

MORPHOSYNTAX OF COMPLEX PREDICATES IN SOUTH CAUCASIAN
LANGUAGES

by

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LIST OF ABBREVIATIONS AND SYMBOLS

1, 2, 3- Person agreement features in verbs

Abs- Absolutive case

Acc- Accusative case

AOR- Aorist series

APPLIC- Applicative/version morpheme

CAUS- Causative morpheme

CL- Clitic

Dat- Dative case

DER- Derivational affix

Erg- Ergative case

Evid- Evidentiality marker

FUT- Future tense

Gen- Genitive case

INF- Infinitive marker

Instr- Instrumental case

Loc- Locative case

Nom- Nominative case

NONACT- Nonactive Voice marker

NPN- Nominalizer affix

O (with numbers) – Object

Obl- Oblique case

Pass- Passive Voice marker

PAST- past tense marker

PERF- Perfective series

PL- Plural number

Post- Postposition

PRES- Present series

Pretend- Pretend-type functional head

PREV- Preverbal affix denoting aspect, direction, or the intensity of an event

REECIP-Reciprocal marker

REFL- Reflexive Voice morpheme

S (with numbers) – Subject

Sg- Singular number

SCR- Screeve marker

SER- Series marker

SUBJ- Subjunctive mood marker

TAM- Tense/Aspect/Mood marker

TH- Thematic markers

Tns- Tense morpheme

VOICE- Voice marker

ABSTRACT

The argument structure of complex predicates such as causatives and applicatives is closely associated with the functional heads that introduce core and non-core arguments: Voice, causative and applicative. These elements merge in a sentence structure at various cycles of derivation and take complements whose ‘size’ accounts for the meaning and thematic interpretations of these arguments. This thesis shows that the variation in the meaning of causatives and applicatives is not so much due to the morphological realization of the relevant heads in these predicates (causative and applicative), but rather the complement ‘size’ and the place where these heads are introduced. Specifically, lexical causatives result from the CAUSE head selecting for a RootP complement while syntactic causatives include two CAUSE heads taking argument-full vP as their complement and these CAUSEs are realized by separate phonological exponents at the Morphological Structure. In applicatives, Goal, Recipient or possessor interpretations may be obtained not only for non-core applied arguments in double-object constructions but for the highest external arguments of two-place predicates and also, for dative internal arguments of internally-caused events. It is argued that external arguments take on the meaning of non-core applied arguments in double-object constructions due to the different type of Voice head such as reflexive. The morphological realization of these predicates is distinct from the ones in which applied arguments represent additional, non-core elements of DOCs. The thesis shows that along with the change in morphology the syntactic structure of various types of applicatives accounts for the resulting meaning of complex predicates.

CHAPTER 1

INTRODUCTION

1.0 Goals of the dissertation

This dissertation focuses on the morphosyntax of complex predicate constructions in three polysynthetic languages of the South Caucasian language family: Georgian, Mingrelian, and Svan. In this work, I follow Baker (1996) who defines complex predicates as verbal structures containing at least two morphemes each marking a phrasal argument in the θ -grid. According to this definition, complex predicates include the causative, applicative, and possessor raising structures. The focus of this dissertation is limited to causative and applicative constructions. This is partly because the morphological varieties of such constructions in these languages are sufficiently diverse so that they could be treated in a work of this scope. Also, causatives, and applicative structures have certain morphological similarities in that they contain morphemes indexing both core and non-core arguments in their theta-grid, such as the external argument, theme, and the goal/benefactee arguments. In addition to this similarity, these constructions are viewed as syntactically and morphologically complex structures, containing a minimum of two phrasal arguments, and at least two morphemes.

Stemming from the above definition of complex predicates, the primary goal of the dissertation is to explore the formal properties of causative and applicative constructions and to account for mismatches that arise between the syntax-semantics and the morphology of these constructions. Such mismatches are common cross-linguistically. They abound even in languages which do not morphologically mark the causative,

applicative, or any other alternation. An example of such a mismatch is when instead of the causative or applicative morpheme itself, a Vocabulary Item (VI) realizing some other functional head in the left periphery of the clause shows up (such as reflexive, or voice) to mark the causative or applicative alternation. Therefore, the goal of this work is to propose a unified theory of how the meaning is encoded in syntax and morphophonology. The interface between these systems in causative and applicative constructions will be subject to scrutiny in Chapters 2 and 3 of this dissertation.

1.1 Theoretical approaches to the study of complex predicate constructions

The *syntax-all-the-way-down* approach of Distributed Morphology is adopted here. This approach is relatively recent and has been initiated and advocated by Baker (1985, 1988), Halle & Marantz (1993, 2002), Marantz (1997), Travis (2000), Pytkänen (2002), Cuervo (2003), and Harley (1995, 2008) among others for a wide range of verbal and nominal constructions, including causative and applicative constructions. This approach has a single engine of structure creation for both word and sentence formation. Consequently, lexical-semantic representations are syntactic representations, and no mapping problems arise between them. This contrasts with lexicalist approaches (for example, Levin & Rappaport Hovav 1995), where lexical complexity has been argued to be *different* from the complexity at the sentential level. Lexicalist approaches posit a need for linking rules specifying how lexical-semantic representations map onto the syntax. Take the following linking rule from Levin & Rappaport (1995):

(1) Linking rules

- a) “Break: [[x DO-something] Cause [y become BROKEN]”

b) Immediate Cause Linking Rule

The argument of a verb that denotes the immediate cause of the eventuality described by the verb is its external argument” (Levin & Rappaport Hovav 1995:135).

c) “Directed change Linking Rule

“The argument of the verb that corresponds to the entity undergoing the directed change described by that verb is its internal argument” (Levin & Rappaport Hovav 1995:146).

These types of rules were considered to connect the autonomous modules of the grammar where lexical-semantic and syntactic representations are processed. The underlying idea of the lexical-semantic approach is that certain semantic notions are relevant to determining a verb’s argument structure. For example, in causative constructions, the potential adicity of a verb is determined based on the distinction between internally- and externally-caused events. The verbs denoting internally caused changes of state (such as *flower*, *bloom*, *blossom*, and *decay* in English) in which the cause is inherent to the natural course of development (Levin & Rappaport Hovav 1995, henceforth, L & RH), resist the causative alternation cross-linguistically:

(2) The verbs of internal change resist causativization

- a. Cactus *bloomed/blossomed/flowered* early.
- b. * The gardener *bloomed/blossomed/flowered* the cactus early. (L & RH, 1995: 97)

In contrast to these verbs of internal causation, externally-caused eventualities may be both transitive and intransitive. These regularly have transitive causative counterparts.

Nevertheless, there are exceptions:

(3) Verbs of external change resist causativization

- a. The baker cut the bread.
- b. *The bread cut.
- c. The assassin murdered the senator.
- d. *The senator murdered.

Thus, the lexical semantic properties of events, such as internal and external causation, are of crucial importance in determining whether the verb can participate in the argument structure alternation. L & RH argue that this distinction between externally and internally-caused events roughly corresponds to the unaccusative/unergative distinction too. Many unergative verbs denote internally-caused events while unaccusatives generally are derived from externally-caused verbs. Based on this correspondence then, it follows that unergative verbs may not participate in the causative/inchoative alternation, as illustrated by the impossibility of causatives in the following English pairs:

- (4) Causatives of unergative verbs are not possible
 - a. Sheila laughed.
 - b.* Sheila laughed John.
 - c. Jack danced.
 - d. *Jack danced Sheila.

However, L & RH argue that languages that mark the causative alternation morphologically often allow causatives of internally-caused events, as in the Hebrew examples in (5):

- (5) Hebrew causatives
 - a. Hu rakad.
He danced
'He danced.'

- b. Ha-nagan hirkid oto.
 The-musician made.dance him
 ‘The musician made him dance.’
- c. Hu rac.
 He ran
 ‘He ran.’
- d. Ha-meamen heric oto.
 The-coach made.ran him
 ‘The coach made him run.’ (L & RH 1995: 98)

Chapter 2 of this dissertation shows that unergative verbs in Georgian and related languages can participate in the causative alternation without any restriction, regardless of their lexical semantics. Similarly, verbs of *appearance* and *existence* (such as *exist*, *appear*, *emerge*, etc.), which have been argued to resist causativization cross-linguistically, do participate in the causative alternation in the languages under investigation here. I argue that lexical-semantic approach does not give sufficient clear-cut criteria for the classes of verbs participating in this alternation.

Hale & Keyser’s (henceforth, H & K 1993) approach removes the need for the linking rules between the argument structure and lexical semantic interpretations, as the latter is the same as the argument structure (a welcome consequence for the simplification of the architecture of the grammar). This theory takes the syntax of word and sentence derivations as the source of compositional meaning of complex expressions.

The rest of the chapter is organized as follows: in Section 1.2, the argument structure of causative and applicative constructions is introduced; Section 1.2.1 discusses the argument structure of causatives, and Section 1.2.2 the structure of applicatives; Section

1.3 explains the source of syntactic variation in causatives and applicatives; the theoretical framework of the research carried out in the dissertation is discussed in Section 1.4, which includes an overview of the framework of Distributed Morphology, Chomsky's (1999, 2001) notion of phases, Embick's (2009) theory of contextual allomorphy; Cuervo's (2003) analysis of event-introducing heads (the varieties of little vs) along with Kratzer's (1994) instantiation of VoiceP is presented; Section 1.5 discusses some basic background facts of verbal morphology and the status of templates in Georgian and in linguistics theory in general; Case and agreement morphology with various classes of verbs are discussed in Section 1.6 and the outline of the dissertation concludes the chapter in Section 1.7.

1.2 Argument structure of causative and applicative constructions

1.2.0 Introduction

Most work on syntax-semantics of argument structure is based on the idea that verbs express different types of eventualities and that arguments express participants in events. This idea naturally extends into a claim that the relations between verbs and arguments, and between arguments themselves are built out from event structure, i.e. event types and predicates that verbs express (Davidson, 1967). In (6a), for instance, the cause event described by the verb *melt* relates the subject *John* to the event of *ice melting*, while in (6b), the object argument of (6a) relates to the event of *melting*, but in this case without any causing event:

- (6) Causative/inchoative alternation of English
- a. John melted ice.
 - b. Ice melted.

It is evident that the event structure in (6a) is more complex since it combines two events: the causing and melting. Moreover, the two arguments (*John* and *ice*) are related to this complex event, while in (6b) only one argument is related to the simplex event of *melting (ice)*. These two types of events illustrate a syntactic alternation referred to in the literature as the inchoative/causative alternation.

Consider next how the dative argument expressing the possession or the Benefactive/Recipient relation is licensed in the following:

- (7) Applicative alternation
- a. John bought Anne a pastry.
 - b. John bought a pastry. (Adapted from Levin & Rappaport 1995)

In these sentences, the event structure is not composed of two separate events, as in (6a), where the verb combines the causing and the melting events. So we need to determine what is licensing the arguments in this construction.

The insights incorporated in the analysis of the argument structure of complex predicates in this work are mainly drawn from H & K's (1993) work and developed by, among others, H & K (2002), Borer (1994), Harley (1995), Marantz (1997), Travis (2000), Nash (2002), Pylkkänen (2002), and Cuervo (2003). Within this framework, syntactic elements such as functional heads and DPs are the building blocks of event structure, whose meaning is interpreted compositionally.

In what follows, I present some basic assumptions about the argument structure of these constructions.

1.2.1 Argument structure of causatives

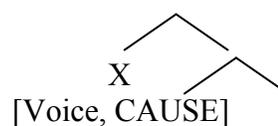
causative verb. Pylkkänen considers two sources of variation in terms of argument-projecting properties of the causative head: in languages like Finnish and Japanese, where the CAUSE is independent of the Voice¹, the CAUSE never introduces a causer. Instead, in these languages, she argues that the causer is projected by the Voice head (Marantz (1986), Kratzer (1994) among others)). In English, by contrast, since the CAUSE bundles with the Voice⁰ as a single syntactic head, both introduce causative event semantics and the causer argument. Observe these differences in (10):

(10) Variation in Voice-bundling in causatives (Pylkkänen 2002:76)

a. Non-Voice-bundling causative
(Japanese, Finnish)



b. Voice-bundling causative
(English)



Georgian and related languages with their non-zero CAUSE morphemes fit the typology of languages with the non-Voice bundling causative head. The relevant question is what evidence supports the separation of CAUSE from Voice in languages like Japanese, Finnish, Georgian, etc. Pylkkänen identifies Japanese adversity and Finnish desiderative causatives as structures where the causer argument is not projected at all even by the Voice head. In these constructions, the nominative subject is interpreted as an affected argument of the event described by the verb, but not as a causer:

(11) Japanese adversity causative

Taroo-ga
Taro-Nom

musuko-o
son-Acc

sin-ase-ta.
die-CAUSE-PAST

¹ See Section 1.6.4 for the motivation why the little *v* head is distinct from Voice.

² X in (7) is an external causer argument projected by the Voice⁰.

- (i) ‘Taro caused his son to die.’
 (ii) ‘Taro’s son died on him.’³ (Pylkkänen 2002: 81)

Taro is introduced neither by the CAUSE head, nor by Voice⁰, as the adversity causative lacks external arguments. The causing event is clearly present and morphologically the CAUSE is realized as *-(s)ase*, but this head does not relate any participant to the causing event. Pylkkänen demonstrates that the separation of the CAUSE from the Voice is a natural consequence of the inability of CAUSE to introduce a causer argument in languages which have similar structures. In chapter 2, I pursue a similar analysis of the CAUSE in adversity causatives (in which CAUSE does not introduce an external argument), but the analysis is still different from Pylkkänen’s in that, in Georgian, adversity causatives are productive and their meaning is predictable. This will be argued to be a result of their syntax, specifically, the kind of complement that the CAUSE takes in these structures.

To summarize my assumptions about causative constructions:

- (12) a. causative structures universally contain the causative functional head (CAUSE) and this head introduces a syntactically implicit event argument;
 b. the causer argument may or may not be introduced into the structure;
 c. in adversity and desiderative causatives where an external argument is not introduced, the nominative argument is often interpreted as affected by the event expressed by the verb.

1.2.2 Argument structure of applicative constructions

³ Pylkkänen (2002) argues that the adversity causatives generally are not productive structures like syntactic causatives in Japanese. Instead, they represent a variety of non-productive lexical causatives whose meaning may be ambiguous between two interpretations as illustrated in (11). Adversity causatives in Georgian and related languages do have a predictable meaning and they are productive, as will be shown in Section 2.6.

This section introduces some core assumptions about the argument structure of applicatives. Applicatives generally are defined as double object constructions in which besides the lexical (VP) and event-introducing verbal projections (vP), which may introduce arguments, the ‘additional’ functional head (Appl⁰) adds an ‘applied argument’. Usually, semantic relations are established either between this applied argument and the theme, or between the applied argument and an event described by the verb (Pylkkänen 2002, Cuervo 2003). The first relation, between a non-core applied argument and the theme, cross-linguistically is conceptualized as that of a *stative* possessor, a recipient, or a source (Cuervo 2003). These relations are referred to as the *low applicative* due to the lower merging site of the Appl⁰ head, namely, below VP:

(13)a. Low Recipient applicative

Sheila baked John a cake.

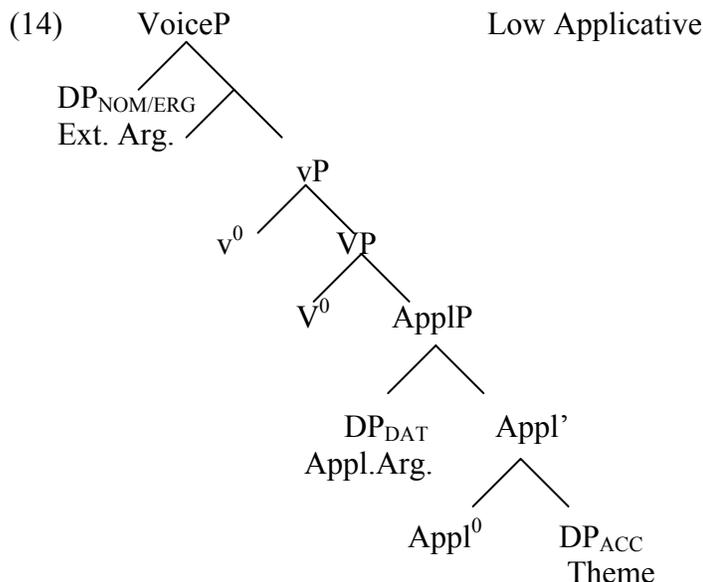
b. Low Source applicative (Finnish)

Liisa myi Mati-lta talo-n.
 Liisa.Nom sold Mati-Abl house-Acc
 ‘Lisa sold Matti’s house’. (Lit: ‘Lisa sold a house from Matti’.)

c. Low Possessor applicative (Spanish)

Pablo le admira la paciencia a Valeria
 Pablo CL.DAT admires the patience.ACC Valeria.Dat
 ‘Pablo admires Valeria’s patience.’ (Lit: Pablo admires Valeria the patience).

