approach to word-formation. The possibility of intervening verbal morphology, auxiliaries and modals follows from compositional formation of verbal predicates, obtained by combining the various constituents within syntax. In addition, the analysis predicts that syntactic phenomena, such as gapping or the expansion of the preverb’s structure into a noun phrase, should be readily available in these complex predicates. As mentioned earlier, however, data from predication possibilities, non-separability of components, primary stress pattern and the interaction of these verbal constructions with derivational processes of word-formation have led many researchers to argue that the Persian complex predicates are formed in the lexical component. In this section, I will review the arguments put forth for a lexicalist approach to verb-formation and I will show that the syntactic analysis presented in this thesis can account for these properties.

Recall from Section 3.1.1 that light verb constructions can be used to form nominals and adjectivals. They can also act as input to operations that form manner adverbials. However, if word-formation is a syntactic operation as proposed in this thesis, and there is no strict division between the lexical and the syntactic components, then the fact that complex verbs can be nominalized does not cause a problem for the analysis. The problem of the dual properties of complex predicates arises from theory-internal reasons. Any system that treats the lexicon as an autonomous unit, distinct from syntax, will not be able to account for a syntactic object with lexical properties. Goldberg (1996) argues that the fact that the Persian complex predicate is represented as a unit in the lexicon, but does not always behave as a syntactically atomic lexical item, is natural in theories like Construction Grammar since no strict division is drawn between lexical items and phrasal constructions. The proposal in this paper shares with Goldberg the idea that there is no strict division between words and phrasal elements, but instead of listing phrases as predetermined lexical entries, I propose that the process of word formation, including nominalization and adjective formation, takes place in syntax. The duality of complex predicates in Persian naturally falls out in such an approach.

To illustrate, consider the nominal elements in Persian that have been argued to be deverbal nouns

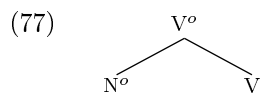
such as *xænde* ‘laughter’ and *ændiše* ‘thought’. Sadeghi and Arzhang (1980) argue, for instance, that the nominal *xænde* is derived by combining the present stem of the verb *xænd* of *xændidæn* ‘laugh’ with the nominalizing affix *-e*.

Based on recent approaches to nominalization which argue that word formation is syntactic, rather than lexical (Marantz, 1997; Harley and Noyer, 1998; van Hout and Roeper, 1998, among others), I claim that deverbal nominals include a verbal functional element, as illustrated in the configuration in (76) for the noun *xænde* ‘laughter’. I suggest that the root $\sqrt{xænd}$ combines with the verbal functional element *v*, which verbalizes the root in its context. In addition, the verbal head *v* is the structural source of the argument. The VP structure then combines with a category *n* (Marantz’s D³⁰), which nominalizes the verbal structure. Hence, these deverbal nouns in Persian contain both a verbalizing (*v*) and a nominalizing (*n*) environment and are thus nouns formed from verbs within syntax.



Similarly, a light verb construction may be nominalized when it appears in the context of a categorial feature *n* and may undergo adjectival formation when it combines with the feature *adj*. Thus, in the current model it is possible to derive nominals, verbs and adjectivals within the same component in which syntactic phrases are generated. Hence, the fact that light verb constructions can be nominalized is not sufficient argument for treating them as lexical or X⁰ items.

Ghameshi and Massam (1994) argue that complex predicates display syntactic properties but they also suggest that the preverbal element forms a unit with the light verb and they represent the complex predicate as a V⁰. In their structure shown in (77), preverbal elements (as well as non-specific objects) appear in a N⁰ position as sister to the light verb V under V⁰ in a juxtaposition relation which allows to capture the dual nature of the complex predicate in Persian.



The evidence presented by Ghameshi and Massam for the behavior of the preverbal and verbal elements as a unit comes from the facts surrounding stress placement. Ghameshi and Massam argue that complex predicates in Persian bear a single primary stress (which appears on the preverbal element). Ghameshi and Massam take this to be an indication of the ‘wordhood’ of the light verb construction. Hence, they point out that in the simple past, stress falls on the last syllable of the verb stem (78a), but when a preverbal element appears before the light verb, the latter does not receive any stress (78b). But the crucial point for Ghameshi and Massam is the fact that both constructions in (78) contain a single stress, suggesting that both verbs are lexical or X⁰ units.

³⁰I refer to the nominalizing category as *n* rather than *D* because the preverbal elements in Persian are clearly non-specific nouns and the *D* head has often been argued to denote specificity within the noun phrase structure.

- (78) a. *ændáxt*
 throw.PAST.3SG
 ‘threw, dropped’
 b. *be=geryé=ændaxt*
 to=crying=throw.PAST.3SG
 ‘made cry’

I argue that stress placement in Persian complex predicates does not suggest that the two components are to be treated as a lexical unit. Consider the contrast below:

- (79) a. *Ali dár-ro báz=kærd.*
 Ali door-OM open=make.PAST.3SG
 ‘Ali opened the door.’
 b. *dær=baz=kón*
 door.open.make
 ‘can-opener’

In the example in (79a), the main stress occurs on the preverbal element *baz* within the complex predicate. In the nominal compound in (79b), however, which is formed from the same complex predicate, *baz=kærdæn* ‘open’, the main stress falls on the final syllable, the verb stem. Hence nominal compounds and compound verbs do not show the same behavior with respect to stress. Further evidence for this is presented in Kahnemuyipour (2001) which investigates the correlation between structure and stress pattern in Persian and distinguishes between a word-level and a phrasal level stress pattern. In Persian, word-level stress is assigned on the final or rightmost syllable (of a root+“derivational” morpheme construction) while at the phrasal level, main stress is applied on the leftmost element of the phrase, thus distinguishing the two levels of construction. Hence, the nominal compound in (79b) behaves as a ‘word’ with respect to the stress pattern observed, while the complex predicate *baz kærd* ‘opened’ in (79a) displays a phrase-level stress pattern. Kahnemuyipour thus convincingly shows that light verb constructions in Persian cannot be treated as word-like elements since they display phrase-level stress patterns.

Furthermore, the fact that object clitics can appear on the preverbal elements in a light verb construction confirms the conclusion that these complex predicates are not atomic units (80). As mentioned earlier, object clitics are sensitive to primary stress in a predicate, but are unable to appear in between the syllables of a word. As illustrated in the examples in (81a) and (82a), the clitic cannot intervene within the morphemes of a word in order to attach to the element bearing the main stress. Instead, it attaches to the end of the stress domain as shown in (81b) and (82b).³¹

- (80) a. *mærdom mohaseré-æš kærd-ænd*
 people surround-CLIT.3SG do.PAST-3PL
 ‘People surrounded him/her.’
 b. *mæn báz-eš kærd-æm*
 I open-CLIT.3SG make.PAST-1SG
 ‘I opened it.’
- (81) a.* *ma in aš-ro emruz mí-æš-xær-im*
 we this soup-OM today DUR-buy-1PL-CLIT.3SG
 ‘We’ll buy this soup today.’

³¹The agreement morpheme in (82) is argued to be a non-cohering or inflectional affix in Kahnemuyipour (forthcoming) and therefore does not bear word-level stress.

- b.ma in aš-ro emruz mí-xær-im-eš
 we this soup-OM today DUR-buy-1PL-CLIT.3SG
 ‘We’ll buy this soup today.’
- (82) a.* særbaz-ha kóšt-eš-ænd
 soldier-PL kill.PAST-3PL-CLIT.3SG
 ‘The soldiers killed him/her.’
- b.særbaz-ha kóšt-ænd-eš
 soldier-PL kill.PAST-3PL-CLIT.3SG
 ‘The soldiers killed him/her.’

In addition, a study of stress pattern shows that the *vP* constructions in (83) also receive a single stress which can appear on manner adverbs (83a) or on negation (83b).

- (83) a.Mani [_{vP} xúb šena=mi-kone]
 Mani good swim=DUR-do.PAST.3SG
 ‘Mani swims well.’
- b.Mani [_{vP} šena=né-mi-kone]
 Mani swim=NEG-DUR-do.PAST.3SG
 ‘Mani doesn’t swim well.’

It is not plausible to argue that the whole *vP* in (83a), for instance, including the manner adverb forms a single X^o unit in syntax. Based on the evidence presented, I argue that the fact that there exists a single primary stress in complex predicates in Persian cannot be used as an argument for their lexical or “worklike” behavior. Instead, I suggest that stress placement in Persian verb phrases as well as the presence of object clitics are closely related to the syntactic structure; in particular, I claim that primary stress is assigned within the *vP* domain. In fact, it seems that in Persian, the assignment of heavy stress is related to a specific structural position in the *vP* (cf. Cinque, 1993)³². A thorough analysis of stress pattern is beyond the scope of this work, but I will suggest in Chapter 4 that stress is assigned once a PF-phase is encountered in the structure. Word-level and phrase-level stress patterns can then be derived in a uniform manner from the resulting structure, without distinguishing the components of word-formation.

Let us return to example (12) in Section 3.1.1, repeated below as (84). These examples and similar pairs have been used to argue that light verb constructions should be treated as lexical elements, since they project the same argument structure as the corresponding single verbs do.

- (84) a.doxtær-æk dær guše-i gerye=mi-kærd
 girl-DIM in corner-INDEF cry=DUR-do.PAST.3SG
 ‘The little girl was crying in a corner.’
- b.doxtær-æk dær guše-i mi-geri-st
 girl-DIM in corner-INDEF DUR-cry-PAST.3SG
 ‘The little girl was crying in a corner.’

In the proposal developed in this dissertation, all verbs, regardless of their structural complexity are created in syntax. Thus, (84) cannot be used to argue for the lexical behavior of light verb constructions since the simple unergative verb in (84b) is in fact formed in syntax by combining the root element with verbal functional heads, just as in the case of the complex unergative verb form in (84a). Note that there are some distinctions in the semantics and syntax of the simple and complex unergatives in

³²See Kahnemuyipour and Megerdooimian (forthcoming) for a study of the relation between stress and structural configuration in Persian.

Persian. For instance, the simple unergative but not the complex form can be causativized. The subject of the simple unergative can be inanimate but complex unergatives usually select an animate subject. In Megerdooomian (forthcoming), I suggest that the distinct properties correlate with different structures but I will leave the detailed formalization of these constructions for future research.

A final argument for the lexical behavior of light verb constructions in Persian has to do with the non-separability of verbal components. As discussed in section 3.1.1, the preverbal element and the light verb cannot be separated by intervening adverbs or direct objects. However, these results are expected within the syntactic analysis presented here, since both adverbs and direct object NPs, and in particular specific objects, are assumed to be generated outside of the verbal domain and therefore cannot appear between the verbal constituents. This analysis will be developed further in chapter 5, in which the projection of the arguments is discussed in detail.

3.4 Aspect and Light Verbs

In the sections 3.2 and 3.3, I closely examined the contribution and properties of the constituents of verbal predicates, and an analysis was provided whereby the complex verbal constructions are formed by combining the primitive elements of the verb. The primitive elements isolated so far included the root and categorial and functional features such as *n*, *v*, *adj*, where verbal features provide event-related information such as BECOME or CAUSE. In addition, the verbal features project a specifier position that can host the nominal arguments of the verb. In this section, I will present evidence for the syntactic significance of aspect.

There exists a direct correlation between the choice of the light verb in a predicate and the resulting aspectual interpretation in the verb phrase. Many complex predicates in Persian come in contrastive pairs where the choice of the light verb alone can change an intransitive predicate into a transitive. In these alternating pairs, the intransitive predicates have the properties of an unaccusative construction and give rise to aspectually bounded verb phrases. Their transitive/causative counterparts, on the other hand, allow the construction of unbounded (or atelic) as well as bounded predicates, based on the properties of the direct object or other phrasal elements. The light verbs used to form transitive/causative predicates may also be used to form intransitives that correspond to unergative constructions and give rise to unbounded predicates. In this section, I will review the evidence provided in Karimi-Doostan (1997) on the close relation between light verbs and aspect, in which Karimi-Doostan convincingly shows that Persian light verbs can be classified based on the type of aspectual reading they allow in the verbal predicate. I will show, however, that Karimi-Doostan's generalizations do not always hold. I will argue that a structural analysis as proposed in the previous sections can better capture the relation between the light verb and verb phrase aspect. I suggest that each light verb projects a functional projection that I will refer to as Aspect Phrase (AspP). Depending on the relative position of AspP within the final structure, this projection may delimit the event denoted by the predicate (as in Tenny, 1987 or Borer, 1994) thus creating a bounded event.

3.4.1 Constraints on Verb Phrase Aspect

Karimi-Doostan (1997) is the only major work in the linguistic literature dedicated to the study of the relation between light verbs and aspectual interpretation in Persian, in which 16 most common light verbs are subjected to several tests in order to investigate the constraints they may impose on verb phrase aspect. Karimi-Doostan (1997, p.61-157) thus distinguishes three categories of light verbs or LVs, shown in Table 4. In this section, we will be mainly concerned with the dynamic light verbs.

Among the Dynamic light verbs, Karimi-Doostan (1997) distinguishes the two classes of Transition and Initiatory light verbs. The Transition light verbs appear in verb phrases in which a patient argument is affected or undergoes a change of state. These light verbs give rise to bounded events. Initiatory light verbs, on the other hand, allow unbounded readings and are normally associated with an argument that

TABLE 4 Classification of Persian Light Verbs

Stative LV	Dynamic LV	
	Transition LV	Initiatory LV
daštæn 'have'	xordæn 'eat, collide'	zædæn 'hit, strike'
	yaftæn 'find'	dadæn 'give'
	šodæn 'become'	dadæn 'give'
	amædæn 'come'	bæxšidæn 'offer, forgive'
	gereftæn 'catch, take'	aværdæn 'bring'
	ræftæn 'go'	kešidæn 'pull'
	didæn 'see'	bordæn 'take, carry'
	kærdæn 'do'	gozaštæn 'put'
		kærdæn 'do, make'

initiates the event denoted by the complex predicate.

As an example, consider the sentences below contrasting the constructions formed with the Initiatory verb *zædæn* 'hit, strike' and the corresponding examples formed with the Transition light verb *xordæn* 'eat, collide' (from Karimi-Doostan, 1997, p.111). Karimi-Doostan points out that Initiatory verbs can form verb phrases with unbounded reading and appear with external arguments while Transition light verbs uniformly cannot have an unbounded reading and their subject corresponds to an internal argument.

- (85) a. Ali bemoðæte / (*dær) yek sa'æt deræxt peyvænd zæd
 Ali for / (*in) an hour tree graft strike-PAST.3SG
 'Ali grafted trees for / (*in) an hour.'
- b. deræxt-ha dær / (*bemoðæte) yek sa'æt peyvænd xord-ænd
 tree-PL in / (*for) an hour graft collide-PAST-3PL
 'The trees were grafted in / (*for) an hour.'

To capture the different aspectual properties of light verbs in Persian, Karimi-Doostan (1997) claims that the light verb should be treated as an underspecified lexical entry. A light verb does not contain any information about the argument structure of the verbal predicate but it carries an aspectual role which is later combined (or *fused*) in the lexicon with the argument structure provided by the preverbal element. Hence, a light verb belonging to the Transition class is listed in the lexicon with an aspectual role 'Transition' as shown in (86), while an Initiatory light verb carries an 'Initiatory' role in its Aspect Tier as illustrated in (87). Karimi-Doostan (1997) suggests that the Transition role is mapped to the internal argument in the argument structure of the final verb phrase and the Initiatory role is always mapped to the external argument.

- (86) *xordæn* 'eat, collide'
 Aspect Tier [Transition]
 internal argument
- (87) *zædæn* 'hit, strike'
 Aspect Tier [Initiatory]
 external argument

This distinction can be used to distinguish the aspectual reading of a complex predicate formed with the light verb *gereftæn* 'take, catch' and the light verb construction formed with *kešidæn* 'pull, drag' as illustrated in examples (53) and (54), repeated below as (88) and (89), respectively.

- (88) Dæst-e daryuš dær yek saniye / ?*sa'æt-ha dærd=gereft.
 hand-EZ Dariush in one second / hour-PL pain=catch.PAST.3SG
 'Dariush's hand (started to) hurt in one second / ?*for hours.'
- (89) Daryuš ?*dær yek saniye / sa'æt-ha dærd=kešid.
 Dariush in one second / hour-PL pain=pull.PAST.3SG
 'Dariush hurt ?*in one second / for hours.'

Similarly, the sentences in (90) and (91) demonstrate that *gereftæn* gives rise to bounded predicates, while *kešidæn* forms unbounded predicates.

- (90) a.kar-æš dær nim sa'æt / *sa'æt-ha ænjam=gereft.
 work-CLIT.3SG in half hour / hour-PL accomplish=catch.PAST.3SG
 'His/her work was taken care of in half an hour / *for hours.'
- b.jængæl dær ye ruz / *sa'æt-ha ateš=gereft.
 forest in one day / hour-PL fire=catch.PAST.3SG
 'The forest caught fire in one day / *for hours.'
- (91) a.kar-æš *dær nim sa'æt / sa'æt-ha tul=kešid.
 work-CLIT.3SG in half hour / hour-PL length=pull.PAST.3SG
 'His/her work lasted *in half an hour / for hours.' (i.e., 'His/her work took hours to finish.')
- b.u sal-ha / *dær yek sal entezar=kešid.
 he/she year-PL / in one year expectation=pull.PAST.3SG
 'He/she waited for years / *in one year.'

Furthermore, Karimi-Doostan (1997) notes that the ungrammaticality of the aspectualizer *edame dad* 'continued' with the Transition light verb *gereftæn* 'catch, take' indicates that the event depicted by the verb contains a culmination point, in clear contrast with the Initiatory light verbs that mark the duration of the event. This contrast is illustrated below:

- (92) a.jængæl edame=dad be ateš=gereftæn.
 forest continue=give-PAST.3SG to fire=catch.INF
 'The forest continued catching fire.'
- b.* mehman edame=dad be færyad=kešidæn.
 guest continue=give-PAST.3SG to scream=pull.INF
 '*The guest continued screaming.'

3.4.2 The Unaccusative / Unergative Distinction

Thus, verbs such as *gereftæn* that are associated with a Transition role give rise to bounded predicates, are associated with a (starting or end) point, and have a single argument that is affected by the event depicted by the verb. Note that these are properties normally associated with unaccusative predicates. On the other hand, Initiatory light verbs such as *kešidæn* form unbounded verb phrases, are not associated with an endpoint and their single argument is generally agentive and initiates the action depicted by the verb; note that these are properties of unergative constructions.

Karimi-Doostan's generalizations can also be represented within a syntactic configuration, such as the one outlined in Borer (1994), in which aspect is encoded in the functional projections and different aspectual interpretations can be derived from the syntax of the arguments. Borer proposes two Aspect Phrase projections which contribute to the aspectual reading of the sentence. AspP_{EM} (or event measure) is the aspect projection which is responsible for delimiting the event when an argument NP appears in

its specifier position, thus giving rise to a bounded predicate. A higher aspectual projection, AspP_{OR} (originator) hosts the agent of the predicate.

To represent the system proposed in Karimi-Doostan (1997), one can assume that the lexical entry of Transition light verbs selects only the AspP_{EM} projection. The lexical entry of Initiatory verbs, on the other hand, selects the higher aspectual projection AspP_{OR} but it is not specified for the lower aspectual projection. Hence, when the complex predicate contains a transition verb, only the lower aspectual projection is available in syntax, thus the NP argument can only move to that projection. This gives rise to a delimited (or bounded) event. Since the argument is not in the aspect projection that assigns the agentive role (i.e., AspP_{OR}), the predicate is interpreted as non-agentive. These are properties usually associated with unaccusative predicates. Unergative predicates are formed with Initiatory light verbs that project the higher Aspect Phrase. The NP argument moves to the specifier of AspP_{OR} , where it receives an agentive interpretation, but the event remains unbounded.

So far, we have simply restated, in terms of functional projections, the postulation that some verbs are marked as Transition verbs in the lexicon (i.e., assign transition role to their arguments) while others are Initiatory verbs. However, in the rest of this section I will show that Karimi-Doostan's generalizations do not fully capture the light verbs' contributions to verb phrase aspect. In addition, I will argue that a decomposed syntactic analysis of the verbal predicates can provide a better account of the empirical data.

3.4.3 Decomposed Verbal Predicates

In this section, I will present several examples that Karimi-Doostan's classification fails to explain. I argue that this is due to the fact that Karimi-Doostan (1997) does not take into account the contributions of all the constituents that combine to form the light verb construction in Persian. Furthermore, I show that a decomposition of the verbal predicate into inner and outer domains and a combinatorial approach in syntax can better capture the aspectual properties of these complex predicates.

According to Karimi-Doostan's analysis, all complex predicates formed with a Transition light verb should give rise to a bounded aspectual reading. However, this is not borne out as illustrated in the following examples:

- (93) a.mærdom sal-ha az dowlæt færib=**xord-ænd** (unbounded)
 people year-PL from government fool=eat.PAST-3PL
 'People have been fooled by the government for years.'
- b.u sal-ha dær زندان šekænje=**did** (unbounded)
 He/she year-PL in prison torture=see.PAST-3SG
 'He/she was tortured for years in prison.'

Similarly, certain light verbs categorized as Initiatory verbs can only form bounded predicates, contrary to Karimi-Doostan's suggestion. This is illustrated with the light verb *aværdæn* 'bring' in the following examples:

- (94) behzad ?*saæt-ha / dær čænd dæqiqe mahmonir-ra be=yad=aværd
 Behzad hour-PL / in several minute Mahmonir-OM to=memory=bring.PAST.3SG
 (bounded)

'Behzad recalled Mahmonir *for hours / in a few minutes.'

Karimi-Doostan (1997, p.117) provides the following example to demonstrate the unbounded VP aspect with the Initiatory verb *aværdæn* 'bring'.

- (95) doktor bemodæte / (*dær) yek saæt mæriz be=huš=aværd
 doctor for / (*in) one hour patient recovery=brought

‘The doctor caused patients to recover for / (*in) an hour.’

Karimi-Doostan (1997) claims that the sentence is felicitous with the durative adverbial and therefore he argues that this Initiatory light verb forms an unbounded predicate. However, the reading obtained in this sentence is a repetitive event whereby for a whole hour, the doctor kept bringing back to consciousness patients who had passed out. This repetitive reading is marked by the # sign in (96a). In addition, the sentence is compatible with the frame adverbial if a specific direct object is used as illustrated in (96b).³³

- (96) a. doktor #bemodæte yek saæt mæriz be=huš=aværd
 doctor for one hour patient recovery=bring.PAST.3SG
 ‘#The doctor made patients regain consciousness for an hour.’
 b. doktor dær yek saæt mæriz-ra be=huš=aværd
 doctor in one hour patient-OM recovery=bring.PAST.3SG
 ‘The doctor made the patient regain consciousness in one hour.’

All these examples clearly show that the complex predicates formed with the light verb *aværdæn* ‘bring’ are aspectually bounded constructions, contrary to what has been claimed in Karimi-Doostan (1997). This could be due to the fact that these verbal constructions contain an allusion to a final state in their structure, indicating that the direct object has been “brought” to a final state. Similar references to a final state can be seen in the following examples:

- (97) a. be=dæst=aværdæn
 to=hand=bring
 ‘to obtain’
 b. be=juš=aværdæn
 to=boil=bring
 ‘to bring to a boil’

These examples clearly show that the resulting verb phrase aspect depends on more than the role defined in the aspectual tier of a light verb. I suggest that, in order to be able to provide an account for the aspectual properties of light verb constructions, we need to consider the contributions of the various constituents of the verbal predicate.

3.4.4 Internal Structure and Aspect

Consider some of the causative alternation pairs discussed in Section 3.2, repeated below:

- (98) a. Adæm=bærfi ab=šod.
 man=snowy water=become.PAST.3SG
 ‘The snowman melted.’
 b. Aftab adæm=bærfi-ro ab=kærd.
 sun man=snowy-OM water=make.PAST.3SG
 ‘The sun melted the snowman.’
- (99) a. Pezešk mæriz-ro šæfa=dad.
 doctor patient-OM cure=give.PAST.3SG
 ‘The doctor cured the patient.’
 b. Mæriz šæfa=yaft.
 patient cure=find.PAST.3SG

³³For the relation between specific noun phrases and aspectual interpretation, see Chapter 5.

- ‘The patient was cured.’
- (100) a. Homa be=gerye=oftad.
 Homa to=crying=fall.PAST.3SG
 ‘Homa started to cry.’
- b. Nima homa-ro be=gerye=ændaxt.
 Nima Homa-OM to=crying=throw.PAST.3SG
 ‘Nima made Homa (start to) cry.’

It was argued that in each instance of these alternation pairs, the causative variant is formed by the addition of v_{cause} functional projection to the underlying VP structure. Hence, the light verbs *kærdæn* ‘do/make’, *dadæn* ‘give’ and *ændaxtæn* ‘throw’, which are classified as initiatory verbs in Karimi-Doostan (1997), are not a single verbal element but rather consist of the combination of the higher v_{cause} with the functional verbal elements representing *šodæn* ‘become’, *yaftæn* ‘find’ and *oftadæn* ‘fall’, respectively.

Hence, the distinct aspectual readings and semantic interpretations of the arguments in the sentences in (98) are not due to the distinct classification of the light verbs *šodæn* and *kærdæn* as initiatory or transition verbs. They are instead derived from the final structural configuration obtained by combining the various verb phrase constituents. I argue that each verbal head v is associated with an Aspect head which is projected in syntax with v . In the case of a verb like *šodæn*, Aspect is projected within VP, the inner shell of the verbal structure. As argued at length earlier in the chapter, the inner domain corresponds to a change of state event and an argument projected within this domain receives properties usually associated with an internal argument. Similarly, the Aspect head projected within the VP domain correlates with a bounded aspect (i.e., it corresponds to AspP_{EM} in terms of Borer, 1994).

The causative sentence in (98b) is obtained when the v_{cause} is added on top of the VP, forming the full vP projection. This outer domain represents a causation event and its NP argument is the causer or instigator of the action which brings about the event depicted in VP. Additionally, the Aspect head projected within this domain corresponds to the initiatory role described in Karimi-Doostan (1997) or the AspP_{OR} of Borer (1994). As will be discussed at length in Chapter 5, the vP structure may have a bounded or unbounded aspect depending on the properties of the internal argument (i.e., the direct object). Note that the resulting verb phrase aspect is not predetermined in the lexical entry of the light verb but is derived from the final position occupied by the Aspect head within the structure.

The analysis suggested here can account for the distinct aspectual readings of the light verb constructions without positing arbitrary aspectual roles in the lexical entry. But more importantly, this analysis can also derive information about event structure and the interpretation of the argument. In addition, it captures the aspectual relation between alternating pairs based on the syntactic structure. Although a complete analysis would require a thorough study of the properties and internal structure of light verb constructions in Persian, I believe that the analysis provides a very promising approach since it allows to derive the syntactic and semantic properties of the verb phrase from the compositional construal of the verbal structure.

3.5 Conclusion

This chapter examined the light verb constructions in Persian. These predicates are composed of several grammatical elements, each of which contributes part of the information usually associated with a single morphophonological word. These complex predicates raise a challenge for the strict division between words and phrases since they display a dual behavior at times acting like a single word and at others behaving like a phrase. A close investigation of Persian complex predicates allowed us to develop an analysis of the internal structure of causative/inchoative alternation verbs by determining the primitive elements of verbal constructions. I propose that complex verbal predicates in Persian are obtained

through a compositional combination of these primitive elements. It was also shown that the light verbs in Persian can constrain the aspectual readings available within the verb phrase and it was argued that each *v* feature may also project a related aspectual projection, providing a more articulated *v*P structure.

The proposed analysis argues for a syntactic approach to verb-formation in which there exists a single computational domain and the distinct properties that seem to differentiate word-level and phrasal-level elements are in fact derived from the syntactic structure. The dual behavior of complex predicates is straightforwardly accounted for in such an approach. In addition, various syntactic and semantic properties of the verb phrase can be derived from the final syntactic configuration resulting from the compositional formation of the complex verbal predicate.

Lexical Items

In Chapter 3, an investigation of the causative/inchoative alternation verbs in Persian allowed us to determine the primitive elements of the verbal predicate. These primitive units consist of roots, categorial features (e.g., *adj*) and verbal functional elements (e.g., v_{become} , v_{cause} , tense, aspect), which combine to form verbal predicates in syntax. Hence, these primitive elements are abstract categories defined by universal features, which combine following syntactic principles such as head-to-head movement to create new verbal predicates. In the theory developed in Distributed Morphology, the Lexicon contains only these primitive aspects of syntactic categories, which are used to construct phrase-markers following syntactic operations. The idea of the grammatical lexicon presented in this dissertation, however, differs from the view in Distributed Morphology since it is argued that the *basic lexical items* do not necessarily correspond to the *primitive syntactic elements*, and this is in fact a major source of variation in the world's languages.

The study of the light verb constructions in Persian resulted in a proposal based on the decomposition of the verbal predicate into its primitive elements representing roots, and categorial and functional entities. It was argued that these elements are all that is needed to compositionally form the verbal constructions within the computational domain. Hence, for Persian, the grammatical lexicon consists solely of these primitive syntactic units and does not contain any morphophonological expressions with predetermined argument structures. The meaning of the verb is derived from the final structure constructed. The primitive elements of grammar are argued to be universal in the sense that verbs in all languages are formed using various combinations of these syntactic features. Hence, an inchoative verb is always formed by combining the root, the categorial feature for adjective and the inner light verb projection v_{become} as illustrated in (1a). The causative version of the same verb would then include in addition the outer light verb projection for v_{cause} as shown in (1b). Recall that each functional category v also projects a specifier or argument position, which accounts for the valency distinction between the inchoative and causative variants, and an aspectual projection.

- (1) a. $\sqrt{\text{root}} + \text{adj} + [\text{arg}_1, v_{become}, \text{asp}]$
 b. $\sqrt{\text{root}} + \text{adj} + [\text{arg}_1, v_{become}, \text{asp}] + [\text{arg}_2, v_{cause}, \text{asp}]$

An examination of the causative/inchoative alternation verbs in Eastern Armenian, however, suggests that languages differ with respect to the size or structure of the items stored in their grammatical lexicons. In particular, I will show that, in order to account for the Eastern Armenian data, a distinction needs to be made between the notions of *primitive elements of grammar* and *basic lexical items*. Although inchoative verbs and their causative alternants have the same syntactic structure and meaning in both Persian and Eastern Armenian, formed by combining the primitive elements depicted in (1), the lexical item in Eastern Armenian can actually be composed of an association between several primitive elements. I will show that there exist two distinct classes of alternating verbs in Eastern Armenian with

different properties. In particular, I claim that the causative alternants of verbs such as *dry* are formed by combining the various primitive elements in syntax, whereas verbs such as *break* are inherent causatives. I argue that the first group of alternating verbs are stored as an adjectival element in the grammatical lexicon, while the members of the second group are listed as an unordered set of associations corresponding to a full verbal structure equivalent to *vP*. The distinction between the basic lexical items of verbal predicates captures the different morphological, syntactic and semantic properties of the two causative constructions in Eastern Armenian.