Although the meanings of these expressions are different from each other, the structural relation between the applied argument and the theme is similar as shown in the following:



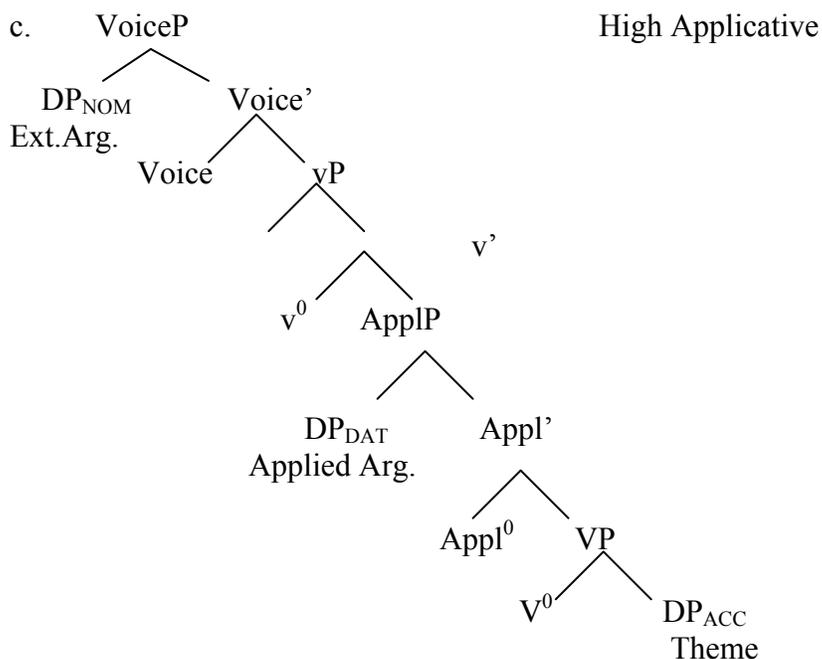
By contrast, the high Appl⁰ head takes the VP as a complement. In high applicatives, the semantic relations are different: an applied argument may be experiencing or undergoing the effects of an event expressed by the verb, but in no way does the applied argument enter into a direct semantic relation with the theme and obtain the thematic interpretations of benefactee, recipient, etc. Observe the examples and the syntax of this relation in (15):

(15) High applicatives
Luganda

a. Katonga ya- kwant- i-dde Mukasa ensawo.
 K Past-hold- APPL-PAST M bag
 ‘Katonga held the bag for Mukasa.’ (Pylkkanen 2002: 25)

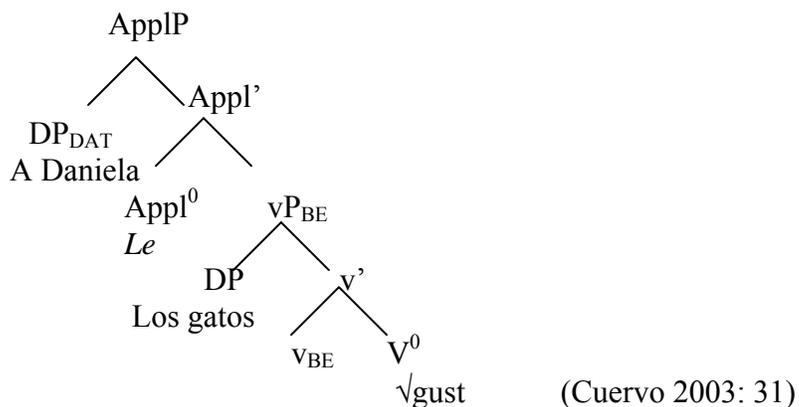
Chaga

b. n-a'-y'-lyi-`a m-k`a k-e'lya'.
 Foc-1sg-PRES-eat-APL-FV 1-wife 7-food
 ‘He is eating food for his wife.’
 (Bresnan & Moshi 1993:49-50)



Cuervo (2003) argues that psychological verb constructions may also be interpreted as high applicatives in which the high Appl^0 head projects the dative experiencer argument, and the latter is interpreted as ‘a Benefactee’ of an event:

- (16) A Daniela le gustan los gatos.
 Daniela.dative CL.DAT like.PL the cats
 ‘Daniela likes cats.’



The nominative theme (*los gatos* ‘cats’) is the subject of the stative predicate *gustar* ‘like’, while the Experiencer is external to the **vP**. The latter argument is argued to be licensed by the high Appl^0 head.

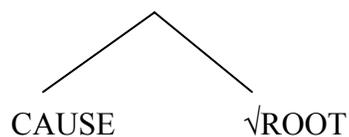
Notice that the number of arguments involved in applicative relations (high and low) is essentially the same, but there is a semantic difference between them, which can be attributed to the participation of an event argument. In high applicatives, this event argument enters into a relation with the applied one, while in low applicatives, two DP arguments, the applied and the theme are in close-knit relation with each other. As mentioned above, the applied argument must be a recipient, source, or *stative* possessor of the theme. By contrast, in high applicatives of psychological predicates shown in (16), the argument structure contains one less phrasal argument since only the experiencer and the theme arguments are projected, and not the external argument. In such structures, the experiencer does not enter in any above-mentioned relations of low-applicatives. Chapter 3 addresses the question of whether there is an overt morphological realization of these relationships in Georgian and related languages.

1.3 Variation of causatives and applicatives in terms of complement type

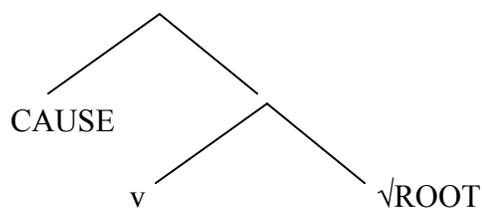
Besides the voice bundling parameter, causatives can also vary in the type of complement that CAUSE takes (Pylkkänen 2002). Pylkkänen identifies three kinds of complement that CAUSE may take: root, VP, and vP. Root-selecting CAUSE results in a lexical causative, which may have idiosyncratic meaning and is unproductive relative to syntactic causatives in a language like Japanese (Harley 2008). The VP and the vP-selecting causative heads usually form a syntactic causative, which has non-idiosyncratic meaning and is highly productive across various classes of verbs. The causative heads that select the vP will be referred to as *phase-selecting causatives* following Chomsky

(1999, 2001), McGinnis (2000, 2001a, b), and Arad (2003, 2004) among others. Here are the illustrations of these structures:

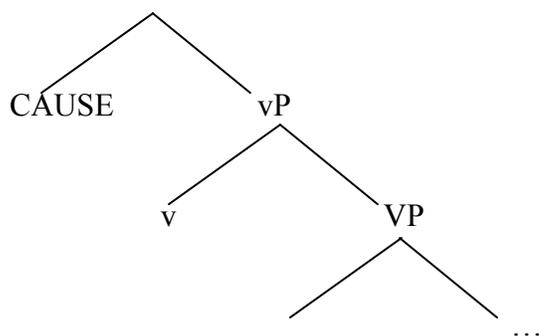
(17)a. ROOT-selecting CAUSE



b. Verb-selecting CAUSE



d. Phase-selecting CAUSE



The complement type of CAUSE has further consequences for the event composition in a sentence. Root-selecting CAUSE behaves like a mono-eventive structure with respect to the scope of adverbial because there is only one place in the clause where the adverbial can attach: only VP can be modified in the root-selecting (lexical) causative. The same prediction can be true for VP-selecting causatives. In the following English causative of an inchoative verb, the manner adverbial *reluctantly* is expected to modify

both the causing and the resulting events regardless of whether it attaches to a position higher or lower than the VP itself:

(18) VP-modifying adverbial:

- a. Bill opened the door *reluctantly*.
- b. Bill *reluctantly* opened the door. (Compare: *The door opened reluctantly*.)

In these sentences, the adverbial can not modify the causing and the resulting events separately since zero-derived causatives of inchoatives in English do not allow such separate modification of events: they are lexical causatives. Bi-eventive interpretations are found with vP-selecting causatives (i.e. causatives in which CAUSE takes phase-complete vPs as its complement). Adverbials can modify both the causing and the resulting events individually depending on the attachment site (above or lower than vP). Pylkkänen claims that vP-selecting causatives contain two vPs: the head of the first vP expresses the causing event, and the head of the second vP, the resulting event.

Therefore, each of these events can be modified:

(19) The causing event modified

- a. Sue *reluctantly* made John eat oysters.
- b. Sue made John eat oysters *reluctantly*.

In (19a), *reluctantly* modifies the causing event and is interpreted as oriented toward the external causer argument *Sue*, while in (19b), the same manner adverbial modifies the resulting *eating* event, i.e., is oriented towards *John*. Thus, the adverbial test indicates bi-eventive properties of vP-selecting causatives. We will also use the test of depictive modification as a diagnostic of mono- and bi-eventive properties of different types of causatives. As is illustrated throughout Chapter 2, a depictive modifier can modify the causee argument of the syntactic causative which matches its case marking with the

depictive while it is impossible to modify the causer argument from the same position even when the case marking is matched with the relevant argument. The idea is that the modification of the causer and the causee in syntactic causatives must be local and presumably, these two arguments are projected in separate ‘clauses’. Therefore, the event structure of syntactic causatives is more complex than that of the lexical one.

Applicatives also allow us to probe the mono- or bi-eventive properties of the complements selected by the Appl⁰ head. High and low applicatives show a distinction in terms of mono-/bi-eventiveness. Recall that in low applicatives, the low Appl⁰ head does not take a verbal complement because it merges below VP licensing the theme and the applied arguments as in (13)-(14). Since in these structures, the low Appl⁰ head does not take a phase-complete complement, they are not subject to the same bi-eventive analysis as vP-selecting syntactic causatives. Adverbials in low applicatives are expected to modify higher verbal projections, such as vP and VP, and the structure is interpreted as mono-eventive. For instance, in (20), the manner adverbial *again* modifies the *baking* event:

(20) Adverbial modification of low applicative

Sheila *baked* John a cake *again*.

Returning to high-applicatives, the Appl⁰ head that merges above VP does not introduce a separate event into the semantics of complex predicates, i.e. it does not select for vP complement as illustrated in (17c) for vP-selecting causatives.⁴ Cross-

⁴ Here we follow Pylkkanen (2002) and McGinnis (2002, 2004) in which it is proposed that the high applicative relation is established between an individual and an event due to the Appl⁰ head selecting for the VP complement. See the tree in (15c) for details.

linguistically, vP is argued to introduce an event argument (Harley 1995, Pylkkanen 2002, Cuervo 2003 among others). One might argue that the event structure of high applicatives cannot be as complex as that of vP-selecting syntactic causatives where two events are introduced: the causing and the resulting one (i.e. two separate vPs). Since the event structure of a high applicative is simpler than that of the vP-selecting causative, the manner adverbial is expected to modify just the VP complement of the Appl⁰ head and show the properties of mono-eventive structures:

(21) Modification of VP-high applicative in Georgian

- a. gia-s avaria *moulodnelad* mo- u- xda
 Gia-dative accident unexpectedly prev- APPLIC- happen
 ‘The accident happened to Gia unexpectedly.’
- b. gia-s avaria mo- u- xda *moulodnelad*.
 Gia-dative accident prev- APPLIC- happened unexpectedly
 ‘The accident happened to Gia unexpectedly.’

In these examples, the interpretation of the scope of an adverbial can be the one where *unexpectedly* modifies the event described by the verb. Both in (21a) and (21b), the scope of the adverbial is the same since it modifies the same event of *happening*.

A detailed explanation of high applicative semantics with the verbs of *happening* will be given in Section 3.8 of Chapter 3. The simpler event structure of high and low applicatives and the size of the complement that both Appl⁰ heads take means that the resulting structure will always show mono-eventive properties with respect to adverbial scope.

1.4 Theoretical framework

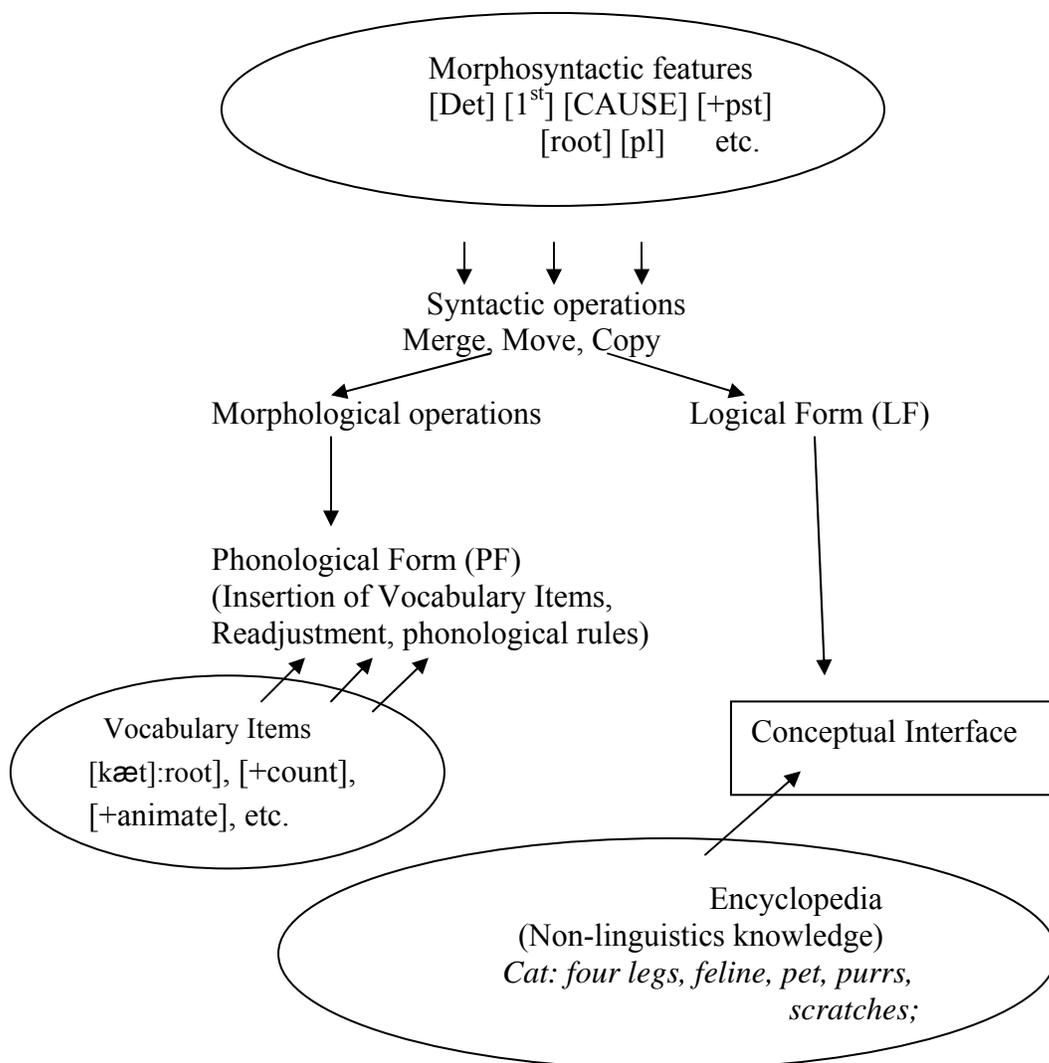
1.4.0 Distributed Morphology (DM)

This work utilizes the framework of Distributed Morphology (DM) in the analysis of the morphosyntax of complex predicates in South Caucasian languages. In this framework (Halle & Marantz 1993, henceforth H&M), word and sentence formation are viewed as a product of single derivational mechanism, and the morphology itself is *distributed* among several components of the grammar. Word formation may happen at any level where the head movement and merger of structurally adjacent heads create complex heads (H&M 1993: 112). In DM, the terminal nodes in syntax from which words are formed do not have any phonological features, and the nodes obtain those features only at the level of Morphological Structure (MS) by the process called Vocabulary Insertion. Vocabulary Items (henceforth, VIs) can be underspecified. For example, the Vocabulary entry for the English verb *sink* is sufficiently underspecified so that it can be inserted in either inchoative or causative contexts (Harley & Noyer 2000). For vocabulary insertion to happen, it is enough that the feature bundle of the Vocabulary Item (VI) does not conflict with the features of the terminal (H & M, 1993:121). It may be that several VIs compete for the insertion in the same terminal node at the MS. The VI that matches the most features of the node will be inserted⁵.

The architecture of the grammar in DM is shown in (22):

⁵ Known as the ‘subset principle’ (H & M1993).

(22) (Harley & Noyer 1997:3)



In this model, it is assumed that roots are underived primitives in syntactic derivations, i.e. they are ‘atomic’ non-compositional items. The syntax manipulates just placeholders or roots, and these abstract elements receive phonological content when vocabulary insertion applies.

Syntactic category in this system is derived from syntactic position. Roots are lexical elements underspecified for lexical category (Arad 2003, 2005, Marantz 1997, 2000,

Embick 1998). They are marked with the symbol \surd and are combined with the category-defining head (such as *a* adjectival, *n* nominal head, etc.).

It is of importance to note that according to DM model (Halle & Marantz 1993), the ordering of constituents within words and the ordering of words within sentences do not obey the same principles, such as ‘head’, ‘specifier, or ‘complement’ configurations of syntactic building blocks, which trigger a certain ordering of affixes with respect to stems and of phrases to syntactic heads. Consequently, different ordering of root/stems with respect to affixes in various languages has little to do with the merging position of these elements in syntax. The fact that in Georgian and related languages, the roots are located in the fourth position of the verbal template followed by 4-5 affixes, and in Navajo, roots come at the end of the template preceded by about 9 affixes are arbitrary and an affix’s status as a prefix, suffix, or infix is independent of its syntactic role, although in the default situation we do expect that the hierarchical morphological structure will mirror a syntactic hierarchy from which it is derived as per the ‘Mirror Principle’ (Baker 1988) . This idea will be expanded in Section 1.5 where the status of templates in the theory of grammar is discussed.

One of the issues dealt within this study is the linearization of the morphemes in a well-formed phonological word at morphological structure level (MS). As many argue (Halle & Marantz 1993, Noyer 1997, Embick 2003, 2008 among others), linearization is a property of phonological structure and in no way X^0 s get linearized in syntax. Further, Noyer (1997) argues that “linearization applies in the first phase of Morphological Structure, supplying adjacency relations to all constituents...” (Noyer 1997:38). He

claims that at MS two demands determine the mapping of the functional heads and their morphosyntactic representations to phonological strings: (1) morphological well-formedness conditions on morphological words, and (2) two types of rules: readjustment rules, which change just the phonological material and second, rules, which supply phonological material (affixes) to stems, essentially discharging the features of morphosyntactic representations. Some of these rules will appear instrumental for understanding the morpheme ordering in complex words in this dissertation.

Thus, DM recognizes that at MS morphemes may be inserted to meet universal and/or language-specific well-formedness conditions (Halle and Marantz 1993:115). An example of such addition is when subject-verb agreement is implemented by adjoining an Agr morpheme to the Tns node and then the features of the subject are copied onto the Agr node. Such addition of terminal nodes at MS changes the number of terminal elements that might find phonological realization and naturally, disrupt the isomorphism between PF and syntax. Other processes that may disturb such a one-to-one relation between terminal nodes in syntax and the elements at MS are: head-to-head movement of a terminal element and adjunction to a terminal element in the tree; merger of structurally adjacent nodes but keeping their identities-fusion, fission or impoverishment of certain features at MS before the Vocabulary Insertion. For discussion on the exact nature of these processes I will refer the reader to Halle and Marantz (1993). A detailed explanation of the processes relevant to the analysis of the data in this study is provided where relevant.

1.4.1 Chomsky's (1999, 2001) notion of phases

The dissertation assumes the most recent version of the Minimalist Program as argued in Chomsky (1999, 2001). In these versions of the program, the derivation of syntactic expressions proceeds cyclically, phase by phase. Chomsky identifies two phrases as being ‘*strong*’: vP and CP -- the verbal and the complementizer phrases which have a ‘propositional’ structure. The ‘strong’ phases are spelled out cyclically. The cyclicity of syntactic derivations and spellout has natural implications for the derivations of words. One goal of the research here is to explore to what extent the strong phases of syntactic derivations (vP and CP) can be the sites of cyclic spellout, and more importantly, whether the functional heads introducing non-core arguments to the argument structure of causatives and applicatives can also head a phase. In particular, we will be looking at the status of causative and applicative heads. The key evidence for the cyclicity of these heads is supplied by the presence of contextual allomorphy in the morphemes inserted into these heads (Embick 2009). The next section overviews Embick’s findings in this respect.

1.4.2 Contextual allomorphy as evidence for phasehood (Embick 2009)

Embick (2009) claims that morphological operations-- which determine the phonological form of morphemes — are constrained by the cyclic organization of the grammar, i.e. by the local domains that are defined by syntax. He develops a localist theory of allomorphy, in which linear adjacency and cyclic locality interact to produce a theory of allomorphic interaction. Take, for example, contextually-defined allomorphy, illustrated in (23) for English past tense suffixes. We can view this as the result of

Vocabulary Insertion assigning a phonological form to the morphemes computed in syntax. VIs (Vocabulary Items) compete for insertion into a given node. The most specific item, matching the node's featural content, gives that node its phonological structure:

(23) VIs for the English Past tense

$-t \leftrightarrow T_{\text{PAST}} / \text{ ______ } \{ \sqrt{\text{LEAVE}}, \sqrt{\text{BEND}}, \dots \}$

$-\emptyset \leftrightarrow T_{\text{PAST}} / \text{ ______ } \{ \sqrt{\text{HIT}}, \sqrt{\text{SING}}, \dots \}$ ⁶

$-d \leftrightarrow T_{\text{PAST}}$

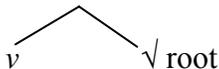
(Embick 2009: 9)

As seen from these items, Roots like BEND and HIT 'condition' the insertion of $-t$ and $-\emptyset$ allomorphs. $-d$ is a default elsewhere item for the [Past] and is only inserted when the context for other morphemes is not defined. The cyclic domains of syntactic computations may render the insertion of certain VIs possible as opposed to other VIs. For example, the idea that roots are *acategorical* elements and that they merge with the category-defining functional heads such as *a*, *n* is well-supported (Arad (2000), (2003), Marantz (1997), (2000) among others)). When these category-defining heads merge with roots, they are root-attached, i.e. they are in the *inner* domain. The same category-defining head may be attached to a structure that has already been categorized by another head. In such instances, the head which merges later is argued to be an *outer* domain head. Embick & Marantz (2008) argue that both inner and outer domain heads that categorize roots are *cyclic*, which means that when merged into a structure, they trigger spellout, the operation that sends the part of the syntactic structure to the interface

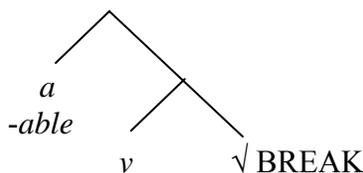
⁶ We may argue that $\sqrt{\text{SING}}$ is a zero-derived past form much like as $\sqrt{\text{HIT}}$ since it does not change the affix in the PAST, but rather the Root.

components, PF and LF. Observe these inner and outer domain category-defining heads in the examples adapted from Embick (2009):

(24) v merged with $\sqrt{\text{ROOT}}$

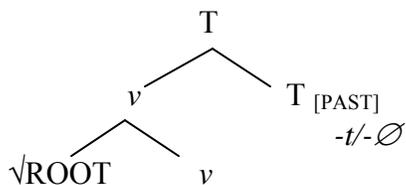


(25) Two category-defining heads and $\sqrt{\text{ROOT}}$



In (24), the single category-defining head v merges with the root first defines a phase. In (25), we have two domains because there are two category defining heads (a and v). An important property of *outer* heads like a in (25) is that vocabulary insertion into this position is not root-conditioned. By contrast, non-cyclic heads (like T^0 in (26)) in the outer domain allow contextually-defined allomorphy. For example, English past tense suffixes $-t/-\emptyset$ still show the above-noted root-conditioned allomorphy even though the tense morpheme is not root-attached, and it is in *outer* domain as seen in (26). It is argued that the root first merges with the category-defining v and that T^0 is introduced later in the derivation:

(26) English Past tense



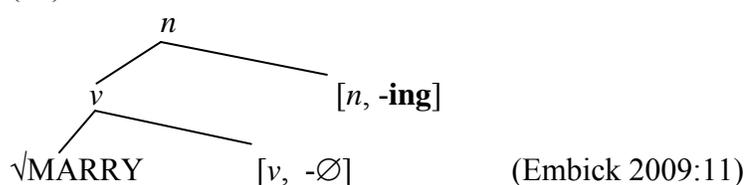
(Embick 2009:10)

T^0 is not a cyclic head as argued in Chomsky (1999, 2001) since it is not phonologically independent and does not have a ‘propositional’ structure. The cyclic v does not block T^0 from showing contextual allomorphy conditioned by roots. Therefore,

Embick posits that there is a critical need to accommodate cases where the functional heads attach higher than the cyclic category-defining heads yet still show root-determined allomorphy.

Another problem relates to the contextual allomorphy displayed by the nominalizer category-defining head in English gerunds like *John's marrying of Kathy*. In gerunds, the nominalizer *n* morpheme spelled out as *-ing* attaches to the structure already verbalized by *v*:

(27) Gerund derivation



The VI *-ing* inserted into the outer cyclic head *n* shows no root-determined allomorphy, although on the surface one might think that it is attached to the root. Embick concludes that there are evidently no cases in which an Outer cyclic head shows Root-determined allomorphy as opposed to non-cyclic ones.

Based on this evidence, he develops two theoretical generalizations that capture the allomorphic variation of the English past tense morphemes and the lack of this allomorphy with respect to the nominal category-defining heads (like *-ing* in (27)) in gerunds. Here are these generalizations:

(28) “a. α] x] Z]

Generalization 1: Non-cyclic Z may show contextual allomorphy determined by α , as long as x is not overt.

b.... α] x] y]

Generalization 2: Cyclic y may *not* show contextual allomorphy determined by α , even if x is not overt.” (Embick 2009: 11)

The idea behind these sequences of functional heads in (28a & b) is that outer non-cyclic heads can see across an Inner cyclic node, but outer cyclic heads cannot. In (28), lower case x , y are cyclic heads, upper-case Z is non-cyclic head, and α is an allomorphy-conditioning element, i.e. Root.

Thus, in (28a), non-cyclic Z may be influenced by α , if the intervening head x is not phonologically realized. However, cyclic y may not be influenced by α , because y will trigger the spellout of the structure assembled by the point when y merges. Thus, the phonological realization of x is irrelevant for the contextual allomorphy of the outer cyclic head y .

Another conclusion drawn from Embick (2009) is that contextual allomorphy is possible only with elements that are concatenated. However, in some cases, superficially adjacent elements cannot influence each other allomorphically because they are not active in the same PF cycle and are separated by a ‘strong’ phase (such as vP or CP as argued in Chomsky (1999)). In the former case, the conclusion is straightforward: only those morphemes that are adjacent can influence each other, while, in the latter case, superficially adjacent elements may be separated by zero-realized cyclic heads that may render the contextual allomorphy of the outer cyclic head impossible. These conclusions will be taken into consideration when examining the data of causative and applicative predicates in this work.

1.4.3 Kratzer (1994) on the VoiceP and external arguments

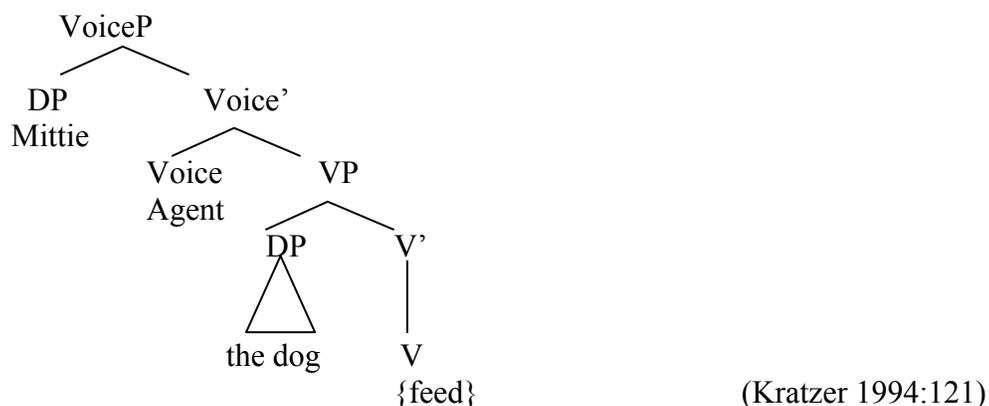
Since Kratzer (1994, 1996), it has been generally assumed that an external argument is not a ‘true’ arguments of a verb, but is rather introduced by an inflectional head outside of the VP shell (such as vP). Using some of the Neo-Davidsonian argument association methods, she argues that external arguments have different semantics due to the way they are introduced in the syntax of verbs. She specifically argues that the external argument is introduced to the syntax by the separate functional projection such as VoiceP and they are different from internal object arguments in that they never impose specific interpretations on verbs as internal arguments do. The relevant evidence came from Marantz (1984) in which the external argument was shown not to form idioms with V^0 in contrast to the arguments projected by VP itself as shown in the following:

(29) Idioms of English

- a. throw support behind the candidate
- b. throw a party
- c. throw a fit (Marantz 1984 quoted from Kratzer 1994:113).

In these structures, while an internal argument may trigger a certain interpretation of the verb, the external argument fails to do so. Following Marantz, Kratzer concludes that the external argument is not a ‘true’ argument of the verb and develops this idea into a coherent theory of VoiceP according to which the external argument is the argument of Voice⁰ while the internal one is the argument of VP, specifically, the latter is generated in the specifier of the VP as illustrated in the following:

(30) Mittie fed the dog.



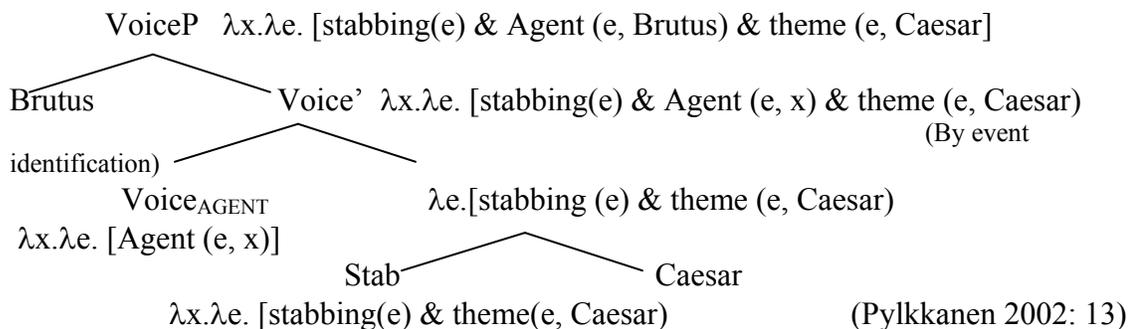
Furthermore, the internal argument in (29) and (30) first composes with the verb enabling it to impose certain interpretations on the resulting expression, while the agent argument composes with a separate light verb (or Voice) and then is conjoined with the lower predicate via a process called Event Identification (EI). This process is basically the conjunction operation applied to the separate functions followed by co-indexing of the event variables. Co-indexing happens due to the shared $\langle s, t \rangle$ type functions in the input functions as seen in (31). As the result of EI, the denotation of type $\langle e, \langle s, t \rangle \rangle$, which includes Voice with the external argument, composes with the denotation of the type $\langle s, t \rangle$ (including VP with internal argument) to produce a function of the type $\langle e, \langle s, t \rangle \rangle$ which is Voice'⁷:

(31) a. EVENT IDENTIFICATION (EI)

$\langle e, \langle s, t \rangle \rangle$	$\langle s, t \rangle$	\Rightarrow	$\langle e, \langle s, t \rangle \rangle$
Input ₁	input ₂		output

⁷ The following entities denote individuals (e), events (s) and truth values (t).

b. Brutus stabbed Caesar.



In the computation of the denotation of complex events the EI allows the same existential operator to bind into the two event arguments. This kind of EI is assumed to exist in causative and applicative constructions in this dissertation where Voice head also introduces an event variable and the external argument to the event structure of these predicates. Thus, the compositionality of the external argument with the VP is expected due to this process.

1.4.4 Cuervo (2003) on different flavors of little *v*s

Cuervo (2003) posits three types of heads that may either themselves be the complements of various functional heads (such as the $\text{Appl}_{\text{HIGH}}^0$), or take the $\text{Appl}_{\text{LOW}}^0$ as their complement:

(32) Three types of heads

- a. Event-introducers: little v^0 s.
- b. Argument introducers: Voice^0 and Appl^0
- c. Roots

These three heads may introduce arguments in the syntax by the combination of the lexical Root and the verbalizing head (little v). Roots combine with different kinds of

little v (Marantz 1991, Harley 1995) to build event predicates, which have different meanings depending on the type or the ‘flavor’ of these little v s. Based on event structure research, this work acknowledges that arguments are licensed either by an event predicate or by an argument-introducing head (Voice⁰ or Appl⁰). Roots may also introduce arguments semantically as their complements (Levin 1999, Kratzer 1996). In this work, I will argue that these little v^0 heads may also introduce arguments to the structure of causative and other constructions. Specifically, they add causee arguments to the structure of *make X do V* syntactic causatives.

Given these assumptions about how the argument structure is composed in the syntax, Cuervo identifies the following types of little v s that define the meaning of predicates:

(33) Three types of v	Three types of events	example
a. v_{DO}	activities	<i>dance, run</i>
b. v_{GO}	changes	<i>fall, go, die</i>
c. v_{BE}	states	<i>like, admire</i>

In this typology of event heads, v_{DO} and v_{GO} introduce dynamic events while v_{BE} introduces stative eventualities (Bach 1986), which are mainly represented by psychological predicates and verbs like *lie, hold, etc.*

Usually v_{DO} heads active structures and combines with Voice⁰, which introduces an external argument (Kratzer 1994). It can be assumed that various activity verbs, both transitive and intransitive (unergatives), are formed with this v_{DO} .

Predicates of change are derived with v_{GO} and include the verbs of *movement* and *happening*. This kind of event does not license an external argument via the Voice⁰ head.

These are mainly *change-of-state* verbs, which include events denoting non-volitional changes and they select for an object DP undergoing the change-of-state (ex. *fall* and *die*). Thus, when v_{GO} combines with roots of unaccusatives, this typically results in a change-of-state interpretation for the theme argument.

In contrast to the two dynamic v_S , v_{BE} combines with Roots to express states and Roots combining with this head license dative subject DPs in the specifier of VP (verbs like *matter* and Spanish *be useful*). Stative psychological predicates are formed by this kind of v_{BE} .

Given these three main types of v , the syntactic composition of complex events such as causatives, inchoatives, and applicatives is accounted for. I follow Cuervo's taxonomy of little v heads in chapters both on causatives and applicatives for simple events but crucially, her decomposition of the causative head (CAUSE) into two different types of v (v_{DO} and v_{BE}) will not be accepted for the purposes of presentation in this chapter.

1.5 Status of templates and assumptions about the morphosyntax of Georgian and related languages

This section overviews some of the basic grammatical features of Georgian and related languages based on the existing literature on these languages and the writer's own observations as a native speaker. Most of the data and functional analyses of morphemes are drawn from Howard Aronson's (1990) *Georgian: A reader's grammar*, O. Kajaia's (2004) *Mingrelian-Georgian Dictionary* and V. Topuria's monograph (1967) *Svan Language*.

All three languages are moderately polysynthetic. The number of lexical and functional morphemes marked on verbs can grow to up to 10-12 morphemes per word, but is more typically 5-6. There is a great deal of fusion among different inflectional morphemes such as between person and number agreement, series, screeve,⁸ or mood markers, etc. on both sides of stems, i.e. in the pre- and post-base positions. However, fusion does not usually affect the argument structure-changing morphemes, which mark syntactic alternations such as causative, applicative, etc.

The section extends the discussion on the structure of the Georgian verbal template along with the language-specific restrictions on the realization of certain morphology in the pre- and post-base positions. The status of verbal templates in the linguistic theory is also discussed in light of DM and Baker's Mirror Principle (1985) highlighting the fact that the latter principle is often a default situation in the grammar and that templatic constraints are essentially language-specific well-formedness rules as argued in Noyer (1997).

1.5.0 The structure of the verbal template

According to Aronson (1990), the Georgian verb template contains a maximum of three positions for morphemes before the root and as many as 6-8 positions after the root. Observe the following scheme of the Georgian verb:

⁸ Series and *screeves* are the terms drawn from the Kartvelian (South Caucasian) linguistics that stand for the conjugation pattern of verbs in terms of tense, aspect and mood (TAM). There are three series in Georgian and Svan, and four in Mingrelian. The *screeve* is a conjugation pattern for just one value of tense, aspect and mood.

Table 1. The morphological template of the Georgian verb

1	Preverb
2	Person agreement (subject, object
3	Applicative, Causative, Voice, etc.
4	Root
5	Theme
6	Causative, Passive, etc.
7	Screeve
8	Theme
9	Causative (screeve)
10	Person agreement/ Series

Before explaining the distribution of these various morphemes in the template, note that the status of a morpheme in this kind of template, i.e. whether it is a prefix, infix or suffix, has no direct relation with the syntactic operations combining terminal nodes to create words before the Vocabulary Insertion. In DM, the hierarchical location of affixes in words is determined by the syntax but again there need not be a direct one-to-one relation between the terminal elements in syntax and phonological exponents, neither need the bracketing of the phonological pieces directly reflect the syntactic bracketing (H & M 1993:11). As H & M show in this foundational article on DM, Baker's Mirror Principle arguing for the transparent relation between the checking of features in the syntax and the ordering affixes in a word as a result of this checking is not consistently accurate. In other words, the order of checked features does not always reflect the order of affixation in the lexicon whereby the features of the innermost affix are checked first and the subsequent features are reflected in word formation based on their order of

checking in the syntax. H & M reject this principle as too restrictive because natural languages provide plentiful evidence against such a strict correspondence between the checking of features on terminal nodes and their phonological realization in their mapping to the Phonological Form (PF). Given this sometimes arbitrary relation between the syntax of complex expressions and their phonological realization at PF one might argue that the structure of the verbal template in a particular language(s) is purely epiphenomenal and has little to do with syntactic derivations. Therefore, the order of affixes with respect to Root and the position of the Root with respect to these morphemes may be considered as the result of language-specific constraints on the morphological well-formedness rather than the direct consequence of the order in which the checking of these features proceeds. Thus, the position of morphemes in the verbal or nominal templates need not be viewed as a direct consequence of their syntax.