Section 4.1 investigates the transitivity alternation verbs in Eastern Armenian. The Armenian data provide support for the distinct classification of *break* vs. *dry* verbs proposed by Hale and Keyser. This section argues that these verbs do not constitute a uniform class in this language, and their difference is related to the lexical item in each case. The discussion leads to a distinction made between the notion of *basic lexical item* and *primitive elements of grammar*, whereby the lexical item may correspond to a structural association among various primitive syntactic features. Section 4.2 compares the proposed analysis to analyses of similar Greek data presented in Embick (1998) and argues that without the concept of *basic lexical item* the syntactic theories of word formation will fail to account for the two categories of alternation verbs in Eastern Armenian. Section 4.3 contrasts the causative/inchoative alternation verbs in Eastern Armenian to the ones in Persian discussed in Chapter 3. It is shown that the proposed model can account for the similarities and differences of these verb types across languages if the basic lexical item in each language and the node determining the PF-phase (Φ_{PF}) are treated as parameters. Thus, the primitive elements of grammar are universal features that combine to construct verbal predicates, but a language's lexical items and the syntactic node at which the structure is delivered to the PF component can vary from one language to another. The combination of these two factors, therefore, contributes to linguistic variation in verb formation. Section 4.4 summarizes the proposal in this chapter and discusses some of its implications.

4.1 Transitivity Alternation Verbs in Eastern Armenian

In English, verbs such as *open*, *break*, *dry*, *sink* or *redde*n, which use the same form to denote a transitive or an intransitive, have been classified as transitivity alternation verbs (Jackendoff, 1990; Levin, 1993). These verbs are also known as *causative alternation verbs* and are exemplified below:

- (2) a. The door opened.
b. John opened the door.
- (3) a. Mary's hair dried.
b. Mary dried her hair.

In the intransitive usage, the subject undergoes a change of state, hence in (2a) the door becomes open. The transitive counterparts of these verbs are often analyzed as causative constructions (Levin and Rappaport Hovav, 1995; Dowty, 1991; Pustejovsky, 1995). As shown in (2b), the transitive verb depicts the causation of the change of state in (2a), in which the object undergoes the change brought about by the subject. In this particular example, the subject *John* has caused the door to become open.

Levin and Rappaport Hovav (henceforth LRH) argue that the underlying lexical representation of a causative alternation verb such as *open* or *dry* already contains the causation event. They then propose that the intransitive variant of the verb is obtained when the verb is *detransitivized* by the application of a lexical rule, which prevents the cause argument to project into the argument structure of the verb; the cause argument is thereby not realized in syntax. Hence, the analysis put forth by LRH provides a uniform analysis for *open* and *dry* by positing a fully causativized lexical representation for these verbs. LRH list the following verbs as belonging to the class of transitivity alternation verbs:

- (4) bake, blacken, break, close, cook, dry, freeze, melt, open, shatter, thaw, thicken, whiten, widen,

bounce, move, roll, rotate, spin...

These transitivity alternation verbs, however, do not fall into a uniform category in Armenian. In fact, we can distinguish two classes of verbs that correspond to the change of state verbs listed in (4). Consider the transitive forms of the verbs ‘widen’ and ‘break’ in Armenian illustrated below. The verb ‘widen’ in (5a) appears with an overt causative morpheme, while the verb ‘break’ in (5b) lacks any overt causative morphology.

- (5) a.be.3PL gortzoq-ner-ə poqots-ə layn-ats-num en
 worker-PL-NOM road-ACC wide-CAUS-IMP

‘The workers are widening the street.’

- b.Ara-n bajak’-ə k’ot’r-ets
 Ara-NOM glass-ACC break-AOR.3SG

‘Ara broke the glass.’

The intransitive forms of these same verbs also have distinct morphology as shown in (6), where the verbal form in (6b) appears with a passive morpheme and is clearly derived from the transitive form in (5b). (6a), however, displays no passive morphology.

- (6) a.poqots-ə layn-anum e
 road-NOM wide-IMP be.3SG

‘The road is widening.’

- b.bajak’-ə k’ot’r-v-ets
 glass-NOM break-PASS-AOR.3SG

‘The glass broke.’

These examples clearly show that the two verbs representing ‘widen’ and ‘break’ do not display similar behavior in Eastern Armenian as LRH’s analysis might suggest. I propose that, at least in Armenian, the transitivity alternation verbs listed in (4) actually constitute two distinct groups: The first category consists of deadjectival verbs such as *laynanal* ‘widen’ that appear with a causative morpheme in the transitive form. In the intransitive usage, they appear with the infinitival morphology *-anal*, which has the meaning “become” (cf. Minassian, 1980, p.172). I suggest that *-anal* actually consists of the morphemes *-a* (denoting the meaning BECOME), *-n* (possibly representing aspect), and the infinitival ending *-al*. The verbs of the first category are exemplified in (7). The second category of verbs are transitive in their unmarked form, from which the intransitive variant is derived and appears with the passive morpheme *-v*. Some of these verbs are listed in (8).

(7) **Category I**

<u>Adjective</u>	⇒	<u>Change of State</u>	⇒	<u>CAUSE change of state</u>
		[Intransitive]		[Transitive]
layn (wide)		laynanal (widen)		layn.ats.nel (widen)
čor (dry)		čoranal (dry)		čor.ats.nel (dry)
metz (big)		metzanal (grow)		metz.ats.nel (grow, bring up)
arag (fast, quick)		araganal (quicken)		arag.ats.nel (accelerate)
čaq (fat)		čaqanal (become fat)		čaq.ats.nel (fatten)
sev (black)		sevanal (blacken)		sev.ats.nel (blacken, darken)
k’armir (red)		k’armrel (redden)		k’armr.ats.nel (redden, saute’)

(8)	Category II				
	<u>Adjective</u>	⇒	<u>CAUSE Change of State</u>	⇒	<u>Change of state</u>
			[Intransitive]		[Transitive]
	—		k'ot'rel (break)		k'ot'r.v.el (break)
	—		epel (cook)		ep.v.el (cook)
	—		poxel (change)		pox.v.el (change)
	—		šarjel (move)		šarj.v.el (move)
	—		xort'ak'el (sink, drown)		xort'ak'.v.el (sink, drown)
	bats (open)		batsel (open)		bats.v.el (open)
	k'oxp' (closed)		k'oxp'el (close)		k'oxp'.v.el (close)

It is not surprising to see an overt causative morpheme on the transitive verbs of category I in (7), since it was argued that they represent the causation of the change of state depicted in the intransitive variant. Given that the transitive forms of the transitivity alternation verbs are causatives semantically, the transitive verbs of the second category can be thought of as containing an abstract CAUSE event in their internal structure. In fact, the examples in (9) and (10) support a causative analysis of these verbs. Recall from Chapter 2 that the analytic causative in Armenian was argued to be formed on predicates that already contain a causation event or a *v_{cause}*. The following sentences show that the verbs of category II are unable to form a morphological causative ((9a) and (10a)) and can only appear with the analytic causative ((9b) and (10b)).

- (9) a.*Ara-n Njde-in p'at'uhan-ə kar-ov k'ot'r-ets-rets
 Ara-NOM Nejdeh-DAT window-ACC stone-INST break-CAUS-AOR.3SG
- b.Ara-n Njde-in p'at'uhan-ə kar-ov k'ot'r-el t'v-ets
 Ara-NOM Nejdeh-DAT window-ACC stone-INST break-INF give-AOR.3SG
 'Ara made Nejdeh break the window with a stone.'
- (10) a.*Anuš-ə yerex-in p'at'uhan-ə bats-ets-rets
 Anush-NOM child-DAT window-ACC open-CAUS-AOR.3SG
- b.Anuš-ə yerex-in p'at'uhan-ə bats-el t'v-ets
 Anush-NOM child-DAT window-ACC open-INF give-AOR.3SG
 'Anush made the child open the window.'

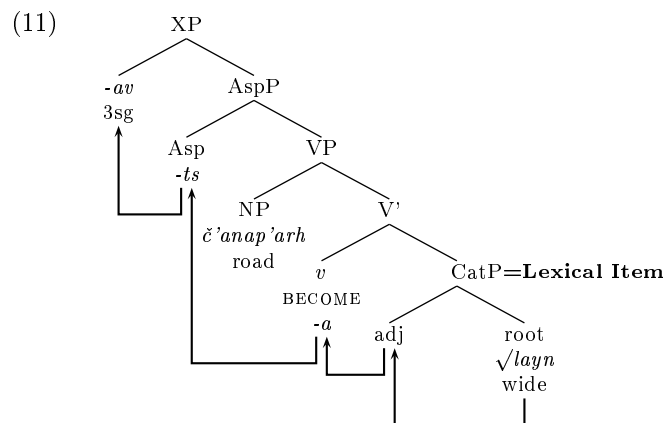
These examples seem to indicate that the verbs listed in category II are in fact underlyingly causatives, as suggested by LRH, even though no overt causative morpheme appears on the verbal root.

I suggest that the distinct morphology observed between the two verb groups is due to the difference in their lexical entry. In other words, I argue that verbs (and words in general) vary with respect to their "basic" lexical category within a certain language. Hence, in Eastern Armenian, the verbs depicted in (8) are in fact transitive verbal categories in the lexicon, whereas both the transitive and intransitive forms of verbs such as *laynanal* 'widen-Intrans.' are formed in syntax based on their adjectival roots.³⁴

Thus, for the first category of verbs represented in (7), the adjectival element (e.g., *layn* 'wide') is listed in the lexicon of the language. In other words, the lexical item consists of the root element *layn* associated with a categorial functional element *adj*. When the lexical entry (i.e., CatP) combines with a light verb *v* in syntax, denoting an event, a verb is formed. Depending on the type of light verb that

³⁴I owe this idea to Vergnaud (p.c.) who pointed out that in French also, there seems to be a distinction with respect to the basic lexical item of the verb. Hence, the verb *sécher* 'dry-trans.' is morphologically derived from the feminine form of the adjective *sèche* 'dry'. On the other hand, a verb such as *ouvrir* 'open-trans.' is not derived from the adjectival, and in fact, it is the adjectival/past participial form *ouvert* which is derived from the verb. Given the proposed analysis, one could argue that the basic lexical entries for these verbal elements are the adjective *sec* or *sèche* 'dry' and the verbal entry *ouvrir* 'open', respectively.

the lexical element combines with, we obtain different verbal predicates in syntax. Hence, if the entry combines with a light verb representing the event BECOME, as shown in the configuration in (11), the inchoative verb obtains. As was argued in detail in the Persian analysis in Chapter 3, the light verb representing BECOME projects an argument within the inner event domain of the verbal configuration, and therefore the argument is interpreted as an internal argument in the final structure (11). This is, in effect, the configuration for the inchoative verbal elements listed in (7). The subject in this case is an internal argument and undergoes the action as in *č'anap'arh-ə layn.a.ts.av* 'the road widened'.



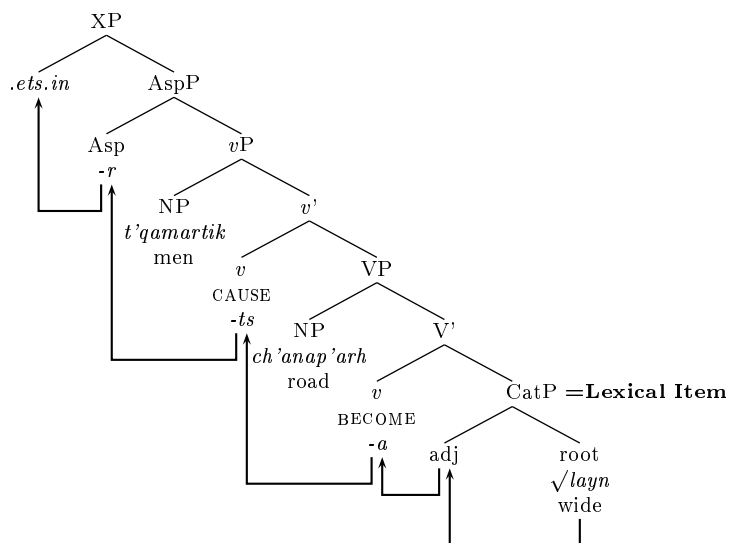
I posit an Aspect Phrase projection above VP (Travis, 1992a; Borer, 1994) which houses the aorist morpheme *-ts*. Note that, despite the identical surface realization, this morpheme is functionally distinct from the causative affix³⁵. I also assume a projection XP which houses the infinitival as well as the tense and number morphology, without getting into any details about its properties at this point since it is not the main focus of this work.

If the inchoative VP structure further combines with a causative light verb, however, the transitive/causative form obtains as illustrated in (12) where v_{cause} is realized as the morpheme *-ts* and its argument becomes the subject or external argument of the newly formed predicate as in *t'qamartik č'anap'arh-ə layn.a.ts.rets.in* 'The men widened the road'. The verb is formed when the underlying inchoative verb incorporates into the v_{cause} by head-movement as shown in the configuration.³⁶

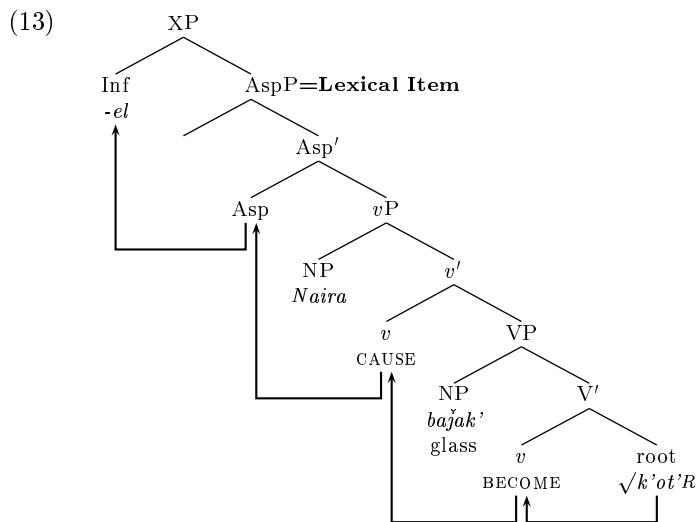
³⁵See Minassian, 1980 for more information on disambiguating the *ts* affix and a description of Eastern Armenian verbal morphology.

³⁶I am ignoring the inner aspect projection at this point for simplicity.

(12)

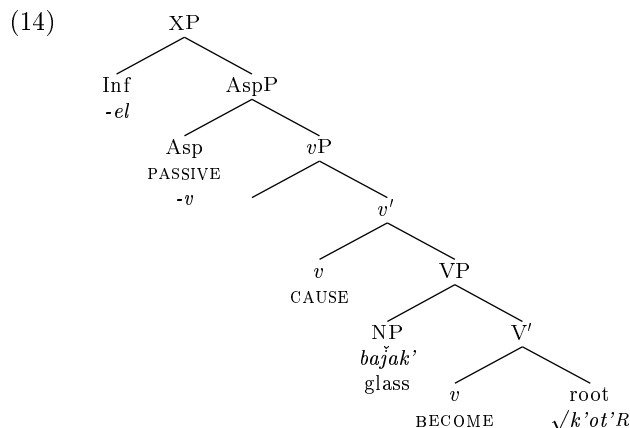


On the other hand, it was suggested that the basic category of ‘break’-type verbs in Armenian (Category II listed in (8)) is the transitive variant of the verb. I suggest that the transitive verb is listed in the lexicon as an unordered set of elements forming a *vP* structure, consisting of a root element that provides the main meaning of the verbal predicate, and two light verb (or functional) elements: *v_{become}* and *v_{cause}*. The elements listed in the lexical entry are then projected into syntax forming a full verbal entry as illustrated in (13). Since each light verb element projects an argument position, the verbal entry has both an internal and an external argument. Note that verbs such as *k’ot’rel* ‘break’ or *xort’ak’el* ‘sink, drown’ are not based on an adjectival root. In fact, an adjectival form can only be obtained if it is derived from the transitive verb form, which supports the claim put forth here that the basic lexical entry for these verbs is the transitive verbal template (also see Levin and Rappaport Hovav, 1995). It should be emphasized here that I do not suggest that the arguments of a verbal element are included within the lexical item. The analysis claims that the structural position for an argument is projected with each *v* head and is available to be occupied by a nominal phrase, which will then behave as the argument of the verbal predicate (see Chapter 5 for more details). In addition, the proposal does not suggest that the verbal structure corresponding to *vP* in (13) is listed in the lexicon as a full structure, but rather the lexical entry of these verbs consists of an array or an unordered set of the verbal constituents, i.e., the root and the functional features. These elements become ordered at the time of linearization after syntax.



The proposed analysis thus provides a uniform syntactic configuration for the causative verb *laynatsnel* ‘widen (trans.)’ in (12) and the causative verb *k’ot’Rel* ‘break (trans.)’ in (13) (apart from the fact that a verb such as *laynatsnel* contains an adjectival root while a verb such as *k’ot’Rel* is based on a category-neutral root element). The similar structures for these verbs account for the identical causation meaning in both cases. Following Distributed Morphology, I assume a post-syntactic insertion at which point in the computation the structural configuration obtained is linked to vocabulary items. The constituents of the verbal configuration are then mapped onto the morphophonological elements to which they correspond. Hence, the pre-associated elements in the *vP* or *AspP* in (13) will be realized as a single “word”. However, the elements in the structure that are not part of the same set within the lexicon will each be realized as a distinct morpheme as is the case in the *vP* structure in (12). The distinction in the *basic lexical item* in the two verbal constructions (i.e., that the lexical item of ‘wide’-type verbs is an adjectival element: *layn* ‘wide’ + *adj*, and the lexical entry of the ‘break’-type verbs corresponds to a full *vP*: *k’ot’R* ‘break’ + *v_{become}* + *v_{cause}* + *asp*) accounts for the distinct surface realizations in which the verb *laynatsnel* ‘widen-trans.’ appears with a causative morpheme, but the verb *k’ot’Rel* ‘break-trans.’ lacks any overt morphology.

To form the intransitive variant of the verb *k’ot’Rel* ‘break’, the agent (i.e., external argument) is demoted in a process similar to passivization. I suggest that this takes place via a process that eliminates the structural position of the external argument, which results in the argument not being able to ‘project’ into the phrase structure and causes a passive morpheme to appear in the *Asp* head as illustrated in (14).



Passive constructions allow the presence of a by-phrase whereby the external argument of the active sentence is realized. Although ‘by-phrases’ are not commonly used in Eastern Armenian, they are felicitous given the right context as shown in (15).

- (15) sezar-ə ir sir-atz brutus-i k'oqm-its / dzerk-ov sp'an-v-ets
 Ceasar his like-RES Brutus-GEN side-ABL / hand-INST kill-PASS-AOR.3SG
 ‘Ceasar was killed by his favorite one Brutus.’ (Lit.: ‘Ceasar was killed by his liked Brutus’)

As the examples in (16) illustrate, the intransitive variants of *break* verbs are felicitous with a by-phrase construction, providing support for their passive-like behavior.

- (16) a.? ays kristal bajak'-ə Ara-i dzerk-ov k'ot'R-v-ets
 this crystal glass-NOM Ara-GEN hand-INST break-PASS-AOR.3SG
 ‘This crystal glass was broken by Ara.’
 b. ays yerk'r-i zork-ə tšnam-u dzerk-ov haxt-v-ets
 this country-GEN army-NOM enemy-GEN hand-INST vanquish-PASS-AOR.3SG
 ‘This country army was vanquished by the enemy.’

However, the by-phrase cannot be used with the intransitive form of the *widen* category:

- (17) a.* šor-er-ə Ara-i k'oqm-its / dzerk-ov čor-ats-an
 clothes-NOM Ara-GEN side-ABL / hand-INST dry-INCH-'AOR.3PL
 ‘The clothes dried by Ara.’
 b.* banjareqen-ner-ə mer dzerk-ov en metz-ats-el
 vegetable-PL-NOM our hand-INST are grown
 ‘The vegetable are grown by us.’

The sentence in (17a), for instance, is grammatical only with the reading that the clothes dried while they were in Ara’s hands, but does not mean that Ara in any way brought about the drying event.³⁷

The reason I claim that the voice morphology appears in the Asp projection rather than the v_{cause} comes from the following data which show that the passive morpheme follows the overtly causative affix

³⁷This brings up the debate on whether an inchoative verb is really a passive. I assume that the *-v* affix appears when an argument is not realized on the syntactic configuration, regardless of the process that blocks it. Hence, the morphological similarity between reflexives and passives in many languages, including Armenian, could result from the same generalization (see Lidz, 1995 for a similar approach; also see Zubizarreta, 1985). In Persian, the light verb *šodæn* ‘become’ is used both with passives and with inchoatives which has led some scholars (e.g., Moyne, 1970) to claim that Persian does not have any passive constructions only inchoatives. Presumably, all these issues are interrelated. I will leave these for further study.

in verbs that appear as morphological causatives:

- (18) a. poqots-ə layn-a-ts-r-ets-in
 pro street-ACC wide-INCH-CAUS-AFF-AOR-3PL

‘They widened the street.’

- b. ?poqots-ə layn-a-ts-v-ets
 street-NOM wide-TH-CAUS-PASS-AOR.3SG

‘The street was widened.’

- (19) k’or-ts-v-ir gn-a
 lose-CAUS-PASS-2SG go-IMPER/2SG

‘Go get lost!’

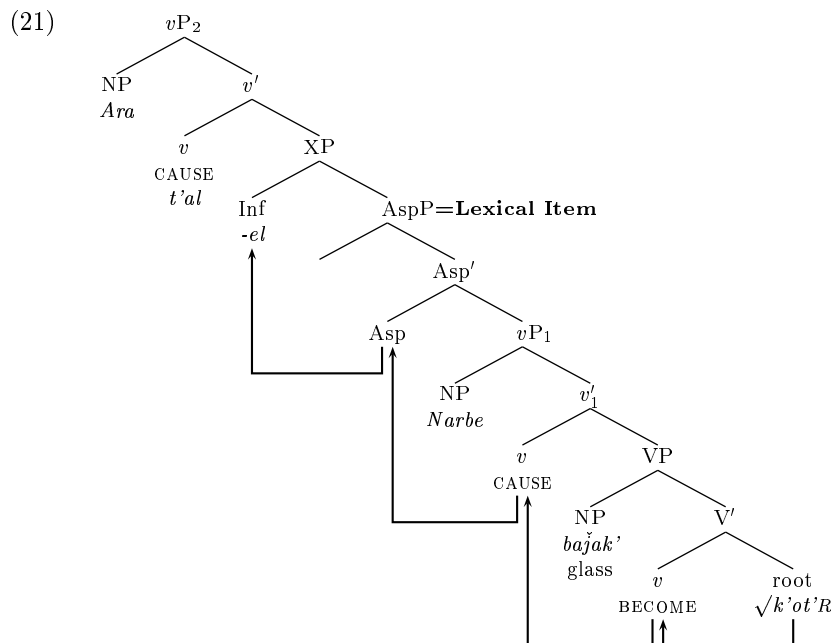
This suggests that the external argument is realized in the [Spec, AspP] projection³⁸. When the specifier of this projection is eliminated, a *-v* morpheme appears in the head. In the discussion in this chapter, I will not address the licensing of the arguments; their projection and interpretation will be examined in the following chapter.

This analysis can explain why the transitive verbs of Category II can only be causativized through the addition of the verb *t’al* ‘give’, as discussed extensively in Chapter 2. Hence, when the transitive verb *k’ot’rel* ‘break’ is causativized, it can only form an analytic causative since it already includes a CAUSE event. The lower *v_{cause}* does not incorporate into the newly added *v_{cause}* since the latter is outside the spell-out boundary to PF in Eastern Armenian (cf. Section 2.6) and therefore it is realized as the causative light verb *t’al* ‘give’. This is exemplified in (20) and the corresponding configuration is presented in (21).

- (20) Ara-n Narbe-in bajak’-ə k’ot’r-el t’v-ets
 Ara-NOM Narbe-DAT glass-ACC break-INF give-AOR.3SG

‘Ara made Narbe break the glass.’

³⁸Instead of AspP, the external argument could possibly be in a VoiceP projection above *v*P following Kratzer (1994). For the time being, I will continue using Aspect Phrase and will leave a study of these higher projections to a later date.



Another difference between the two verbal categories of ‘widen’ and ‘break’ in Armenian involves the causativization of the intransitive variant using the analytic causative. Although the causativization of the intransitive form of the verbs of category II is not completely felicitous, the sentences in (22) are interpretable given the right context.

- (22) a.??k'axard-ə durer-ə bats-v-el t'vets
 witch-NOM doors-ACC open-PASS-INF gave

‘The witch made the doors open.’

- b.??amerik'atsi general-ə irents nav-ə xort'ak'-v-el t'vets vorp'eszi vor
 American general-NOM their boat-ACC sink-PASS-'INF gave so that
 p'arsik'ner-i dzerk-ə č-əngn-i
 Persians-GEN hand-ACC 'NEG-fall-SUBJ

‘The American general made their boat sink so that it won’t fall in the hands of the Persians.’

In both of these examples, the causees (‘doors’ in (22a) and ‘boat’ in (22b)) though inanimate seem to have a somewhat agentive role. Hence, the interpretation in (22a) is that the doors were made to become open by the witch’s spell, thus giving them a somewhat agentive role. No such reading is possible with the following examples:

- (23) a.* č'anap'arh-ə layn-an-al t'vets-in
 pro road-NOM wide-INCH-INF gave-3PL

‘They made the road widen.’

- b.*k'axard-ə šorer-ə čoranal t'vets
 witch-NOM clothes-ACC dry gave

‘The witch made the clothes dry.’

- c.*Ara-n mor-ə xentanal t'vets
 Ara-NOM mother(DAT) go-mad gave
 'Ara made (his) mother become mad.'
- d.*zinvor-ə p'at'-ə sevanal t'vets
 soldier-NOM wall-ACC blacken gave
 'The soldier made the wall blacken.'

According to the analysis proposed, the difference in acceptability between the two sets of examples is expected. In the inchoative constructions in (23), the verbal predicate forms a VP phrase and no argument is projected within the outer *vP* domain. Since the *v_{cause}* position is not occupied, when a causative event is added to the structure, it can only give rise to a morphological causative by forming a single *vP*. Analytic causative constructions as in (23) are therefore not felicitous since the underlying predicate does not include a *v_{cause}*. On the other hand, in the intransitive predicates in (22), I have argued that the basic form of these verbs is the causative and the passive/reflexive morpheme *-v* occupies the Asp position in the verbal configuration, as a result of the suppression of the external argument projection. Since the light verb *v* position in *vP* is occupied, the *v_{cause}* can only be added on top of the *vP* structure, thus forming an analytic causative.

The investigation of the transitivity alternation verbs of Eastern Armenian in this section has distinguished two classes of alternating verbs based on the structural level projected by the elements listed in the lexicon. In particular, the verbs of 'widen' category have been argued to be listed as adjectival predicates consisting of a root and a categorial feature, while the verbs of the 'break' category are stored in the grammatical lexicon as a full causative verb. Further support for the distinction in the lexical items of the two verbal categories comes from data on adjectival participle formation. In Eastern Armenian, participials are formed by adding the suffix *-atz*, often referred to as the Resultative morpheme (cf. Kozintseva, 1995), to the aorist stem of the verb. If in fact the basic structures of the two verbal categories are distinct, we would expect their deverbal formation to also differ. This is borne out as shown in the following examples in which the boxed element corresponds to the aorist stem. These examples show that in the verbs of category I the participial can be formed either on the inner VP projection (24a) or on the outer *vP* (24b). In contrast, the verbs of category II, whose lexical entry corresponds to the full *vP*, can only form the participial on the outer *vP* projection (25).

- (24) a.im čor.ats.atz p'amidor-ə [Category I]
 my dry.AOR.RES tomato-NOM/ACC
 'my dried tomato' (no causer is implied)
- b.im čor.ast.r.atz p'amidor-ə
 my dry.CAUS/AOR.RES tomato-NOM/ACC
 'my dried tomato' (i.e., 'the tomato that I or someone dried')
- (25) im k'ot'R-atz bajak'-ə [Category II]
 my break.RES glass-NOM/ACC
 'my broken glass' (i.e., 'the glass that I or someone broke')

Example (24a) illustrates the adjectival participial forms on the aorist stem of the verb 'dry'. In here, the *-atz* morpheme is added on the inchoative construction of the verb and as the translation indicates, no causer is present in this reading. Hence, the way in which the tomato was dried or the causer of the drying event is not important but only the result state of being 'dried' is available. In contrast, the participial in (24b) is formed on the aorist stem of the causative verb. In this instance, the causer of the event is present and it may coincide with the possessive pronoun. Hence, this example refers to the tomato that either I or someone else dried. There exists however only one type of participial formation

based on the verbs of category II. Example (25) shows a participial form which is created based on the aorist stem of the verb ‘break’. As the English translation shows, the resulting reading is equivalent to the one obtained in the second participial of category I verbs, i.e., the one formed on the causative aorist in (24b). These results clearly point to a distinction between the structures of the verbs ‘dry’ and ‘break’ in Eastern Armenian. In particular, (25) indicates that *k’ot’R-*, the base stem of the verb ‘break’, includes an external argument or causer and a causation event in its basic representation.

The adjectival participial can also be formed on the anticausative form as illustrated below. Recall that voice morphology (i.e., the passive morpheme *-v*) in Eastern Armenian was argued to only appear on verbal predicates whose external argument position had been suppressed. The participial in (26) is then clearly created from the causative form in (24b) and not from the inchoative version in (24a), since it implies the involvement of a causer. If the participial had been formed on the inner VP projection in (24a), there would have been no causer present in this reading. Once again, the verbal predicate formed on a category II verb parallels the behavior of a causative construction as shown in (27), indicating that it originally contained an external argument position which is suppressed (indicated by the *-v* morpheme). Note that the causer argument, although not projected overtly, is still present in the construction since it is implied in the meaning.

(26) im čor.ats.v.atz p’amidor-ə
my dried tomato (implies a causer)

(27) im k’ot’R.v.atz bajak’-ə
my broken glass (implies a causer)

Another interesting set of data that support the analysis provided in this section comes from the ambiguity of the word *bats*, which can mean either ‘open’ or ‘light (colored)’. As illustrated in the examples below, the morphological causative form constructed on the root *bats* in (28) can only mean to make lighter in color and cannot be interpreted as to make open (cf. (29)).

(28) Ara-n t’un-ə nerk’-um er yev voroš-ets vor dur-er-ə
Ara-NOM house-ACC paint-IMP was and decide-’AOR.3SG that door-PL-ACC
bats-ats-n-i
clear-CAUS-’ASP-SUBJ.3SG

‘Ara was painting the house and decided to lighten the color of the doors.’

(29) Ara-n t’un-ə nerk’-um er yev voroš-ets vor dur-er-ə **bats-i**
Ara-NOM house-ACC paint-IMP was and decide-’AOR.3SG that door-PL-ACC open-SUBJ.3SG

‘Ara was painting the house and decided to open the doors.’

Similarly, the analytic causative variant can only mean to make open:

(30) Ara-n nerk’oq-ner-in dur-er-ə **bats-el t’v-ets**
Ara-NOM painter-PL-DAT door-PL-ACC open-INF gave.3SG

‘Ara made the painters open the doors.’

*‘Ara made the painters lighten the color of the doors.’

These results are of course expected if *bats* meaning ‘light (colored)’ is listed as an adjectival root only whereas the lexical item for the meaning ‘open’ is listed as a verbal element. Note that *bats* as an adjective can mean ‘open’ as well as ‘light-colored’. But in a verbal context, there exists a very clear distinction in the types of structure they may appear in. I suggest that *bats* (with the meaning ‘open’) is actually listed twice in the lexicon. Once as an adjectival and once as a causative verb. In a verbal context, faced with two choices one of which corresponds to a causative lexical verb (meaning ‘open’) and another to an adjectival which can be used to create a causative in syntax (meaning ‘light-colored’),

the former is chosen giving rise to a lexical blocking effect. This is illustrated in the schema in (31) in which the boxed elements correspond to the lexical items.

(31a) represents the causative verbal construction listed in the lexicon as an unordered set of elements representing the transitive verb ‘open’. (31b) represents the adjectival entry for ‘open’ which can combine with the functional verbal elements to form a causative verbal predicate. Given the existence of (31a), this verbal construction blocks the formation of a causative verb on the adjectival entry. This is in contrast with the behavior of the verbal formation on the adjectival entry *bats* ‘light-colored’ in (32) since the latter is not listed as a verbal entry and therefore no lexical blocking occurs.

- (31) where *bats* = open
 a. bats.v_{become}.v_{cause}.asp
 b.* bats.adj + v_{become} + v_{cause} + asp

- (32) where *bats* = light-colored
bats.adj + v_{become} + v_{cause} + asp

This state of affairs is certainly not very minimalist in spirit. Why languages opt to list two types of lexical entries as proposed for the case of *bats* ‘open’ is an open question. It should be noted, however, that this “double-listing” is not by any means the rule among the verbs of category II listed again below as (33). In fact, besides *bats* ‘open’ and *k’oxp’* ‘closed’, the root elements of most other verbs in this category cannot be used as an adjectival.

(33) **Category II**

Adjective	⇒ CAUSE Change of State	⇒ Change of state
	[Intransitive]	[Transitive]
—	k’ot’rel (break)	k’ot’r.v.el (break)
—	epel (cook)	ep.v.el (cook)
—	poxel (change)	pox.v.el (change)
—	šarĵel (move)	šarĵ.v.el (move)
—	xort’ak’el (sink, drown)	xort’ak’.v.el (sink, drown)
bats (open)	batsel (open)	bats.v.el (open)
k’oxp’ (closed)	k’oxp’el (close)	k’oxp’.v.el (close)

4.2 Voice Morphology and Lexical Items

The notion of *Basic Lexical Item* (henceforth BLI) is a departure from the ideas developed in Distributed Morphology, in which the lexicon only consists of primitive, abstract syntactic categories that are used in predicate formation. In this section, I will show that the analysis provided in Distributed Morphology that assumes only the existence of roots and functional features as independent lexical items cannot account for the Armenian data and that in fact the concept of BLI is needed in order to capture the distinction in voice morphology between the two categories of transitivity alternation verbs in this language.

In his analysis of Greek, Embick (1998) proposes that voice morphology should be analyzed as “related to a morphological feature which is added post-syntactically in specific syntactic configurations”. Within the context of the theory of Distributed Morphology, Embick argues that the passive/reflexive morpheme on the intransitive counterpart of certain transitivity alternation verbs (henceforth referred to as anticausatives) in Greek should be viewed as the overt realization of a particular syntactic condition after the structure has been transferred to the morphological component. This property is defined as *dissociation*, defined in (34).

- (34) **Dissociation:** A morphological signal is *dissociated* when the morphosyntactic position/features it instantiates are not features figuring in the syntactic computation, but are instead added in the Morphological component under particular conditions.

Hence voice morphology is not treated as an argument of the verb. Instead, Embick suggests that there is a feature [NonAct] mediating syntax and Vocabulary Insertion, giving rise to the morphophonological realization of the passive/reflexive morpheme on intransitive verbs.

Consider the anticausative alternations in Greek illustrated in (35):

(35)	Intrans	Trans	Translation
	tsakizo-me	tsakizo	‘break’
	keo-me	keo	‘burn’
	singendrono-me	singendrono	‘gather’

Embick notes that the same voice morphology appears on both passives and anticausative verbs. In the passive, there is a reduction of valency which could be argued to give rise to the Non-Active morphology. However, Embick assumes, based on the analyses of Chomsky (1970) and Marantz (1995), that the verbs that appear in transitivity alternations are basically intransitive roots which become transitivized in syntax in the context of a transitivizing light verb. Hence Embick (1998) argues:

“In light of this argument there are two options. One would be to abandon the arguments for the intransitivity of TA verbs³⁹, and argue that voice morphology in each case brings about valency reduction. The second, which I will follow, is to accept the arguments for intransitivity, and abandon the idea that voice morphology must be effecting syntactic alternations whenever it appears.”

The analysis that Embick then provides is that the [NonAct] feature is assigned at the level of Vocabulary Insertion when *v* is not in a local relationship with an external argument. This proposal is argued to account for cases where the syntactic feature on *v* is Agentive (e.g., Reflexives, Passives) as well as where the syntactic feature on *v* is non-Agentive (e.g., Anticausatives). In other words, in passives or reflexives, this syntactic condition will be met because the external argument has been ‘blocked’ or in Embick’s terminology ‘cliticized’. In unaccusatives, the condition is met simply because there is no external argument to begin with.

In the analysis proposed in the previous section, I agree with Embick (1998) that voice morphology is sensitive to the output of the syntax. In particular, I argue that the passive/reflexive morpheme on the anticausative verbs of Category II in Eastern Armenian are realized when the *v*P structure has been delivered to the PF interface. I propose, however, that the voice morphology appears when the external argument is blocked. Crucially, in this analysis, the passive/reflexive morpheme suggests that the external argument is present but unable to project in syntax, thus unifying the correlation between morphology and syntax in passives as well as anticausatives. This differs from the analysis provided in Embick (1998) where the passive structure and the anticausative syntax are argued to be distinct.

Recall from Section 4.1 that the underlying structure of alternation verbs belonging to Category II in Eastern Armenian, such as the verbs *k’otrel* ‘break’ or *batsel* ‘open’, was argued to be a causative construction. Hence the basic form of these verbs, or rather their BLI includes a *v_{cause}*, which is projected in the structural configuration when the verb is composed in syntax. I showed that the intransitive counterparts of the verbs of Category II in fact seem to carry a causative as well as an agentive meaning, thus distinguishing them from the intransitive version of the verbs of Category I which are analyzed as unaccusatives. In the analysis put forth for the ‘break’-type verbs, the voice morphology is realized when the external argument is blocked from being projected in syntax. Though the exact process that brings about this ‘blocking’ effect is still vague in the proposal, the analysis is able to capture the similarity in voice morphology observed between these intransitive forms and passive as well as reflexive verbs.

³⁹Transitivity Alternation verbs.

To account for these conclusions within the theory of Distributed Morphology, which does not assume the existence of BLI in the grammatical lexicon, necessitates post-syntactic operations that look suspiciously similar to syntax. Since in Distributed Morphology, the verbs of Category I as well as the verbs of Category II are built uniformly by combining primitive elements in syntax, we do not expect to find a distinction between the two types of intransitive verbs or, for that matter, between their overt morphological realization, contrary to fact. In Distributed Morphology, the input to the morphophonological component is expected to be the same in both verb types, with the intransitives represented as unaccusative constructions lacking a v_{cause} and the related argument position. In order to capture the distinct syntactic, semantic and morphological properties attested between these verb groups, we would need to add the causative light verb element to the intransitive verbs of category II post-syntactically and then remove or block the external argument in order to obtain the observed properties. Such syntactic operations within the morphophonological module are unmotivated and create the problem of two redundant components coexisting within the same system. Allowing structure-building operations in syntax as well as in morphophonology recreates the problems raised by two word-formation components that we have argued against throughout the thesis. I therefore argue that by including the notion of BLI within the system, we can account for the distinction between the verb types more straightforwardly without having to assume post-syntactic structure-building mechanisms.

4.3 Parameters of Verb Formation

This section contrasts the proposed analysis for causative/inchoative alternation verbs in Eastern Armenian with the account provided for Persian in Chapter 3. Both analyses present the same underlying structure for the inchoative verbs and their causative alternants, but argue for different representations as the basic lexical items in each language. In addition, the surface realization of the verbal constructions differ in the two languages. I will show in this section that the computational model proposed can capture the similarities in meaning and differences in surface realization in this language pair by positing two parameters determining the basic lexical item and the PF-phase node.

4.3.1 The Basic Lexical Item

In Persian, an inchoative verb is analyzed as consisting of a root element combined with a categorial feature and a light verb element v_{become} as shown in the schematic structure in (36a). In addition, it was argued that each v head is also related to an aspectual projection. A causative is formed by combining a causative light verb element v_{cause} with the inchoative structure as shown in (36b). Note that arg_i and arg_j do not represent the arguments but rather the structural positions for the arguments.

- (36) a. *Inchoative*:
 $\sqrt{\text{root}} \cdot \text{adj} \cdot [\text{arg}_i, v_{become}] \cdot [\text{arg}_i, \text{Asp}_1]$
 b. *Causative*:
 $\sqrt{\text{root}} \cdot \text{adj} \cdot [\text{arg}_i, v_{become}] \cdot [\text{arg}_i, \text{Asp}_1] \cdot [\text{arg}_j, v_{cause}] \cdot [\text{arg}_j, \text{Asp}_2]$

The lexical items for forming causative and inchoative verbs in Persian are listed in Table (5). According to this analysis, the lexicon in Persian consists of a root element associated with the *adj* feature (i.e., listed as an adjectival) and a functional verbal element v_{become} . In addition, the v_{cause} is a functional verbal element. Both verbal elements project a specifier position. I also assume aspectual functional features in the lexicon, which also project specifier positions.

In Eastern Armenian, two groups of verbs were distinguished. The structure proposed for the verbs of category I is identical to the structure provided for Persian as shown in (37). Hence, the lexical items for these verbs would be equivalent to the ones assumed for Persian (cf. Table 5).

- (37) a. *Inchoative*:
 $\sqrt{\text{root}} \cdot \text{adj} \cdot [\text{arg}_i, v_{become}] \cdot [\text{arg}_i, \text{Asp}_1]$

TABLE 5 Persian Grammatical Lexicon

$[\sqrt{\text{root}} . \text{adj}]_1, [\sqrt{\text{root}} . \text{adj}]_2, \dots [\sqrt{\text{root}} . \text{adj}]_n$ v_{become} v_{cause} Asp_1 Asp_2

b. *Causative*:

$$\sqrt{\text{root}} . \text{adj} . [\text{arg}_i, v_{\text{become}}] . [\text{arg}_i, \text{Asp}_1] . [\text{arg}_j, v_{\text{cause}}] . [\text{arg}_j, \text{Asp}_2]$$

The second group of verbs differ, however, in that they do not include a categorial feature in their structural configuration. Moreover, it was argued that the basic lexical item in this case consists of the full causative structure and the inchoative is derived from the causative construction by suppressing the external argument position as shown in (38).

(38) a. *Causative*:

$$\sqrt{\text{root}} . \text{adj} . [\text{arg}_i, v_{\text{become}}] . [\text{arg}_i, \text{Asp}_1] . [\text{arg}_j, v_{\text{cause}}] . [\text{arg}_j, \text{Asp}_2]$$

b. *Inchoative*:

$$\sqrt{\text{root}} . \text{adj} . [\text{arg}_i, v_{\text{become}}] . [\text{arg}_i, \text{Asp}_1] . [\text{arg}_j, v_{\text{cause}}] . [\emptyset, \text{Asp}_2]$$

Hence, the lexicon for Eastern Armenian differs from the one proposed in Persian. The Armenian grammatical lexicon, shown in Table (6), consists of a series of structures with roots associated with categorial features as in Persian, plus the functional verbal elements v_{become} and v_{cause} , and aspect features. In addition, Eastern Armenian includes a series of structures with roots associated with v_{become} , v_{cause} and aspect heads to represent the causative of Category II.

TABLE 6 Armenian Grammatical Lexicon

$[\sqrt{\text{root}} . \text{adj}]_1, [\sqrt{\text{root}} . \text{adj}]_2, \dots [\sqrt{\text{root}} . \text{adj}]_n$ v_{become} v_{cause} Asp_1 Asp_2 $[\sqrt{\text{root}} . v_{\text{become}} . \text{Asp}_1 . v_{\text{cause}} . \text{Asp}_2]_1 \dots [\sqrt{\text{root}} . v_{\text{become}} . \text{Asp}_1 . v_{\text{cause}} . \text{Asp}_2]_n$

To summarize, I have proposed an analysis that captures the properties of the inchoative and causative alternation verbs in Eastern Armenian and Persian by constructing these verbal predicates using primitive syntactic elements such as roots, adjectival categorial features, aspectual features and two verbal functional elements. Hence, different combinations of the primitive elements provide structural configurations from which the various syntactic and semantic properties of these verbal predicates can be derived in both languages. Note that the grammatical lexicon proposed for these languages is only a storage place for lists of items and is not able to compose any predicates; all word-formation is carried out in the computational domain or syntax.

There exist two main distinctions between the properties of the alternation verbs investigated in Persian and Eastern Armenian:

One was already discussed at length in Section 4.1 and has to do with the fact that category II verbs in Eastern Armenian behave as causative verbs in basic form and the inchoative alternant appears with

a passive morpheme indicating that it is derived from the causative variant, whereas most Persian verbal constructions correlate with the predicates corresponding to category I verbs in Eastern Armenian.⁴⁰

The distinction between the two verb types in Armenian was captured by positing a series of lexical items that represent the full causative verbs of category II. In other words, the distinction between the behavior of verbs belonging to categories I or II can be accounted for if what constitutes the basic lexical item in a certain language is subject to variation.

4.3.2 Spell-Out Node

A second difference between the alternation verbs in Persian and Eastern Armenian is related to their distinct surface realizations. Three types of surface forms can be distinguished. In Persian, most alternating predicates are realized as light verb constructions consisting of a preverbal element and a light verb pronounced separately (i.e., as separate morphophonological words) as illustrated below.

- (39) a. *mæn* *gowje.færæŋgi-ro* **xošk=kærd-æm** [*causative*]
 I plum.european-OM dry=make.PAST-1SG
 ‘I dried the tomato.’
 b. *gowje.færæŋgi* **xošk=šod** [*inchoative*]
 plum.european dry=became.PAST.3SG
 ‘The tomato dried (up).’

In Eastern Armenian, on the other hand, the inchoative and causative verbal elements in verbs of category I are realized as morphemes on the verbal root as shown in (40).

- (40) a. Yes *p’amidør-ə* **čor.a.ts.r.ets.i** [*causative*]
 I tomato-ACC dry.INCH.CAUS.ASP.AOR.1SG
 ‘I dried the tomato.’
 b. *p’amidør-ə* **čor.a.ts.av** [*inchoative*]
 tomato-NOM dry.INCH.ASP.AOR/3SG
 ‘I dried the tomato.’

In verbs of category II, there is no overt morphology in the causative construction but a passive morpheme appears in the inchoative usage:

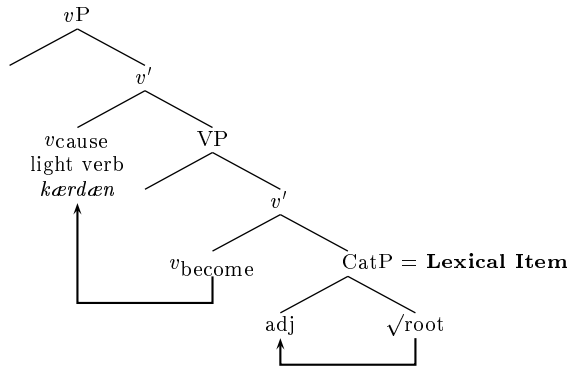
- (41) a. *Amerik’atsi-ner-ə* *nav-ə* **xort’ak’.ets.in** [*causative*]
 american-PL-NOM ship-ACC sink.AOR.3PL
 ‘The Americans sunk the boat.’
 b. *nav-ə* **xort’ak’.v.ets** [*inchoative*]
 ship-NOM sink.PASS.AOR/3SG
 ‘The boat sunk.’

I claim that the distinct surface realizations of these verbs can be explained by taking into account the two parameters of *basic lexical item* and the node for PF-phase. To begin with, the morphological realization of the verbal functional elements in (40) in Eastern Armenian and the overt realization of the light verbs in (39) in Persian are taken to be indication that each element of the verb form used to construct these predicates is added in syntax and these verbal elements were not listed as an

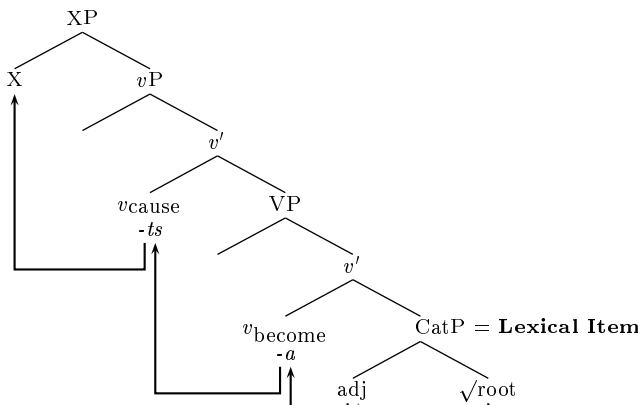
⁴⁰ Although not discussed in this thesis, Persian also has several transitive alternation verbs which appear as simple verbs and have the same form in both the intransitive and the transitive usage as in English. These verbs include *šekæstæn* ‘break’, *portæn* ‘cook’ and *rixtæn* ‘spill’. I suggest that these verbs correspond to category II verbs of Eastern Armenian and are listed as a set of associated elements of a full causative *vP* in the lexicon, but will not provide an analysis here. These constructions, however, are very rare in Persian and the great majority of Persian alternation verbs are formed by the combination of preverbal elements and light verbs as discussed in Chapter 3.

associated set within the lexicon. These two constructions are therefore contrasted with the examples in (41) in which the causative verb is inserted with pre-associated elements of the structure. As previously discussed, at the point of lexical insertion, the *vP* structure corresponding to the lexical entry is realized as a single morphophonological word. Hence, the proposal asserts that the set of elements stored as a *basic lexical item* are realized as a single word and these associated lexical elements cannot be spelled-out independently as a morpheme or a separate word. The three configurations of causative constructions in (42) illustrate this point. For the sake of simplicity, I do not represent the aspectual projections in these configurations.

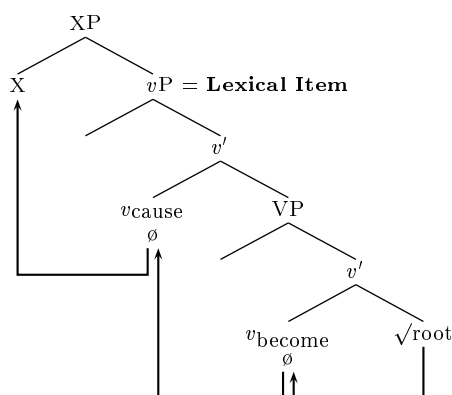
- (42) a. Causation realized as light verb (Persian)
 Lexical item (BLI) = CatP



- b. Causation realized as morpheme (Eastern Armenian, Category I)
 Lexical item (BLI) = CatP



- c. Null realization of causation (Eastern Armenian, Category II)
 Lexical item (BLI) = *vP*

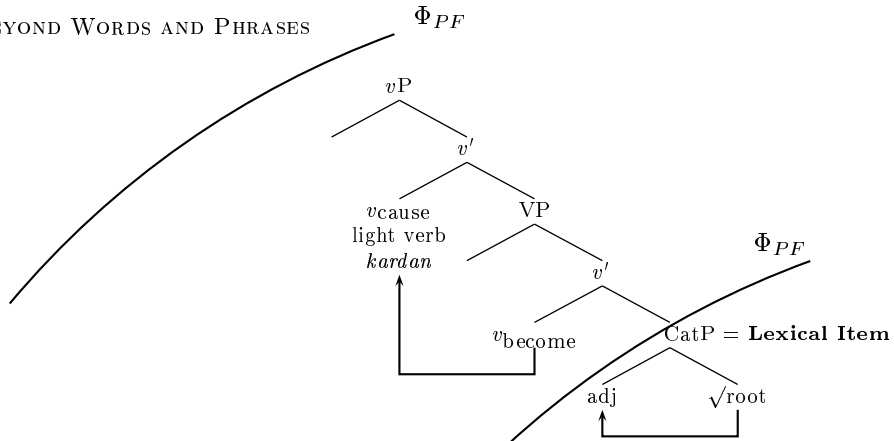


Now, let us consider the distinct surface realizations in (39), where the light verb is pronounced as a separate word, and (40), in which the light verb or *v* is realized as an affix. In both of these constructions, the BLI is identical and consists of the root and categorial element or CatP. I propose to capture the distinction in overt realization of *v_cause* in these two instances by allowing a parameter in languages that defines the node at which the interface to the PF component applies. Chomsky (1999) defines a phase as a relatively independent syntactic object which is “propositional”, such as verbal phrases with full argument structure and CP with force indicators. Chomsky therefore suggests that CP or *vP* are phases, but the verbal phrase VP is not. One of the main criteria for determining a phase boundary, according to Chomsky (1999), is the degree of phonetic independence displayed by the syntactic object. Since in Persian, the preverbal element in the light verb construction is phonologically independent and is pronounced separately from the light verb element, I suggest that this could be due to the fact that the level of CatP forms a phase in Persian. Thus, when the Φ_{PF} node is reached, the syntactic object composed is delivered to the prosodic interface level. The computation then continues building the next level of the predicate, until another Φ_{PF} node is reached and the derived phrase is passed on to the phonological component. The configurations in (42) are repeated below as (43) with the suggested phase nodes added in.

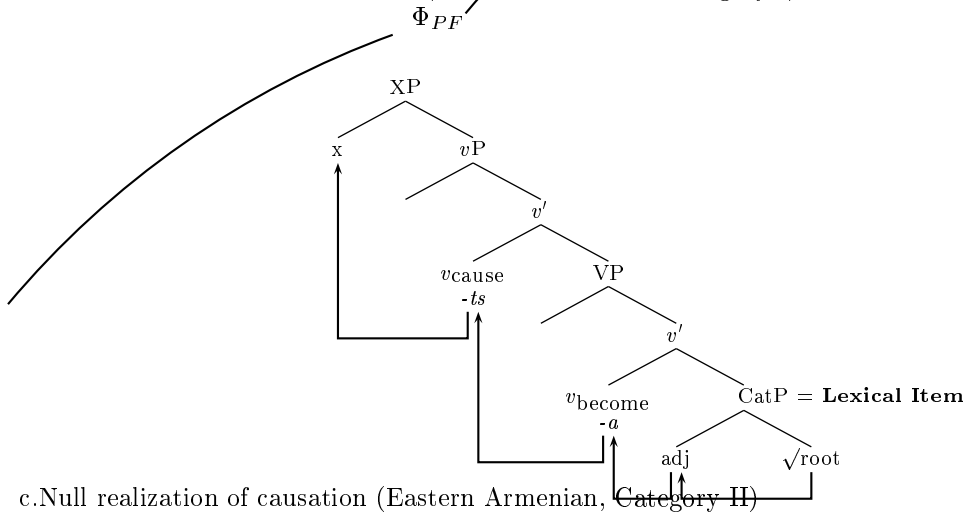
As can be seen from these structures for the causative verbs in Eastern Armenian and Persian, Armenian only has one phase node at the level of *vP* as shown in (43b) and (43c). Hence, the elements in that phase domain can undergo head-movement until they reach *vP* at which point, the syntactic object that has been derived is sent to the phonological component, which converts it to PF. In Persian, on the other hand, two phase nodes exist as shown in (43a). The first phase occurs at the CatP level sending the preverbal element to PF. The remaining elements in the verbal predicate (i.e., *v_become* and *v_cause*) continue to incorporate until the second phase is reached at *vP*, thus spelling out the light verb component. The distinct Φ_{PF} positions can therefore account for the fact that the *v* elements are realized as morphemes in Eastern Armenian and as a separate light verb in Persian.⁴¹

(43) a.Causation realized as light verb (Persian)

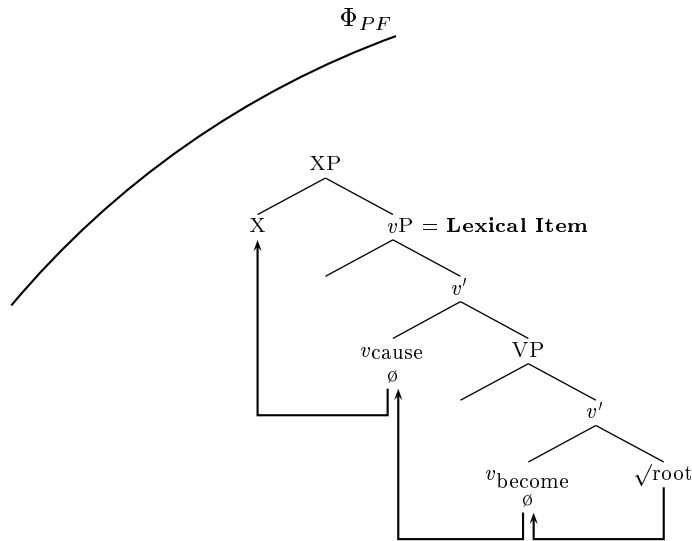
⁴¹It may also be the case that the phase nodes vary within the same language, since certain verbs in Eastern Armenian, for instance, can also be realized as light verb constructions. I will leave this point for further research.



b. Causation realized as morpheme (Eastern Armenian, Category I)



c. Null realization of causation (Eastern Armenian, Category II)



to the PF-phase node is realized as an affix, namely *-ts*. However, if the BLI of the verbal predicate includes the causative verbal element as in (45b), there are no overt affixes. In both instances, the higher causative verb v_{cause}^2 is realized as a distinct word⁴². Now consider the Persian light verb construction in (45c), where a PF-phase intervenes between the lower BLI and the functional verbal elements. I suggest that v_{become} and v_{cause} are associated in the Persian grammatical lexicon and are overtly realized as *kærdæn* ‘make’.⁴³

We can also capture the distinction between (45a) and (45c) based on the concept of Vocabulary Insertion (VI) in Distributed Morphology. Hence, a VI could correspond to the combination of v_{become} and v_{cause} in Persian but not in Eastern Armenian, giving rise to two different outputs. However, I showed in this chapter that the Distributed Morphology approach that is based solely on morphophonological output without taking into consideration distinctions at the level of the grammatical lexicon cannot account for the verbs of Category II in Eastern Armenian, thus arguing for the legitimacy of the BLI. With the current system including both BLI and PF-phases, the formal necessity for the existence of VI is quite weakened. Furthermore, the application of PF-phase can also provide us with a direct mediator between structure and prosody, in particular with respect to primary or nuclear stress. In this system, the structure sent to PF at the phase node creates a domain for stress. Returning to our causative constructions, in (45a) and (45b) the nuclear stress is on the last syllable before the PF-phase node, and in (45c) main stress is on the last syllable of the element within the first or lower PF-phase. Cyclic spell-out can thus capture the correlation between prosody and syntactic structure, as well as the linguistic variation observed with respect to surface realization of verbal predicates. I shall leave these issues for discussion in Chapter 6.

⁴²Presumably, this higher causative verb corresponds to a BLI itself and is delivered to PF interface at a higher phase level after it has incorporated with the functional features marking tense, aspect, number, etc. The question that arises at this point is how come the verbal element v_{cause}^1 is not realized as the same BLI element? I think this could be due to the fact that the higher v_{cause}^2 actually corresponds to a bigger structure than just a v . There is evidence in Persian to show that the light verb realized as ‘give’ in that language is more complex in structure than a simple v_{cause} and it could be analyzed as Cause-Have or Cause-Be-With (cf. Larson, 1988). A similar construction may be present for the higher causative in Armenian.

⁴³Note that PF-phase cannot cut across a BLI. So perhaps it could be suggested that it is in fact the BLI that determines where PF-phase applies, which can explain why there exist distinct PF-phase nodes within the same language corresponding to different BLIs.

Three Degrees of Separation: Argument Status of VP Nominals

The previous chapters have concentrated on isolating the primitive elements of grammar that combine to form verbal predicates in Persian and Eastern Armenian. The discussion focused on the formation of the verb and little was said about the projection of the arguments in the verb phrase. The current chapter is concerned with the status of the nominal elements in the verbal predicates, with focus on the direct object and the nominal preverbal element in light verb constructions.

In most current syntactic theories, the verbal entry in the lexicon is assumed to include all the information needed for the projection of the arguments in the syntactic structure. Though there have been discussions over the type of information contained in the lexical entry, the approaches share a certain notion of argument structure that basically predetermines the relation of the arguments to the verb. It is generally assumed that the lexical entry of the verb contains information on the number and type of arguments the verb will project into syntax. Certain approaches also distinguish between the external and internal arguments since it is argued that these nominals display distinct properties and occupy different positions within the verbal structure (Williams, 1981; Zubizarreta, 1982). In most views of argument structure, thematic roles represent the semantic properties of the arguments that are relevant to syntax, such as Agent or Patient, and encode the pertinent features of verb meanings. Others have argued that linking or projection of arguments should be formulated in terms of aspectual semantics rather than thematic relations (Ramchand, 1997).

Certain linguistic phenomena raise a challenge for the fully predetermined argument structure approach. The “variable behavior verbs” in (1) raise an important problem for the lexical-entry based approaches since their valency or aspectual readings could vary depending on the syntactic context in which they appear (see Borer, 1994; Levin and Rappaport Hovav, 1986 for discussion).

- (1) a. John ran for hours / *in an hour. (unbounded)
 b. John ran to the store *for hours / in an hour. (bounded)

Examples from Dutch and Italian show that these verbs are alternately unaccusative or unergative based on the context they appear in. In these languages, the auxiliary *have* is used with so-called unaccusative and aspectually bounded verbs and the auxiliary *be* is used with unergatives and aspectually unbounded verbs. The choice of the auxiliary may vary, however, depending on other syntactic elements within the clause as illustrated in the Dutch sentences in (2).