In the Georgian verb template shown in Table 3 the order of three pre-base morphemes is rigid, which means that in relevant syntactic contexts where all three morphemes are realized, the ordering is the same: first preverbal prefixes are realized followed by the person agreement markers, and finally, argument-structure changing morphemes such as causative, applicative, voice, etc. The causative, applicative, or Voice functional heads have multiple phonological exponents whose insertion depends on the syntactic environment and the feature content on these nodes. Again the ordering of these morphemes in the template above may have nothing to do with the order of checking of relevant features in the syntax.

The preverbal prefixes mark both aspect and directionality and as such, they combine the features of both inflectional and derivational morphology. These elements resemble Russian preverbs, which, along with the perfective-imperfective distinction can mark manner, saturation, or the intensity of an event expressed by the verb. In the latter function, these preverbal elements are like the derivational morphology in that they imbue a special meaning to the root, and are not productive. There are fifteen such preverbal prefixes in Georgian and they are inserted into the initial slot of the template, although we assume that the functional head which is realized with these prefixal elements (which presumably is Asp^0) does not check its features the latest assuming a bottom-up derivation of words in the syntax.

The person agreement prefixes are spelled out in the second and the final positions of the verbal template. A separate section below discusses which arguments trigger insertion of these morphemes along with the case-marking of relevant DPs. Only one person-number agreement morpheme appears in the pre-base position even when the verb is transitive and contains two arguments. The reason for such restricted spellout of the agreement morphemes will be explained below.

The third position, which immediately precedes the base (root) can be occupied by various morphemes marking the argument structure of relevant verbs, including causative, applicative, and voice morphemes. The VIs of one of these functional heads are in competition for insertion in this position. Various post-syntactic rules are also implicated in the spellout of these morphemes, to be discussed in Chapters 2-3 where relevant.

The order of morphemes in the post-base positions of the Georgian verb template is not as rigid as in the pre-base environment, and some of the morphemes tend to reiterate sometimes for no obvious semantic reason. The morphemes that can be repeated are the thematic markers (especially one of the five suffixes *-eb*) and the syntactic causative morpheme marking the *make X do V* causative alternation (*-in*). The iterated markers do not usually contribute the same semantics twice, as in the case of reduplicated causative suffix: the second *-in* does not introduce another causing event or causee argument to the argument structure. Instead, the reduplicated causative morpheme may mark the series/screeve or mood information as shown in the following Perfective series forms:

(34) The Perfective series verb

ga-	m-	e-	ket-	eb-	in-	eb-	in-	o-	s
prev-	1S-	Voice-	make-	TH-	CAUS-	TH-	CAUS-	TAM-	3O

‘I would have caused X to make Y.’

To the best of my knowledge the exact function of this iterated causative marker has not been explained in traditional linguistic literature on Georgian and I provisionally gloss this morpheme as the conjunctive perfect (screeve) marker.

Thematic markers glossed as TH in this dissertation are widely attested in the morphology of various verbal and nominal classes cross-linguistically and they are morphological well-formedness affixes not associated with any specific terminal node in the syntax. As argued by Halle & Embick (2003), among others, they are dummy elements and do not realize any particular functional head. In addition, I argue that they ‘signal’ the presence of certain functional morphology in individual languages. In Georgian and related languages, the thematic marker (*-eb*) has been argued to indicate the

presence of the causative morpheme (Aronson 1990), although this relation is not always clear. This will be illustrated in Chapter 2.

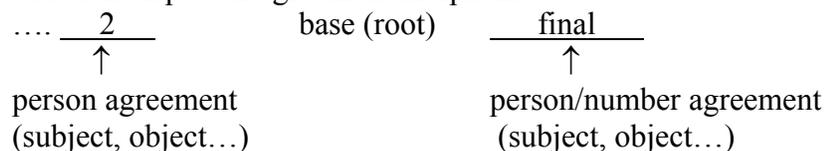
Among other morphemes inserted into various post-base positions, the morphemes marking causative, voice, agreement, and case are the most important for understanding further discussion in this work. The causative morpheme *-in* marks the causative head added to unaccusative, transitive, or other classes of verbs. The morpheme marking the passive alternation also shows up in the same post-base position in relevant syntactic contexts. Finally, the person-number agreement morphemes inserted in the final position may be fused with the series markers or be absent entirely.

1.5.1 Assumptions about language-specific templatic constraints

An essential note on Georgian verbal morphology is concerned with language-specific constraints on the spellout of certain morphemes in the verbal template. Such constraints limit the positions-of-exponence for the phonological pieces inserted into terminal nodes. For example, only one person agreement morpheme can be inserted in the pre-base position, as well as one argument structure-changing morpheme. I suggest that this type of restriction is similar to the templatic structure discussed by Noyer (1997) in the Arabic verb paradigm and in other Afro-Asiatic languages, whereby a single terminal node is associated with two positions-of-exponence. This situation can result in ‘discontinuous bleeding,’ in which the morpheme inserted in one position-of-exponence bleeds the insertion of another morpheme in another position-of-exponence. Following Noyer, I assume that in Georgian and related languages, the phi- and other substantive morphosyntactic features are subject to arbitrarily-imposed constraints on the verbal

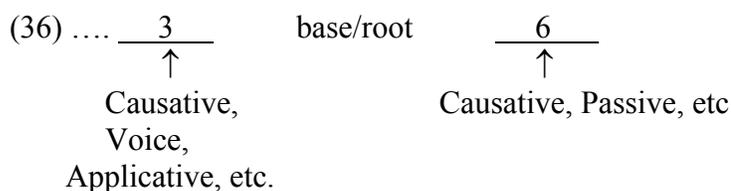
template. One such constraint limits the insertion of person features of a subject or an object into the second and the final positions as shown in the following scheme:

(35) Restriction on person agreement morphemes:



There is only one terminal node and two positions-of-exponence for the person/number features of a subject and/or object even when both arguments are referentially marked, i.e. represent 1-2 person and present in a sentence. Note that only the features of referentially marked arguments (1-2 person, i.e. [+participant] or [+PSE⁹]) are realized in the mentioned positions. A separate post-base position of person agreement morphemes also allows the spellout of the person features of 3rd person arguments. The morphemes realizing these arguments are usually fused with the series markers.

A similar constraint is operative with respect to argument structure-marking morphemes such as causative, applicative, voice, etc. illustrated with the following scheme:



The numbers indicate the positions of these morphemes in the verbal template. Thus, one position is available for the causative, applicative, and voice markers in different

⁹ This feature is posited in Halle (1997) for designating the Participants of Speech Events, i.e. the referential arguments.

syntactic contexts. It is often the case that the Voice marker bleeds the causative or the applicative marker in various syntactic contexts or vice versa. The relevant empirical evidence and its analysis will be provided in the chapters dealing with these constructions. The restricted spellout of these morphemes may be a part of general economy strategies on the spellout of substantive morphosyntactic features.

Summing up this section, the following points should be taken into account when analyzing the morphosyntax of causatives and applicatives: The structure of the verbal template in Georgian may include a maximum of 10-12 morphemes, which are asymmetrically linearized in the pre- and post-base positions: no more than three morphemes can occur in the pre-base position, while the number of morphemes in the post-base position is highly variable reaching a maximum of 6-8 morphemes. The morphological realization of various morphemes is subject to arbitrarily imposed restrictions that make only limited positions-of-exponence available for certain morphemes. We assume that mismatches between syntax-semantics and the morphology of complex expressions are due to not only various restrictions on the spellout of morphemes but also to the readjustment rules operative in the post-syntactic component.

With these observations as background, the next section overviews phi- and case feature checking in syntax.

1.6 Case and agreement with various classes of verbs

The three languages of the South Caucasian language family display aspectually-conditioned split ergativity instantiated by variation between nominative, ergative, and dative cases on subjects, and dative/accusative/nominative/absolute cases on objects,

across three *series* of transitive, and unergative classes of verbs. There are three such *series* in Georgian: the Present, the Aorist, and the Perfective. The three series consist of 11 screeves. The screeves represent the conjugation pattern for one specific combination of Tense, Aspect, and Mood. The three series differentially mark the case of subjects and objects. In particular, the subjects of transitive and unergative verbs are assigned different cases in the different series: nominative in the Present, ergative in the Aorist, and dative in the Perfective. The following tables show the screeves in the three series and the corresponding case marking of the arguments of transitive and unergative verbs:

Table 2. The structure of the series in Georgian

Series		Screeves		
Present (S=Nom)	(Present group)	present	imperfect	conjunctive present
	(Future group)	future	conditional	conjunctive future
Aorist (S=Erg)		aorist		conjunctive past
Perfective (S=Dative)		present perfect (evidential)	pluperfect	conjunctive perfect

Table 3. Case marking of transitive verb arguments

	Present series	Aorist series	Perfective series
External argument	Nom	Erg.	Dative
Theme	Dative	Acc	Nom
Goal/Beneficiary	[Dative] ¹⁰	[Dative]	[Gen-PP]

Note that the case marking of the subjects of unergative verbs is the same as that for transitives, but objects are not projected in unergative structures.

The examples in (37) illustrate the case marking of subjects and objects in double object constructions (DOCs) across the various series:

¹⁰ The brackets indicate the optionality of the projection of the Goal/Beneficiary argument in transitive structures. However, the external and the theme/patient arguments are mandatory as indicated with the absence of these brackets.

(37)a. Present series (active):

Nodar- i	bavshv- s	t'k'bileul- s	chuknis.
Nodar- Nom	child- Dat	candy- Acc	presents.Pres

‘Nodar is presenting a candy to the child.’

b. Aorist Series (active):

Nodar- ma	bavshv- s	t'k'bileu- i	achuka.
Nodar- Erg	child- Dat	candy- Abs	presented.Aor

‘Nodar presented a candy to the child.’

c. Perfective Series (active, irrealis):

Nodar- s	bavshv- is-tvis	t'k'bileul- i	uchukebia.
Nodar- Dat	child- Gen-for	candy- Abs	presented.Perf.

‘Nodar has (apparently) presented the candy to the child.’

Notice that in the Perfective series, the subject is assigned the dative case and the benefactee object receives a postpositional genitive, which indicates the latter’s non-argumental position, as this argument no longer triggers the agreement with the verb (I assume that this argument is in an adjunct position). Due to such differential case marking of the subject, two agreement patterns emerge in Georgian. Nominative and ergative subjects trigger *basic agreement* (Aronson 1990), which is realized with the ‘v-set’ markers, while object agreement is realized with ‘m-set’ affixes. The terms ‘v-set’ and ‘m-set’ are based on the first person agreement markers of subjects and objects in transitive contexts. These sets are shown in Table 6 that follows. V-set and m-set agreement affixes cannot show up simultaneously in the same verb because of the above-mentioned templatic restrictions¹¹.

¹¹ I will refer a reader to Lomashvili & Harley (in press) for detailed explanation of the role of templates in spellout of agreement morphology in Georgian.

When subjects of transitive and unergative verbs are assigned dative case, accusative shows up on the theme argument¹². The agreement pattern with the dative subjects is *Inverse* as it is realized by the ‘m-set’ agreement markers indexing subjects and ‘v-set’ affixes indexing Nom/Acc objects. The following table summarizes the ‘v-set’ and ‘m-set’ affixes:

Table 4. Georgian agreement morphology

Per	Num	v-set markers	m-set markers
1 st	sg	v-	m-
2		∅-/x-	g-
3		-s, -a, -o	∅-, h-, s-
1	pl	v- -t	gv-
2		∅-/x- -t	g- -t
3		-en, -an, -nen, -n, -es	∅-, h-, s- -t

Both ‘m-set’ and ‘v-set’ paradigms are realized as prefixes when indexing the first and the second person arguments. The inverse pattern shows up in all syntactic contexts where subjects are assigned dative case. The relevant constructions, in addition to the Perfective series forms of transitive and unergative verbs, are subject-experiencer psychological predicates, two-place passives, adversity causatives, causatives of internally-changed verbs, and various applicatives, etc. Here are some examples:

(38)a. The Present series:

dato-s dzul-s Vano-∅.
 dato-Dative hates.Pres Vano-Nom
 ‘Dato hates Vano.’

b. The Aorist series:

dato-s she- dzulda Vano-∅
 dato-Dat Prev- hated.Aor. Vano-Nom
 ‘Dato hated Vano.’

¹² Notice that Acc, Nom, and Absolutive have syncretic surface realizations in Georgian, i.e. they are marked with the morphological nominative marker.

c. The Perfective series:

dato-s	she- dzulebia	Vano-Ø.
dato-Dat	Prev- hate.Perf.	Vano-Nom

‘Dato (apparently) hated Vano.’

In these examples, the third person dative subject triggers the ‘m-set’ agreement on verbs which is spelled out as zero. The first person nominative theme object of psychological verbs in (39) triggers ‘v-set’ agreement on verbs as illustrated in the following:

(39)	dato-s	me	mo-	v-	e-	nat're.
	dato-dat	I-Nom	prev-	1O-	Voice-	miss

‘Dato missed me.’

However, when both dative and nominative arguments are 1-2 person, the agreement pattern is somewhat more complex, i.e. both subjects and objects trigger agreement on the morphologically complex verbs which consist of the main verb and the auxiliary *BE*. The main verb carries the meaning of the entire predicate, while the auxiliary ‘AR’ (*BE*) provides templatic extension for marking tense/aspect inflection along with the nominative object agreement on the predicate. Thus, the secondary function of auxiliary *BE*-support is to mark the agreement of nominative objects:

(40) Inverse agreement

(a)	m-	iq'var-	x-	ar
	1-	love-	2-	BE

‘I love you.sg’

b)	g-	iq'var-	v-	ar
	2-	love-	1-	BE

‘You love me.’

In the inverse pattern, both simple and complex morphological forms of psychological verbs have the same argument structure, and the agreement morphology

seems to be sensitive to the markedness of one or both verbal arguments.¹³ Other syntactic factors are also implicated in the spellout of subject and object person agreement in these complex forms, which I will not discuss here for space reasons. Note that tense/mood/aspect markers in these extended verbal units are kept intact, which again shows that they are not fused with the person/number agreement morphemes.

Person agreement is not directly related to the main topic of this dissertation but it is important for the analysis of various types of causative and applicative predicates because of the way these constructions display variability in case marking of their main arguments. This information is also instrumental in understanding the interaction between the syntax-semantics and morphology of predicate constructions in this dissertation.

1.7 Outline of the Dissertation

Both Chapters 2 and 3 begin with an overview of the existing research on causative and applicative constructions, and also discuss the same constructions in related languages (Mingrelian and Svan). The limited data available on these languages suggest that almost the same range of causative and applicative structures that are found in Georgian are available in these languages as well.

Morphosyntactic properties of syntactic causatives derived from various classes of verbs (inchoative, unergative, unaccusative, etc.) are the focus of Chapter 2. Two main groups of syntactic causatives are identified: one taking inchoative verbs as an input to the causative alternation (*melt/melt* type alternations) and another, transitive, unergative, and other types of verbs resulting in *make X do V* alternations. Morphological distinctions

¹³ Markedness of arguments in terms of person is defined whether these arguments are [+ participant] , i.e. 1-2 person, or [-participant], i.e. 3rd person. Marked arguments are usually [+participant].

between these two main alternations are argued to arise from their syntactic structure and from the type of the complement that the causative head (CAUSE) takes in these types of causative structures. This chapter also contains a section on adversity and malefactive causatives, where the dative causee argument is the subject and no external argument is projected by the Voice⁰ head. I claim that these dative subjects form a natural class with the dative applied arguments of applicatives.

The morphosyntactic and semantic properties of high and low applicatives are discussed in Chapter 3. First, I discuss low recipient and source applicatives of transitive and other classes of verbs where the *transfer-of-possession* relation is established between the external and applied arguments. This chapter also analyzes the stative possession relation in low applicatives formed with psychological and existential predicates. Two new types of applicatives are introduced in Chapter 3: those formed with 1) internally-caused change-of-state and 2) reflexive events. The applicative relation between the external argument and the theme in reflexive applicatives is argued to be established through the lower merging site of the reflexive Voice head, which ‘forces’ an empty argument PRO to occur in the specifier of the lower Appl⁰ head which also projects the accusative theme. The control relation between PRO and the external argument along with the low Appl⁰ head is argued to be responsible for the transfer-of-possession relation between the external argument and the theme. Chapter 3 also discusses hybrid-type applicatives formed by four-place predicates in which high applicative relation is established between the higher applied argument and an event expressed by the verb, and low recipient relation is established between the applied

argument projected by the low Appl⁰ head and the theme. Some of these complex structures are argued also to combine CAUSE with the lower P_{HAVE}/P_{LOC} head which projects the Goal-Recipient and the theme arguments (Harley 2002, Jung & Miyagawa 2004) receiving either a 'locative' or 'have' interpretation. The study closes off with the discussion of applicative structures in Mingrelian and Svan, which appear to display the same range of applicative constructions as Georgian. Chapter 4 summarizes the basic findings of the study concerning the interface of the argument structure and the morphological realization of causative and applicative constructions.

CHAPTER 2 CAUSATIVE ALTERNATIONS IN GEORGIAN AND RELATED LANGUAGES

2.0 Introduction

This chapter focuses on the causative alternation as it appears with various types of verbs (inchoative, unergative, transitive, psychological, etc.) in Georgian and the related languages Mingrelian and Svan. It specifically explores both lexical and syntactic causatives to identify the morphosyntactic properties of these constructions that are responsible for their productivity across various verb classes.

The main goal of the chapter is to analyze the interaction between the argument structure of syntactic causatives and the morphological realization of the causative head. As in many morphologically rich languages, it is expected that there are mismatches between the syntax of these complex predicates and their morphological realization. These mismatches will be accounted for in the Distributed Morphology framework as indicated in the Introduction.

2.1 Organization and Outline of analysis

In section 2.2, I outline my basic assumptions relevant to this chapter. In section 2.3, I discuss inchoative-causative alternations, which are morphologically realized with *a-/∅-* allomorphs. The novelty of the analysis presented in these sections is that the causative head selects RootP (\sqrt{P}) as its complement in the causatives of inchoative verbs. This accounts for the relative productivity of the lexical causatives formed from inchoative alternates and the root-conditioned allomorphy of the causative head. In section 2.4, the morphosyntax of causatives formed from unergative verbs is discussed and the absence

of root-conditioned allomorphy of the causative head is accounted for by the size of the complement that it selects (that is, vP). It is argued that in a simple *X makes Y do V* causatives of unergative verbs such as *sing, laugh*, etc. only one CAUSE is merged that takes the aforementioned vP complement. However, when the CAUSE iterates, two causing events are introduced into the structure and consequently, two causee arguments are introduced to the structure of these complex causatives. Consequently, the morphological realization of the two CAUSEs does reflect the syntax as two VIs (a- and –in) are inserted into separate CAUSE heads. In Section 2.5, I analyze the causatives of transitive verbs also as the result of a *make X do V* alternation and propose that in these structures, two causative heads are merged and the lower causative head selects for the argument-full vP complement. I propose that the presence and/or the lack of allomorphy of the causative head in the alternates of transitive/unergative verbs on the one hand and inchoatives on the other is a direct consequence of their syntax, namely, the size of the complement that the causative head takes.