- (2) a. Jan heeft gesprongen.
 Jan has jumped
 b. Jan is *in de sloot* gesprongen.
 Jan is in the ditch jumped

Variable behavior verbs have often been used to argue that membership in the unaccusative or unergative class is unstable and is not predetermined by the lexical entry of the verb. The causative alternations studied in the previous chapters are also problematic since, in these cases, the argument structure of a verbal element can be modified by the addition of an external argument or by changing the thematic roles and semantic properties of the arguments. In addition, the locative alternations exemplified in (3) show that the arguments of a verb may be represented in different syntactic and thematic frames. Verbs that display multiple options for the expression of their arguments in syntax obviously cause a problem for the predetermined argument structure approach (see Ritter and Rosen, 1998 for discussion).

- (3) a. John loaded the truck with hay.
 b. John loaded the hay in the truck.

Faced with the problem of alternating verbs, most lexicalist approaches opt for a computational lexicon with its own set of word-formation rules, which are able to derive the alternations on argument structure within the lexicon. Such a system can account for the close relation between the alternating verb pairs but leads to a proliferation of lexical entries since all alternations are stored as separate entries in the lexicon (cf. discussion in Alsina, 1993).

Throughout this dissertation, I have argued for the elimination of the distinction between two separate components of verb-formation. The adoption of a single computational domain allows us to capture the close relation between argument structure and syntactic configuration without creating new prolific lexical entries and without positing two parallel components of verb-formation that end up duplicating each other's work.

In the proposed analysis, the arguments of the verb are not predetermined in the lexical entry but are interpreted compositionally based on the position that they occupy in the final structure. Hence, for instance, the arguments of a transitive verb are not marked as external or internal in the lexicon and in fact, are not listed within the verb's entry. Instead, they receive the properties of an external or internal argument depending on the structural position that they occupy. Thus, the projection of arguments is not predetermined but is construed within the syntactic structure by the combination of the various elements that form the verbal predicate.

In this chapter, I will investigate the relation between the arguments and the primitive elements of the syntactic code which combine to form the verbal predicate. The discussion focuses on the relation between the semantic interpretation of direct objects, the status of nominals in light verb constructions, and the structural position they occupy. It will be shown that properties such as specificity, aspectual interpretation and case-assignment can all be derived from the syntactic structure, without having to encode the information within a lexical entry.

Studies on various languages have pointed to the existence of two object types with distinct case morphology and different semantic readings. The data also show that the two object types occupy different positions in the phrase structure (Mahajan, 1990 for Hindi, Enç, 1991 for Turkish, Karimi, 1996 and Karimi, forthcoming for Persian, Butt, 1995 for Urdu, Hoop, 1992 for Dutch and Ramchand, 1997 for Scottish Gaelic, among others). In this chapter, I will show that Eastern Armenian also provides evidence for the existence of two distinct structural positions for the direct object, which correlate with case morphology and semantic interpretation. I argue, however, that languages should be distinguished depending on the nature of the semantic properties of the object that plays a role in case-assignment. In particular, I will show that in Eastern Armenian, Turkish, Persian and Hindi, the specificity properties of the direct object correspond to the type of case assigned. In contrast, case-marking in Finnish and Scottish Gaelic depends not on the specificity of the direct object but rather on its quantitative properties (i.e., whether the object NP represents a specified quantity). I propose an analysis that can account for the correspondence between object case and semantic interpretation in both language groups depending on the projection in which object case is realized. In this analysis, the inner verb phrase (or VP) is

headed by a functional projection which I argue to be Aspect Phrase. This projection is closely tied to the quantitative properties of the direct object, since only objects expressing a specified quantity can delimit the aspect of the predicate. In addition, I posit an agreement projection Agr_oP outside the $v\text{P}$ which has links with the specificity of the object NPs. Thus, case-assignment in languages such as Eastern Armenian is performed in the Agr_oP projection, whereas case-marking on objects in Finnish or Scottish Gaelic takes place in the Aspect Phrase. This analysis can capture the correlation between the type of case assigned to the direct object and the semantic interpretations obtained, be it specificity or aspect.

These findings suggest that the nominal properties of specificity and quantitativity should be represented in distinct projections in the syntax of the object NP. The analysis develops two parallel structures for the verbal and nominal domains, which are composed of corresponding primitive elements, where Number Phrase (NumP) carries the relevant information for the AspP projection, while DP properties correlate with an Agreement projection.

Following ideas developed in Vergnaud (2000) and Vergnaud and Zubizarreta (2001), I suggest a theory in which the verbal predicate and nominal phrase each project their own domain in syntax. The two domains can enter into a checking relation at various points in the computation. In this proposal, the verbal component represents the temporal domain of language and the nominal structure denotes the physical domain; sentences are formed when the two parallel domains merge. Hence, the arguments of a verbal predicate are not predetermined in the lexicon and are not projected within the verbal structure but rather are members of a distinct parallel domain that enters into a checking relation with the verbal elements by merging into the verbal domain. Case-assignment can thus be treated as an overt realization of this checking relation.

The proposed architecture with two parallel verbal and nominal domains makes certain predictions with respect to the status of the nominal element in light verb constructions in Persian. It was argued in Chapter 3 that the preverbal element in these complex predicates is part of the verbal predicate and combines with categorial and functional elements in syntax to form the verb. These elements are formed from the root element of the verbal entry and provide the substantive information to the predicate. The current analysis, which distinguishes the verbal and nominal domains, also makes a clear distinction between the position occupied by the direct object argument and the preverbal element of a light verb construction. In particular, the proposed model states that the direct object belongs to the nominal domain whereas the preverbal nominal is part of the verbal domain.

Hence, in addition to the distinction between specific and non-specific objects in Persian and Eastern Armenian, I will also propose to differentiate the non-specific internal argument of a verb and the preverbal element of a light verb construction. The non-specific object is argued to be formed within the nominal domain and it becomes an argument of the verb when the two domains enter into a checking relation; the preverbal element, on the other hand, behaves as part of the verbal predicate and appears within the temporal or verbal structure. In other words, while the non-specific nominals are independent structures that merge with the verbal structure for checking purposes, the predicative nominals are members of the verbal structure itself and combine with the verbal functional elements to form a complex verbal predicate. This chapter thus distinguishes three degrees of argumenthood within the verb phrase in Eastern Armenian and Persian: a specific object, a non-specific object and a predicative nominal.

Section 5.1 investigates the case-marking on the direct object in Eastern Armenian and shows that it correlates with the semantic interpretation and structural position of the direct object, providing evidence for two distinct object positions. Section 5.2 contrasts the results with case-assignment properties in Finnish and Scottish Gaelic, which seem to correlate with aspectual interpretation. An analysis is provided in Section 5.3 arguing for two parallel verbal and nominal domains that can account for the data in both types of languages. Section 5.4 investigates the surface realization of the three types of nominals in the Persian and Armenian verb phrase, consisting of specific and non-specific arguments

and predicative nominals, and proposes to capture the distinction based on the domain in which the bare nominal appears and the level of structure that is projected.

5.1 Object Case in Eastern Armenian

The existence of two distinct structural positions for the direct object has been discussed for a number of languages, such as Hindi, Persian, Urdu, Turkish, Persian, Dutch and Scottish Gaelic. In all of these approaches, the different structural positions give rise to distinct semantic interpretations. In this section, I will motivate the existence of two distinct object positions in Eastern Armenian. The empirical data discussed are based on case-marking, verb adjacency requirements, semantic interpretations obtained and prosody. The results show a striking parallel with the crosslinguistic evidence discussed in the literature, demonstrating that the direct objects in Eastern Armenian occupy two distinct structural positions which correlate with different case morphology and semantic interpretations.

5.1.1 Case Morphology

Eastern Armenian is a verb-final Indo-European language. The direct objects can be classified into four distinct categories based on NP type and case morphology as shown in the examples (4) through (6).⁴⁴ The cases may force certain phonological changes on the stem of the word which will not be discussed here. Sentence (4) contains a definite object, which consists of a noun carrying an overt accusative morpheme. If the object lacks overt case morphology, such as the one illustrated in (5), it is interpreted as an indefinite (*a book*) or as a bare plural (*books*). The presence or absence of accusative case, however, does not correspond to the definiteness of the NP as the examples containing quantified indefinite objects in (6) clearly suggest. Quantified indefinites consist of a numeral, an optional classifier and a noun, and may appear with or without overt case morphology.

- (4) Ara-n girk-ə ayr-ets (*definite*)
 Ara-NOM book-ACC burnt
 ‘Ara burnt the book.’
- (5) Ara-n girk ayr-ets (*bare indefinite*)
 Ara-NOM book burnt
 ‘Ara burnt a book/books.’
- (6) a. Ara-n mi girk ayrets (*quantified indefinite, without case*)
 Ara-NOM one book burnt
 ‘Ara burnt a book.’
- b. Ara-n mi girk-ə ayr-ets (*quantified indefinite, with case*)
 Ara-NOM one book-ACC burnt
 ‘Ara burnt one book/one of the books.’

The behavior of these four object categories will be investigated in the remainder of this section. I will show that the direct objects lacking overt case-marking display a verb-adjacency requirement, whereas the case-marked objects pattern together and may be separated from the verbal element. The intonation pattern also suggests that the objects with overt accusative case appear outside the verb phrase. In addition, the data show a direct correlation between case morphology and the semantic readings obtained.

⁴⁴There is no definite article in Eastern Armenian, but the language has seven cases: Nominative, Accusative, Genitive, Dative, Instrumental, Locative, Ablative. The Accusative case varies based on whether the Nominal element is animate or not. For animate objects, the Accusative case is marked /in/ (which is identical to the Dative case). Overt Accusative case of inanimate objects has the same form as the Nominative (/n/ if the word ends in a vowel, or a schwa if it ends in a consonant). Throughout this work, the schwa is simply represented as ‘ə’.

5.1.2 Adverbs

It is generally agreed upon that adverbs occupy a fixed position in the phrase structure and can thus be used to test the relative position of other elements in the clausal structure (Cinque, 1999). Consider the following examples involving sentential adverbs and definite direct objects bearing overt accusative case. As the (b) examples show, the sentential adverb is allowed to separate the direct object from the main verb of the sentence.

- (7) a. Ara-n *vst'ah* ays girk-ə k'-k'arta
 Ara-NOM certainly this book-ACC COND-read/3SG
 'Ara will certainly read this book.'
- b. Ara-n ays girk-ə *vst'ah* k'-k'arta
 Ara-NOM this book-ACC certainly COND-read/3SG
 'Ara will certainly read this book.'
- (8) a. Ara-n *havanabar* mekena-n *arten* lvats-el e
 Ara-NOM probably car-ACC already wash-PERF be-PRES/3SG
 'Ara has probably already washed the car.'
- b. Ara-n mekena-n *havanabar* *arten* lvats-el e
 Ara-NOM car-ACC probably already wash-PERF be-PRES/3SG
 'Ara has probably already washed the car.'

In contrast to the definite object, the bare indefinite may not be separated from the verb. The following sentences involve indefinite objects that do not bear overt case morphology. The examples in (9) show a sentential adverb preceding the indefinite. But as the examples in (10) indicate, when the adverb appears between the indefinite object and the verb, the sentence becomes ungrammatical. These sentences are felicitous only with a focus stress on the object, which gives rise to a contrastive reading.

- (9) a. Ara-n *vst'ah* vot'anavor as-ets
 Ara-NOM certainly poem say-AOR/3SG
 'Ara certainly recited/said a poem/poems.'
- b. yerexa-ner-ə *havanabar* hetzaniv k'-ksh-en
 child-PL-NOM probably bicycle COND-ride-3PL
 'The children will probably ride a bicycle/bicycles.'
- (10) a. *Ara-n vot'anavor *vst'ah* as-ets
 Ara-NOM poem certainly say-AOR/3SG
- b. *yerexa-ner-ə hetzaniv *havanabar* k'-kš-en
 child-PL-NOM bicycle probably COND-ride-3PL

That sentential adverbs may separate the case-marked objects from the verb but are disallowed from appearing between the bare indefinites and the verb clearly suggests that the two object types occupy different structural positions. Furthermore, sentential adverbs have been argued to occupy a position that is high in the clausal structure. These adverbs are considered to be outside of the verbal domain, generally licensed either by the Complementizer or the Inflectional heads (Potsdam, 1999). Within a split-*vP* analysis, sentential adverbs occupy a position outside the *vP* node. The fact that these adverbs can appear between the accusative objects and the verb indicates that the overtly case-marked direct objects are also outside of the *vP* projection. On the other hand, objects without an overt case morpheme are not allowed to separate from the verb by sentential adverbs and remain in the preverbal position, which is good indication that the bare indefinites are *vP*-internal arguments.

Other constituents may also intervene between the case-marked direct object and the verb but are unable to appear between the bare object and the verbal entry. The sentences below exemplify such cases with intervening instrumentals, locatives and full postpositional phrases. In the examples given, the instrumental *banali-ov* ‘with a key’ in (11) and the locative *poqots-um* ‘in the street’ in (13) can appear either before or after the definite object. These elements, although felicitous when preceding a caseless indefinite, are unable to appear after it as shown in the examples in (12) and (14).⁴⁵ The last pair of sentences illustrates a similar behavior with an intervening PP: the postpositional phrase in (16) is not allowed to appear following the bare indefinite without giving rise to a focused reading.

Intervening Instrumentals (adapted from Tamrazian (1994): examples (69) and (71))

- (11) a. Siran-ə dur-ə *banali-ov* bats-ets
 Siran-NOM door-ACC key-INST open-AOR/3SG
 ‘Siran opened the door with a key.’
 b. Siran-ə *banali-ov* dur-ə bats-ets
 Siran-NOM key-INST door-ACC open-AOR/3SG
 ‘Siran opened the door with a key.’
- (12) a. Siran-ə *banali-ov* dur bats-ets
 Siran-NOM key-INST door-ACC open-AOR/3SG
 ‘Siran opened a door with a key.’
 b.?*Siran-ə dur *banali-ov* bats-ets
 Siran-NOM door key-INST open-AOR/3SG

Intervening Locatives

- (13) a. zinvor-ner-ə *poqots-um* grk-er-ə ayr-ets-in
 soldier-PL-NOM street-LOC book-PL-ACC burn-AOR-3PL
 ‘The soldiers burnt the books in the street.’
 b. zinvor-ner-ə grk-er-ə *poqots-um* ayr-ets-in
 soldier-PL-NOM book-PL-ACC street-LOC burn-AOR-3PL
 ‘The soldiers burnt the books in the street.’
- (14) a. zinvor-ner-ə *poqots-um* mi hat’ girk ayr-ets-in
 soldier-PL-NOM street-LOC one CL book burn-AOR-3PL
 ‘The soldiers burnt a book in the street.’
 b.?*zinvor-ner-ə mi hat’ girk *poqots-um* ayr-ets-in
 soldier-PL-NOM one CL book street-LOC burn-AOR-3PL

Intervening PPs

- (15) Siran-ə *ays ašak’ert’-i het’* t’un-ə varts-av
 Siran-NOM this student-GEN with house-ACC rent-AOR/3SG
 ‘Siran rented the house with this student.’
- (16) ?*Siran-ə t’un *ays ašak’ert’-i het’* varts-av
 Siran-NOM house this student-GEN with rent-AOR/3SG

Similar behavior is attested with quantified indefinites. If the indefinite appears with overt case morphology as in (17), the sentential adverb may separate the direct object from the main verb. But as the

⁴⁵The sentence in (12b) is completely grammatical if the indefinite object is interpreted as focused. The same comment holds for (14b) and (16).

sentences in (18) and (19) indicate, the adverb is not allowed to intervene between the caseless object and the verb without giving rise to a contrastive reading.

Case-marked indefinite direct objects

- (17) a. Ara-n *enthanrap'es* mi piyano-n lar-um er
 Ara-NOM usually one piano-ACC tuneIMP be-PAST/3SG
 'Ara usually used to tune one piano.'
 → 'Ara usually used to tune one of the pianos.'
- b. Ara-n mi piyano-n *enthanrap'es* lar-um er
 Ara-NOM one piano-ACC usually tuneIMP be-PAST/3SG
 'Ara usually used to tune one piano.'
 → 'Ara usually used to tune one of the pianos.'

Bare indefinite direct objects

- (18) a. Ara-n *enthanrap'es* mi girik e k'art-um
 Ara-NOM usually one book be-PRES/3SG readIMP
 'Ara usually reads a book.'
- b.*Ara-n mi girik *enthanrap'es* k'art-um e
 Ara-NOM one book usually readIMP be-PRES/3SG
- (19) a. *yerevi* k'at'u-n mi muk' e brn-el
 maybe cat-NOM one mouse be-PRES/3SG catch-PERF
 'Maybe the cat has caught a mouse.'
- b.*k'at'u-n mi muk' *yerevi* brn-el e
 cat-NOM one mouse maybe catch-PERF be-PRES/3SG

These results indicate that objects with overt accusative case pattern together regardless of the definiteness of the noun phrase, and the two indefinite types that lack overt case morphology display a similar pattern. Table 7 illustrates the generalization obtained so far. The behavior of the direct objects with respect to the adverbs suggests that the two object types occupy different structural positions. The bare object is inside the *vP* whereas the case-marked object appears external to the verb phrase.

TABLE 7 Objects and Intervening Adverbs

	NP-ACC	Adverb	Verb
*	NP	Adverb	Verb

5.1.3 Stress Pattern

Additional support for the existence of two structural positions for the direct objects is provided by the sentential stress patterns in Eastern Armenian. Transitive sentences containing case-marked objects display a phrasal stress pattern that is distinct from transitive sentences with bare indefinites. When the direct object appears with overt case morphology, the main stress of the sentence is assigned on the verb. This is illustrated in (20) where the arguments receiving the main stress are in uppercase. Note that (20a) and (20b) represent definite objects, and (20c) contains a case-marked quantified indefinite. In the sentences in (21), on the other hand, the objects do not bear case. In all instances, the indefinite object is stressed.

- (20) a. Ara-n girk-ə AYR-ETS
 Ara-NOM book-ACC burn-AOR/3SG
 ‘Ara burnt the book.’
 b. k’at’u-ner-ə mk’-an BRN-ETS-IN
 cat-PL-NOM mouse-ACC catch-AOR-3PL
 ‘The cats caught the mouse.’
 c. menk yerek’ yerku hat’ gini-n VERČATSR-ETS-INK
 we-NOM yesterday two CL wine-ACC finish-AOR-3PL
 ‘We finished two bottles of the wine yesterday.’
- (21) a. Ara-n GIRK gn-ets
 Ara-NOM book buy-AOR/3SG
 ‘Ara bought a book/books.’
 b. k’at’u-ner-ə norits MUK’ brn-ets-in
 cat-PL-NOM again mouse catch-AOR-3PL
 ‘The cats caught a mouse/mice.’
 c. k’at’u-n norits mi MUK’ brn-ets
 cat-NOM again one mouse catch-AOR/3SG
 ‘The cat caught a mouse again.’

The examples below show a similar pattern. The objects in (22) are marked for accusative. In all of these examples, the verb receives the sentential stress. The bare objects in (23) do not bear any case; they have to appear in the preverbal position and they receive the nuclear stress.

- (22) a. ašak’ert’-ner-ə ast’q-er-ə herat’esil-ov NAY-ETS-IN
 student-PL-NOM star-PL-ACC telescope-INST watch-AOR-3PL
 ‘The students watched the stars with a telescope.’
 b. Ara-n payt’-ov ayt’ zinvor-in TZETZ-ETS
 Ara-NOM stick-INST that soldier-ACC hit-AOR/3SG
 ‘Ara beat up that soldier with a stick.’
 c. Ara-n k’atv-in bak’-um K’ERAK’R-ETS
 Ara-NOM cat-ACC yard-LOC feed-AOR/3SG
 ‘Ara fed the cat in the yard.’
 d. ašak’ert’-ner-ə senyak’-um girk-ə K’ART-ATS-IN
 student-PL-NOM room-LOC book-ACC read-AOR-3PL
 ‘The students read the book in the room.’
- (23) a. ašak’ert’-ner-ə herat’esil-ov AST’Q-ER t’es-an
 student-PL-NOM telescope-INST star-PL see-AOR-3PL
 ‘The students saw some stars with a telescope.’
 b. Ara-n banali-ov DUR bats-ets
 Ara-NOM key-INST door open-AOR/3SG
 ‘Ara opened a door with the/a key.’
 c. yerexa-n poqots-um GNDAK’ xaq-ats
 child-NOM street-LOC ball play-AOR/3SG
 ‘The child played ball in the street.’

d.harevan-ə bak'-um VOĀXAR mort-ets
neighbor-NOM yard-LOC sheep sacrifice-AOR/3SG

'The neighbor sacrificed a sheep/sheep in the yard.'

Many researchers have argued that prosody and stress patterns in a clause are determined by the syntactic structure (Selkirk, 1984; Halle and Vergnaud, 1987; Zubizarreta, 1998). Cinque (1993) provides an analysis to capture the correspondence between sentence structure and the assignment of the nuclear stress in which he argues that the main stress appears on the most deeply embedded constituent in the clause. Cinque's analysis predicts that in a head-initial language (a VO language), such as English or Italian, the Nuclear Stress of a transitive sentence falls on the rightmost element in neutral intonation as illustrated in (24). In the case of head-final languages, the main stress of the sentence is expected to fall on the object that appears to the left of the verbal element.

- (24) a. They are following the lecture.
b. They are following the lecture attentively.

The neutral word order in Eastern Armenian is verb-final and as the examples with bare indefinites in (21) and (23) demonstrate, the prediction that the direct objects carry the main prominence of the sentence is borne out. When the direct object is case-marked, however, the nuclear stress of the clause is assigned to the verb.

The auxiliary in Eastern Armenian is another overt indication of the distinct behavior of the two object types with respect to stress. The auxiliary is the copula 'to be', which occurs as an auxiliary with the verb tenses in the indicative mood, with the exception of the Aorist tense. It is inflected for person and number (of the Subject), and it has only two tense forms: *present* and *past*. Aspect appears on the participial form of the verb; it can be *imperfective*, *perfective* or *future*. The combination of aspect on the participle and tense on the auxiliary forms the actual tense of the indicative, not unlike the English tense formation. The examples below illustrate the various tenses in which the auxiliary is used.

- | | | | |
|---------|-------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------|
| (25) a. | Present
I singIMP be-PRES/1SG
'I sing/am singing.' | b. | Imperfect
I singIMP be-PAST/1SG
'I was singing.' |
| c. | Present Perfect
I sing-PERF be-PRES/1SG
'I have sung.' | d. | Post Perfect
I sing-PERF be-PAST/1SG
'I had sung.' |
| e. | Future
I sing-FUT be-PRES/1SG
'I am going to sing.' | f. | Future Perfect
I sing-FUT be-PAST/1SG
'I was going to sing.' |

The Eastern Armenian auxiliary is a clitic (Tamrazian, 1994). It never bears stress and is immediately adjacent to the constituent that precedes it. The syntactic category of the host constituent does not seem to matter; the auxiliary can appear on Verbs, Noun Phrases, Adverbs and Preposition Phrases. The auxiliary behaves as a prosodic clitic, since it always appears on the element carrying the main stress in the sentence. Thus, it appears on the element carrying the nuclear stress in neutral intonation and marks the focused element in questions or focus sentences.

The following examples illustrate the distinct behavior of the auxiliary with respect to the two different object types⁴⁶. Note that whenever the object is case-marked, the auxiliary follows the verb, which

⁴⁶I will only discuss sentences with neutral intonation. The behavior of the auxiliary with respect to focused elements is not considered.

receives the main prominence as illustrated in (26). However, as previously mentioned, if the object does not bear case, as in the examples in (27), the bare object carries the highest stress in the sentence. In these instances, the auxiliary follows the object.

- (26) a. Ara-n girk-ə AYR-EL e
 Ara-NOM book-ACC burn-PERF be-PRES/3SG
 ‘Ara has burnt the book.’
 b. Ara-n payt’-ov mi mart-u TZETZ-ELU e
 Ara-NOM stick-INST one man-ACC hit-FUT be-PRES/3SG
 ‘Ara will beat up a man with a stick.’
- (27) a. Ara-n GIRK e gn-um
 Ara-NOM book be-3SG/present buyIMP
 ‘Ara is buying a book/books.’
 b. yerexa-n poqots-um GNDAK’ er xaq-um
 child-NOM street-LOC ball be-3SG/past playIMP
 ‘The child was playing ball in the street.’

Thus, the auxiliary in Eastern Armenian cliticizes on the constituent carrying the main stress in the clause, which according to Cinque (1993) is the most deeply embedded element in the verb phrase, and thereby provides overt evidence for the different syntactic positions of the two object types.

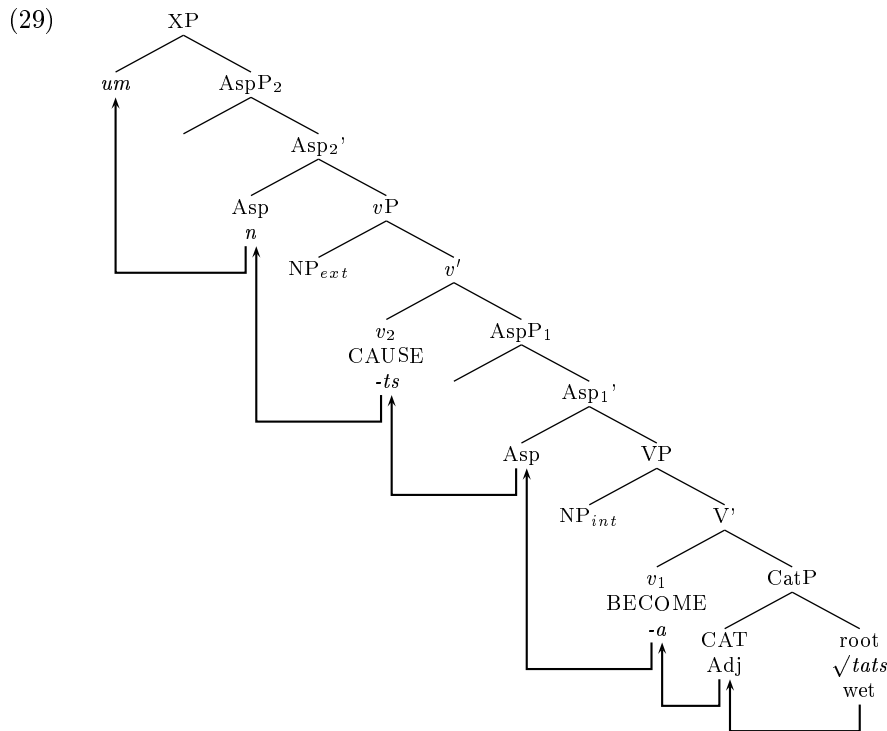
Consider the two Armenian sentences in (28). The direct object in (28a) is a bare object and is followed by the auxiliary, while the direct object in (28b) carries overt accusative case and the auxiliary follows the verb⁴⁷.

- (28) a. Ara-n HATS e tats.a.ts.n.um
 Ara-NOM bread is wet.INCH.CAUS.ASP.IMP
 ‘Ara is wetting bread.’
 b. Ara-n hats-ə tats.a.ts.n.UM e
 Ara-NOM bread-ACC wet.INCH.CAUS.ASP.IMP is
 ‘Ara is wetting the bread.’

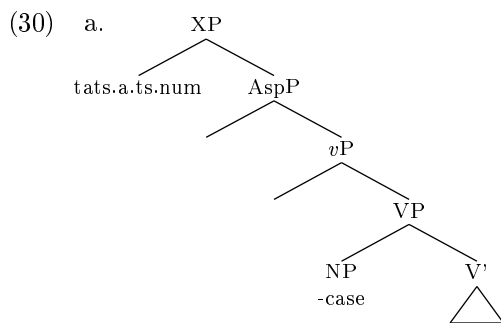
To the extent that Cinque’s analysis is correct, it predicts that the lowest element (i.e., the most deeply embedded constituent) within the sentence will receive the nuclear stress. Hence, if the direct object remains inside the verb phrase, it will be the recipient of the main stress. On the other hand, if there is no other element within the verb phrase but the verb itself, then the prominent stress will be assigned to the verb. This is illustrated below.

The configuration in (29) represents the structure of the causative verb in these sentences. As proposed in Chapter 4, the verb is formed when the various elements forming the verbal predicate incorporate into each other by head-movement. In Chapter 3, I argued that the verbal functional feature *v* in Persian is closely correlated with the aspectual interpretation of the clause, and proposed to project an Aspect Phrase node associated with each *v* projection. I posit an Aspect Phrase projection above each *v* projection in Eastern Armenian as well. I also assume that the higher AspP projection houses the imperfective affix in Eastern Armenian. The internal argument occupies the specifier of VP position which is projected by the functional element *v*₁.

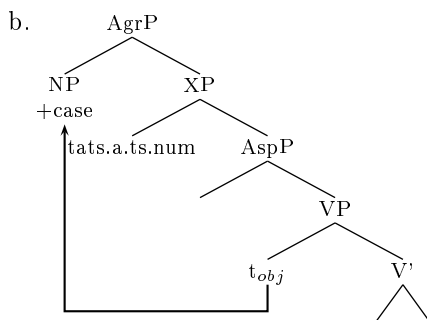
⁴⁷Stress in Eastern Armenian falls on the last syllable of the morphophonological word.



The correlation between stress and structure in the sentences in (28) can now be explained. When the direct object does not carry any case, it stays within the domain of the verbal phrase, which I claim is bounded by XP, as shown in (30a).⁴⁸ The caseless object is the most deeply embedded element in the clause and receives the main stress. This configuration represents the sentence in (28a). The case-bearing object, however, appears outside of the verb phrase as illustrated in (30b). I will later suggest that the object is interpreted in the Agreement projection. In this configuration, the verb is the most deeply embedded element and thus receives the main stress as shown in the sentence in (28b).



⁴⁸Although further study is required to determine the exact contribution of this XP node to the verb phrase, I have suggested earlier that XP is the projection at which the spell-out to PF takes place in Eastern Armenian. Travis (1994) also projects the Event Phrase above *vP* based on the verbal morphology in Malagasy and Tagalog, which marks the boundary between *l*-syntax and *s*-syntax. In Eastern Armenian, the XP projection seems to house the morphology related to the imperfective, perfective and future.



Summary

The table below illustrates the generalizations obtained about the behavior of the direct objects in Eastern Armenian. The data discussed so far point to a strong correlation between the presence of case on one hand, and the phrasal stress pattern and adjacency to the verb on the other. I have argued that these observations can be explained if we posit two distinct structural positions for the direct objects. The indefinites appearing without overt case morphology remain internal to the verb phrase and are immediately followed by the clitic auxiliary. Case-marked objects, on the other hand, are external to the *vP* (more precisely, they are external to the XP). In the following section, I will show that the distinct object positions also correlate with different semantic readings.

TABLE 8 Behavior of two object types in Eastern Armenian

	overt case	adverbs/ intervening PP	receives main prominence	followed by the auxiliary	object position
definite object	yes	yes	no	no	<i>vP</i> -external
bare indefinite	no	no	yes	yes	<i>vP</i> -internal
quantified	yes	yes	no	no	<i>vP</i> -external
indefinite	no	no	yes	yes	<i>vP</i> -internal

5.1.4 Case-marking and Interpretation

The correlation between case-marking and the semantic interpretations found in the object NPs has been noted in a number of languages. For instance, Enç (1991) remarked that in Turkish, object NPs with overt accusative case are always specific whereas NPs appearing without the accusative case are obligatorily interpreted as nonspecific. This is illustrated in the Turkish sentences below.

(31) Ali bir piyano-yu kiralamak istiyor.
 Ali one piano-ACC to-rent wants
 ‘Ali wants to rent a certain piano.’

(32) Ali bir piyano kiralamak istiyor.
 Ali one piano to-rent wants
 ‘Ali wants to rent a (nonspecific) piano.’

As the translations indicate, the case-marked object in (31) is interpreted as specific: there is a particular piano that Ali wishes to rent. In the case of the indefinite object in (32), however, Ali doesn’t have a particular piano in mind. He wants to rent some piano or other.

Enç (1991) provides a definition for the semantic interpretation of specificity based on the link of the NP to the previously established domain of discourse. If an element is specific, then the link is usually

one of inclusion; the referent of the NP is a *subset* of the already established domain of discourse. The sentence in (31), for instance, suggests a context where there are several pianos (say in a showroom), hence the domain of the discourse has been established. When (31) is uttered, the NP *bir piyano-yu* is linked to the previously established referent “pianos”, by virtue of being a subset. The object is then interpreted as a specific NP. This pre-established referent domain is not available when (32) is uttered. An important distinction between specific and nonspecific elements is that specificity presupposes existence, whereas nonspecific NPs assert an existence. Diesing (1990) uses a very similar classification for NPs, but she refers to specifics as “presupposed” material and nonspecifics are described as “existential”.

Hoop (1996) objects to using *specificity* to analyze referential, partitive and generic readings of NPs as Enç suggests. She argues that there are correspondences between referentiality and partitivity on one hand, and genericity on the other that Enç’s analysis fails to account for. Instead, De Hoop proposes the notion of “strong reading” which encompasses referential, partitive, generic and generic collective readings of NPs or DPs. “Weak reading” refers to existential readings.

As is clear from the discussion, all these analyses tend to classify the object interpretations into very similar categories. This section shows that Eastern Armenian data also display a correlation between the case marking on the direct objects and their interpretation in the sentence.

Consider the sentences in (33). The indefinite object in (33a) doesn’t carry an accusative case morpheme, and it receives a nonspecific or weak interpretation. This sentence suggests that Ara is trying to catch a horse, any horse will do. The indefinite in (33b), however, bears accusative case, and it refers to a particular horse that Ara is trying to catch. Hence the indefinite in (33b) receives a strong reading and is interpreted as a specific object.

- (33) a. Ara-n ašxat’-um e mi hat’ dzi brni
 Ara-NOM tryIMP be-PRES/3SG one CL horse catch-Subj/3SG
 ‘Ara is trying to catch a horse.’
- b. Ara-n ašxat’-um e mi hat’ dzi-an brni
 Ara-NOM tryIMP be-PRES/3SG one CL horse-ACC catch-Subj/3SG
 ‘Ara is trying to catch a horse.’
 → ‘There is a horse such that Ara is trying to catch it.’

Accusative case-marking on the quantified indefinites can also mark a partitive reading as exemplified in the contrast below:

- (34) a. k’at’u-n mi mk’-an brn-el e
 cat-NOM one mouse-ACC catch-PERF be-PRES/3SG
 ‘The cat has caught a mouse/one of the mice.’
- b. k’at’u-n mi muk’ e brn-el
 cat-NOM one mouse be-PRES/3SG catch-PERF
 ‘The cat has caught a mouse.’

Suppose a context in which the cat has been chasing some mice for a while. The case-marked direct object in (34a) would then refer to a mouse from this presupposed set of mice, namely that the cat has caught one of the mice that it had been chasing. (34b), on the other hand, does not allow for such a reading; it is about some mouse or other (there is no pre-established set of mice in the discourse).

(35) is another example of an NP with a partitive reading. The sentence presupposes a set of books previously introduced in the discourse and it refers to one book out of the set, that has been burnt by Ara. This sentence is semantically equivalent to the overtly partitive construction in (36). Note that the partitive construction in (36) also bears the accusative case. This is expected since by virtue of referring to an element from a previously established set, partitives are interpreted as specific NPs.

- (35) Ara-n mi girk-ə ayr-el e
 Ara-NOM one book-ACC burn-PERF be-PRES/3SG
 ‘Ara has burnt a book/one of the books.’
- (36) Ara-n grk-er-its mek’-ə ayrel e
 Ara-NOM book-PL-Abl one-ACC burn-PERF be-PRES/3SG
 ‘Ara has burnt one of the books.’

Since definites always receive a strong interpretation, we naturally expect definite object NPs to always carry the accusative case. This expectation is borne out, as illustrated in the following three examples involving Proper Names, Pronouns, and demonstrative NPs, respectively.

- (37) Ara-n Siran-in hampuyr-um e
 Ara-NOM Siran-ACC kissIMP be-PRES/3SG
 ‘Ara is kissing Siran.’
- (38) Ara-n iren hampuyr-um e
 Ara-NOM her/him(Acc) kissIMP be-PRES/3SG
 ‘Ara is kissing her/him.’
- (39) Ara-n ays girk-ə k’artats-el e
 Ara-NOM this book-ACC read-PERF be-PRES/3SG
 ‘Ara has read this book.’

Without the accusative case marking, these sentences are ungrammatical:

- (40) *Ara-n Siran hampuyr-um e
 Ara-NOM Siran kissIMP be-PRES/3SG
- (41) *Ara-n ir hampuyr-um e
 Ara-NOM her/him(Gen) kissIMP be-PRES/3SG
- (42) *Ara-n ays girk k’artats-el e
 Ara-NOM this book read-PERF be-PRES/3SG

Milsark (1977) distinguishes two types of determiners which he classifies as “weak” and “strong”. He observed that weak determiners, but not strong ones, can occur in existential sentences.

- (43) here is/are *a/some/a few/many/three* flower(s) in this garden.
 (44) There is/are *the/every/all/most* flower(s) in this garden.

Enç points out that the specific/nonspecific categorization parallels Milsark’s distinction between “strong” and “weak” determiners. Namely, if an NP contains a strong determiner, it is specific and if the determiner of the NP is weak, then it can be interpreted as either specific (including partitive) or nonspecific. If Eastern Armenian case-marking does in fact correspond to the specificity of the object, the object NPs with strong determiners should always bear overt case morphology while those containing weak determiners could appear with or without accusative case. We have already seen that definite descriptions follow this pattern (examples (37)-(39)). The following sentences further confirm this contrast.

Universally quantifying indefinites often behave like specific elements.⁴⁹ In Eastern Armenian, the universal quantifiers *amen* (=all) or *amen mi* (lit: all one = each) need to appear within an object NP that has been marked for case as illustrated in (45).

⁴⁹See Section 4.2 in Enç (1991).

- (45) a. Yes amen grk-er-ə k'artats-el em
 I all book-PL-ACC read-PERF be-PRES/1SG
 'I have read all the books.'
- b. Yes amen mi girk-ə yerku ankam k'artats-el em
 I all one book-ACC two time read-PERF be-PRES/1SG
 'I have read each book twice.'

Consider the following sentences containing object NPs with weak determiners. All of the sentences in (46) show the weak readings of the direct object NPs containing the determiners *three*, *a few* (or *several*) and *many*, respectively. None of these objects bears accusative case. In the corresponding sentences in (47), however, all the direct objects appear with overt case⁵⁰ and they are interpreted as partitives, i.e. receive strong reading.

- (46) a. Ays ašak'ert-ə yerek hat' girk e k'artats-el
 this student-ACC three CL book be-PRES/3SG read-PERF
 'This student has read three books.'
- b. Ara-n mi kani hat' girk e ar-el
 Ara-NOM one few CL book be-PRES/3SG buy-PERF
 'Ara has bought a few books.'
- c. Ara-n šat' girk e ar-el
 Ara-NOM many book be-PRES/3SG buy-PERF
 'Ara has bought many books.'
- (47) a. Ays ašak'ert-ə yerek hat' grk-er-ə k'artats-el e
 this student-ACC three CL book-PL-ACC read-PERF be-PRES/3SG
 'This student has read three of the books.'
 'This student has read the three books.'
- b. Ara-n mi kani hat' grk-er-ə arten k'artats-el e
 Ara-NOM one few CL book-PL-ACC already read-PERF be-PRES/3SG
 'Ara has already read a few of the books.'
- c. Ara-n šat' grk-er-ə arten k'artats-el e
 Ara-NOM many book-PL-ACC already read-PERF be-PRES/3SG
 'Ara has already read many of the books.'
 'Ara has already read most of the books.'

Additional evidence for the relation between overt case morphology and strong interpretation comes from *wh*-elements. Pesetsky (1987) argues that certain *wh*-phrases of the form *which N* are D-linked (or discourse linked). This notion seems to correspond to Enç's specificity reading⁵¹ or De Hoop's strong reading. As expected, *which N* phrases always carry the accusative case in object positions in Eastern Armenian as illustrated in (48). This is in contrast to other *wh*-phrases which behave like the weak determiner NPs, in that they can appear with or without overt case as shown in (49) and (50).

- (48) a. Ara-n vor girk-ə k'art-ats
 Ara-NOM which book-ACC read-AOR/3SG
 'Which book did Ara read?'

⁵⁰The plural marker on the direct objects in the examples in (47) is obligatory with specific readings but is usually omitted in the nonspecific interpretations of the object. A similar phenomenon exists in Persian (Karimi, 1989; Ghomeshi, 2001).

⁵¹This is noted by Enç (1991).

- b.*Ara-n vor girik k'art-ats
Ara-NOM which book read-AOR/3SG
- (49) a.Ara-n inĉ k'art-ats
Ara-NOM what read-PERF
'What is Ara reading?'
- b.Ara-n inĉ-ə k'ar-tats
Ara-NOM what-ACC read-AOR/3SG
'What did Ara read?' (i.e., 'Which part did Ara read?')
- (50) a.Yerexa-ner-ə um en t'es-el poqots-um
child-PL-NOM who be-PRES/3PL see-PERF street-LOC
'Who did the children see in the street?'
- b.Yerexa-ner-ə um-in hravir-ets-in
child-PL-NOM who-ACC invite-AOR-3PL
'Who did the children invite?'

(48a) consists of an object in the form of *which N*, which bears the accusative case. As shown in (48b), the case is obligatory on this DP. The sentences in (49) and (50) also contain *wh*-phrase objects. These *wh*-DPs have the option of appearing with or without the case morpheme. Consider the example in (49). (49a) simply inquires about what Ara is reading. The interpretation is similar to the English question given in the translation. In (49b), the question can be translated as 'which part did Ara read?'. The presupposition is that Ara read something and there is a pre-established domain of referents that the *wh*-DP is linked to. Hence, the accusative case is forcing a partitive reading as in 'which one (of the sections/books) did Ara read?'. A similar contrast is presented in (50). The *wh*-phrase carrying an overt accusative case in (50b) gives rise to a partitive reading which is not available in (50a).

The data discussed in the previous section clearly point to a correlation between case morphology and the specificity reading of the direct objects. Table 8 can now be modified to include the corresponding semantic readings as shown below:

TABLE 9 Correlation of case, object position and semantic reading in Eastern Armenian

	overt case	verb adjacency requirement	object position	semantic interpretation
definite object	yes	no	<i>v</i> P-external	strong
bare indefinite	no	yes	<i>v</i> P-internal	weak
quantified indefinite object	yes	no	<i>v</i> P-external	strong
	no	yes	<i>v</i> P-internal	weak

5.1.5 Against an incorporation analysis

It has been suggested in the literature that the caseless NP incorporates into the verb (Enç, 1991; Kornfilt, 1997; Borer, 1994; Hoop, 1996, among others). The stress pattern observed in Eastern Armenian, however, suggests that such an incorporation has not taken place. In Eastern Armenian, the main stress at the word level is on the last syllable as illustrated in (51) (where stress is marked by an acute accent on the vowel). But as the example in (52) shows, the main stress of a sentence carrying a bare object falls on the object itself and not on the verb. If the object had been incorporated into the verb in syntax, we would expect the main stress to fall on the last syllable of the object-verb construction, which is

certainly not the case. This is reminiscent of the discussion in Section 3.3.4 on the stress pattern in Persian, where it was argued that the preverbal nominal element does not form a X^o with the light verb.

- (51) a.inknazohutyún ‘self-sacrifice’
 b.grat’axt’ák ‘blackboard’

- (52) Ara-n gír k’artats
 Ara-NOM book read/3SG
 ‘Ara read a book/books.’

In addition, (53) shows that the auxiliary clitic (which appears on the element carrying the prominent stress) can intervene between the object and the verb by cliticizing on the bare object.

- (53) Ara-n gír e k’artum
 Ara-NOM book is reading
 ‘Ara is reading a book/books.’

Thus, the stress facts in Eastern Armenian argue against the incorporation of the bare object into the verb at the syntactic level.

5.1.6 Summary

In this section, I have argued for two distinct structural positions for the direct objects in Eastern Armenian. The data involving requirements for verb-adjacency in the presence of intervening material in syntax (such as sentential adverbs), phrasal stress pattern and semantic interpretation strongly suggest the existence of two distinct positions for case-marked and caseless objects. Furthermore, the stress pattern in Eastern Armenian argues against the incorporation of the bare object into the verb in syntax. It was proposed that direct objects appearing with an overt case morpheme at surface structure are in a projection outside of the vP . These DPs are interpreted as specific elements. Objects that do not bear overt accusative case, however, are within the vP projection; they receive a weak or nonspecific interpretation.

5.2 Two Object Positions

The fact that two distinct object positions exist has been argued before in the literature. Studies on various languages have pointed to the existence of two object types with distinct case morphology. The data also show that the two object types occupy different positions in the phrase structure. Moreover, the different case-marking on these object NPs correlates with the semantic interpretations obtained. In this section, I review some of the crosslinguistic evidence in favor of two object positions, but I propose that these languages should be distinguished based on the nature of the semantic interpretation that correlates with the case morphology. More specifically, in one group of languages case-marking corresponds to specificity readings on the object NP; Eastern Armenian is an instance of this language group. In the second group of languages, however, case morphology correlates with the aspectual interpretations of the predicate the objects appear in; the partitive case in Finnish is a manifestation of this phenomenon.

5.2.1 Crosslinguistic Evidence

We have already seen, in Section 5.1.4 (examples (31) and (32)), that Turkish shows a direct correspondence between weak and strong readings and the case morphology on the direct object. This can also be shown in the following examples from Enç (1991). Consider a discourse in which the sentence ‘Several children entered my room’ is uttered. This sentence can be followed by the sentences in (54a) and (54b). In the first example, the indefinite object has received an overt accusative case and refers to two girls who are members of the set of children that entered the room. The indefinite in (54b), on the other

hand, carries no overt case and is about two girls who are excluded from the set of children entering the room.

- (54) a. İki kız-ı taniyordum
 two girl-ACC I know
 ‘I know two girls.’
 b. İki kız taniyordum
 two girl I know
 ‘I know two girls.’

Thus, in Turkish, the overt accusative case triggers a strong (specific) reading on the object. The absence of the morphological case, on the other hand, gives rise to a weak reading. Turkish also provides evidence for two structural positions for the direct object. Consider the Turkish examples given below. In the first sentence, the second case-bearing object (*bir çocuğ-u*) is not adjacent to the verb whereas, according to Enç, the bare indefinite *bir çocuk* in (55b) has to be in the immediately preverbal position.

- (55) a. İki çocuğ-u yedinci sınıf-a, bir çocuğ-u da sekizinci sınıf-a gönderdim.
 two child-ACC seventh grade-Dat one child-ACC and eighth grade-Dat I-sent
 ‘I sent two children to the seventh grade, and one child to the eighth grade.’
 b. Yedinci sınıf-a iki çocuk, sekizinci sınıf-a da bir çocuk gönderdim.
 seventh grade-Dat two child eighth grade-Dat and one child I-sent
 ‘I sent two children to the seventh grade, and one child to the eighth grade.’

Similarly, the following examples demonstrate that the object receiving accusative case may be separated from the verb by intervening elements as shown in (56), whereas the object lacking case morphology can only appear in the preverbal position in (57). No other constituents may intervene between the weak case-marked object and the verb.⁵²

- (56) Ben bifteg-i dün aksam yedim
 I steak-ACC yesterday evening ate
 ‘I ate the steak yesterday evening.’
 (57) a. Ben dün aksam çok güzel bir biftek yedim
 I yesterday evening very nice one steak ate
 ‘Yesterday evening, I ate a very nice steak.’
 b. *Ben çok güzel bir biftek dün aksam yedim
 I very nice one steak yesterday evening ate

Further evidence for two object positions has been provided from Hindi (Mahajan, 1990) and Urdu (Butt, 1995). According to Mahajan (1990), if an object appears with the postposition *-ko* in Hindi, as in (58a), it receives a specific reading. Similarly, a direct object that gives rise to object agreement on the verb is also interpreted as a specific element. These specific objects can be separated from the verb by other phrasal elements. In Mahajan’s analysis, specific direct objects have moved out of the Verb Phrase and appear in the [Spec, Agr_o] position. On the other hand, nonspecific objects such as the one in (58b), which are not marked by *-ko* and do not agree with the verb have remained inside the verb phrase.⁵³ Butt (1995) also argues that the Urdu accusative *-ko* signals the specificity of the direct object.⁵⁴

⁵²Examples are from Hoop (1996); originally from Kornfilt. Also see Kural (1992) for examples on the verb-adjacency requirement of indefinites in Turkish.

⁵³For Mahajan, however, *-ko* is an inherent case. In this thesis, I take the position that the accusative case is the result of a structural checking relation.

⁵⁴In the literature on Hindi and Urdu, *ko* is often treated as a definiteness rather than a specificity marker. This analysis faces problems when *ko* appears on an overtly marked indefinite as in (i).

- (58) a.sitaa-ne laRkii-ko dekhaa
 Sita-erg girl-ko see-perf-3sg(m)
 ‘Sita saw the girl.’
 b.raam roTii khaataa thaa
 Ram(m) bread(f) eat(imp.m) be(pst.m)
 ‘Ram (habitually) ate bread.’

The adjacency relationship between the weak case-marked object and the finite verbal element has also been noted in Persian. Karimi (1989) argues that the object marker *ra* (*ro* or *o* in colloquial speech) appears on direct objects with specific readings as illustrated in the contrast between (59a) and (59b). The first sentence contains a bare indefinite object, which receives a nonspecific reading, but the definite object in (59b) has to appear with the specificity marker *ra* (these examples are from Karimi, 1996).

- (59) a.Kimea be mæn ketab dad
 Kimea to me book gave
 ‘Kimea gave me book(s).’
 b.Kimea in ketab *(ro) be mæn dad.
 Kimea this book OM to me gave
 ‘Kimea gave me this book.’

The corresponding examples below represent indefinite objects. In (60a), the object is not followed by *ra* and receives a nonspecific reading. The object in (60b) appears with *ra* and a specific interpretation obtains.

- (60) a.Kimea emruz bæra bæčče-ha ye dastan-e qædimi tæ’rif kærd
 kimea today for child-PL one story-EZ old define did
 ‘Kimea told the children an old story today.’
 b.Kimea emruz ye dastan-e xeyli qædimi ro bæra bæčče-ha tæ’rif kærd
 kimea today one story-EZ very old OM for child-PL define did
 ‘Kimea told the children a (specific) very old story today.’
 (out of a set of stories, she chose a specific old one.)

These sentences show that the direct object carrying the *ra/o* marker may be separated from the verb, whereas the object without *ra* appears in the preverbal position. The following ill-formed sentences indicate that the weak object in Persian can not be separated from the verb (unless the direct object is focused).

- (61) a.*Kimea ketab be mæn dad
 Kimea book to me gave
 ‘*Kimea gave books to me.’
 b.*Sepide hæyat hætmæn tæmiz kærde æst
 Sepide courtyard certainly clean done is
 ‘*Sepide has certainly cleaned courtyards.’

- (i) laRke-ne aaj subah ek laRkii-ko dekhaa
 boy-erg today morning one girl-acc see-perf
 ‘The boy saw a girl this morning.’

To explain the co-occurrence of the “definite marker” *ko* and the indefiniteness marker *ek*, Singh (1994b) suggests that first *ko* applies to the noun yielding a definite noun. When *ek* applies (following *ko*), it *overrides* the effect of *ko* and forces the resulting NP to be indefinite. Note that this results in applying the case to the nominal head before forming the complete noun phrase.

Finnish is mentioned in Hoop (1996) as another language in which the difference between weak and strong readings is evidenced morphologically. As shown in the sentences below, weak case is signalled by what is traditionally known as the partitive case⁵⁵ and strong case is denoted by the accusative morpheme.

- (62) a.Ostin leipää
 I bought bread-PART
 ‘I bought (some) bread.’
 b.Ostin leivän
 I bought bread-ACC
 ‘I bought the bread.’

Ramchand (1993) shows that Scottish Gaelic displays a pattern similar to Finnish with respect to case-marking and the readings obtained on the objects. In this language, the genitive case gives rise to a weak existential reading as shown in (63a). In (63b), the object carries what Ramchand calls the direct case and obtains a strong referential reading.

- (63) a.Bha Calum a’gearradh chraobhan.
 Be-PAST Calum *ag* cut-VN trees-GEN
 ‘Calum was cutting trees.’
 b.Gheàrr Calum craobhan.
 Cut-PAST Calum trees-DIR
 ‘Calum cut some particular trees.’

This correspondence, however, does not always hold in Finnish and Scottish Gaelic. In both languages, a weak case-marked NP may be interpreted as a definite in unbounded predicates as shown in the following examples:

- (64) a.Anne rakensi taloa [*Finnish*]
 Anne built house-PART
 ‘Anne was building a/the house.’
 b.Thà Calum a’gearradh na craoibhe. [*Scottish Gaelic*]
 Be-PRES Calum *ag* cut-VN the tree-GEN
 ‘Calum is cutting/cuts at the tree.’

In both sentences, the object NPs are marked with the *weak* case (partitive in Finnish and genitive in Scottish Gaelic) yet they get a strong definite reading.

In fact, in languages like Finnish and Scottish Gaelic, the strong vs. weak interpretation on the direct object does not correlate with case-marking as opposed to languages such as Eastern Armenian, Turkish, Persian or Hindi. Instead, Finnish and Scottish Gaelic display a strong correspondence with the aspectual properties of the predicate. This can be illustrated with the following Scottish Gaelic examples. The periphrastic present in (65) appears with the weak genitive case and the *ag* aspectual

⁵⁵Note that this is distinct from a partitive reading as in the Turkish example below or the Eastern Armenian partitive sentences of Section 5.1.4. The object in the following example could be interpreted as ‘the two girls’ or as the partitive reading ‘two of the girls’.

- (i) İki kız-ı daha önce görmütüm
 two girl-ACC more before I had seen
 ‘I had seen two girls before.’

The Finnish partitive is more on a par with the construction *of/from the cheese* as in *I ate from the cheese* or in the French *J’ai mangé du fromage*, which represents an unspecified quantity of cheese. See Kiparsky (1998) for a discussion of the historical development of the Finnish partitive case.

particle, whereas the perfect construction in (66) appears with the strong case on the object and the *air* aspect marker.

- (65) Bha Calum a'gearradh craobh.
 Be-PAST Calum *ag* cut-VN tree-GEN
 'Calum was cutting a tree.'
- (66) Bha Calum air a'chraobh a ghearradh.
 Be-PAST Calum *air* the tree-DIR 3rd cut-VN
 'Calum had cut the tree.'

Ramchand indicates that (65) represents an atelic [-bounded] aspectual reading and (66) corresponds to a telic [+bounded] interpretation. It is clear from these examples, that the difference in case-marking in Scottish Gaelic correlates with a difference in object position as well: the genitive case-marked object occurs following the verbal noun whereas the object receiving direct case precedes it. Hence, Scottish Gaelic provides evidence for the direct relation between case-marking, aspectual specification of the predicate and two distinct structural positions for the objects.

The crosslinguistic studies strongly suggest that there exist two distinct object types depending on the case morphology they receive within a clause. These two object types also correspond to different phrase structural positions in the languages discussed in this chapter, and case-marking on the direct objects correlates with the semantic interpretations obtained. The distinction between the behavior of the direct object in these languages lies in the nature of the semantic reading that plays a role in case-assignment. In particular, certain languages show a correlation between the specificity of the object and the case it receives; Eastern Armenian, Turkish, Persian and Hindi belong to this group. In other languages, case-assignment correlates with the aspect of the predicate; Finnish and Scottish Gaelic are instantiations of this second group.

In the rest of this section, I will examine closely the relation between case and aspect in Finnish and Scottish Gaelic, and will show that properties of the object NP play a crucial role in determining the relation between semantic interpretation and case.

5.2.2 Case and Aspect in Finnish

Kiparsky (1998) shows that there exists a correspondence between the boundedness of the predicate and the case assigned to the object in Finnish. He proposes that, when the event is unbounded, the object appears with partitive case. Thus, in (67a), the object receives accusative case and the predicate is interpreted as bounded, as shown by its compatibility with the 'in an hour' adverbial. (67b), on the other hand, has a partitive object and is interpreted as an unbounded predicate.

- (67) a. Matti luk-i kirja-t (tunni-ssa)
 Matti-SG/NOM read-PAST/3SG book-PL-ACC (hour-INESS)
 'Matti read the books (in an hour).'
- b. Matti luk-i kirjo-j-a (tunni-n)
 Matti-SG/NOM read-PAST/3SG book-PL-PART (hour-ACC)
 'Matti read books (for an hour).'

The following examples also illustrate the close relation between aspect and case morphology in Finnish. The direct object in (68a) has accusative case and the VP is bounded, whereas the partitive case on the object in (68b) gives rise to an unbounded reading. The object in this example can be interpreted either as an indefinite as in (i) or as a definite object in the progressive reading in (ii).

- (68) a. Hän kirjoitt-i kirjeet [*bounded*]
 He/she write-PAST/m/3SG letters-ACC

‘He wrote the letters.’

b.Hän kirjoitt-i kirje-i-tä [unbounded]
He/she write-PAST/m/3SG letter-PL-PART

(i) ‘He wrote letters.’

(ii) ‘He was writing (the) letters.’

Case-assignment in Finnish, however, does not depend on the strength or definiteness of the object as has been suggested in the literature, but correlates rather with what Kiparsky calls *quantitative determinacy*. This notion is equivalent to *quantization* of Krifka (1992) or *specific quantity of A (+SQA)* of Verkuyl (1993). It is used to refer to an object that represents a specific quantity or cardinality and is closely related to VP aspect: An event is bounded if the direct object refers to a specific quantity (i.e., is +SQA) as illustrated in the contrast in (69) and (70).

(69) a.They ate cheese. [unbounded]

b.They ate from the cheese. [unbounded]

c.They ate sandwiches. [unbounded]

d.They ate three sandwiches. [bounded]

e.They ate a sandwich. [bounded]

(70) a.He played from Schumann’s cello concerto. [unbounded]

b.He played music. [unbounded]

c.He played a piece from Schumann’s cello concerto. [bounded]

d.De Machula played the cello concerto by Schumann. [bounded]

In these sentence groups, the verb remains constant, but the choice of the object affects the boundedness of the predicate. Verkuyl argues that the difference in the aspectual interpretations obtained can be explained in terms of quantification or delimitation of mass. Hence the mass noun ‘cheese’ or the bare plural ‘sandwiches’ both refer to an unspecified quantity of cheese or sandwiches (which he represents as -SQA). A noun phrase with a cardinal such as ‘a sandwich’ or ‘three sandwiches’ refers to a specified quantity (+SQA). Definites, of course, are +SQA. A partitive reading such as ‘from the cheese’ also refers to an unspecified quantity as opposed to ‘a piece from Schumann’s Cello concerto’ which expresses a specified quantity. [+SQA] can thus be defined as finite cardinality of a noun.

So far, I have proposed, following Kiparsky (1998), that the distribution of accusative vs. partitive case on Finnish objects depends on boundedness, since the direct object of an unbounded Verb Phrase is obligatorily partitive. In addition, it was argued that objects representing a specific quantity give rise to bounded predicates. We would then expect not to have partitive case on a quantitatively determinate or +SQA object, but only on -SQA objects as illustrated in the example below. In (71a), partitive case appears on the +SQA object meaning *two bears* and the sentence is ungrammatical. The accusative case, however, is felicitous in (71b).⁵⁶

(71) a.*saa-n kah-ta karhu-a
get-1SG two-PART bear-PART

b.saa-n kaksi karhu-a
get-1SG two-ACC bear-PART

‘I’ll get (the) two bears.’

⁵⁶The relevant case in this example is the one appearing on the numeral.

This correspondence does not always hold since the partitive case can and must appear on +SQA objects with certain verbs, which indicates that the properties of the lexical verb play an important role in constraining the aspectual interpretation of the predicate:

- (72) a.etsi-n kah-ta karhu-a
 seek-1SG two-PART bear-PART
 ‘I’m looking for (the) two bears.’
 b.*etsi-n kaksi karhu-a
 seek-1SG two-ACC bear-PART

According to Kiparsky (1998), Finnish verbs can be classified into three categories based on their aspectual properties. Kiparsky classifies the Finnish verbs as intrinsically *bounded* or *unbounded*. The same distinction is used to refer to the aspectual interpretation of the predicate (or VP). It should be noted, however, that the verbs Kiparsky refers to as ‘intrinsically bounded’ could actually form unbounded predicates in Finnish depending on the properties of the object. Perhaps a better way of looking at Kiparsky’s distinction is to consider an ‘intrinsically bounded’ verb as one that allows the formation of bounded predicates in contrast with ‘intrinsically unbounded’ verbs that can never appear in a bounded predicate. In this thesis, I will use a different terminology in order to distinguish the intrinsic aspectual properties of a verb, which I will refer to as *result-orientedness* (following Ghomeshi and Massam, 1994), and the aspect at the verb phrase level, which I will continue to term *boundedness*. Here, result-orientedness denotes whether the verb emphasizes the result of the action and boundedness determines whether the event has a temporal endpoint. The first category of Finnish verbs then consists of verbs such as *love*, *touch*, *kiss*, *seek*, *hate*, *want* and *doubt*, which can be classified as not result-oriented. These verbs always give rise to unbounded predicates and do not allow accusative case on the direct object regardless of the strength of the NP or its quantitative determinacy as illustrated below:⁵⁷

- (73) a.etsi-n karhu-a / karhu-j-a [*unbounded*]
 seek-1SG bear-PART / bear-PL-PART
 ‘I’m looking for the (a) bear / (the) bears.’
 b.etsi-n *karhu-n / *karhu-t
 seek-1SG bear-ACC / bear-PL-ACC
- (74) a.Anu suutel-i Esa-a [*unbounded*]
 Anu kiss-PAST/3SG Esa-PART
 ‘Anu kissed Esa.’
 b.*Anu suutel-i Esa-n
 Anu kiss-PAST/3SG Esa-ACC
- (75) Rakast-i-n tei-tä [*unbounded*]
 love-PAST-1SG you-PL.PART
 ‘I loved you.’