Beyond the analysis of the argument structure of various types of causatives, the iteration of causative morphemes and their complex syntax is discussed in various languages (Malagasy, Chemeheuvi, Georgian, Mingrelian and Svan). The conclusion regarding the iteration of causative morphemes is that the reduplicated Vocabulary Items (VIs) may not always mark the merger of two CAUSE heads in the same structure. Instead, one CAUSE morpheme marks the causative event head while another may mark some other functional head such as Aspect, Mood, or Tense.

Section 2.6 discusses the morphosyntax of adversity causatives whose syntax is argued to combine the Voice⁰ head with a [NonActive] feature and CAUSE head under one structure. The analysis of nonactive Voice in these structures is different from the previous literature (such as Kratzer 1994) in that it allows the Voice head not to project an external argument due to this [NonActive] feature. These structures project dative causee and nominative affected arguments none of them introduced by CAUSE head. In section 2.7, the event structure of ‘*pretend*-type’ complex verbal structures and their causatives is analyzed. These types of complex predicates have not yet been analyzed extensively in the literature. I propose that they combine a complex V⁰ head, including a lexical head turned into the grammaticalized functional head ‘PretendP’, and CAUSE composes with the vP and the VoiceP of a reflexive verb. Various event types of psychological predicates and their differences in terms of causativization represent the topic of section 2.8. Finally, in section 2.9, causative alternations of various types of verbs are analyzed in Mingrelian and Svan.

2.2 Assumptions

Next, let us consider some basic assumptions and claims that have been made about the structure of causatives in other languages. We start with the distinction between so-called lexical causatives and syntactic causatives. We follow the approach espoused in Harley (2008) that both kinds of causative are formed in the syntax and differ only in the depth of embedding of the structure. After examining this, we turn to the hypothesis that causative morphology might be added at different ‘layers’ of the structure.

Harley (2008) (see also Miyagawa (1980), (1984), (1998), Jacobsen (1981), (1992) and Matsumoto (2000)) discusses two main classes of causatives in Japanese: lexical and syntactic causatives, seen in (4) and (5), where the syntactic causative has two different interpretations:

(1) Lexical causative

Taroo-ga zisyoku-o nio- ase-ta
 Taro-N resignation-A smell-ase-PST
 ‘Taro hinted at resignation.’ (Lit: ‘Taro made resignation smell’).

(2) Syntactic (productive) causative

a. *Make-causative*

Hanako-wa Yoshi-o ik-ase-ta
 Hanako=T Youshi-A go-ase-PST
 ‘Hanako made Yoshi go.’

b. *Let-causative*

Hanako-wa Yoshi-ni ik-ase-ta
 Hanako-T Yoshi-D go-ase-PST
 ‘Hanako allowed Yoshi to go/Hanako had Yoshi go.’

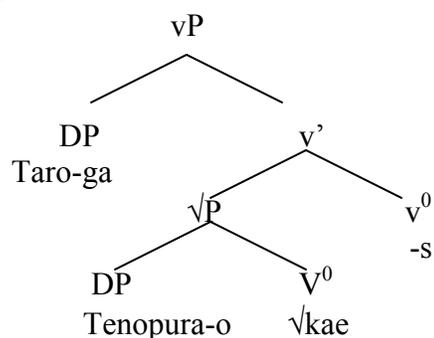
(Miyagawa (1980, 1984), Jacobsen (1981, 1992), Matsumoto (2000)).

The differences between (1) and (2) are summarized in (3):

- (3) a. Lexical causatives
- monoclausal in terms of case-marking (only a single nominative case is possible on the Causer argument)
 - can have idiomatic interpretation
 - strong speaker sense of ‘listedness’, non-productivity, etc.
- b. Syntactic causatives
- biclausal by the tests involving scope, adverbial control, binding...
 - monoclausal by tests involving negative polarity, tense,...
 - (make-causative) mono-clausal in terms of case
 - causee must be animate/agentive
 - “productive”
- (Adapted from Harley 2008:6)

In the DM approach, vocabulary items are inserted on a competitive basis, determined by the best fit to the features in a terminal node. In Harley's approach, following the proposal in Miyagawa 1998 the lexical causative head selects the root as its complement, while in syntactic causatives, the same causative head takes an 'argument-structurally complete complement' – roughly, a full vP. This is illustrated in the following structures:

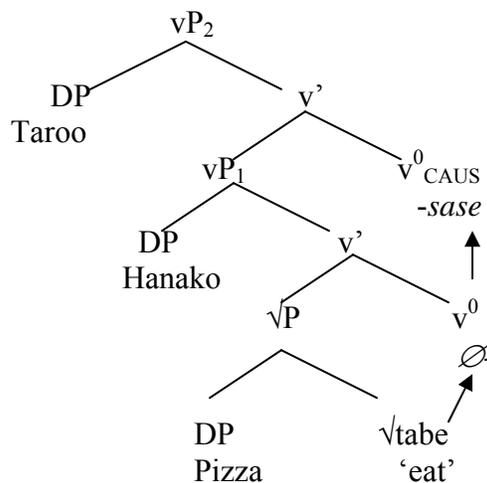
(4)a. Lexical causative



- b. Taro-ga tenooura-o kae-s(--).
 Taro-N palm-A return-CAUS
 'Taro changes his attitude suddenly.'

(Harley 2008:31)

b. Syntactic causative



- d. Taroo-ga Hanako-ni pizza-o tabe-sase-ta
 Taroo-N Hanako-D pizza-A eat-CAUS-PST
 'Taro made Hanako eat pizza.'

(Harley 2008:30)

Note that *Taro* is the causer argument both in lexical (4a & b) and syntactic (4c & d) causatives but the former involves the causer combining with an idiosyncratic meaning of the predicate while the meaning of the syntactic causative is predictable from the combination of the causer argument with the causee and the event of causing.

An important consequence of Harley's analysis is the difference between the lexical causative head v^0 and inchoative v^0 head. Harley analyzes these items as interchangeable rather than simultaneously present in the causatives of various verbs.

Proposals which are closely linked to Harley's analysis on the distinction between lexical and syntactic causatives are found in the work of Travis (2000), Pylkkanen (2002) among others. These explorations make use of low and high attachment sites for causative morphemes in various languages to account for cross-linguistic variation of these structures. According to these explorations, lexical vs. syntactic use of causatives result from the attachment site of the causative head either to a higher functional projection (vP), or the lexical VP , and even lower projection (such as \sqrt{ROOT}). As Pylkkanen (2002) and Harley (1995, 2008) argue, the attachment of the causative head to a higher projection (vP or VP) results in *syntactic* causatives, while the attachment of the causative head to a \sqrt{ROOT} results in *lexical* causatives.

Travis (2000) uses a Hale & Keyser-style (henceforth, H & K 1993) analysis with VP-shells. She argues that in Tagalog and Malagasy, the attachment of the same causative morpheme to different parts of the syntactic tree may result in different meanings and productivity of causative structures. Pylkkanen (2002) and others build on this notion and claim that the distinction between lexical and 'syntactic' causatives follows from the

‘size’ of the complement the CAUSE¹⁴ takes: a causative head may select a category-neutral $\sqrt{\text{ROOT}}$, a VP, or the whole phase vP (which has an external argument in it). In Travis’s analysis as in Harley’s, the causative heads that select the vP project an external argument. They will be referred to as phase-selecting causatives following Chomsky (1999 & 2001), McGinnis (2000, 2001a & b), and Arad (2003 & 2004) among others.

As noted above, in Harley’s (2008) trees above, the external argument is introduced in the specifier of the CAUSE vP. However, following Kratzer (1996) Pylkkanen (2002) argues that external arguments are instead syntactically introduced by a Voice⁰, separate from the cause v⁰, and the variation in the causative heads bundling with Voice⁰ results in important crosslinguistic differences in terms of productivity and meaning¹⁵. Specifically, she argued that in some languages the CAUSE v⁰ does not bundle with the Voice⁰ and does not project an external argument. This happens in adversity causatives where the CAUSE introduces the causing event but crucially does not the external argument. I will adopt this assumption here. Below in section 2.6 I will show that in Georgian causative structures, like in Finnish desiderative and Japanese adversity causatives (Pylkkanen 2002), the causative head may not project the external argument and therefore, other functional heads such as Voice are argued to be responsible for introducing them.

2.3 Inchoative-causative alternation

2.3.0 Introduction

¹⁴CAUSE stands for the causative head in Pylkkanen’s dissertation (2002). I will use this term for further reference to the causative head.

¹⁵ See the discussion on the motivation of the Voice head in the Introduction.

As noted in the introduction, English has an inchoative/causative alternation (8), often called the *melt/melt alternation*:

- (5) a. Ice melted.
b. Bill melted ice.

The same verb may participate in the alternation without a change in morphological marking. In other languages, such as Georgian, the same alternation may entail a change in the morphological shape of a verb.

2.3.1. Causatives of inchoative verbs

The inchoative-causative alternation in Georgian is marked with *a-* (7) or \emptyset (6). Note that the morphological marking of inchoative causatives is distinct from that of unergative-causative or transitive-causative alternations (which usually result in *make X do V* meanings). The latter will be discussed in Sections 2.3 and 2.4.

- (6) \emptyset -prefixed causatives formed from inchoative and reflexive verbs in Georgian:

	Inchoative	Causative
a.	da- i- mal- a prev- intr- hid- Aor ¹⁶ 'X hid.'	da- mal- a prev- \emptyset - hid- Aor 'Y hid X.'
b.	da- i- ban- a prev- intr- wash- Aor 'X bathed.'	da- ban- a prev- \emptyset - bathe- Aor 'Y bathed X.'
c.	da- i- γ al- a prev- intr- tire- Aor	da- γ al- a prev- \emptyset - tired- Aor

¹⁶ The abbreviations used here are: prev- for the preverbal aspectual and directionality marker; intr- Intransitivity marker in general, Aor- for the Aorist *screeve morpheme*; thmw- for thematic markers in verbs; CAUS- for the causative marker; \emptyset stands for zero allomorph of the CAUSE, etc. The term *screeve* in Kartvelian Linguistics stands for the verb conjugation paradigm in terms of Aspect, Tense, and Mood. There are 11 such *screeves* in Georgian verbal morphology (Aronson 1990).

- | | | | |
|----|--|--|---------------------------------|
| | ‘X got tired.’ | | Lit: ‘Y tired X’. ¹⁷ |
| d. | ga- t’q’- d- a
prev- break- intrans-Aor
‘X broke.’ ¹⁸ | ga- t’ex- a
prev- Ø- break- Aor
‘Y broke X.’ | |
| e. | i- ch’r- eb- a
intr- cut- thmw- Aor
‘X got cut’. | ga- ch’r- a
Prev- Ø- cut- Aor
‘Y cut X.’ | |

(7) *a*-prefixed causatives formed from inchoative verbs

- | | | |
|----|--|--|
| a. | ga- i- γ- o
prev-intr- open- Aor
‘Y opened.’ | ga- a- γ- o
prev- CAUS- open-Aor
‘X opened the Y’. |
| b. | gamo- cxv- a
prev- bake- Aor
‘Y baked.’ | gamo- a- cx- o
prev- CAUS- bake- Aor
‘X baked Y.’ |

(6b) is a reflexive verb; (6a, c, & d) are inchoatives. The difference between (6) and (7) is in the allomorphy of causative morpheme. Notice that the causative morpheme realized as *a*-/Ø is root-adjacent, i.e. it linearly precedes the root. It might be argued that the allomorphy of CAUSE is phonologically root-conditioned since *a*- occurs in vowel-‘defective’ consonantal roots while Ø occurs in elsewhere contexts, i.e. it may occur both with vowel-defective and consonantal roots as shown in (6e). The VIs inserted for CAUSE with their conditioning environments can be shown in the following in which the subscript notation [-σ] indicates a class of non-syllabic roots:

- (8) a.
- $a- \leftrightarrow \text{CAUSE} / [\text{ ______ } \text{ROOT}_{-\sigma}]$
- ¹⁹

¹⁷ Note that the free English translation of (9c) is not as ‘natural’ as in other examples in (6). This is because the inventory of verbs participating in the inchoative/causative alternation is language-specific.

¹⁸ It should be noted that (6a-b) are reflexive forms and they are marked with the same prefix *i*- as (6c-d), which are inchoative. This prefix is uniformly present in all reflexives in Georgian such as body verbs but it is not systematic in inchoatives though.

b. $\emptyset \leftrightarrow \text{CAUSE} / \text{elsewhere}$

This sensitivity of the VI to the syllabicity of roots may be taken as evidence that the causatives of inchoative verbs are “low attachment” in the sense of Pylkkanen (2002, 2008). This means that the causative head takes the root for its complement. This alternation is fairly productive in Georgian and applies to a subset of monadic verbs resulting in transitive structure. It has been already shown by many (cf. Pylkkanen (2002) & Harley (2008)) that if the causative head takes the root as its complement, then the resulting structure may have idiosyncratic meaning, and that it may acquire the property of ‘listedness’, which is characteristic of lexical causatives in various languages. This type of idiomatic interpretation may sometimes be present in lexical causatives but not necessarily so (See Harley 2006 and Levin & Rappoport 1999 for further details).

Following Harley (2008) I assume that CAUSE merges in the same position as other light verb elements (such as v_{BECOME} in inchoatives, realized as $i-/ \emptyset$ in (6)-(7)). This head takes RootP (represented as $\sqrt{\text{P}}$) as its complement²⁰.

I propose that the derivation of causatives from inchoatives involves the root, which is verbalized by the $v\text{P}$ introducing causative meaning into the structure (CAUSE). The allomorphy of the CAUSE head in such causatives may be determined by the Root, since no overt material intervenes between them as seen in (9). As we have seen above, the item $a-$ realizes the CAUSE v^0 when the Root is syllable-defective. Thus, based on this

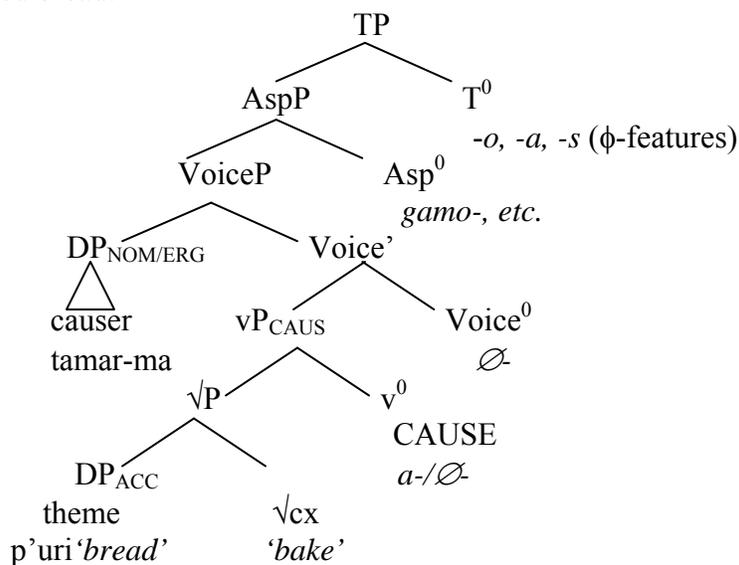
¹⁹ It could be argued that in Georgian $a-$ also realizes the functional head, which is responsible for the projection of the theme argument. I would call the feature [TRANS] on $v\text{P}$ that may be realized with the same phonological exponent and this will be a primary exponence of $a-$. This proposal will be elaborated below Section 2.4.

²⁰ We will be referring to such events as mono-eventive further in this work because it does not combine two independent events.

evidence and following Embick (2009)'s proposal on the phonological conditioning of morphemes as indicating their non-cyclicality, I conclude that the CAUSE head is a non-cyclic head. It is expected that in such reduced transitive structure, the head CAUSE may still 'see' the Root and show the root-conditioned allomorphy.

Given these preliminaries, the structure of causatives resulting from inchoative/causative alternations may be sketched in the following:

- (9)a. tamar-ma p'ur-i gamo- a- cx- o.
 T-Erg bread-Acc Prev- CAUS- bake- 3S/Aor
 'Tamar baked bread.'



In this tree, a full specification of the functional heads merging in the derivation of lexical causative is given. This derivation involves not only the causative head, which is of primary concern in this work, but also the Voice, which introduces the external argument. Cross-linguistically, Tense and Asp⁰ heads are introduced in various positions of the left periphery of the clause. In Georgian and related languages where the Asp⁰ is realized in the first position of the template one might argue that it must be the latest head

merging into the structure assuming bottom-up derivation of words and sentences in syntax. However, this may not be true as it is evident that the morphemes realizing Tense and Series features are in the word-final position fused with the person agreement markers of non-local subjects and objects. As seen in (9), Tns merges later than the CAUSE and other vPs. Thus, it may be assumed that the linearization of the VIs inserted into the Tns and Asp⁰ heads may be subject to some post-syntactic rules and language-specific well-formedness requirements. The exact nature of these rules is not of concern here, but note that in the future discussions on the derivation of causative and applicative structures, we will be assuming the existence of such rules and that they are applied either before or after the Vocabulary Insertion (For example a metathesis rule applies after vocabulary insertion, argued in Embick and Noyer (2001)). In positioning TP above the AspP we follow Travis's (2000) and others' arguments based on the study of event structure in various languages in which the category of Asp⁰ is closely associated with the vP delimitation and presumably, it is merged above the latter projection regardless of its relation with Voice.

As for the argument structure, causatives of inchoative verbs involve a causer argument, which I assume is not projected by the CAUSE but by the Voice⁰ head (following Kratzer (1994) and Pylkkanen (2002, 2008)). The theme argument is assumed to be projected as the complement of the Root as argued by many in the literature.

The evidence that these structures exhibit a simple clausal structure may be seen from the case-marking in (9). The causer is marked with ergative case just like the external argument of a normal transitive verb while the theme is marked with

accusative/absolutive²¹ case. The theme argument is projected by the lexical verbal head and its content is sensitive to the selectional properties of this head. I assume that if the structure contains just one clause, only one case-split argument (the causer) is possible in such a clause:

- (10) tamar-ma gamoacx-o p'ur-i.
 Tamar-Erg baked-AOR bread-Acc/Abs
 'Tamar baked bread.'