⁵⁷Note that these sentences can become bounded if other elements in the verb phrase force a temporal endpoint on the predicate. This is illustrated in the following example which corresponds to example (75) but which appears with a resultative predicate ‘into ruin’ coercing a bounded reading and giving rise to Accusative case-marking:

- (i) Rakast-i-n tei-dä-t rappio-lle [*bounded*]
 love-PAST-1SG you-PL-ACC ruin
 ‘I loved you into ruin.’

This example clearly shows that case-marking in Finnish is compositional and depends on the contribution of the various constituents of the verb phrase.

In these predicates, a bare plural such as *karhuja* in (73a) is therefore ambiguous between a definite reading as in *the bears* or an indefinite plural reading such as *bears*.

A second category of verbs consists of result-oriented verbs, such as *buy*, *take*, *kill*, *get*, *lose* and *find*. These verbs are able to assign both cases depending on the properties of the object. Hence, the quantitatively determinate objects are assigned accusative case, while the quantitatively indeterminate objects receive partitive case, as illustrated in (76) and (77). Note that the distinction is not one of specificity but rather one of quantitative determinacy, which distinguishes bare plurals and mass nouns from the other NP types based on the case they receive.

- (76) a. Matti ost-i maito-a [unbounded]
 Matti-SG/NOM buy-PAST/3SG milk-SG.PART
 ‘Matti bought milk.’
 b. Matti ost-i maido-n [bounded]
 Matti-SG/NOM buy-PAST/3SG milk-SG.ACC
 ‘Matti bought the milk.’
- (77) a. Matti luk-i kirjo-j-a [unbounded]
 Matti-SG/NOM read-PAST/3SG book-PL-PART
 ‘Matti read books.’
 b. Matti luk-i kirja-t [bounded]
 Matti-SG/NOM read-PAST/3SG book-PL-ACC
 ‘Matti read the books.’

These examples suggest that the two aspectual notions of result-orientedness and boundedness are distinct, since the same result-oriented verb can give rise to a bounded or unbounded reading based on the object properties. Thus, in (76a), there is a correspondence between the mass interpretation of the object, the unboundedness of the VP (e.g., ‘Matti bought milk for an hour’) and the partitive case. Similarly, in (76b), the definite object NP gives rise to a bounded event (e.g., ‘Matti bought milk in an hour’) and accusative case-marking.

The third category of verbs are unspecified for result. *Shoot* and *kick* belong to this group of verbs in Finnish. These verbs allow the partitive case to appear on definite NPs when the sentence is interpreted as what is traditionally referred to as *irresultative*, which means roughly that the result of the action or event is not known. Consider the following example:

- (78) Ammui-n karhu-j-a
 I-shot bear-PL-PART
 1. ‘I shot at the bears.’ [irresultative; unbounded]
 2. ‘I shot at bears.’ [irresultative; unbounded]
 3. ‘I shot bears.’ [resultative; unbounded]

This sentence actually has three possible readings, each giving rise to an unbounded event. The sentence can be interpreted as an irresultative event which is best translated in English as ‘to shoot at’, denoting an activity. In this interpretation, the result is not known and usually implies that the shots missed. In the irresultative sentence, the object receives a partitive case regardless of its quantitative properties or definiteness, represented in the readings in 1 and 2. But the sentence can also be interpreted as a resultative event, with the meaning ‘shot’ (vs. the irresultative ‘shot at’) as shown in reading 3. Note that the sentence is still unbounded (e.g., ‘I shot bears for hours/*in an hour’). Contrast the readings in (78) to the one obtained in (79) below, where the accusative case has been assigned to the object. Here, the sentence is interpreted as a resultative and it is bounded.

- (79) Ammui-n karhu-t
 I-shot bear-PL.ACC
 ‘I shot the bears.’ [*resultative; bounded*]

To sum up, it was argued following Kiparsky that partitive case and unbounded verb phrase aspect correlate. In addition, the examples show that resultativity and boundedness do not always coincide. This can be seen in (76) where a resultative reading (i.e., the result of the action is known) allows both bounded and unbounded aspect based on the object properties, and in the readings of examples (78) and (79), which show that irresultatives do not allow bounded events to form at the *vP* level (regardless of the properties of the object). The concept of resultativity is closely related to the notion of result-orientedness proposed here. I will, however, continue using the term *result-oriented* which I argue is a non-derivable lexical property of the verbal element and is to be distinguished from the notion of *boundedness*, which refers to aspectual interpretation at the *vP* level and is compositionally construed in syntax.⁵⁸

Table 10 correlates with the generalizations proposed in Kiparsky (1998), and shows how the verbal and object properties interact to contribute to the formation of verb phrase aspect in Finnish. If the verb is result-oriented, then it depends on the object properties (i.e., whether it represents a specific quantity) to determine the aspect at the *vP* level. Thus, a +SQA object will delimit the event giving rise to a bounded verb phrase aspect, whereas a -SQA object will form an unbounded event. If the verb is not result-oriented, however, the *vP* event is always unbounded, regardless of the object properties. Case-marking on the object correlates with the boundedness of the predicate.⁵⁹

TABLE 10 Correlation between case and aspect in Finnish

	Verb	Object	<i>vP</i> Aspect	Object Case	example
1	+result	+SQA	+bounded	Accusative	<i>Matti luki kirjat</i> ‘Matti read the books’
2	+result	-SQA	-bounded	Partitive	<i>Matti luki kirjoja</i> ‘Matti read books’
3	-result	+SQA	-bounded	Partitive	<i>etsin karhuja</i> ‘I am looking for the bears’
4	-result	-SQA	-bounded	Partitive	<i>etsin karhuja</i> ‘I am looking for bears’

5.2.3 Aspectual Heads in Scottish Gaelic

Scottish Gaelic also provides direct evidence for the correspondence between the aspectual properties of the predicate and the case assigned on the direct object. In this language, the periphrastic constructions appear with overt aspectual particles that indicate the boundedness of the verb phrase. In addition, the occurrence of these aspectual heads correlates with the case assigned on the direct object as shown in the following examples taken from Ramchand (1993):

- (80) a.Bha Calum a’faicinn a’bhalaich.
 Be-PAST Calum *ag* see-VN boy-GEN
 ‘Calum was seeing the boy.’
- b.Bha Calum air am balach (a) fhaicinn.
 Be-PAST Calum *air* the boy-DIR 3rd see-VN

⁵⁸For a more detailed analysis of object case in Finnish on how the lexical notion of result-orientedness is linked to the projection of Aspect Phrase, the reader is referred to Megerdoomian (2001).

⁵⁹This conclusion counters the usual generalization in the literature that the choice between partitive or accusative case is dependent on the (ir)resultativity of the event.

‘Calum had seen the boy.’

In Scottish Gaelic, the verbal noun appears with an aspectual particle and a tense morpheme as discontinuous elements. When the sentence appears with the aspectual head *ag* the object always appears in the genitive case and is the direct complement of the verbal noun as in (80a). However, if the sentence contains the aspectual head *air* as in the example in (80b), the object receives the direct case and it appears in the preverbal position.

According to Ramchand (1993), the aspectual particles represent the spellout of the aspectual interpretation obtained in the periphrastic constructions. The sentence in (80a) with the ‘*ag*’ particle represents an unbounded event, whereas the example in (80b), appearing with *air*, is unambiguously bounded. The following sentences illustrate that ‘*ag*’ constructions are compatible with the adverbial ‘for two hours’ and with the question cleft ‘for how long’. They are not felicitous, however, with the adverbial ‘in two hours’. These tests indicate that these sentences are interpreted as an unbounded eventuality. According to Ramchand, the direct case contrasts with the genitive in that it always appears in bounded (or telic) readings.

(81) Bha mi ag ol leann fad da uair a thide
 Be-PAST I-DIR *ag* drink-VN beer for two hours
 ‘I drank beer for two hours.’

(82) De cho fada ‘s a bha thu ag ol leann?
 How long Rel be-PAST you-DIR *ag* drink-VN beer Be-PAST I-DIR
 ‘How long were you drinking beer for?’

(83) *Bha mi a’leughadh leabhar ‘n taobh a-staigh da uair a thide.
 Be-PAST I-DIR *ag* read-VN book in two hours
 ‘*I was reading a book in two hours.’

The two examples below with the verb *iarraidh* (want) clearly illustrate that the aspectual heads also affect the interpretation of the predicate, which correlates with the case assigned on the direct object. Sentence (84) is interpreted as a stative. Note that the object carries the genitive case and appears following the main verb.

(84) Tha mi ag iarraidh a’bhuill.
 Be-PAST I-DIR *ag* want-VN the ball-GEN
 ‘I want the ball.’

In contrast, the sentence in (85) appears with the *air* aspectual head. The direct object has received the direct case and immediately precedes the verb. This sentence is no longer interpreted as a stative but rather as an accomplishment. With the aspectual changes, Ramchand suggests that a better translation for the verb *iarr* is the English verb *get*.

(85) Tha mi air am ball iarraidh.
 Be-PRES I-DIR *air* the ball-DIR want-VN
 ‘I have got the ball.’

Unlike Finnish noun phrases, Scottish Gaelic nouns are not ambiguous between a definite and indefinite reading since Scottish Gaelic possesses an overt definite article. But crucially, a definite object can appear in the genitive case in irresultative sentences.

(86) a. Tha Calum a’gearradh na craoibhe.
 Be-PRES Calum *ag* cut-VN the tree-GEN
 ‘Calum is cutting/cuts at the tree.’

b.Bha Calum a'gearradh gach uile chraobh.
 Be-PAST Calum ag cut-VN every tree-GEN

'Calum was cutting at every tree.'

Sentences (86a) and (86b) clearly show that case-assignment in Scottish Gaelic does not correlate solely with the properties of the direct object, but reflects the aspectual interpretation of the predicate.

5.2.4 Specified Quantity in Eastern Armenian

Both Finnish and Scottish Gaelic show a correspondence between the aspect of the predicate and case-marking on direct objects. The type of case that an object receives depends not on the specificity readings of the object NP, but on the (un)boundedness of the *vP* (which is itself dependent on a combination of the result-orientedness of the verb and the quantitative determination of the NP). In particular, an unbounded predicate can only occur with a partitive case in Finnish or a genitive in Scottish Gaelic. A bounded predicate, on the other hand, appears with the 'strong' (accusative or direct) case. This section investigates the relation between aspect and case-assignment in Eastern Armenian; I will show that case and aspect do not correlate in this language. However, the \pm SQA properties of the object NP clearly affect the boundedness of the verb phrase just as they did in Finnish and Scottish Gaelic.

As already discussed, one of the most common methods for distinguishing bounded and unbounded predicates is to combine the sentence with the temporal adverbials *in an hour* and *for an hour*. If a predicate is bounded, it will be felicitous when combined with *in an hour*. But since this adverbial requires that the event be terminated or bounded, it cannot occur with an unbounded predicate. On the other hand, *for an hour* is compatible with an unbounded aspect but not with a bounded one. This test then suggests that the sentence *The child drew the circle* is bounded since it is compatible with the adverbial *in an hour* (87a). Combined with *for an hour* it results in an interpretation where the drawing of a circle was 'stretched' over a period of an hour. Such an interpretation indicates a bounded predicate. (I follow Verkuyl (1993) in using # to mark a stretched or iterative interpretation.) The sentence *The child drew circles*, however, behaves as an unbounded predicate as shown in the contrast between (88a) and (88b).

- (87) a. The child drew the circle in an hour.
 b. # The child drew the circle for an hour.

- (88) a. ?? The child drew circles in an hour.
 b. The child drew circles for an hour.

The following examples show a similar contrast:

- (89) a. Mary ate the apple (in an hour / #for an hour). [*bounded*]
 b. Mary ate apples (??in an hour / for an hour). [*unbounded*]

These examples have been used to argue for a correlation between the type of the object and the aspectual reading obtained. These data clearly suggest that the presence of certain object types can delimit (or bound) the event.

We can apply a similar test to the sentences in Eastern Armenian in order to investigate the effect of the object type on the aspect of the predicate. Consider the example in (90) which contains a definite direct object.

- (90) a. Sirun-ə xndzor-ə mi jam-um k'er-av
 Sirun-NOM apple-ACC one hour-LOC eat-AOR/3SG

'Sirun ate the apple in an hour.'

- b. #Sirun-ə xndzor-ə mi ĵam k'er-av
 Sirun-NOM apple-ACC one hour eat-AOR/3SG
 ‘#Sirun ate the apple for an hour.’

The sentence *Sirun-ə xndzor-ə k'er-av* (Sirun ate the apple) is felicitous with the *in an hour* adverbial as shown in (90a). (90b), however, gives rise to a forced stretching of the event. These readings suggest that the aspect of this sentence is bounded. In contrast, the example in (91) shows that the sentence *Sirun-ə xndzor k'er-av* (Sirun ate apples) is unbounded. Note that the judgment on this sentence refers to a bare plural reading on the object. (91a) is still quite acceptable, however, because the bare indefinite *xndzor* can also be interpreted as ‘an apple’ in this context. If the reading of the bare plural ‘apples’ is forced, however, the distinction in judgment between (91a) and (91b) becomes more significant as shown. When the object is a mass noun, the judgment in the presence of an ‘in an hour’ adverbial is more clear: **k'at'u-n mi ĵam-um k'at xmets* ‘The cat drank milk in an hour’. The same remark holds for the examples in (92b) and (93b).

- (91) a. ?*Sirun-ə mi ĵam-um xndzor k'er-av
 Sirun-NOM one hour-LOC apple eat-AOR/3SG
 ‘?*Sirun ate apples in an hour.’
 b. Sirun-ə mi ĵam xndzor k'er-av
 Sirun-NOM one hour apple eat-AOR/3SG
 ‘Sirun ate apples for an hour.’

Thus it seems that definite objects tend to force a bounded interpretation while bare indefinites give rise to an unbounded reading with the same verb. The following examples illustrate this result further:

- (92) a. Ara-n namak'-ə (mi ĵam-um / #mi ĵam) gr-ets
 Ara-NOM letter-ACC one hour-LOC / one hour write-AOR/3SG
 ‘Ara wrote the letter (in an hour / #for an hour).’
 b. Ara-n (??mi ĵam-um / mi ĵam) namak' gr-ets
 Ara-NOM one hour-LOC / one hour letter write-AOR/3SG
 ‘Ara wrote the letter (??in an hour / for an hour).’
- (93) a. Yes gir-k-ə (mi ĵam-um / #mi ĵam) k'art-ats-i
 I book-ACC one hour-LOC / one hour read-AOR-1SG
 ‘I read the book (in an hour / #for an hour).’
 b. Yes (?*mi ĵam-um / mi ĵam) gir-k k'art-ats-i
 I one hour-LOC / one hour book read-AOR-1SG
 ‘I read books (?*in an hour / for an hour).’

Recall that Eastern Armenian has two types of quantified indefinites; the indefinite may appear with overt accusative case (specific reading) or without any overt case morphology (nonspecific reading) as shown in (94).

- (94) a. Sirun-ə mi hat' xndzor-ə k'er-av
 Sirun-NOM one CL apple-ACC eat-AOR/3SG
 ‘Sirun ate one of the apples.’
 b. Sirun-ə mi hat' xndzor k'er-av
 Sirun-NOM one CL apple eat-AOR/3SG
 ‘Sirun ate an apple.’

(95) and (96) illustrate the adverbial test applied to (94a) and (94b), respectively.

- (95) a. Sirun-ə mi hat' xndzor-ə mi jam-um k'er-av
 Sirun-NOM one CL apple-ACC one hour-LOC eat-AOR/3SG
 'Sirun ate one of the apples in an hour.'
- b. #Sirun-ə mi hat' xndzor-ə mi jam k'er-av
 Sirun-NOM one CL apple-ACC one hour eat-AOR/3SG
 '# Sirun ate one of the apples for an hour.'
- (96) a. Sirun-ə mi jam-um mi hat' xndzor k'er-av
 Sirun-NOM one hour-LOC one CL apple eat-AOR/3SG
 'Sirun ate an apple in an hour.'
- b. #Sirun-ə mi jam mi hat' xndzor k'er-av
 Sirun-NOM one hour one CL apple eat-AOR/3SG
 '# Sirun ate an apple for an hour.'

The test indicates that both sentences behave as bounded predicates. The case on the objects, or their specific/nonspecific interpretation does not seem to correspond to the aspectual properties of the predicate.⁶⁰ The following sentences confirm this result.

- (97) a. lezvaban-ner-ə yerku šiš gini-n mi jam-um xm-ets-in
 linguist-PL-NOM two bottle wine-ACC one hour-LOC drink-AOR-3PL
 'The linguists drank the two bottles of wine in an hour.'
 'The linguists drank two of the wine bottles in an hour.'
- b. #lezvaban-ner-ə yerku šiš gini-n mi jam xm-ets-in
 linguist-PL-NOM two bottle wine-ACC one hour drink-AOR-3PL
 '# The linguists drank the two bottles of wine for an hour.'
 '# The linguists drank two of the wine bottles for an hour.'
- (98) a. lezvaban-ner-ə mi jam-um yerku šiš gini xm-ets-in
 linguist-PL-NOM one hour-LOC two bottle wine drink-AOR-3PL
 'The linguists drank two bottles of wine in an hour.'
- b. #lezvaban-ner-ə mi jam yerku šiš gini xm-ets-in
 linguist-PL-NOM one hour two bottle wine drink-AOR-3PL
 '# The linguists drank two bottles of wine for an hour.'

The object in (97) carries an accusative case whereas the object in (98) is bare. Both sentences are compatible with the *in an hour* adverbial, and they both give rise to a forced stretching with the *for an hour* adverb (i.e., the linguists were drinking two bottles of wine for the period of an hour). The main distinction between the two sentences is that the object in (97) refers to two specific bottles of wine (or definite ones as in *the two bottles of wine*) whereas (98) is about two nonspecific wine bottles.

It is not necessary that the wine be completely consumed under this interpretation. But as the examples below indicate, either quantified indefinite could be used in a completed event (forced by the

⁶⁰The two sentences differ on the possible position for the adverbial as expected since it was argued in Section 5.1 that the two quantified indefinites occupy different structural positions. The case-marked quantified indefinite in (95) can be separated from the verb by the temporal adverb. The caseless quantified indefinite in (96), on the other hand, can't separate from the verb (without giving rise to contrastive focus) as shown below:

- (i) *Sirun-ə mi hat' xndzor mi jam-um k'er-av
 Sirun-NOM one CL apple one hour-LOC eat-AOR/3SG
 'Sirun ate an apple in an hour.'

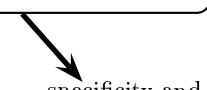
verb *verčatsnel* ‘finish’) with similar results. These data show that the presence or absence of case (and specific/nonspecific interpretation) does not correspond to completion or resultativity either.

- (99) a. Ara-n yerku hat' garejur-ə mi jam-um xm-ets verč-a-ts-r-ets
 Ara-NOM two CL beer-ACC one hour-LOC drink-AOR/3SG finish-INCH-CAUS-ASP-AOR/3SG
 ‘Ara drank up the two beers/two of the beers in an hour.’
- b. Ara-n mi jam-um yerku hat' garejur xm-ets verč-a-ts-r-ets
 Ara-NOM one hour-LOC two CL beer drink-AOR/3SG finish-INCH-CAUS-ASP-AOR/3SG
 ‘Ara drank up two beers in an hour.’

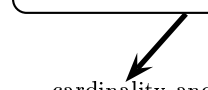
Based on these results, I conclude that case morphology does not correlate with aspect in Eastern Armenian. Instead, the aspectual interpretations obtained correspond to the object’s ‘quantitative determination’ following Kiparsky (1998) or \pm SQA (‘specified quantity of A’) according to Verkuyl (1993) as was discussed in section 5.2.2.

TABLE 11 Aspect and Case in Eastern Armenian

	overt case	specificity	+SQA	aspect	object position
definite object	yes	yes	yes	bounded	vP-external
bare indefinite	no	no	no	unbounded	vP-internal
quantified	yes	yes	yes	bounded	vP-external
indefinite	no	no	yes	bounded	vP-internal



specificity and
case-assignment
correspond



cardinality and
aspect
correspond

Table 11 brings together the correlations found for Eastern Armenian. In this language, case-marking corresponds to object specificity. Aspect and finite cardinality (\pm SQA) correlate directly. They do not however correspond to case-marking or specificity since nonspecific quantified indefinites are able to delimit or bound the event. Note also that whether the direct object is inside or outside the *vP* correlates with case-marking but not with aspectual reading.

5.3 Parallel Nominal and Verbal Domains

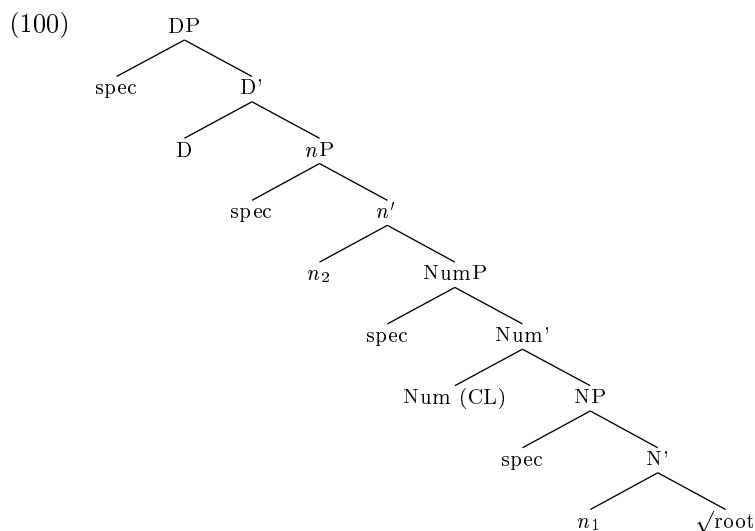
5.3.1 Functional Projections in DP

Distinguishing the two notions of $[\pm$ SQA] and specificity is crucial in order to account for the distinct domains in which the cardinality of the NP and its specificity play a role. More precisely, there seems to be a close relation between the cardinality of the NP (or \pm SQA) and aspect, while specificity does not seem to contribute to any aspectual reading in the predicate. Furthermore, I have argued that languages differ based on the nature of the semantic phenomenon that plays a role in case-assignment. In particular, in languages such as Eastern Armenian, specificity seems to matter in assigning object case while in languages like Finnish it is a combination of cardinality (\pm SQA) and aspect that seems to be important. I therefore propose to separate the information provided by specificity and cardinality into distinct syntactic nodes within the noun phrase structure. This would allow us to capture the direct

correlation between cardinality and verb phrase aspect as well as the close relation between nominal specificity and a higher argument projection within the verb phrase structure.

Much current research on nominal elements has argued that the structure of the noun phrase should reflect the structure of the verb phrase. This approach has led to the introduction of several functional projections within the NP/DP providing a decomposed structure in which the various nominal elements are represented in distinct syntactic nodes (Abney, 1987; Tang, 1990; Valois, 1991; Ritter, 1992; Bhattacharya, 1999; Borer, 2000b, among others). In addition, it has been argued that there is a direct correspondence between the functional elements in the Noun Phrase and Verb Phrase structures. Travis (1992b), for instance, shows that the Number Phrase projection argued for in Ritter (1992) behaves similarly to Aspect Phrase and provides two parallel verbal and nominal structures in which NumP corresponds to AspP. Travis's analysis confirms the Eastern Armenian and Finnish data discussed in this chapter which pointed to a close relation between cardinality of the argument NP and aspect of the verb phrase. Following Travis (1992b), I propose the syntactic structure for the noun phrase illustrated in (100).

The noun phrase is formed when a root element combines with the functional nominal features in (100). The *nP* projection has been proposed by several researchers (Valois, 1996; Bhattacharya, 1999 for Bangla possessors, Travis, 1992b for gerundive *Poss-ing* structures) and parallels the *vP*-shell. Hence, I will assume this projection for now.



The information about the cardinality of the nominal phrase is expressed in the NumP projection, where Num stands for *Number* and CL for *Classifier*. When NumP is projected, the noun phrase receives a specified quantity or +SQA interpretation.

Note that in this configuration, the classifier does not project a separate head since in Eastern Armenian and Persian the classifier is optional with count nouns and can only appear if a number is already present, as shown in the Persian examples below:

- (101) a.se (ta) ketab-e qermez
 three CL book-EZ red
 'Three red books'
- b.do (næfær) zæn
 two person[CL/+animate] woman

‘Two women’

c.ye (dune) bæče-ye porru
 one grain[CL] kid-EZ spoiled

‘one/a spoiled kid’

d.čahar *(ta) abjo
 four *(CL) beer

‘four beers / *four beer’

(102) a.*ta ketab
 CL book

b.*næfær zæn
 person[CL] woman

c.*dune xodkar
 grain[CL] pen

In addition, Bhattacharya (1999) argues for a fused head consisting of a number or quantifier and the classifier in Bangla. In that system, the Num+CL combination is termed QP rather than NumP, but the relation between Q and N is similar to the one proposed here for Num and N, since Q ensures the countability of the NP in Bhattacharya’s model.

Specificity, on the other hand, is usually associated with the DP projection. A definite argument is interpreted as specific by virtue of appearing with an overt determiner in D. Bare indefinites and mass nouns lack a determiner and are considered ‘weak’ or non-specific NPs. Quantified indefinites that do not have a specific reading in Armenian or Persian would also be analyzed as lacking the D projection. However, quantified indefinites in these languages may also carry a specific interpretation as shown for Eastern Armenian in section 5.1.4. I suggest that, in these cases, the specific reading is obtained when the DP projection is headed by a null determiner (see Karimi, 1996; Ghomeshi, 2001 for proposals positing a null determiner head in Persian). No D head is projected, however, in the case of non-specific quantified indefinites.

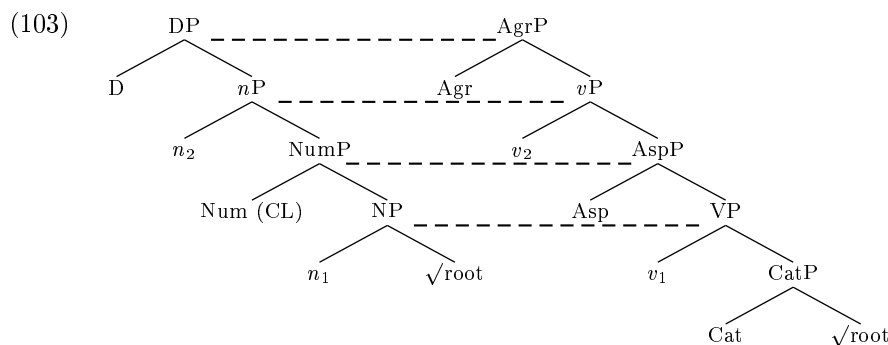
Based on a semantic correlation between Progressive aspect and plural number in English and morphological similarities marking aspect and number in Tagalog, Travis (1992b) argues for the correspondence of the Number and Aspect functional heads. In addition, the mass/count distinction in nominals discussed in Chierchia (1998) has been correlated with the atelicity/telicity distinction (i.e., the boundedness properties) of verbs. Borer (2001) argues that all nominals are listed as mass in the lexicon (her Encyclopedia) and they only receive a count interpretation in the context of a ‘count’ structure. Hence, unless provided with more structure, the default interpretation of N^o is mass. Likewise, the default interpretation of a V^o is atelic or unbounded and can become telic or bounded only when it appears in the context of an aspectual structure. In this chapter, I have shown that there is a direct correlation between aspectual boundedness of the vP and the quantitative specification of the NP (also see Verkuyl, 1993 and Krifka, 1992). I therefore propose, following previous analyses on aspect such as Borer (1994) and Tenny (1987), that a bounded aspect obtains when a quantitatively specific noun phrase appears in the specifier position of Aspect Phrase. The aspect of the verbal event is “delimited” or “measured out” when the [Spec, AspP] position is occupied. The boundedness information in the verb phrase is marked in Aspect Phrase. I argue in fact that boundedness of the verb phrase directly correlates with the projection of AspP in syntax. Similarly, I suggest that in the nominal domain, the cardinality information provides a physical limit to the noun and delimits the NP.

In the model proposed, the nominal represents the physical domain while the verbal structure corresponds to the temporal domain (cf. Verkuyl, 1993). Boundedness of the verb phrase obtains when a

“bounded” or quantitatively specified noun phrase enters into a relation with the temporal domain and provides the event denoted by the verb with an endpoint or physical limit. In a language like Finnish, this delimitation is expressed by case morphology on the direct object.

The evidence in this chapter has pointed to distinct positions for the projections responsible for cardinality and aspect and the projections marking specificity and overt object case in Eastern Armenian. It was argued that the position occupied by the nonspecific indefinites (i.e., the noun phrase lacking the DP projection) is inside the *vP* verb phrase structure, whereas the specific objects appear in a projection external to the *vP*, which I will refer to as *AgrP*. This suggests that specificity on the nominal correlates with object agreement on the verbal domain. Evidence for this comes from Hindi, where the direct object triggering overt agreement on the verb has been analyzed as being outside the verb phrase structure. Further, this direct object in Hindi correlates with a specific interpretation according to Mahajan (1990).

Throughout this dissertation, I have argued for a decomposition of ‘words’ into more primitive elements. These primitive members of the syntactic code are represented as distinct functional heads within the structure, which also denote specific semantic properties. Hence Chapter 3 argued for the decomposition of the verbal structure into the primitive units of verbal meaning consisting of roots, event information and categorial features. Similarly, in this chapter, I have distinguished several independent semantic notions within the nominal structure that correspond to overt syntactic properties. The primitive units of the noun phrase thus consist of a root element that combines with the category *n*, number features and determiner heads. Furthermore, the previous section argued for a direct relation between the corresponding functional projections in the nominal and verbal structures. In particular, it was proposed that the notion of ‘boundedness’ is represented by Number in the nominal domain and by Aspect in the verbal component. Similarly, the notion of ‘specificity’ is represented by the Determiner projection in the nominal structure and by the Agreement phrase in the verbal domain. The picture that emerges from this discussion is that of two parallel structures whose projections are in a direct one-to-one relation. The checking relation of these parallel domains is schematized in the following configuration.



The parallel architecture of nominal and verbal domains proposed here is reminiscent of the computational system developed in Vergnaud (2000) and Vergnaud and Zubizarreta (2001), which are presented in the following section.

5.3.2 Primitive Assemblies of Constituent Structure

In the framework developed in Vergnaud and Zubizarreta (2001), the syntactic structure consists of right-branching trees which consist of a fixed set of primitive features as shown in (104).

(104) $F_n F_{n-1} \dots F_2 F_1$

These features are the same for all categories. Hence, the same feature underlies the notion that represents ‘mass/count’ for nominal categories as well as the notion denoting ‘aspect’ for verbal categories.

Similarly, the abstract feature of ‘instantiation’ is manifested by D in the nominal domain and by T for the verbal category. The hypothesis that all categories have the same underlying features is referred to as the Extended X-bar Principle and is described as below in Vergnaud and Zubizarreta (2001):

(105) *Extended X-bar Principle:*

Every cognitive (semantic) category is analyzed in terms of a fixed set of features common to all categories.

The features in (104) form an ordered list of primitive syntactic elements where F_1 is the head denoting the *root* in the sense used in this dissertation. F_2 is the feature representing *categories* such as Noun or Verb. F_3 is the *aspect* or *classifier* feature while F_n is manifested as determiner or tense and denotes the notion of *instantiation*.

These uniformly-branching trees constitute parallel primitive assemblies. The goal of the computational system is to reduce the abstract features of the nominal and verbal assemblies to single strings by projecting them into a single linear axis. This is accomplished when a matching relation is established between the two uni-branching trees by forming a one-to-one link between corresponding features. The grammatical relation *specifier-of* arises from the association of the two equivalent primitive assemblies. In this configuration, the abstract feature for ‘mass/count’ in the nominal assembly is associated with the ‘aspect’ feature in a matching verbal assembly. This specifier-of relation is schematized in the feature pairs in (106):

$$(106) ([F_3 F_2 F_1]_N, [F_3 F_2 F_1]_V) = (F_{3N}, F_{3V}) (F_{2N}, F_{2V}) (F_{1N}, F_{1V})$$

In the formal framework in Vergnaud and Zubizarreta (2001) Agreement is then an instance of a specifier-of relation realized as the matching of equivalent features across the N and V categories.

The specifier-of relation is one of the operations available to two parallel uni-branching trees and is defined by the *distributive product* in (107).

$$(107) [F_1 \dots F_i \dots F_n] \otimes [G_1 \dots G_i \dots G_n] \stackrel{def}{=} F_i \approx G_i, F_i \text{ precedes } G_{i+1}, i=1, \dots, n-1$$

In addition, two primitive uni-branching assemblies may also combine to form an *extended assembly* as illustrated in (108). In this operation, a primitive assembly combines with another by identifying the tail of one assembly with the head of the other.

$$(108) [F_1 F_2 \dots F_i \dots F_{n-1} F_n] * [G_1 G_2 \dots G_i \dots G_{n-1} G_n] = [F_1 \dots F_{n-1} H G_2 \dots G_n] \text{ where } H=F_n=G_1$$

This operation is used, for instance, to compose the verbal constituent structure by combining the verbal category with the complementizer category (or ‘proposition’). Similarly, a noun category can combine with a pronominal category to provide the ‘point of view’. The node at which the two primitive assemblies combine creates a boundary condition for the syntactic code.

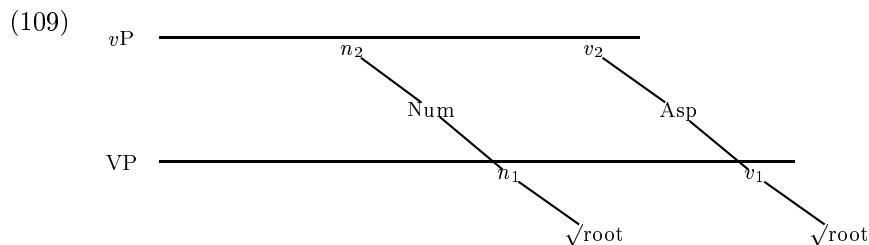
In the next section, I will provide an analysis for the relation between object case and semantic interpretation in Armenian and Finnish by adopting a syntactic structure consisting of parallel primitive assemblies as in the framework of Vergnaud and Zubizarreta (2001).

5.3.3 Checking Relations and Structural Case

Throughout this work, I have isolated the primitive units of meaning that play an important role in the formation of verbs and nouns in Persian and Eastern Armenian. Arguing for a direct correspondence between meaning and structure, I proposed a decomposition of the syntactic predicates into primitive elements of grammar that encode nominal and verbal meaning. Section 5.3.1 outlined the close relation between parallel features in the nominal and verbal domains that affect their resulting semantic and syntactic behavior in the verb phrase. It is argued that this correspondence can be captured in a computational system in which the two domains are represented as parallel configurations. This section develops in more detail the relation between these parallel structures using the computational system de-

scribed in Vergnaud and Zubizarreta (2001). Accusative case-marking in Eastern Armenian and Finnish is argued to be the overt realization of the checking relation between corresponding nominal and verbal nodes. This analysis is similar to the one provided for voice morphology in the last chapter, in which it was argued that the passive/inchoative morpheme is realized post-syntactically in specific syntactic configurations.

Following Vergnaud and Zubizarreta (2001), I suggest that nominal and verbal predicates are composed of a fixed set of primitive elements consisting of a root, a category feature, and features denoting *boundedness* and *instantiation*. These features give rise to slightly different interpretations depending on the domain in which they are realized. Hence, the feature representing boundedness corresponds to aspect in the temporal or verbal domain and to the classifier or count system in the physical or nominal domain. The suggested uni-branching configurations are illustrated in (109), where n represents an entity and v denotes an event.



According to this proposal, the mass noun would consist of a root element combined with the categorial feature n_1 . This level of the structure corresponds to the bare noun in Eastern Armenian. If the nominal structure combines with the Num feature specifying its cardinality, the noun formed has a ‘count’ reading. A parallel structure is formed in the verbal domain as shown.

I claim that the noun phrase becomes an argument of the verb when the primitive elements in the nominal structure form a specifier-of relation with their verbal counterparts, as discussed in the previous section. The resulting interpretation and case-marking depend on the level in the structure at which the checking relation is formed.

Recall from the discussion of Eastern Armenian that a bare noun argument, which lacks specificity and cardinality features, needs to remain low in the verb phrase. These constructions give rise to unbounded verb phrase aspect. In these instances, the root+ n_1 configuration in the nominal domain enters into a specifier-of relation with the corresponding verbal elements.

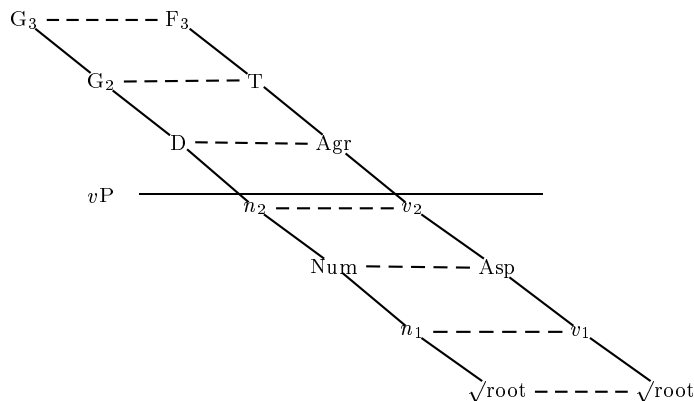
Since the n_1 - v_1 relation is the highest checking level in the construction, aspect remains unbounded and the bare noun appears low within the vP structure. In the case of quantified indefinites, however, the highest specifier-of relation is formed between the nodes Num and Asp. Note that the presence of the Num feature in the nominal domain modifies the mass interpretation and forms a count noun argument or a nominal with a specified cardinality.

The presence of the Aspect node on the verbal domain provides what I have referred to as ‘result-orientedness’ of the event. It is only when the two corresponding nodes enter into a checking relation, thus merging the temporal and physical worlds, that a bounded verb phrase aspect is obtained. In other words, by the establishment of the specifier-of relation between Num and Asp nodes, the physical domain delimits the temporal domain by providing a final endpoint or a measure for the event.

Both uni-branching assemblies may undergo a ‘direct product’ in the sense of Vergnaud and Zubizarreta (2001) to form an extended assembly. I claim that the domain corresponding to tense, agreement and higher aspectual features is combined with the vP domain through this operation. This extended assembly provides the temporal instantiation to the underlying event. Similarly, the nominal domain can be extended to include the physical instantiation of the entity (i.e., specificity) within the structure as

illustrated in (110).

(110)



When the noun projects a DP, it receives a specific interpretation and the head D enters into a relation with the Agr node. That the definite objects in Eastern Armenian are interpreted as external to the vP domain is due to the fact that the highest level at which a checking relation is formed is outside of that domain. We will return to this point below.⁶¹

I propose that case-assignment in languages such as Eastern Armenian and Finnish is simply the overt realization of a specifier-of relation between nominal and verbal domains. In Finnish, accusative case is expressed on the object as a result of the checking correspondence between Num and Asp nodes. It is, however, the specifier-of relation between D and Agr features that is expressed as an accusative case on the noun in Eastern Armenian and as overt object agreement on the verb in Hindi.

The proposed model captures the correlation between cardinality and aspect, it accounts for case-marking in Finnish (which relates to boundedness) and case-assignment in Eastern Armenian (which relates to specificity or “instantiation”), and explains the close relation of structure and interpretation in the noun phrase and in its correspondence with the verbal predicate.

This system makes a few claims about case and movement. To begin with, accusative case is not treated as an uninterpretable feature of a noun phrase that needs to be checked by LF; nor is it represented as a functional projection in syntax. Instead, case appears as the result of a checking relation between the noun and the verb. Hence, case-assignment and also verbal agreement are simply the overt realization of a checking mechanism between the verbal and nominal domains, and are not listed with the lexical entry. The position that a case-marked object occupies or its correlation with certain semantic readings is a by-product of the checking mechanism and is not a property of the case morpheme. Furthermore, I have suggested that languages can be distinguished based on the structural position at which accusative case (or marked object case) is realized. In Finnish and Scottish Gaelic, the projection node at which the checking relation is overtly realized on the argument is the node corresponding to the feature ‘boundedness’, hence the close relation between case, cardinality (Num) and Aspect (Asp) observed in these languages. In Eastern Armenian, Persian, Turkish and other languages of this group, the checking relation is realized on the object at the higher node denoting ‘instantiation’ (D/Agr) resulting in a correlation between case and specificity. I assume that certain languages have a default case which is realized at the level at which n_1 - v_1 form a checking relation and the default case in Finnish

⁶¹For now, I assume following Travis (1992b) and others that n_2 and v_2 will form a relation at a higher level, but I do not have any evidence for such a relation in the data discussed here. It could very well be that v_2 only forms a relation with the n of the external argument and is not directly involved in licensing the internal argument. A more detailed investigation of the noun phrase components is needed; I will leave the nP projection and its correspondence to vP for further research.

is the Partitive. Hence, a direct object in this language receives the partitive case-marking unless it is projecting a Num feature thus receiving a marked or accusative case.

This approach then predicts that case-assignment is a post-syntactic phenomenon since overt accusative case is realized after all syntactic projections and checking relations have been formed. Object case morphology is overtly expressed in languages based on the resulting syntactic configurations and on the correspondences composed between parallel primitive assemblies.

The model also makes some interesting claims about the notion of object movement. It was shown in section 5.1, that the direct object with accusative marking occupies a position higher than the *vP* and it was proposed that these data can be accounted for if we posit two distinct object positions. In the current system, however, the two object positions take on a different form. I have provided a model in which the structure of the noun phrase determines the corresponding verbal projection at which it is licensed or checked, hence there is no need to define two distinct object positions.

I suggest that an argument is interpreted at the highest level in the verbal structure at which it is checked. The bare noun will be interpreted at the level of *v* while the specific or DP object will be interpreted at the AgrP level, external to the *vP* structure. Recall from section 5.1 that the two main arguments used to argue for the distinct structural positions of the case-marked and caseless objects were based on the phrasal stress pattern and the object's ability to be separated from the verb. In the system just proposed, the same analysis still holds.

Vergnaud and Zubizarreta (2001) suggest that the node at which two primitive assemblies combine following the application of a 'direct product' serves as a boundary condition for syntax. I have proposed that the extended assemblies in (110) are formed by the direct product of two different assemblies as shown in (111) for the verbal configuration.

$$(111) [\sqrt{\text{root } v_1 \text{ Asp } v_2}] * [v_2 \text{ Agr T Asp}_{OR}] = [\sqrt{\text{root } v_1 \text{ Asp } \boxed{v_2}} \text{ Agr T Asp}_{OR}]$$

The node v_2 thus provides the fusion point between the two primitive assemblies and behaves as a boundary to the syntactic code. I suggest that once a checking relation has occurred, the corresponding n_2 - v_2 nodes create a boundary (*vP*) by behaving as the level at which spell-out takes place.

Hence, the object DP is interpreted outside the *vP* domain (i.e., outside the node at which the *vP* structure is spelled out to PF) and therefore is not part of the verbal domain for stress assignment. This also allows adverbials to intervene between the verb and the object. The main difference is that no "movement" is assumed in this system (in the traditional sense of movement) but rather a parallel correspondence of structures is formed. Note that this model captures what is referred to in Vergnaud and Zubizarreta (2001) as Prinzhorn's Law as stated in (112):

(112) *Prinzhorn's Law*:

The "height" to which a nominal category will scramble within the verbal category is equal to the "height" of the highest specified feature within N.

In the model proposed, the "highest specified feature" corresponds to the highest functional projection within the primitive assembly configuration. Hence, a bare noun would remain low in the *vP* domain, whereas a specific noun which has a D projection will be interpreted at the level of Agr, external to the *vP*. *Movement* then simply corresponds to the highest level within the structure at which a nominal argument is interpreted, or the highest corresponding nodes in the parallel configurations.

5.4 The Status of the Nominal in Complex Predicates

The preceding sections have distinguished two types of object arguments on the basis of their syntactic and semantic properties. It was shown that direct objects in Eastern Armenian that appear with an overt case morpheme are interpreted as specific noun phrases, and are realized in a position outside the *vP* domain. On the other hand, caseless objects are non-specific elements and remain within the

vP. The analysis put forth in Section 5.2 captures the distinct properties of the two object types based on the level of structure present in each instance. According to this proposal, the argument noun is formed by combining the primitive constituents in a nominal configuration, distinct from the verbal domain. In other words, specific and non-specific objects are an instance of the same syntactic domain; the distinction lies in the highest functional projection available in each case. A bare noun will consist of an *n* head, quantified indefinites will contain, in addition, a Num feature. Specificity is obtained when a D head is present in the syntactic configuration of the nominal domain. Other properties of the two object types fall off from the interrelation between the nominal configuration and the verbal domain. I have proposed that the *vP* serves as a boundary condition in this syntactic structure, thus clearly distinguishing the elements within the *vP* from those that are interpreted external to it. Bare nouns, for instance, seem to occupy a position that is low in the hierarchical structure and are adjacent to the verb. Specific nouns with a full DP structure, however, are interpreted outside the *vP* boundary and thus allow other syntactic elements, such as adverbs, to intervene between them and the verb. Furthermore, overt case morphology on the object argument is the post-syntactic realization of the checking relation between the nominal D and verbal Agr heads.

In this section, I will focus on the status of the nominal elements in light verb constructions in Persian. Recall from Chapter 3 that the verb *baz kærðæn* was argued to be composed of its primitive elements shown in (113), where the root+adj assembly combines with the verbal features for CAUSE and BECOME. Hence, the adjective *baz* ‘open’ is treated as part of the light verb construction.

$$(113) \left[\left[\sqrt{\text{baz}} \cdot \text{adj} \right]^{AP} \cdot v_{\text{become}} \cdot v_{\text{cause}} \right]^{VP}$$

Similarly, I suggest that the nominal in complex predicates is part of the verbal structure. The verb *gerye kærðæn* (cry do) ‘cry’, for instance, is formed compositionally through the combination of the primitive elements of the construction. As illustrated in (114), the deverbal noun *gerye* ‘cry’ is composed of the root $\sqrt{\text{gerye}}$ with both a verbal and a nominal functional element (see discussion in Section 3.3.4). The deverbal noun is then joined with the light verb *kærðæn* ‘do’ to form the complex verbal predicate.

$$(114) \left[\left[\sqrt{\text{gerye}} \cdot v_1 \cdot n \right]^{nP} \cdot v_{\text{do}} \right]^{vP}$$

This analysis therefore suggests that, unlike the object NPs, the preverbal nominal element in light verb constructions is a constituent in the verbal domain. The proposal thus distinguishes between the preverbal noun in a complex predicate and the preverbal noun acting as the argument of the verb.

Several analyses of light verb constructions in Persian, however, have treated the preverbal elements of complex predicates as nonspecific arguments of the verb (cf. Vahedi-Langrudi, 1996; Ghomeshi and Massam, 1994). I will demonstrate that, while both nominal items are non-specific and need to remain adjacent to the verb, they display several important distinctions: these elements differ in whether they can become a specific direct object by taking the object marker *-ra*, or whether they can take an adjectival modifier or an indefinite, as well as the possible aspectual readings available in the predicate. In addition, the true nonspecific arguments can be questioned or pronominalized, contrary to the preverbal elements of complex verbal constructions. The result is a three-way distinction between the arguments and predicates in the verbal construction. The direct object of the verb occupies a position in the nominal domain, parallel to the verbal configuration. Specific and non-specific direct arguments are distinguished based on the level of structure available in the nominal domain. By virtue of being part of the nominal or physical domain, these arguments are interpreted as referential entities. The preverbal noun in complex predicates is interpreted within the verbal domain and combines with the verbal features to form a verbal predicate. Hence, the status of nouns as predicate or argument depends on the degree of separation or distance that exists between the level at which it is interpreted and the verbal head: A predicate is part of the verbal domain, a non-specific argument is interpreted at a structural level within VP in the nominal domain, while the specific argument is interpreted at a higher structural level within *vP* in the

nominal domain.

I will first review previous analyses that have argued for a uniform treatment of the non-specific direct object and the preverbal noun in complex predicates in Persian. The following sections show that these two types of preverbal nouns display very distinct properties and argue that the argument-predicate difference can be captured structurally.

5.4.1 Preverbal Nominals as Arguments

The nature of the preverbal elements in Persian complex predicates and their relation to the verb have been the focus of much debate in the literature. Certain analyses have argued that the preverbal nominal (PV) is distinct from the non-specific object in Persian (Moyné, 1970; Khanlari, 1986; Karimi, 1989; Mohammad and Karimi, 1992). Other approaches have treated the PV and the nonspecific object uniformly and argued that the PV is in fact an argument of the verb (Barjasteh, 1998; Ghomeshi and Massam, 1994; Vahedi-Langrudi, 1996; Dabir-Moghaddam, 1997).

Ghomeshi and Massam point out that both the nonspecific object NP and the nominal preverbal element in complex predicates appear without any overt marker, need to remain adjacent to the verb and act as a single unit with the verb with respect to stress placement. This is illustrated in the examples in (115) depicting non-specific objects and in (116) representing so-called complex predicate constructions, the meaning of which is not compositional.

- (115) a.(mæn) ketab xærid-æm
I book bought-1SG

‘I book-bought.’

- b.(mæn) qæza xord-æm
I good ate-1SG

‘I ate food.’

- (116) a.otaq-ro jaru zæd-æm
room-OM broom hit-1SG

‘I swept the room.’

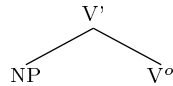
- b.mærdom færib xord-ænd
people deception ate-3PL

‘(The) people were deceived.’

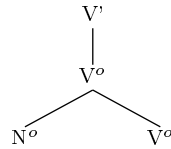
Since in both types of noun+verb combinations, the main stress falls on the preverbal noun, Ghomeshi and Massam (1994) argue that these nominals form a (phonological) unit with the verb in both constructions. In addition, Ghomeshi and Massam (1994) claim that nonspecific NPs in (115) are non-referential, in the sense that (115a), for instance, refers to an activity of ‘book-buying’. The bare noun in (115a) seems to modify the action described by the verb rather than function as an argument of it.

Although Ghomeshi and Massam (1994) agree that there is a difference between *dærs xandæn* ‘to study’ (lit. to lesson-read), where the noun bears a thematic relation to the verb, and *ræng zædæn* ‘to paint’ (lit. to color-hit), where the relation is more one of a complex predicate, they still believe that these noun+verb constructions should be treated uniformly in syntax as a “juxtaposition” structure. Ghomeshi and Massam (1994) thus suggest that a regular direct object (i.e., an object that is specific or contains a Num feature) appears as a sister to V^o as illustrated in (117b).

(117) a. Regular direct object



b. Incorporated noun:



The X^o position could also contain a non-thematic element, such as a preposition or adjective. In this proposal, an object may be base-generated either as the NP in (117a) or as the N^o in (117b). These distinct configurations also have some aspectual consequences. Ghomeshi and Massam argue that the direct object arguments can delimit an event and give rise to bounded events or accomplishments as shown in the (a) sentences below. The (b) sentences, that involve juxtaposition, denote processes, are unbounded and are canonically ‘intransitive’ (Ghomeshi and Massam, 1994, p.191).

(118) a.(mæn) sib-ra dær do dæqiqe xord-æm
I apple-DEF in two minutes ate-1SG

‘I ate the apple in two minutes.’

b.*(mæn) dær do dæqiqe sib xord-æm
I in two minutes apple ate-1SG

‘I ate apples in two minutes.’

(119) a.*(mæn) sib-ra bæraye yek sa’æt xord-æm
I apple-DEF for one hour ate-1SG

‘I ate the apple for one hour.’

b.(mæn) bæraye yek sa’æt sib xord-æm
I for one hour apple ate-1SG

‘I ate apples for one hour.’

Similarly, Vahedi-Langrudi (1996) argues for a uniform treatment of bare nominals in (120) and the preverbal noun in complex predicates in (121). Although Vahedi-Langrudi makes a distinction between thematic verbs as in (115) and the completely bleached verbs that have been reduced to denoting logical information as in (116), he nevertheless claims that he sees no real difference between these two constructions as far as semantic interpretation, case-marking and syntactic configuration are concerned. The only difference might be that the PV in (116) functions as the substantiator of the light verb (Vahedi-Langrudi, 1996, p.125).

(120) daræm [_{V'} name mi-nevis-æm]
have-1SG letter DUR-write-1SG

‘I am writing letters.’

(121) Ali [_{V'} gerye kærd]
Ali cry did-3SG

‘Ali cried.’

Vahedi-Langrudi suggests that the theory of grammar distinguishes between *arguments* and *predicates*. Based on the conditions on predication developed in Higginbotham (1987), Vahedi-Langrudi argues that arguments denote *objects* or *entities*, while predicates are unsaturated phrases with one or more open positions to be filled by objects. In addition, *predicate nominals* are indefinites that participate in a predication relation.

Vahedi-Langrudi argues that light verbs in Persian are *bleached predicates of existence* and indefinites in their VP-internal positions behave as *predicates*. Since light verbs are bleached and unspecified on

the thematic tier (Jackendoff, 1990), they are not able to predicate over entities as opposed to full, thematic verbs that can select an internal argument. However, a light verb can combine with a preverbal element PV to form a complex predicate in V-bar that must then be saturated in syntax. Crucially, Vahedi-Langrudi points out that the predicate nominals in complex predicate structures are always indefinite and non-referential. Consider the two verbal constructions *dæva dadæn* ‘medication give’ and *šæfa dadæn* ‘cure give’ in (122) and (123), respectively. In (122a), the thematic verb *dadæn* ‘give’ refers to the “transference of an object”. In this case, the physician hands over some definite medication to Morad. In (122b), the object is indefinite. Vahedi-Langrudi suggests that the meaning of “transference” of *dadæn* ‘give’ is backgrounded in this sentence and the object *daru* ‘medication’ is indefinite and non-referential. Vahedi-Langrudi (1996) claims that the sentence means that the physician prescribed medication for Morad who was sick or that the physician helped Morad to have his medication but there is no transference or passing of the drug involved in this context. The direct object in (122b) is argued to be an indefinite with an existential reading.

- (122) a. pezešk daru-ra be morad dad
 physician medication-OM to Morad gave-3SG

‘The physician gave the medication to Morad.’

- b. pezešk be morad daru dad
 physician to Morad medication gave-3SG

‘The physician gave medication to Morad.’

- (123) a. pezešk morad-ra šæfa dad
 physician Morad-OM cure gave-3SG

‘The physician cured Morad.’

- b. *pezešk šæfa-ra be morad dad
 physician cure-OM to Morad gave-3SG

‘The physician gave the cure to Morad.’

In (123a) the verb *dadæn* ‘give’ is completely bleached and refers only to the logical component of the verb meaning affecting aspect and event information. Vahedi claims that the preverbal noun *šæfa* ‘cure’ is a subcategorized direct object of the light verb and can only be an indefinite, non-referential noun as illustrated by the ungrammaticality of (123b) where the preverbal noun is marked by the specific object marker. In addition, the preverb needs to enter into the closest possible syntactic relation with the verb. Morad is still the “recipient” except that he is an affected recipient of the action denoted by the complex predicate *šæfa dadæn* ‘cure’.

Although Dabir-Moghaddam (1997) also treats the preverbal nominals in *dæva dadæn* ‘medication give’ and *šæfa dadæn* ‘cure give’ as non-referential and part of the predicate, he distinguishes the processes through which they are formed. According to Dabir-Moghaddam (1997), the complex predicates in (124) are formed in the lexicon when the two parts “combine”. However, the compound verbs in (125) are formed when the object incorporates into the verb.

- (124) Noun + LV
- | | | | |
|---------|----------|-----------------------|-------------------|
| qose | xordæn | (sorrow eat) | ‘to worry’ |
| særma | xordæn | (cold eat) | ‘to catch a cold’ |
| ænjam | dadæn | (accomplishment give) | ‘to accomplish’ |
| tælaq | dadæn | (divorce give) | ‘to divorce’ |
| bazi | kærdæn | (play do) | ‘to play’ |
| zendegi | kærdæn | (life do) | ‘to live’ |
| rænj | kešidæn | (pain pull) | ‘to suffer’ |
| xejalæt | kešidæn | (shyness pull) | ‘to be shy’ |
| dærd | gereftæn | (pain catch) | ‘to hurt’ |
| yad | gereftæn | (memory catch) | ‘to learn’ |
- (125) Noun + LV
- | | | | |
|--------|----------|----------------|--------------------|
| qæza | xordæn | (food eat) | ‘to eat (food)’ |
| zæhr | dadæn | (poison give) | ‘to poison’ |
| kæftær | gereftæn | (pigeon catch) | ‘to catch pigeons’ |
| ketab | foruxtæn | (book sell) | ‘to sell books’ |

In particular, Dabir-Moghaddam (1997) argues that the specific noun *qæza* ‘food’ in (126a) is a direct object of the verb *xordæn* ‘eat’. The object may, however, lose its grammatical endings and incorporate with the verb “to create an intransitive compound verb which is a conceptual whole” (Dabir-Moghaddam, 1997, p.41) giving rise to the clause in (126b).

- (126) a. bæčče-ha qæza-š-an-ra xor-d-ænd
 child-PL food-CLIT.3SG-PL-OM eat-PAST-3PL
 ‘The children ate their food.’
- b. bæčče-ha qæza xor-d-ænd
 child-PL food eat-PAST-3PL
 ‘The children did food-eating.’

Dabir-Moghaddam (1997) claims that in compound verb formation through ‘combination’ of a noun and a verbal element as in (124), the verb acts as an *aktionsart*-marker and the meaning of the compounds usually involves a metaphoric extension. He states that ‘Incorporation’ is a productive process in Persian, which incorporates any direct object that can be conceived nonreferentially.

I believe that a uniform treatment of the bare objects in (125) and the preverbal elements in complex predicates in (124) does not hold under scrutiny. I do not agree with Ghomeshi and Massam (1994) and Vahedi-Langrudi (1996) that the semantic interpretation in the two constructions is identical since the nominals in (125) are not part of the predicate as opposed to the bare nouns in (124). I also do not agree with the incorporation analysis suggested in Dabir-Moghaddam (1997) for the constructions in (125).

In the following section, I argue that the preverbal elements in Persian light verb constructions and the nonspecific direct objects cannot be treated uniformly. I will show that these preverbal nominals differ from internal arguments in a number of syntactic and semantic properties: The preverbal nouns, unlike the bare object nouns, are unable to take strong determiners, cannot be questioned or passivized, and can co-occur with a direct nonspecific object. In addition, the verbal elements in the two constructions have different interpretations and give rise to distinct case-assignment contexts.

5.4.2 Preverbal Elements as Verbal Constituents

To begin with, I do not agree with the proposals by Ghomeshi and Massam (1994) and Vahedi-Langrudi (1996) to treat all bare nouns in these structures as non-referential. In fact, I believe that the bare nouns that appear with thematic verbs are referential in the basic sense that they refer to physical entities.

This is in contrast with the nominals in complex predicates which combine with the light verb to form a single predicate.

Consider first the following contrasting sets:

- (127) Noun + LV
 qæza xordæn (food eat) 'to eat (food)'
 xyar xordæn (cucumber eat) 'to eat cucumber'
 šam xordæn (dinner eat) 'to eat dinner'
- (128) Noun + LV
 kotæk xordæn (beating eat) 'to be beaten'
 færib xordæn (deception eat) 'to be deceived'
 šekæst xordæn (defeat eat) 'to be defeated'

The noun+verb combinations in (127) represent a bare direct object followed by a thematic verb while the examples in (128) consist of complex predicate constructions. According to the analyses provided by Ghomeshi and Massam (1994) and Vahedi-Langrudi (1996), the preverbal nouns in all these constructions are given a uniform analysis and are treated as non-referential nouns acting as predicate modifiers. Dabir-Moghaddam (1997), on the other hand, does distinguish the two construction types and argues that the compound verbs in (127) are formed via 'incorporation' of a non-referential object while those in (128) are the result of a 'combination' process.

In this section, I will argue that the nominals in (127) are in fact referential, since they correspond to a physical entity that undergoes the action denoted by the verb. In all the examples in (127) the verb *xordæn* is a thematic verb meaning 'to eat' and it can appear with any noun that refers to edible entities such as *qæza* 'food', *šam* 'dinner', *pænir* 'cheese', *xyar* 'cucumber', etc. These are all referential nouns and in my opinion, there is no evidence to argue that the noun *xyar* 'cucumber', for instance, modifies the predicate and refers to an activity of 'cucumber-eating'. I argue that the bare nouns in (127) are non-specific (yet referential) direct objects selected by the thematic verb *xordæn* 'eat'. Similarly, in the examples in (129) through (131), the nominal can be replaced by any noun satisfying the selectional restrictions of the thematic verbs *xandæn* 'read', *pušidæn* 'wear' and *xæridæn* 'buy', and the preverbal noun in each case refers to physical entities in the world or discourse context.