Case assignment follows the 'mono-clausal'/'mono-eventive' pattern of transitive structures.²² Given the data of causatives in Georgian, it can also be suggested that the external argument is introduced by the Voice⁰ rather than the CAUSE because the causer never composes with the predicate to form idiomatic expressions. Also, if CAUSE projects an external argument with nominative /ergative case, then, in *adversity causative* structures, where no external argument is projected but the causative head is present, there would be no way to explain why this head does not project the external argument. We return to these questions below in section 2.6.

2.4 Unergative verbs of various types and their causatives

2.4.0 Hale & Keyser (1993, 2002) on unergatives and Noun-Incorporated vPs

There are several types of unergative structures in Georgian and their alternation with causatives is unrestricted. The latter involves the addition of a causer argument and the result is that the former external argument of an unergative verb becomes the causee argument of a causative alternate. I assume that, as in other languages, unergative verbs,

²¹ Since Georgian and related languages display aspectually-conditioned split ergativity (Introduction), it is assumed that the accusative object argument is marked with the absolutive case in the ergative pattern, i.e. in the Aorist series.

²² A note on the choice of terms is due here. I use 'clause' to designate a phase-size (Chomsky 1999) unit of syntactic structure, which can be either vP or CP. In this sense, the causatives of transitive verbs with *make X do V* meaning may contain two 'clauses', i.e. two vPs as will be shown later in this chapter.

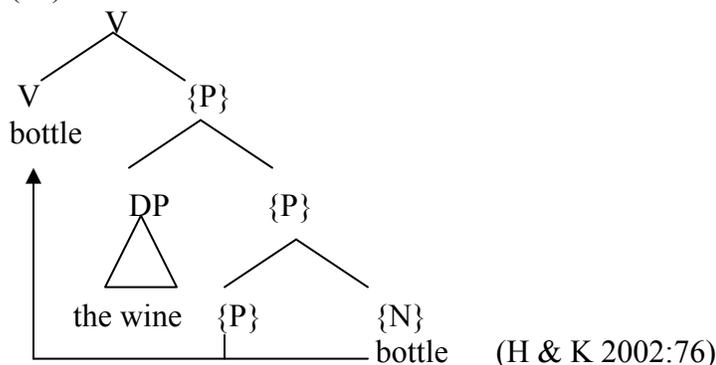
which largely belong to a denominal class such as *laugh, cough, cry*, etc., are derived through incorporation of bare N^0 in a ‘defective’ V^0 head (Hale & Keyser 1993, 2002: 15-16). The operation is a type of External Merger (EM) of the sister nodes under adjacency, which is termed *conflation* in H & K’s (2002:18).²³ The lexical head V^0 , which may be empty or have a zero spellout, may *conflate* with the N or Adj projected as its sister. The derivation of argument structure in these constructions proceeds according to the principles of bare phrase structure (Chomsky 1995). H & K take Conflation as a structural ‘pressure’ for the ‘empty’ V^0 head to get conflated with its sister node, when the latter is bare N or Adj. This theory of how argument structure of unergatives is built resembles other types of incorporation analyses where the noun incorporates into the v^0 head.²⁴

The derivation of an unergative verb begins with a category-neutral root (Marantz 1997) which contributes the phonological material (in H & K’s terms, the features encoded in the phonological material of the morphemes is a *p-signature*) to the verb (H & K 2002: 77). This root is also maximally a lexical projection and not an extended projection in which the *p-signature* is passed onto the verb from a P^0 head as in the following:

²³ This dissertation crucially distinguishes Noun Incorporation (NI) into V^0 head from the Adjective Incorporation (AI). The basis for this comes from the fact that in Georgian NI-ed stems project external arguments which are marked with three different cases while AI verbs project internal arguments, which check just the nominative case across all three series of verbs like unaccusatives. This suggests that AI (Adjective Incorporated) stems have derived subjects, which are VP-internal arguments rather than base-generated as external arguments. This is why the causatives of NI and AI stems are treated separately in this dissertation.

²⁴ Besides the external argument, which is arguably projected by the Voice⁰, a Goal/Benefactor argument may be added to the argument structure of such verbs that results in more complex argument structure.

(11) a. bottle the wine



The structure in (11) is derived through the *conflation* of {P} and {N} first and then P ‘forces’ the merger of the specifier by selection, which is instantiated by the DP *the wine*. After this merger {P} is conflated with the V^0 with further Merge.

In Georgian, unergative verbs present a semantically wider variety than in English but they rarely involve structures with location/locatum arguments like those in English (*bottle, saddle*). As mentioned above, subjects are agentive and they check nom/erg/dative cases against Voice across the present, aorist, and the perfective series much like those of transitive verbs. Here are some examples:

(12) Unergative verbs in Georgian

a. k’iv- i- s²⁵
 scream- TH- 3S/Ser
 ‘He/she screams.’

b. shpot- av- s
 agitate- TH- 3S/Ser
 ‘He/she is agitated.’

²⁵The main reason that I consider these verbs ‘unergative’ is that they have external arguments which are assigned nom/erg/dative cases across the three series. However, one may argue that they are very much like inchoative verbs shown in (6)-(7) participating in causative alternation. I consider these two classes separately because first the subjects in (12) are case-alternating like external arguments and second, all these verbs are clearly formed by NI, which is not present in inchoatives in (6)-(7). Also the causative morpheme used in different in these forms.

c. q'vir- i- s
 shout- TH- 3S/Ser
 'He/she shouts.'

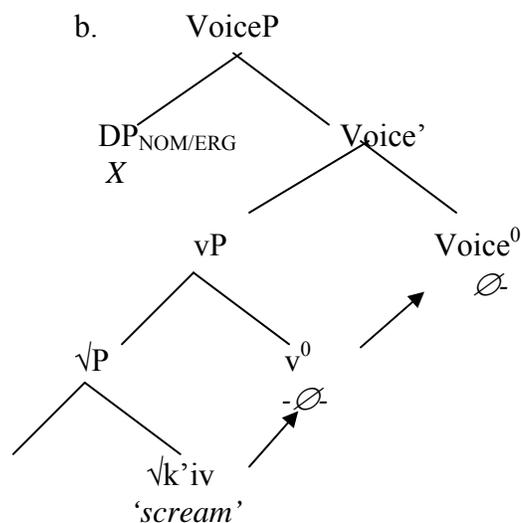
d. cimcim- eb- s
 glitter- TH- 3S/Ser
 'It is glittering.'

e. myer- i- s²⁶
 sing- TH- 3S/Ser
 'He/she sings'.

Note that these verbs do not show any overt morphology marking intransitivity (elsewhere expressed by the prefix *i-*) as in inchoative alternates shown above (see Appendix A for details).

Locatum/location arguments do not merge in these structures either and this excludes the merger of defective {P} in their derivation. It may be argued that the unergative verbs in (12) are derived through root incorporation into an empty v^0 . Thus the structure is:

(13) a. k'iv-i-s 'X screams'



²⁶ Note also that the verbs in (23) are marked with different theme suffixes (such as *-eb*, *-i*, *-av*), which is primarily defined by the verb class. There is no principled reason why certain verbs show up with either of these markers, since thematic suffixes are the formants inserted for morphological well-formedness.

As said above, the unergative/causative alternation may involve the causer and the causee arguments with both the *make X do V* reading and the iterated causative *Z makes X cause Y to do V* meaning. Here are examples of *make X do V* type alternation:

(14) *Make X do V* causatives of unergative verbs

a. **a-** k'ivl- eb- s
 CAUS- scream- TH²⁷- 3S/Ser
 'X makes Y scream.'

b. **a-** cimcim- eb- s
 CAUS- glitter- TH- 3S/Ser
 'X makes Y glitter.'

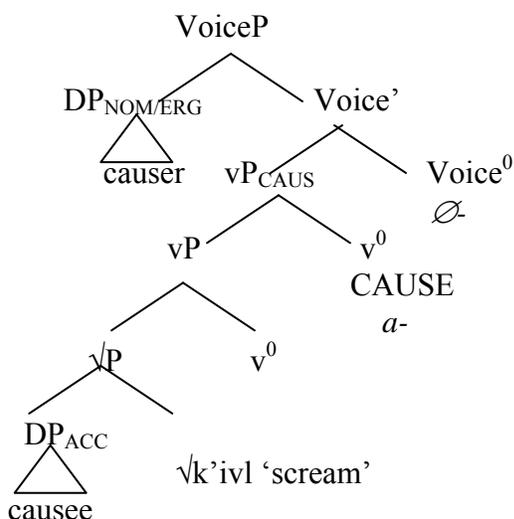
c. **a-** mɣer- eb- s
 CAUS- sing- TH- 3S/Ser
 'X makes Y sing.'

d. **a-** cin- eb- s
 CAUS- laugh- TH- 3S/Ser
 'X makes Y laugh'.

Notice that the morphological shape of these causatives is similar to the causative alternates of inchoative verbs discussed above. The key differences are that only the prefix *a-* is inserted in the CAUSE v^0 , never the \emptyset - one, thematic marker *-eb* is added, adjacent to the root. The productivity of this alternation suggests that CAUSE takes an argument-full vP complement and that the head projects the causee argument in the specifier.

²⁷ Recall that 'thmw' stands for the thematic marker in these verbs.

(15) The causative of unergative ‘a-kivl-eb-s’ *X makes Y scream*.



The causative is derived through root head-movement to higher functional heads such as CAUSE, and Voice⁰. Two arguments are projected in this causative structure: the case-split causer and the accusative causee. This case marking shows the mono-clausal pattern and the causer is assigned the cases of an external argument across three series (nom/erg/dative), while the causee is assigned a structural accusative.

I assume that the case-split argument checks its case against Voice⁰ head via spec-head relation when it is marked with ergative and against Tns via Agree when it is marked with nominative. The causee bearing the accusative case may be argued to be checked against the little v⁰ head whose case probe can search down the structure without incurring the minimality violations.

There is no root-conditioned allomorphy associated with the VI *a-* inserted in CAUSE in these structures. The question is what are the insertion contexts of *a-* allomorph in these unergatives? Recall that the insertion context for the insertion of *a-* was determined by the syllabicity of roots in inchoatives (shown in (8)). Apparently, the syllabicity of

roots is not relevant in determining the allomorph of cause inserted in the causatives of unergatives. I tentatively posit that the insertion of *a-* in unergative structures is sensitive to the feature [+ trans] on the v^0 head. Thus, this is a ‘different’ *a-* than the one inserted in the CAUSE merging in the causative alternates of inchoative verbs:

(16) VIs for CAUSE in (14)

a. $a- \leftrightarrow \text{CAUSE} / \text{ ___ } v^0_{[\text{TRANS}]}$

b. $a- \leftrightarrow \text{CAUSE} / \text{ ___ } [\text{Root}_{\sigma}]$

c. $\emptyset \leftrightarrow \text{CAUSE} / \text{ elsewhere}$

Thus, it may be argued that the VI inserted in CAUSE in these causatives is not sensitive to root properties and the contextual allomorphy attested in the causatives of inchoatives is not at issue here. Given this evidence, I designate the CAUSE as a cyclic in these structures. Stemming from this, it can be argued that the cyclicity of a functional head is relative concept depending on the size of the complement this functional head takes. Again following Embick’s generalizations 1-2, I assume that only the CAUSE head taking the Root complement is a non-cyclic head while the one taking the vP is cyclic.

2.4.1 Adjective-Incorporated (AI) vPs and their causatives

In addition to NI (Noun Incorporation) and conflation, H&K (2002) discuss Adjective Incorporation (henceforth, AI) structures that involve a root combining with ‘a nuclear element’ functioning as a predicator. Such ‘predicators’ are like inflectional categories which in some contexts may be ‘defective’ or phonologically unexpressed (H & K 2002: 54-55). In Georgian, adjective-incorporated structures are presumably formed with a

similar kind of functional element as shown in (17). The crucial property of these intransitive predicates is that the v^0 head does not project an external argument as in NI structures and their highest argument projected in the specifier of VP is case-marked with the nominative case across all series. This property makes AI structures look like unaccusative verbs suggesting that their arguments will behave like derived subjects:

(17) **AI structures**

a. c'q'ali ga- mc'van- **d** -²⁸ a
 water prev- green- pass- Aor
 'Water became green.'

b. xalxi da- mshvid- **d**- a
 people prev- calm.down- pass- Aor
 'People calmed down.'

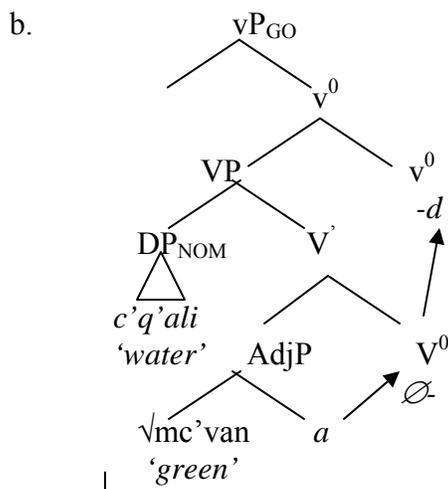
In these forms, the roots $\sqrt{mc'van}$ 'green' and \sqrt{mshvid} 'calm' first combine with *a* (a category-defining head) and then the resulting root is conflated with the 'defective' V^0 head of the lexical projection. The latter head-moves to v^0 which is realized with the VI – *d* in all AI forms. I presume that this vP is the one introducing dynamic intransitive events (such as v_{GO} discussed in Cuervo (2003)).

The following structure shows the derivation of such Adjective-Incorporated verbs:

(18) The structure for AI verbs

a. c'q'ali ga- mc'van- **d**- a
 water prev- green- pass- 3S/Aor
 'Water became green'.

²⁸ The suffix *-d* is analyzed as the passive voice marker in the traditional grammar but this work analyzes it as the VI inserted into v^0 head of the unergative verbs generally.



AI structures in Georgian can alternate with causatives by adding a CAUSE head to the functional layer of the clause imbuing a *cause X to become Adj* reading to the resultant structure:

(19) AI intransitives

a. mo- tvinier- **d-** a
 prev- tamed- pass- Aor
 'X was tamed.'

c. a- č'rel- **d-** a
 prev- color- pass- Aor
 'It became multi-colored'.

e. ga- lamaz- **d-** a
 prev- beautiful- pass- Aor
 'It became beautiful.'

g. mo- č'k'vian- **d-** a
 prev- smart- pass- Aor
 'He/she came to his/her senses'.

i. ga- nat- **d-** a
 prev- light- pass- Aor
 'It became day-like'/
 'It dawned'.

Causative

b. mo- **a-** tvinier- a
 prev- CAUS- tamed- Aor
 Lit: 'X made Y become tame.'

d. a- **a-** č'rel- a
 prev- CAUS- color- Aor
 Lit: 'X made Y multi-colored.'

f. ga- **a-** lamaz- a
 prev- CAUS- beautiful- Aor
 Lit: 'X made Y beautiful.'

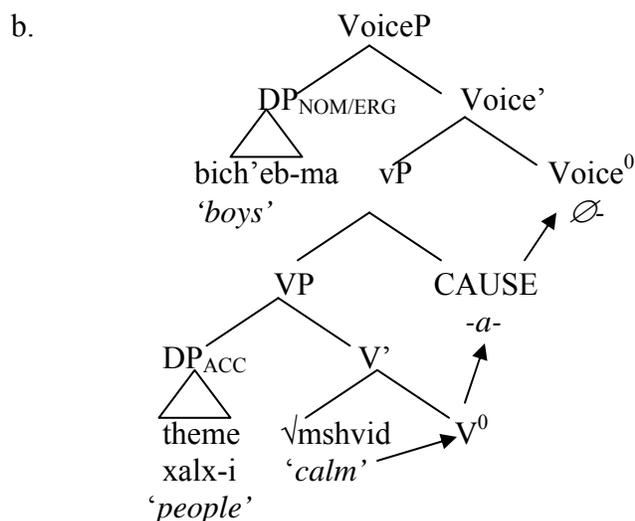
h. mo- **a-** č'k'vian- a
 prev- CAUS- smart- Aor
 Lit: 'X made Y sensible.'

j. ga- **a-** nat- a
 prev- CAUS- light- Aor
 Lit: 'X made Y lightened.'

Again this alternation closely resembles the inchoative/causative alternation with its morphological realization. Recall that the VI *a-* is inserted in two-place causative alternates combining the causer and the theme arguments. AI verbs resemble inchoatives in their argument structure, and their causatives are also similar to those of inchoatives. The causer argument is added to the argument structure of unaccusative verbs and the alternation is productive: causatives may be derived from any AI predicate. Based on the argument structure of these causatives, it may be argued that as in lexical causatives of inchoative verbs, CAUSE selects for the RootP (\sqrt{P}) complement in these structures. Therefore, it is expected that no causee argument is introduced by CAUSE or any other functional head resulting in regular transitive frame as of inchoatives. This could be due to the fact that the alternation is a part of a more general inchoative-causative one. Recall that in these structures, the external argument does not cause another agentive argument to perform a certain action, rather the causer performs the caused action itself. Therefore, the head of the \sqrt{P} does not project the causee argument. These selectional properties of various verbal heads may be found in AI predicates:

(20) The causative of AI unergative verbs

a.	bich'-eb-	ma	xalx-	i	da-	a-	mšvid-	es.
	boy-	pl- Erg	people-	Acc	prev-	CAUS-	calm-	Aor/3S.pl
	'Boys calmed people down.'							



As expected, there is no root-conditioned allomorphy associated with the CAUSE. The exponent *a-* realizes CAUSE in all environments shown in (19). By hypothesis the CAUSE can be realized with the *a-* in the contexts where the v^0 head is specified for [+ trans] feature. We assume that this feature is present on v^0 merged in AI structures as well.

2.4.2 Syntactic and iterated causatives of unergative verbs

When the causatives in (14) further causativize and undergo *X makes Y cause Z to do V* alternation, beyond the causer argument who is the initiator of the core event, two causee arguments are projected and both are inherently agentive. Given this argument structure, the insertion of the second VI for CAUSE *-in* shown in (21) is expected because the structure becomes ditransitive projecting one causer and two causee arguments. I assume that two CAUSE heads are merged in these structures introducing two separate causing events. The case-marking of arguments is again ‘mono-eventive’ only the highest causer argument bears the nom/erg/dative cases of an external argument. Of the two causees, the

higher one receives the structural dative case while the lower causee checks the accusative case. Note also that the case of the higher causee argument does not change in the Present and Aorist series since it is marked with the dative while the case of the lower causee changes from the Present to the Aorist series which indicates that it is marked with the accusative:

(21) Syntactic causative with *X makes Y cause Z to do V* meaning in the Aorist series

a. dato-m nino-s natia da- a- k'ivl- eb- in- a
 D-Erg N-Dat N-Acc Prev- CAUS- scream- TH- CAUS- 3S/Ser
 'Dato made Nino cause Natia to scream.'