- (129) Noun + LV
 ruzname xandæn (newspaper read) 'to read newspapers'
 ketab xandæn (book read) 'to read a book'
 mæjælle xandæn (magazine read) 'to read a magazine'
 mæqale xandæn (article read) 'to read an article'
- (130) Noun + LV
 lebas pušidæn (dress wear) 'to wear clothes/a dress'
 kæfš pušidæn (shoe wear) 'to wear shoes'
- (131) Noun + LV
 dæftærče xæridæn (notebook buy) 'to buy a notebook'
 pyaz xæridæn (onion buy) 'to buy onion'
 gol xæridæn (flower buy) 'to buy flowers'

The fact that the aspect of the verbal construction is interpreted as unbounded is due to the generalization reached in Section 5.2.4 which claims that bare nouns do not affect verb phrase aspect. Once the direct object structure becomes more complex and includes in addition a Number feature, the verb phrase aspect becomes bounded. If the nominal structure also includes a determiner, the object receives the object marker *ra*. In other words, I suggest that the bare noun in the constructions in (127), (129),

(130) and (131) are the non-specific direct object or internal argument of the verb, which may form a more complex structure and become specific internal arguments. This is illustrated in (132) and (133):

- (132) a.(man) mæjælle-ra diruz xand-æm
 I magazine-OM yesterday read-1SG
 ‘I read the magazine yesterday.’
 b.(man) tæmam-e ruz mæjælle xand-æm
 I complete-EZ day magazine read-1SG
 ‘I spent the whole day reading magazines/a magazine.’
- (133) a.pesær-æk jurab-ha-ye syah-ra pušid
 boy-DIM sock-PL-EZ black-OM wore.3SG
 ‘The little boy wore the black socks.’
 b.pesær-æk hæргеz jurab ne-mi-puš-æd
 boy-DIM never sock NEG-DUR-wear-3SG
 ‘The little boy never wears socks.’

In contrast, the nouns in the examples in (128) above cannot appear as specific direct objects as shown:

- (134) a.pesær-æk dobare kotæk xord
 boy-DIM again beating ate
 ‘The little boy was beaten again.’
 b.*pesær-æk dobare kotæk-ro xord
 boy-DIM again beating-OM ate
 ‘The little boy ate the beating again.’

These verbal constructions are complex predicates where the verbal element is reduced to providing event and aspect information while the nominal part provides the substantive information, as described in Chapter 3. In these examples, the verb clearly does not have the meaning of the thematic verb ‘eat’ and the preverbal nouns are not referential. When the preverbal noun is marked with the overt object marker *ra*, the complex predicate loses its original meaning.

Further evidence is provided below. As the (b) examples show, the bare objects in (135a) and (136a) can be questioned.

- (135) a.nima ketab mi-xan-æd
 Nima book DUR-read-3SG
 ‘Nima is reading a book.’
 b.- nima či mi-xan-æd?
 Nima what DUR-read-3SG
 ‘What does Nima read?’
 - ketab
 ‘book’
- (136) a.pezešk be bæčče-ha dæva dad
 physician to childPL medication gave
 ‘The physician gave medication to the children.’
 b.- pezešk be bæčče-ha či dad?
 physician to childPL what gave
 ‘What did the physician give to the children?’

- dæva
'medication'

The preverbal nouns in complex predicates, however, cannot be questioned as illustrated below.

- (137) - mærdom ċi xord-ænd?
 people what ate-3PL
 'What did people eat?'
 - *færib
 'deception'
- (138) - pezešk be bæčče-ha ċi dad?
 physician to child-PL what gave-3SG
 'What did the physician gave to the children?'
 - *šæfa
 'cure'

I suggest that the noun in complex predicates is non-referential and therefore cannot be questioned in direct contrast to the bare object nominals.

Another major difference between complex predicate constructions and non-specific argument and verb combinations is the type of modification that is available in each instance. As illustrated in the examples in (139), the non-specific argument can be modified by an adjective. However, in complex predicates that allow modification, such as in the examples in (140), the modifying adjective behaves as an adverb modifying the whole verbal predicate.

- (139) a.qæza-ye bæd-i xord-im
 food-EZ bad-INDEF ate-1PL
 'We ate some bad food.'
 b.ketab-e xub-i xande bud
 book-EZ good-INDEF read was
 'He had read a good book.'
- (140) a.kotæk-e bæd-i xord
 beating-EZ bad-INDEF ate-3SG
 'He was beaten badly.' (Lit. 'He ate a bad beating')
 b.qeymæt-e kala-ha æfzayeš šædid-i yafte æst
 price-EZ merchandise-PL increase intense-INDEF found is
 'The price of the merchandise has increased intensely.'
- (141) (anha) æli-ro yek ċub-e hesabi zæd-ænd
 they Ali-OM one stick-EZ real hit-3PL
 'They gave Ali a good beating', 'They punished Ali thoroughly'

These sentences show a clear distinction between the noun+verb constructions consisting of a non-specifier argument and a thematic verb (139) and those formed from the combination of a non-referential preverbal noun and a light verb (140). I propose therefore that these two verbal constructions are distinct and should be represented as different structural configurations.

This is in contrast with the previous analyses discussed in the Section 5.4.1 (e.g., Ghomeshi and Massam, 1994; Vahedi-Langrudi, 1996, which bundle non-specific bare objects and nouns in complex predicate constructions into one category and treat the specific object as separate. I argue instead that the specific and non-specific direct objects (illustrated in (142a) and (142b), respectively) should be

treated as belonging to a single domain while the complex predicate noun in (143) is considered as part of the verbal predicate domain.

- (142) a. doktor dæva-ra be mæriz dad
 doctor medication-OM to patient gave
 ‘The doctor gave the medication to the patient.’
 b. doktor be mæriz dæva dad
 doctor to patient medication gave
 ‘The doctor gave the patient some medication.’
- (143) doktor mæriz-ra šæfa dad
 doctor patient-OM cure gave
 ‘The doctor cured the patient.’

In particular, I propose that the non-specific bare object can become a specific object through a more complex structure. The nominal element of complex predicates are analyzed as part of the predicate and combine with the light verb representing event and aspect information to form the complex verbal predicate. Further evidence for this analysis is provided in the rest of this section.

If the preverbal noun in complex predicates and the nonspecific objects occupied the same structural position, as has been advocated by Ghomeshi and Massam (1994), then we would not expect to find the two nominals co-occurring within the clause. Yet as the sentences in (144) clearly show, the two can co-occur when the complex predicate is a transitive verbal construction.

- (144) a. u hær ruz bæčče kotæk mi-zæd
 he each day child beating DUR-hit
 ‘He (used to) beat children every day.’
 b. mæn morqabi tir zæd-æm
 I duck bullet hit-1SG
 ‘I shot ducks.’
 c. ma tæmam-e ruz otaq jaru kærd-im
 we complete-EZ day room sweep did-1PL
 ‘We swept rooms all day.’
- (145) a. u hær ruz bæčče-ra kotæk mi-zæd
 he each day child-OM beating DUR-hit
 ‘He (used to) beat the child every day.’
 b. mæn morqabi-ra tir zæd-æm
 I duck-OM bullet hit-1SG
 ‘I shot the duck.’
 c. ma tæmam-e ruz otaq-ra jaru kærd-im
 we complete-EZ day room-OM sweep did-1PL
 ‘We swept the room all day.’

All the verbal predicates in (144) consist of a complex predicate formed of a preverbal noun and a light verb, preceded by a nonspecific internal argument. The corresponding examples in (145) show the same sentences but with specific object arguments marked by the overt object marker *ra* and giving rise to bounded verb phrase aspect. Hence, I argue that the direct object *bæčče* ‘child’ and the preverb *kotæk* ‘beating’ in (144a) occupy distinct structural positions.

Furthermore, the sentences in (144) and (145) clearly show that the nouns immediately preceding the verbs in these examples are not non-referential internal arguments and that they are in a closer relation to the light verb. Note also that the nouns in complex predicates differ sharply in behavior from the bare objects since they cannot turn into specific objects.⁶²

Another type of evidence for the proposed analysis relates to the case-assignment properties of the complex predicate. While the thematic verb *dadæn* ‘give’ in (146a) occurs only in a dative construction in Persian, the light verb construction shown in (146b) can only assign Accusative or object case. These examples confirm the proposal that the nominal combines with the verbal element to form a single case-assigning predicate.

- (146) a.doktor **be æli** dæva dad
 doctor to Ali medication gave
 ‘The doctor gave Ali medication.’
 b.doktor **æli-ro** šæfa dad
 doctor Ali-OM cure gave
 ‘The doctor cured Ali.’

Similarly, although the thematic verb *zædæn* ‘hit’ is a transitive verb, as illustrated in (147a), it can be used as a light verb to form an unergative verb of emission as shown in (147b), a verb marking a repetitive event as in (147c), a transitive verb incorporating the instrument of the event as part of the predicate as exemplified in (147d), or as the causative of an intransitive predicate as shown in (147e).

- (147) a.moælem šagerd-ra zæd
 teacher student-OM hit
 ‘The teacher hit the student.’
 b.bæčče-ha sut mi-zæd-ænd
 child-PL whistle DUR-hit-3PL
 ‘The children were whistling.’
 c.morqabi pær zæd o ræft
 duck wing hit and left
 ‘The duck flew away’ (Lit.: ‘The duck flew and left’)
 d.nærges gisov-an-æš-ra šane zæd
 Narges hair-PL-CLIT.3SG-OM comb hit
 ‘Narges combed her hair.’
 e.æli bæčče-ha-ra gul zæd
 Ali child-PL-OM trick hit
 ‘Ali fooled the children.’

5.4.3 Structure and Predicates

In the previous section I have provided evidence for treating the preverbal noun in complex predicates and the bare preverbal argument as two separate entities. I have shown that the preverbs in complex predicates differ from bare internal argument since they cannot be questioned in the same way, are unable to become specific direct objects, are modified differently, may co-occur with a direct nonspecific object and can combine with light verb constructions to give rise to new case-assigning predicates.

⁶²Additionally, Ghomeshi and Massam (1994) and Dabir-Moghaddam (1997) have argued that the internal arguments in (144) have been incorporated. I have already argued against an incorporation analysis for bare objects in Eastern Armenian in Section 5.1.5. The bare objects in Persian display similar properties and the same arguments can be used against an incorporation analysis for the Persian bare nouns as well.

Based on these data, I have argued that the nominal element in a light verb construction is not a mere non-referential argument but is part of the complex verbal construction. The bare object, on the other hand, is a referential internal argument and is represented within the nominal domain. The picture of “argumenthood” that emerges is a three-way distinction between the arguments and parts of predicate in the verbal construction.

In this section, I argue that the distinct properties of the two types of noun+verb combinations in Persian can be captured by the syntactic configuration in which they are represented. Although the sentences in (148) have very similar syntax on the surface, I propose that their underlying structure is very different thus giving rise to a close relationship between meaning and structure.

(148) a. æli qæza xord

Ali food ate

‘Ali ate (food).’

b. æli šekæst xord

Ali defeat ate

‘Ali was defeated.’

As already discussed in the previous section, the verb *xordæn* in (148a) represents the thematic verb ‘to eat’ and the bare noun *qæza* is referring to a physical entity that satisfies the selectional restriction of the verb. In (148b), however, *xordæn* is a light verb which represents only logical and event information. More specifically, this light verb entails a bounded aspectual information in the verb phrase and forms an inchoative predicate. The preverbal noun *šekæst* is a deverbal noun that combines with the light verb to form a complex verbal predicate with the meaning ‘be defeated’ (or an intransitive version of ‘defeat’). I have proposed that these distinct interpretations are due to the fact that *qæza* in (148a) is formed in the nominal or physical domain whereas *šekæst* appears in the verbal domain and is part of the verbal predicate. The thematic verb *xordæn* in (148a) is represented in the verbal domain and has a bigger structure than the light verb *xordæn* in (148b) which encodes only the logical information in *v*.

Furthermore, the subjects in the two sentences have very different interpretations. Ali in (148a) is also the experiencer of the eating event. This is usually the interpretation present with subjects of ingestive verbs. The subject in (148b), on the other hand, is not agentive but is interpreted as an affected argument. Thus, Ali in (148a) is an external argument while Ali in (148b) is occupying the internal argument position.

The analysis presented derives the distinct interpretations of the two types of noun-verb combinations discussed in this section based on their structural configurations.

5.5 Conclusion

This chapter investigated the nominal elements in verbal predicates and distinguished three types of nouns based on their semantic, syntactic and morphological properties. It is suggested that the distinction between these nominal categories is best captured by a configurational architecture in which the verbal and nominal elements are represented as parallel domains. In this model, a nominal element can display different properties based on the position it occupies within the syntactic structure: The noun forms a new predicate when it combines with the light verb within the verbal domain. If the noun appears in the nominal configuration, it behaves as the argument of the verb when the nominal primitive features enter into a checking relation with the features in the verbal domain. The proposed framework accounts for the distinct behavior of bare object nouns and complex predicate nominals, based on the position the noun head occupies within the syntactic configuration. In addition, the analysis captures the correlation between the case assigned to the direct object and the semantic interpretation obtained, such as specificity of the argument or verb phrase aspect, based on the structural assembly of the argument.

The framework of Parallel Domains developed in this chapter can straightforwardly account for the close correspondence of nominal and verbal features in natural language. The computational system thus consists of a restrictive model consisting of parallel temporal and physical domains, represented by the verbal and nominal components, respectively. Within this computational model, verbal predicates are formed when parallel structures enter into a checking relation thus deriving the resulting syntactic and semantic properties of the verb phrase construction. It was argued that the projection of arguments is not predetermined in the lexicon. The relationship between the verb and the nominal elements in the verb phrase is defined by the position the noun occupies within the structure, its level of structural complexity and the degree of separation of the noun from the verbal head. This analysis thus distinguishes a continuum of argumenthood within the verb phrase consisting of a specific object, a non-specific object and a predicative nominal.

Unified Predicate Composition: Discussion and Implications

The formation of words has given rise to a lively debate in generative grammar which relates directly to the interaction between syntax and the word-formation component. The central question in this debate is whether the formation of words and the composition of phrasal predicates belong to distinct components of grammar or whether they are both derived within a single computational domain. This dissertation investigates the relation between morphology and syntax by focusing on the properties of linguistic expressions that lie at the word/phrase boundary. The close examination of complex verbal predicates and the projection of arguments led to the presentation of the framework of Parallel Domains, developed in Vergnaud and Zubizarreta (2001), and to the formalization of interface conditions.

This final chapter reiterates the questions that are at the core of this thesis and summarizes the framework that has been proposed in the preceding chapters. This chapter provides a picture of the emerging architecture and discusses some of the implications for current theories of grammar.

6.1 Framework of Parallel Domains

This thesis investigates the properties of complex predicates in Eastern Armenian and Persian and discusses the challenges these constructions raise for a theory that adheres to a strict separation between the component of word-formation and the module responsible for the formation of phrases. It was argued at length that the standard view of the “word” as a single morphophonologically integrated unit faces difficulties in linguistic constructions that display dual phrasal and lexical properties, and in complex predicates that give rise to mismatches between surface form and meaning. In this dissertation, I proposed a framework in which all predicates are composed within a single computational domain. The distinct properties of words and phrases are then derived from the resulting syntactic configuration. This dissertation presents a restrictive theory of the computational model of natural language, in which all predicate composition is achieved by combining primitive assemblies of universal feature sets within a framework of parallel verbal and nominal domains. Language variation is obtained from the interaction of two parameters: The complexity of the feature set of a *basic lexical item* and the node at which the mapping to the PF component takes place in a predicate.

Based on the examination of the properties of verb phrase components, the thesis isolated the primitive feature sets that are used in the formation of verbal and nominal predicates. These features are abstract morphosyntactic elements, such as minimal roots and functional features, and they also represent the smallest units of meaning in the computation. These morphosyntactic features combine in syntax to form predicates and it is through the various combinations of these feature sets that different predicate meanings are obtained. Thus, this model straightforwardly captures the strong correlation between structure and meaning in linguistic constructions.

The lexical component in the framework described here is very different from the mechanism in the Minimalist Program where the lexical entries are made available in the *numeration*, which represents the initial inventory of the lexical items used in the derivation. In the Minimalist model, every computation is performed based on pre-selected entries from the lexicon, referred to as a *Lexical Array* or *Numeration*. Given this array of lexical items, the computational system attempts to derive well-formed representations that will converge at the interfaces to PF and LF. Hence, the array of lexical choices or the numeration for the simple sentence *John kissed Mary* is roughly the following:

(1) LA = {John, Mary, kissed, *v*, Agr, T}

The tokens in the numeration consist of full-fledged morphophonological units (“words” in the standard interpretation) as well as abstract functional features. Elements drawn from the numeration are then subject to syntactic operations of structure-building.

In the framework sketched in the course of the current thesis, the lexicon consists of a list of atomic roots and functional features that combine to form predicates. In this model, both words and phrases are composed of these minimal units of meaning and abstract “morphemes”. Thus, verbs such as *kill* or *kiss* will not necessarily be represented as a single morphophonological entry in the lexicon to be selected by the numeration.

This notion of abstract minimal features combining to form predicates in syntax is very similar to the ideas developed in the Distributed Morphology program. In Distributed Morphology, the narrow or grammatical lexicon contains only functional information which is encoded as abstract grammatical features, which are then manipulated in the syntactic component to form linguistic objects. I have argued, however, that Distributed Morphology is not able to account for the distinctions observed between different types of predicates cross-linguistically, but also within the same language. A close investigation of causative alternation verbs in Eastern Armenian revealed that there exist two types of causative constructions in this language which can be distinguished based on the size of the underlying lexical entry. In particular, the distinct properties of verbs such as *break* and *dry* in Armenian can only be explained if their corresponding lexical entries consist of feature sets of different complexity. I proposed the notion of *basic lexical item* (BLI), which is a parameter that determines the level of structure associated with a particular entry. A BLI can therefore consist of a single primitive feature such as *v_{cause}* or it may include a predefined association of several primitive features that will combine in syntax to form the full predicate.

The notion of Basic Lexical Item is a parameter that affects the structural complexity of a particular predicate. It was shown in Chapter 4 that the difference between morphological and analytic causatives in Armenian could be reduced to the level of structure that was predefined within the BLI in each instance. Hence, a Basic Lexical Item containing only a root and a categorial feature within its feature set will form a morphological causative in syntax but a BLI with a more complex set of features that includes the *v_{cause}* feature will already be inserted as a causative structure in Eastern Armenian and will only be able to participate in an analytic causative. Note that the BLI is not a language-particular parameter, but is rather defined as a parameter over the root elements of natural languages.

The formalization of the notion of BLI raises several questions. For instance, I have not discussed the amount of structure that could be allowed as part of the feature set of a BLI. At this point, I can only speculate about the level of complexity that can be stored with each root element, but I believe that a BLI could include the set of features corresponding to a *Primitive Assembly* (PA) as defined in Section 5.3.2, but most likely will not contain features of several adjacent PAs. This conclusion is predicted by the framework of Parallel Domains developed in this dissertation since PAs combine in syntax, following certain structure-building operations, to create bigger structure. Thus, a BLI could not include a feature set overlapping two distinct PAs, since that would entail a structure-building mechanism within the

lexicon that can combine the two PA sets, an unwelcome conclusion.⁶³

The investigation of nominal elements in Chapter 5 further led to the formalization of a correspondence of universal primitive features that are shared by both the nominal and verbal domains. Hence, aspect and cardinality are two different facets of the same feature, namely *boundedness*. Similarly, the feature *instantiation* is interpreted as agreement on the verbal side and as specificity in the nominal domain. These parallel features could not be easily accounted for within the current framework of tree structures, and thus I suggested that a natural extension for the generalizations observed was to adopt a framework in which the corresponding nominal and verbal features are represented as parallel configurations. I presented the framework of Parallel Domains (Vergnaud and Zubizarreta, 2001) whereby predicate composition takes place by the various combinations of Primitive Assemblies and by checking relations formed between parallel verbal and nominal domains. It was proposed that variation in word order and its relation to case-marking and semantic interpretation can be derived from the syntactic configuration resulting from predicate composition within these parallel domains.

The Primitive Assemblies consist of the primitive elements of the syntactic code, represented as set theoretic features. These PAs are then subjected to syntactic principles of predicate-formation, such as the **distributive product**, which establishes specifier-of relations, and the **direct product**, which extends the structural configuration. In addition, the framework allows primitive features to combine via **head-movement**.

These are the main ideas of the framework developed in this work. This approach is compatible with the conceptual bases of the Minimalist Program, which seeks to draft a theory of the computational system that is optimal and non-redundant. In the framework developed here, we have only admitted the absolute minimum amount of information needed to derive the properties and the predicates under study. In addition, the model is also compatible with the strong Minimalist thesis. Chomsky writes:

“Given N, C_{HL} computes until it converges (if it does) at PF and LF with the pair (π, λ) . In a ‘perfect language’ any structure Σ formed by the computation – hence π and λ – is constituted of elements already present in the lexical elements selected for N; no new objects are added in the course of computation (in particular, no indices, bar-levels ... etc).” (Chomsky, 1994)

One of the implications of this ‘strong thesis’ is to eliminate X-bar theory since it has the effect of adding new objects and structure in a computation. In the framework of Parallel Domains, all structure is reduced to a set theoretic notation which includes the primitive abstract features (marking both meaning and morphosyntactic information). All structure-building is achieved by two mechanisms of distributive and direct products, through which we create set-theoretic objects that are spelled out to PF and LF interfaces to be mapped into a flat string, linearized and interpreted.

The resulting model is obviously a very constrained approach to the computational system in natural languages and it remains to be seen how far such a restrictive system could go in its coverage of empirical data. This dissertation focused on verbal predicates in several languages and I believe to have shown that the framework adopted here can derive the distinct morphological, semantic and syntactic properties of these constructions. In addition, the decomposition of the verbal construction and the combinatorial system proposed allow us to capture the compositionality of verb phrase properties and straightforwardly account for the direct correlation between syntactic configuration and semantic interpretation without positing richly annotated entries in the lexicon.

⁶³Note that this seems to suggest that there may also be a notion of BLI in the nominal domain. This thesis does not address this issue and an examination of the internal structure of the noun phrase in the context of the current proposal will be left for further study.

6.2 Boundary Conditions and Cyclicity

6.2.1 Phases

Chomsky (1998) proposes that the derivation proceeds in *phases*, at which point the structure that has been computed is transferred to the phonological component, which is then interpreted at PF. Chomsky (1999) argues that the existence of cycles reduces complexity in the computation since it minimizes the search space for linguistic operations. Computation is also more economical since it maps the Lexical Array to PF and LF cyclically, by transferring it piece-by-piece. Chomsky notes that phases should be as small as possible in order to minimize the “memory” for Spell-Out and this has the effect of simplifying the phonological component. Thus, Chomsky (1999) suggests that Spell-Out proceeds in small cycles and a phase is the cyclic unit in the computation (also see related ideas in Uriagereka, 1999). The three components of grammar, narrow syntax that maps the LA to a derivation, the phonological component, and the semantic component, operate in parallel and in cyclic fashion.

Chomsky (2001) describes phases as units of linguistic structure that are semantically and phonologically coherent. Transitive *vP* and CP, he argues, are propositional constructions since *vP* has full argument structure while CP is the minimal construction that includes Tense and event structure and possibly a Force indicator. By the same token, TP and unaccusative *vP* do not behave as ‘strong phases’, according to Chomsky⁶⁴.

In addition, a number of recent works have proposed a tripartite system of the computational model, separated at cyclic spell-out nodes. Grohmann (2000) divides the computation into three Prolific Domains. Each of these Prolific Domains contains an internal structure and licenses different grammatical properties, yet they are treated as separate domains because they each serve a different function in the derivation.⁶⁵ The tripartite system that Grohmann presents is very similar to the tripartition of the clause structure in Platzack (forthcoming) into the V-domain, the T-domain and the C-domain. The V-domain licenses thematic relations and holds the predicate and argument structure of the clause, the T-domain contains the grammatical aspects such as agreement properties, and the C-domain is the part of the derivation where discourse information, such as focus or *wh*-interpretation, is established. These domains are structural steps in the derivation that consist of functional projections of the same type and serve as spell-out nodes for the successive-cyclic computational process. Hence, in these systems, the *vP*, TP and CP domains constitute phrase nodes.

The framework of Parallel Domains adopted from Vergnaud and Zubizarreta (2001) is not only conceptually compatible with a division of the computational system into smaller units of features, it in effect provides a model from which the notions of domains, phases and cyclicity can be straightforwardly derived.

The model sketched in the course of this work advocates a compositional construal of syntactic structures by putting together a number of Primitive Assemblies (PA). These PAs consist of a universal set of features that combine to form parts of predicates, which are then transferred to the PF and LF interfaces for interpretation. Recall from Chapter 5 that uni-branching PAs may be subject to the operation of ‘direct product’ which forms an extended assembly by fusing two primitive units. Although I have mainly focused on a discussion of the PAs that form the *vP* domain, I have suggested that the domain consisting of tense, agreement and higher aspectual features can combine with the *vP* through this extension operation, thus providing the event predicate with temporal information. This TP domain can be further extended by combining with a PA representing discourse or ‘point of view’ information (cf. Vergnaud, 2000). I suggest that the node at which a PA is extended constitutes a strong phase

⁶⁴But see Legate (under review) for arguments that unaccusative *vP* is a strong phase.

⁶⁵This tripartition into the computation is needed to formulate the “anti-locality effect” within domains which states roughly that no XP may move from one position to another within the same Prolific Domain. See Grohmann (2000) for discussion of how this relates to the Phase Impenetrability Condition, discussed in Section 6.2.2.

domain.

The notion of cyclicity is directly obtained, given the current framework. Since computation is performed on primitive sets of related features or PAs, a cyclic process naturally applies. Each PA is computed separately and then extended through structure-building operations of extension and formation of specifier-of relations.

What is not straightforwardly derived from the framework of Parallel Domains described here, or in fact from the tripartite systems of Grohmann (2000) and Platzack (forthcoming), is the suggestion that the spell-out nodes could be a parameter of the language.

In the framework developed in this thesis, I have proposed to treat the spell-out node to the phonological component as a parameter of predicate-formation while the LF-phase, which marks the interface to the logico-semantic component, is universal and applies at the ‘strong phases’. The variability of the PF phase node, it was argued, allows us to capture the ‘wordhood’ of verbal predicates at surface form, and to account for any discrepancies between meaning and surface realization observed. For instance, since the morphological causative constructions in Eastern Armenian correlate with word-like behavior (e.g., idiomatic readings, lack of productivity, non-agentive causee), we can conclude that PF and LF phases correspond in these cases. Hence, both phases occur at *vP* in the morphological causative, allowing the *vP* predicate to behave as a morphophonological word both semantically and syntactically. On the other hand, in Japanese and Malagasy, the morphological causative corresponds to a bigger structure (equivalent to the analytic causative in Eastern Armenian) and therefore I proposed that the PF-phase is at a higher level than the LF-phase in these cases. The LF-phase is universal in the sense that ‘wordhood’ is interpreted at the *vP* projection across languages. Hence, LF-phase occurs at *vP*, but the PF-phase applies at a higher node (i.e., at the next *vP* level including the second *v_{cause}*). It is crucially this discrepancy of cyclic spell-out to LF and PF that gives rise to the mismatches found in meaning and surface form of verbal predicates across languages by creating two distinct notions of a “word”. Thus, I argue to distinguish PF-words, that can vary cross-linguistically in the sets of features they contain, from LF-words, which are universal sets of primitive features.

The question still remains as to what distinguishes a ‘strong phase’ (such as the LF-phase) from a phase that can vary from one language to another (such as the PF-phase). I will not discuss this issue in this dissertation and leave it for future research. In the following section, I will address the issue of the opacity of a word which has traditionally been one of the main arguments for the separation of words and phrases.

6.2.2 The Opacity of Words

One of the main properties of “words” that distinguishes them from larger (syntactic) predicates has been the fact that their internal structure is invisible to syntactic operations. This is stated in the Atomicity Thesis of Di Sciullo and Williams (1987) given in (2).

(2) *Atomicity Thesis:*

Words are “atomic” at the level of phrasal syntax and phrasal semantics. The words have “features”, or properties, but these features have no structure, and the relation of these features to the internal composition of the word cannot be relevant in syntax.

In his manuscripts in (1998) and (1999), Chomsky suggests that strong phases are subject to the Phase Impenetrability Condition or PIC, which is stated as in (3).

(3) *Phase-Impenetrability Condition:*

Given $HP = [\alpha [H \beta]]$, take β to be the *domain* of H and α to be its *edge*, then

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

In other words, Chomsky constrains the cyclic derivation by stating that operations cannot “look into” a phase below the head element. The only constituents that are available to a particular operation are the head and the ‘edge’ where edge refers to specifiers. Hence, the PIC would require that the movement of a *wh*-phase target the edge of every phase, namely of *vP* and CP. Thus, the PIC places locality conditions on operations and derives the effects of the Atomicity Thesis within a cyclic derivation model, since it blocks syntactic operations from manipulating features or elements internal to a predicate formed within the *vP* phase. Similarly, in the framework of Parallel Domains, the syntactic operations at the CP domain will be unable to manipulate elements within the *vP* in e.g., Eastern Armenian, since the context of the *vP* domain is transferred to the phonological component. Hence, I adopt a version of the PIC to apply at the boundary nodes for PF-phase.

It should be noted, however, that the generalization stated in the PIC that heads and edges are available to operations at the higher domain are more straightforward in the Parallel Domains model. In this system, after the features within a PA combine by head-movement, the ‘head’ of the domain usually appears as the highest feature within the PA. Once this Primitive Assembly is extended, the highest feature becomes the tail feature of the higher domain and behaves as a member of that construction, and is therefore available to operations in the higher domain.

Furthermore, what Chomsky refers to as the ‘edge’ (or the specifier) of a domain is now represented as a combination of primitive features in a parallel PA. In Chomsky’s model of the Minimalist Program, if a direct object is to move to a position outside of the *vP* domain (e.g., a *wh*-phrase), it will first need to move to the leftmost specifier position of the domain before being able to access the higher domain. In the Parallel Domains framework proposed in this thesis, the direct object is a Primitive Assembly consisting of a number of abstract features in the nominal domain, external to the verbal one, that has entered into a specifier-of relation with the corresponding verbal features. As discussed in Chapter 5, in the current model, “movement” of the object is represented as an extension of the structural configuration of the nominal domain. Thus, the “displacement” of object NP is not necessarily blocked when spell-out occurs.

This state of affairs clearly has many implications, in particular with respect to movement operations, and needs to be investigated in more detail.

6.3 Conclusion

The dissertation began with a discussion of the challenges raised for a strict word/phrase dichotomy assumed in many Lexicalist approaches. The final proposal, however, does not eliminate the distinction between words and phrases, but rather recasts their definition in structural terms. The notion of “word” is split into an *LF-word* corresponding to the meaning of the predicate and a *PF-word* representing the surface realization. The concepts of Basic Lexical Item and PF-phase were introduced as two parameters of verb-formation. The analysis proposed accounts for the morphological, semantic and syntactic properties of various causative predicates investigated in this thesis in a constrained model, without having to posit two distinct components of word-formation. Instead, the proposal derives verbal predicates within a single computational module consisting of parallel verbal and nominal domains and cyclic spell-out to the interfaces, thus unifying predicate composition for both words and phrases and providing a perspective onto the lexicon-syntax interface.

The final chapter addressed some of the possible implications of the proposed framework for current models of computation and pointed to avenues for future research.

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