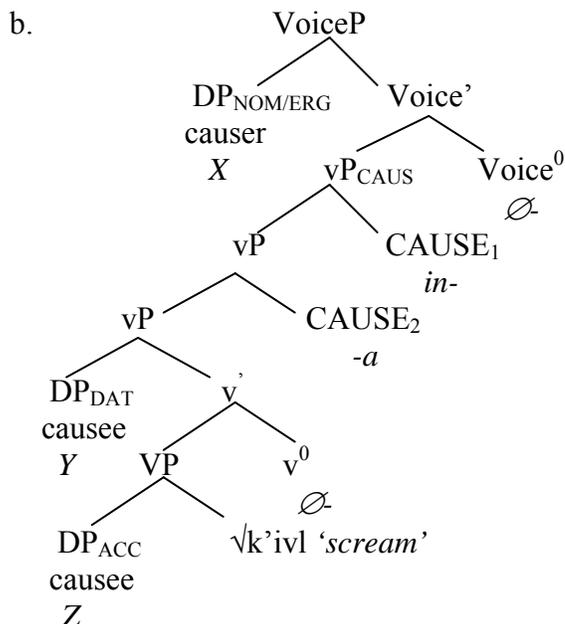
b. dato-m aleksi-s santeli a- a- cimcim- eb- in- a
 D-Erg A-Dat candle-Acc Prev- CAUS- glitter- TH- CAUS- 3S/Ser
 'Dato made Alex cause candle to glitter.'

c. dato-m nana-s aleksi a- a- q'vir- eb- in- a
 D-Erg N-Dat A-Acc Prev-CAUS- shout- TH- CAUS- 3S/Ser
 'Dato made Nana cause Alex to shout.'

Thus, the syntactic structure of iterated causatives contains two causative heads which introduce two separate causing events to the structure and I claim that the dative causee is projected in the specifier of the CAUSE which is vP and its case is checked against the head of this projection. I assume that the case-split argument checks its nominative case against Tns and ergative case against Voice via government. The accusative case on the lower causee argument may be checked against the same v^0 which checks the dative case on the higher causee assuming that the probe of the accusative case feature may be checked first due to bottom-up derivation and when the dative causee is merged its dative cause may be checked via spec-head relation. Observe these structural relations in the following tree:

(22) The syntactic structure of iterated syntactic causatives

a. a-k'ivl-eb-in-eb-s 'X makes Y cause Z to scream'



This analysis of the argument structure of causatives maintains Pylkkanen's notion that the CAUSE does not project the phrasal argument cross-linguistically but the event one.

As seen in (22), further causativization of *make X do V* causatives is possible for the causatives formed from unergative verbs, but there is no iteration of the individual VIs realizing the CAUSE.²⁹ Instead, the exponent *-in* presumably realizes the outer CAUSE in these structures. At this point it may be suggested that the CAUSES can be realized with two different VIs in these structures. I tentatively suggest that the insertion context for the *-in* allomorph of CAUSE is the feature [+ditrans] of the v^0 head. Another point of relevant interest is that when *-in* is realized in a given form, *a-* is also inserted into the second CAUSE head. This type of mutual dependency between two morphemes may not

²⁹ It will be shown below that the iteration of causative morphemes is possible only in the perfective series verbs in Georgian and that the iterated suffix *-in* marks totally different functional category.

be an isolate fact of Georgian. It may be explained with the *discontinuous feeding* mechanism when one morpheme ‘conditions’ the insertion of another into a different functional head. Thus, the [+ ditrans] feature on v^0 can be a contextual feature responsible for the insertion of *-in* in the CAUSE and presumably, the insertion of *a-* can also be sensitive to the same feature. Here is the list of VIs for CAUSE:

(23) Vocabulary items for CAUSE:

- a. $a- \leftrightarrow \text{CAUSE} / \text{ ___ } [\text{Root}_{\sigma}]$
- b. $a- \leftrightarrow \text{CAUSE} / \text{ ___ } v^0_{[\text{TRANS}], [\text{DITRANS}]}$
- c. $-in \leftrightarrow \text{CAUSE} / \text{ ___ } v^0_{[\text{DITRANS}]}$
- d. $\emptyset \leftrightarrow \text{CAUSE} / \text{ elsewhere}$

Notice also that the thematic marker (*-eb*) can iterate in the causative shown in (22). According to the morphological literature (Embick 1997, 2003, among others), thematic markers are not usually associated with functional heads. Presumably, they are inserted just due to well-formedness requirements, as dissociated morphemes. The iteration of one such formant *-eb* in (22) may be accounted for with the series feature of the clause since it occurs in the Present series while the verbs in (21), used in the Aorist series, lack these iterated markers. Their distribution looks also to be associated with the causative marker *-in* often preceding and following the latter. However, there is no fixed pattern of correlation between this causative marker and the thematic syllable *-eb*. Below, this correlation will be explored in greater detail.

It is notable that further causativization of the lexical causatives involving AI structures is also possible resulting in the same *X makes Y do V* meaning. The

morphological realization of the resulting causative is very similar to those derived from unergative verbs:

(24) Causatives of AI-incorporated verbs

a. mo- **a-** tvinier- eb- **in-** a
 prev- CAUS- tame- TH- CAUS- Aor
 'X made Y tame Z.'

b. ga- **a-** lamaz- eb- **in-** a
 prev- CAUS- beautiful- TH- CAUS-Aor
 'X made Y embellish Z.'

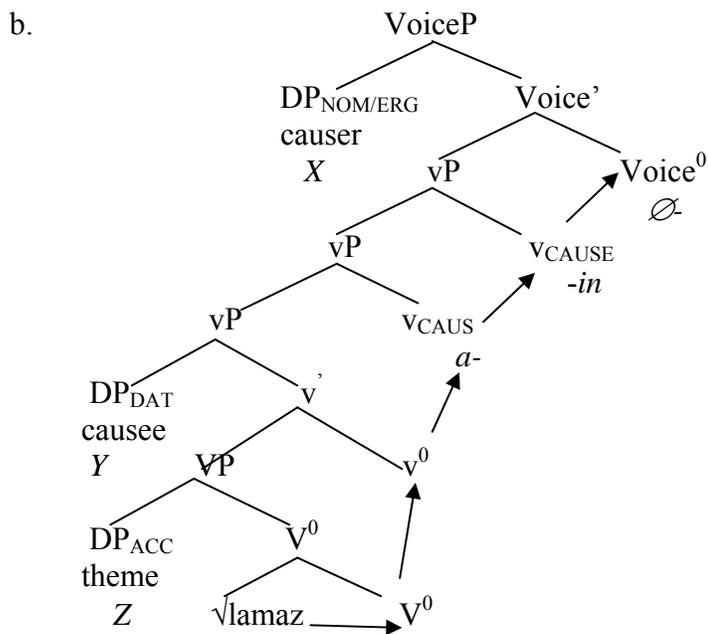
c. da- **a-** maxinj- eb- **in-** a
 prev- CAUS- ugly- TH- CAUS- Aor
 'X made Y make Z ugly'.

d. ga- **a-** mc'van- eb- **in-** a
 prev- CAUS- green- TH- CAUS- Aor
 'X made Y make Z green.'

Recall from the discussion above that the VIs *a-* and *-in* are inserted into two CAUSES in unergative structures that add the second causee argument resulting in iterated causative meaning *make X cause Y to do V*. Here only *X make Y cause X V* reading is possible and still two CAUSES merge introducing two causing events and two lower arguments represent the causee and the theme. The insertion of the two VIs for CAUSE is predicted given the ditransitive structure of these constructions. As noted in (23), *-in* is inserted in the environment of v^0 with the [+ ditrans] feature. I assume that the causatives of AI predicates with *X made Y to do V* meaning have the following derivation:

(25) AI causatives

a. ga- **a-** lamaz- eb- **in-** a
 prev-CAUS- beautiful- TH- CAUS- 3S/Aor
 'X caused Y to make Z beautiful.'



Adjective-Incorporated causative with a *make X do V* reading should show the complex internal structure on the syntactic tests. These tests can be the same as shown with the similar causative structures of unaccusative verbs:

(26) VP-modifying adverbial test

a. *dato* *st'udent'eb-s* **a-tviniereb-in-eb-s** *maimunebs* *isev.*
 D-Nom students-Dat CAUS-tame-CAUS- monkeys again
 'Dato makes students tame monkeys again.'

b. *isev* *dato* *a-tviniereb-in-eb-s* *st'udenteb-s* *maimunebs.*
 Again D CAUS-tame-CAUS- students monkeys

(27) Depictive modification test

a. *dato* *st'udenteb-s* **a-** **γeb-** **in-** *eb-s* *saxls*
 D-Nom students-Dat CAUS- paint- CAUS- TH- 3S house

gaxarebulebs
 merry-Dat

Lit: 'Dato makes *students merry* open the house.'

b. *dato* *st'udenteb-s* *gaxarebul-i* **a-** **γeb-** **in-** *eb-s* *saxls*
 D-Nom students-Dat merry-Nom CAUS- paint- CAUS- TH- 3S house

c. ?? dato st'udenteb-s a- γeb- in- eb- s saxls
 D-Nom students-Dat CAUS- paint- CAUS- TH- 3S house

gaxarebul-i.

merry-Nom.

'Dato makes students open the house merry.'

The VP-modifying adverbial *isev* 'again' can scope over the matrix (the causing event) or the embedded (the caused event) depending on the attachment site. In (26a), *isev* 'again' modifies the caused event entailing meaning that students tame monkeys repeatedly due to Dato's initiation. In (26b), the meaning is different since the same modifier scopes over the causee's action, i.e. Dato repeatedly causes students to tame monkeys. The causer *Dato* and the causee *students* may not be projected into the separate clauses (CPs), but the adverbial scope facts suggest that the adverbial modifies two vPs, which can be argued to be phases in the sense of Chomsky (1999) discussed in the introduction of the dissertation.

As for the depictive modification test in (27), when the depictive modifies the causer *Dato* it is more natural to use it more locally, i.e. before the VP merges as in (27b) rather than at the end of the structure where the depictive of the lower causee is still fine (27a). This indicates that depictive modifiers are sensitive to locality and we assume that the depictives of the causer and the causee may be projected in different 'clauses' taking the latter as a smaller structural unit than the clause with the full CP. Thus, we may assume that bi-eventive analysis of these complex predicates is possible.

2.5 Transitive/causative alternation

2.5.0 Introduction

This section recapitulates some of the observations discussed in the previous parts, applying them to transitive predicates. These are all syntactic causatives of *make X do V* type, and the morphology is similar to those formed from other classes of verbs.

The rest of the section is organized as follows: in 2.5.1 the basic type of causative structures derived from transitive verbs are discussed as well as their complex syntax; section 2.5.2 present extensions of the analysis for iterated causatives.

2.5.1 *X makes Y do V alternation*

Transitive predicates allow a CAUSE and a VoiceP whose head projects an external causer argument. The morphological shape of such causatives shows the insertion of the two VIs *a-* and *-in* into the CAUSE head. The prefix *a-* is linearized before the root, as in other kinds of causatives above. Here are some examples:

(28) Transitive	Causative
a. k'rep- s pick- 3S/Ser 'X picks it.'	b. a- k'rep- in- eb- s CAUS- pick- CAUS- TH- 3S/Ser 'X makes Y pick it.'
c. cvl- i- s exchange- TH- 3S/Ser 'X exchanges it.'	d. a- cvl- evin- eb- s CAUS- change- CAUS- TH- 3S/Ser 'X makes Y exchange it.'
(29) a. a- pas- eb- s ³⁰ CAUS- praise- TH- 3S/Ser 'X praises it.'	b. a- pas- eb- in- eb- s CAUS-praise- TH- CAUS- TH- 3S/Ser 'X makes Y praise it.'
c. a- shen- eb- s CAUS- build- TH- 3S/Ser	d. a- shen- eb- in- eb- s CAUS- build- TH- CAUS- TH- 3S/Ser

³⁰Note that some of the transitive forms in (38) are marked with *a-* and some with \emptyset for transitivity. I assume that *a-* is the VI inserted in the v^0 of certain verbs, specifically, in those, which have *-eb* as a thematic marker (38a & e), while \emptyset is an elsewhere item (38c & g). We are not concerned with the realization of this v^0 , because the issue here is realization of the causative head in syntactic causatives of the *make X do V* type.

‘X builds it.’

‘X makes Y build it.’

Notice that there are two different patterns of causative marking in (28) and (29). The verbs *pick* and *exchange* have the zero phonological item for the CAUSE in their transitive frame and then doubled causative marking of the syntactic causative of *X makes Z do V* alternates, i.e. in (28a & b), both *a-* and *-in* are inserted for the CAUSE. I may argue that in the causative alternate of these verbs only one CAUSE is realized with two phonological exponents *a-/in* since in their transitive frame in (28a & c), no causative marker shows up. To explain this pattern of the realization of CAUSE, recall from Section 2.3 that the null phonological item for CAUSE has elsewhere distribution and it shows up both in syllable-defective and syllable-full environments. Thus, it may be assumed that this null exponent of CAUSE is present in (28a & c). However, the causatives of both sets of verbs are marked with the exponents *a-* and *-in* and I argue that the stacking of the two morphemes indicates two CAUSES both in (28) and (29).

The insertion of two VIs for CAUSE can again be explained with the conditioning environments of *a-* and *-in* specified in (23). Both VIs can occur in the contexts of v^0 bearing [+ ditrans] feature and here the structure satisfies this condition. However, the suffix *-in* may or may not follow the thematic marker *-eb*, which is iterated in (28d) & (29). The causative in (28d) is unusual in that it is marked with *-evin* rather than with *-in*. I claim that the simple (*-in*) and the complex causative marker (*-evin*) are allomorphs of CAUSE. This comes from the observation that diachronically the affix *-ev* is derived from the thematic marker *-eb*. One might think that these simple and complex

allomorphs of CAUSE may be sensitive to the syllabic structure of roots they attach to (as sketched in (30)):

- (30) a. *-in* ↔ CAUSE [$\sqrt{\text{ROOT}}_{[+\sigma]} _____]$
 b. *-evin* ↔ CAUSE [$\sqrt{\text{ROOT}}_{[-\sigma]} _____]$

On the surface, it appears as if *-in* is inserted into CAUSE with the vowel-full roots, while *-evin*, which contains the assimilated thematic marker, is inserted in syllable-defective roots. However, the data in (29) does not show that the post-base thematic marker *-eb* is sensitive to the syllabicity of roots. The exact distribution of thematic affixes is not a concern in this work and it may be explored in a separate paper in the future.

The relevant question, then, is why the thematic marker is ‘absent’ in (28b) and the causative suffix *-in* appears immediately adjacent to the root. Notice that the root contains the rhyme *-ep*, which one might think diachronically could also have been the thematic marker *-eb* subjected to word-final devoicing of bilabial stops. However, this hypothesis may not be true given the vowel alternating roots of this verb in the present and the aorist series which are $\sqrt{\text{‘k’rep}}\text{-}\sqrt{\text{‘k’rip}}$ ‘*pick*’ displaying the umlaut pattern of root alternation. Based on this observation I suggest that *v-k’rep* cannot be analyzed as *v-k’r-ep* ‘*I am picking*’ in which the phonologically modified thematic marker *-eb/-ep* is analyzed separately in the causative. I also argue that the absence of the iterated *-eb* in (28) may NOT be taken as the lack of the second CAUSE in the causative alternates since as we have argued in Section 2.3 the thematic marker *-eb* is associated with the series features appearing in the present series present and future screeve forms in a number of ergative and transitive verbs as shown in the following:

(31) Unergatives and transitives with *-eb* in the present and the future screeves

a. v- i- mʏer- eb
 1S- voice- sing- TH
 ‘I will sing’.

b. v- i- cekʷv- eb
 1S- voice- dance- TH
 ‘I will dance.’

c. v- a- kʷet- eb
 1S- CAUS- do- TH
 ‘I am doing it.’

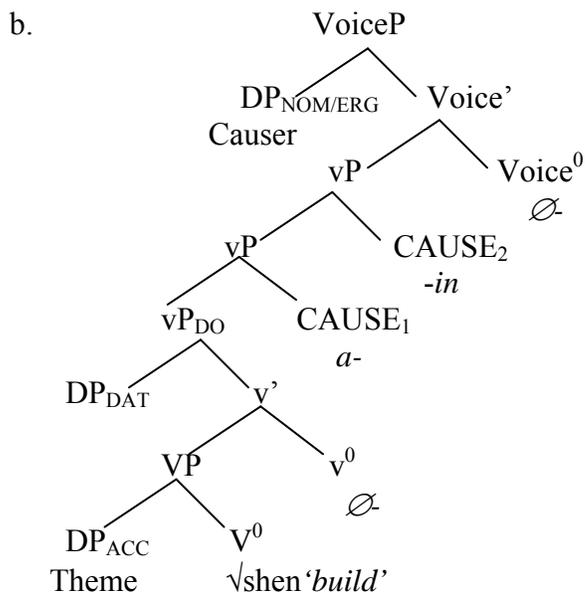
d. v- e- kʷamat- eb- i
 1S- voice- argue- TH- Tns
 ‘I am arguing’.

Based on these examples, it can be argued that the distribution of the thematic marker *-eb* across various verb classes is not always linked to the presence of the CAUSE and it shows up in elsewhere contexts both adjacent and distanced from the Root/base. The lack of the thematic marker *-eb* in (28b) may be explained due to the structure of root itself. It may be that a readjustment rule applies in the post-syntactic component and deletes this affix in the environment of identical or near-identical phonological element like the *-ep* in ‘kʷrep’ *‘pick’*. All other forms in (28)-(29) may be argued to contain *-eb* or its modified phonological element *-evin* the latter being sensitive to the syllabic structure of roots.

Now the derivation of these complex causative structures is shown in the following tree:

(32) The causative of a transitive verb

a. a- shen- eb- **in-** eb- s
 CAUS- build- TH- CAUS- TH- 3S
 ‘X makes Y build Z’.



In this structure, CAUSE selects for the vP_{DO} complement. The external causer argument is projected by the Voice and the v_{DO} introduces the dative causee in the causative alternate that receives agentive interpretation. The case checking pattern is similar here as in other double-CAUSE structures above and we do not repeat it here. It is expected that these causatives containing phase-complete vPs will behave like syntactically complex structures on the adverbial scope and the depictive modification tests:

(33) VP-modifying adverbials

a. *giam* *eliso-s* *k'oncert'i* *sc'rapad*
 G-Erg E-Dat concert quickly

ča- **a-** c'er- **in-** a
 prev-CAUS- record- CAUS- 3S
 'Gia made Eliso quickly record the whole concert.'

b. *giam* *elisos* *k'oncert'i* *cha-a-c'er-in-a* *sc'rapad.*
 G E concert prev-CAUS-record-CAUS-3S quickly

In (33a), the adverbial modifier is agent-oriented, which may be interpreted as the adverbial scoping over the causing event i.e. Gia *quickly* made Eliso record the concert, while in (33b), the adverbial modifies the recording event, i.e. Gia caused Eliso to record the concert *quickly*. Thus, the causative structures are derived in the syntax and word derivation parallels the syntactic derivation.

The depictive modification test also allows us to diagnose the bi-eventive properties of these causatives as shown in the following examples:

(34) Depictive modification of the causer and the causee

a. *gia-m eliso-s k'oncert'i cha- a- c'er- in- a daɣlil- s.*
 G-Erg E-Dat concert prev-CAUS- record- CAUS- 3S tired- Dat
 'Gia made Eliso record the concert tired.'

b. ?? *gia-m eliso-s daɣlil-ma k'oncert'i cha- a- c'er- in- a.*³¹
 G-Erg E-Dat tired-Erg concert prev-CAUS-record- CAUS- 3S

c. ?? *gia-m eliso-s k'oncert'i cha- a- c'er- in- a daɣlil-ma.*
 G-Erg E-Dat concert prev- CAUS- record- CAUS- 3S tired-Erg

As seen in (34), the depictive phrase 'tired' is associated with the causee Eliso rather than with the causer Gia in (34a) because the depictive is marked with the dative case as a result of the copying rule applied at the Morphological Structure to the case features of the head noun (Halle 1991). This results in the agreement of the case features between the depictive and the noun. The identical case marking of Eliso and the depictive in (34a) and relative acceptability of such modification may be argued to be linked to the modification

³¹ It should be noted though that the ergative depictive is relatively fine immediately following *Gia* such as in the following: *gia-m daɣlil-ma Elisos k'oncert'i cha-a- c'er- in-a* 'Gia tired made Eliso record the concert'.

of the recording event by this depictive, while the relative unacceptability of the structure in (34b & c) may be due to the locality constraints on the position of the depictive and modified element. Thus, it may be argued that the causer is not in the same domain as the depictive phrase in (34c) making its depictive modification ungrammatical.

Having illustrated the complex syntactic structure of productive causatives in Georgian, now I will turn to the iteration of various types of causatives before discussing other types of causative alternations such as those of adversity and psych verbs.

2.5.2 Iterated causatives

Travis (2000) shows in both in Malagasy and Tagalog the causative morpheme can iterate, provided there is an intervening morpheme. In these languages, the meaning of such morphological idiosyncrasy is understood as ‘*cause X make Y do V.*’ This syntactic causative arguably stands for two causative heads merged in the syntax. Travis suggests that in such structures, the causative morpheme closest to the root is the lexical causative while the others are productive causatives. This is because in both languages, the lexical causative morpheme and the productive causative morpheme are the same (*an-* and *pag-* respectively) and in Tagalog, when the productive causative morpheme is added to the lexical causative form the lexical causative morpheme disappears. Travis provides further evidence that the iteration of causatives in Malagasy is attested when a lexical causative turns into a productive syntactic causative. Each causative morpheme adds an additional agent, so that one-place verb becomes two-place predicate, and a two place predicate three place predicate, etc. Serratos (2008) also discusses the existence of such causatives in Chemehevi and argues that the iteration of the causative morpheme is

respectively). The first iteration is attested with the causative alternate of the transitive verb *to return* whose root may also be used in an intransitive frame with the meaning ‘he returned’. Related data in Georgian shows that both frames of the intransitive: ‘*He returned*’ and ‘*He returned X to Y*’ are available with the same root. The difference is in the Voice morphology: the transitive frame is marked with the low applicative prefix (*i-*) while the intransitive one is marked with the suffix *-d* (often referred to as the passive marker in the traditional grammar):

(37) ‘Return’ in Georgian

a. da- g- i- brun- a
 prev- 2O- applic- return- Aor
 ‘X returned Y to you’

b. da- brun- **d-** a
 prev- return- pass - Aor
 ‘X returned.’

It is evident that the Svan causative in (34a) corresponds to Georgian (35a) and the two iterated morphemes mark the CAUSE (and presumably the transitive v^0). The Mingelian data provided in Kajaia (2001) suggests that the iteration of causative morphemes is possible in the present perfect (evidential) screeve of the perfective series:

(38) Mingrelian causatives

a. u-č’ar-**ap-u**-ap-u(n) ‘make X write.’ (perf.)
 b. u-tol-**ap-u**-ap-u(n) ‘make X peel’ (perf.)
 c. u-z-**ap-u**-ap-u(n) ‘make X mix dough’ (perf.)

Similar morphological structure is available in Georgian in the perfective screeves (in the pluperfect and the conjunctive perfect) where evidentiality may also figure in the interpretation of the Pluperfect forms. Observe the following forms:

(39) **Conjunctive Perfect forms of causatives in Georgian**

- a. ga- m- e- k'et- eb- **in-** eb- **in-** o- s
 prev-1S- recip³²- make- TH- CAUS- TH- CAUS- scrv- 3O³³
 'I (apparently) would have made X do V'.
- b. ga- m- e- recx- **in-** eb- **in-** o- s
 prev- 1S- recip- wash- CAUS- TH- CAUS- scrv- 3O
 'I (apparently) would have made X wash Y'
- c. da- m- e- rek'- **in-** eb- **in-** o- s
 prev- 1S- recip- call- CAUS- TH- CAUS- scrv- 3O
 'I (apparently) would have made X to call Y'.

Notice that the difference between these Georgian and Mingrelian iterated causatives and those found in Svan (in (36)) is that the iteration of the causative morpheme marks the *make X do V* causative and that these are the structures where at least separate causer and causee arguments are projected. It is also clear that, in Georgian and Mingrelian, the iterated causative morpheme does not add any argument or another CAUSE to the argument structure of these transitive verbs. It should stand for some other functional category. I will attempt to identify this functional head shortly after listing some morphological and syntactic idiosyncrasies of the Perfective series verbs in these languages. Based on the preliminary evidence, the iteration of causative morphemes in Georgian and Mingrelian marks just the causative alternates of transitive verbs which are interpreted with *make X do V* meaning.

Some of these unusual characteristics of iterated causatives in the perfective relevant to the analysis of double causative marking are:

³² Here the gloss 'recip' is provided for the reciprocal marker *e-*, which is multifunctional phonological exponent realizing Voice⁰ and/or a little *v*⁰ in various verbs. The syncretism between these various instances of *e-* will be analyzed in Section 2.8 dealing with the psychological verbs and their causatives in Georgian.

³³ I gloss the second causative suffix as CAUS both in Georgian and Mingrelian for the time being until we come up with an explanation for what this morpheme stands for in these languages.

- (40) a. The prefix *u-* marks high applicative meaning in the perfective series both in Mingrelian and Georgian because there is no recipient, source, or possessor relation (characteristic of low applicatives) detected between the applied argument and the theme in these structures.
- b. The causer argument is assigned the dative case in these series and it triggers the m-set agreement normally associated with objects of the transitive verbs attested in the present and the aorist series³⁴;
- c. The perfective series is the only tense/mood/aspect paradigm where evidentiality plays a certain role in interpretation (Georgian- Aronson 1990, Mingrelian- Kajaia 2001, and in Svan --Topuria 1967, Sumbat'ova 1999). Evidentiality denotes the morphological marking of the type of action which was not witnessed by the reporter of an event. Presumably the reporter learned about the event by hearsay indicated by 'apparently' in (49).
- d. In the perfective series, the reciprocal/reflexive prefix *e-* marks transitive verbs, which is not expected because normally the transitivity marker is the prefix *a-*.

Given these morphological and syntactic peculiarities of the Perfective series verbs, it can be argued that the iterated causative morpheme in Georgian and Mingrelian may be associated with two arguments, one who reports an event, and another, the causer of the same event. In addition, I suggest that these two events are morphologically realized by

³⁴ See the introduction for the definition of these sets of person agreement prefixes ('m-set' and 'v-set')

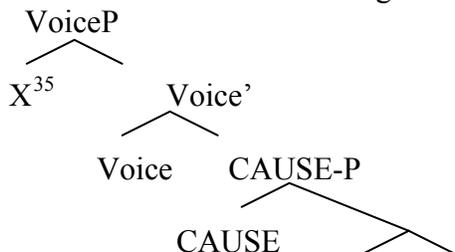
the same VI. In Svan, the iteration occurs in unaccusative verbs, which are syntactically causativized. Presumably, the iteration was the reflex of syntactic causativization in Old Svan and in Proto-Kartvelian. However, the absence of ‘double’ causative meaning in Mingrelian and Georgian suggests that the reflex was lost sometime in the diachronic development of the Proto-language into the daughter languages and the second exponent of the causative morpheme was reanalyzed as a Perfective series marker. Thus, the iteration of a causative morpheme in the Perfective series has no longer been associated with the further causativization of the syntactic causative, but rather with some other functional head, whose exact identity is not our concern here, in this work, and will be explored in a separate article.

2.6 Adversity causatives in Georgian

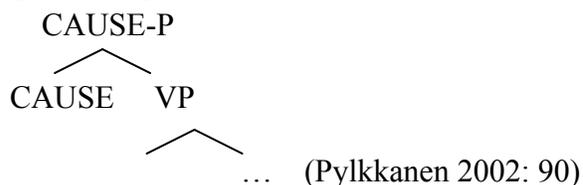
Pylkkanen (2002) argues that the introduction of a new syntactic argument is not a universal core property of causativization and that the basic distinguishing feature of causative verbs from their non-causative alternates is a syntactically implicit event argument ranging over the causing events. This means that all causative constructions involve CAUSE which combines with non-causative predicates and introduces a causing event to their semantics but does not necessarily introduce the external causer argument. This structural configuration is arguably present in Japanese adversity and Finnish desiderative causatives. Although both constructions lack the external argument, they have causative meaning and they presumably have some implicit causer argument, which is interpreted as an event itself. Due to such semantics of adversity causatives, Pylkkanen (2002) arrives at two possibilities in terms of CAUSE and Voice bundling across

languages. In the languages like Japanese and Finnish, where the CAUSE does not bundle with Voice, two configurations of causatives are possible:

(41)a. Causative with an external argument



b. Unaccusative causative



Pylkkanen's main argument is that since some languages separate CAUSE from Voice, the strongest theory would maintain this separation universally, so that the CAUSE would never introduce an external argument. Stemming from these two possible structures for causatives, she presents two opposing views on their semantics reported in the literature. One view (Doron 1999) denies the existence of two event arguments and relates the external argument to the caused event via a causer theta-role (Pylkkanen 2002:79). Another, more traditional, view recognizes a relation between two events in the causative (Parsons 1990). Pylkkanen's analysis is sympathetic to the latter. She refers to causatives as bi-eventive (bi-clausal) predicates. Doron's view interprets causatives based on the thematic roles of arguments projected in these structures. Doron's thematic role view does not allow for the possibility of causatives without external arguments and

³⁵ It is assumed that X is either DP or NP in these constructions.

identifies the introduction of causative meaning with the introduction of an external argument. The bi-eventive analysis, by contrast, predicts the existence of causatives without an external argument such as those attested in Japanese adversity and Finnish desiderative causatives.

Pylkkanen (2002, 2008) specifically shows that, in Japanese adversity causatives, it is possible to posit the existence of a causing event without relating any argument to it. Also there is a clear morphological distinction between the adversity passive and adversity causative structures. Here are some examples:

- (42) a. Adversity passive
 Taroo-ga musuko-ni sin-are-ta.
 Taroo-Nom son-Dat die-PASS-PAST
 ‘Taro’s son died on him.’
- b. Adversity causative
 Taroo-ga musuko-ni sin-ase-ta.
 Taroo-Nom son-Dat die-CAUS-PAST
 ‘Taro’s son died on him.’ (Pylkkanen 2002: 82)

Although the meanings of these two constructions resemble each other, they are not identical. (42a) can be interpreted as Taro’s son died without any particular cause, while (42b) attributes this death to some outside cause. In Georgian, adversity causatives with similar meaning are productive and show similar semantic properties to their Japanese counterparts in that the event expressed by the verb is caused by some external causer argument which is not projected in the structure and the dative causee argument acts out an event expressed by the verb:

- (43) Adversity causatives in Georgian

- a. m- e³⁶- k'vl- **evin**³⁷- eb- a
 1S- Voice- kill- CAUS- TH- 3O/Ser
 'I am caused to kill X.'
- b. m- e- tr- **evin-** eb- a
 1S- Voice- drag- CAUS- TH- 3O/Ser
 'I am caused to drag X.'
- c. m- e- glej- **in-** eb- a
 1S- Voice- tear- CAUS- TH- 3O/Ser
 'I am caused to tear X.'
- d. m- e- brdɣv- **evin-** eb- a
 1S- Voice- tear.apart- CAUS- TH- 3O/Ser
 'I am caused to tear X apart.'
- e. m- e- masxara- v- eb- **in-** eb- a
 1S- Voice- fool- infn- TH- CAUS- TH- 3O/Ser
 'I am caused to fool X.'
- f. m- e- landʒ'ɣ- v- **in-** eb- a
 1s- Voice- scold- infn- CAUS- TH- 3O/Ser
 'I am caused to scold X.'

The lack of the root-conditioned allomorphy of *-in* in (43) is similar to the cases previously discussed in this chapter. The idea is that CAUSE is an outer head and it is insulated from the root with the 'doubled' layer of bracketing. This is because the CAUSE in these structures selects for a vP complement whose head along with the category-defining head *v* insulates the root from the CAUSE. Even though these two heads are not phonologically realized, they still prevent Root-conditioned allomorphy of the morpheme inserted into the CAUSE.

³⁶ Note that I am glossing the prefix *e-* as Voice because in these structures, because it does not mark the causative head. I assume that it is the part of the syncretism of Voice markers.

³⁷ I am glossing *-evin* as a causative marker for convenience here assuming that *-ev* is a thematic suffix presumably inserted into the Infl⁰ or T⁰. See discussion below.

Another question is why the VI for the CAUSE *-in* is inserted in these structures, which are not obviously ditransitive (given the insertion context of this VI in (23)). The answer can be found in the interaction between the morphemes realizing various functional heads. As seen in (43), another exponent for the CAUSE, the affix *a-* is absent and this could be due to the different argument structure of these structures from the causatives discussed above. Since the causer argument is not projected this sets adversity causatives apart from other syntactic causatives discussed so far. Following Embick (1997) I argue that this is due to the [NonActive] feature on Voice and because of this feature, the zero elsewhere item for CAUSE is realized in the pre-base position-of-exponence (the 3rd slot) and the exponent of NonActive Voice can be inserted unobstructed. Since the affix *-in* is available as a primary exponent of CAUSE to be discharged in the post-base position, it will be realized in this slot in the absence of *a-* in the pre-base slot. This type of interaction between the exponents of Voice and the causative heads can be argued to be an instance of discontinuous feeding (Noyer 1997). As argued above, this mutual dependency of the VIs may be formalized one VI ‘conditioning’ the appearance of another VI in the same verb.

Also it is evident that *-evin* in the above adversity causatives is inserted in syllable-defective roots where the latter contains just consonant clusters. As argued above in section 2.4, I assume that this *-evin* is a morphologically complex morpheme itself and that it consists of two VIs *ev+in* that are inserted for the thematic and causative morphemes respectively. As argued elsewhere in this chapter, CAUSE is an outer head while the thematic markers are often placeholder affixes. The insertion of the VI into the

node immediately adjacent to the root can be root-conditioned as argued in Embick (2009). I assume that this happens with the thematic affix *-eb* in the above adversity causatives. Thus, *-eb/-ev* insertion will be subject to Root conditioned allomorphy.

(44) VIs for the non-cyclic head

-ev/-eb ↔ / root_[−σ]_____

∅ ↔ /elsewhere

Now let's expand a little bit on the prefix *e-* marking Voice in these structures. This exponent is multifunctional in Georgian showing the instances of syncretism across various classes of verbs. It can mark passive, certain two-place transitive verbs which I call 'reciprocals', and reflexive structures as well as certain types of applicatives, which will be discussed in detail in Chapter 3. (Also see Appendix 1 for detailed explanation of this syncretism).

Here are some examples of the mentioned structures which show the syncretism of Voice morphology with adversity causatives in (43):

(45) Verbs denoting reciprocal events³⁸

a. v- e- lap'arak'ebi

1S- voice- talk

'I talk to X.'

b. v- e- čxubebi

1S- voice- quarrel

'I quarrel with X.'

c. v- e- k'amat ebi

1S- voice- argue

'I argue with X.'

(46) Passives

³⁸ These two-place predicates are different from regular transitives in that they project non-case-alternating nominative subjects and dative objects in Georgian. In English, these dynamic verbs also involve prepositional objects, which sets them apart from transitive structures projecting accusative themes.

a. m- e- dʒʷvneba
 1S- voice- dedicate
 ‘I am dedicated X.’

b. m- e- ʒʷleva
 1S- voice- give
 ‘I am given it.’

As seen above, *e-* shows up in a wide variety of structures including reciprocals and passives among others. I argue that *e-* is an exponent of Voice in all these structures and that Embick’s (1997) feature [NonActive] on Voice can account for the syncretism displayed in these examples. One might argue that action sentences realized with this morpheme are like deponents and their Voice head may be specified for the same feature [NonActive] as in passives. How this feature is implemented at the PF blocking the appearance of the VI realizing the CAUSE is discussed next.

The Voice head in reciprocals does not participate in any syntactic alternation in syntax. Therefore, the voice morphology does not effect a syntactic change and this class of verbs is expected to be inherently specified for [NonActive], which is realized with the VI *e-* at the morphological structure (MS)³⁹.

In passives, Voice is also specified for the same [NonActive] feature. However, the non-active morphology in passives effect the passive alternation and I assume that the

³⁹ As a consequence of this feature on the Voice⁰ head, the latter does not project an external causer argument. Rather, the DPs projected with this head are assigned nominative case across the series much like those of unaccusative and inchoative verbs. They also behave like derived subjects since *reciprocals* cannot alternate with passives as shown in (57):

(47) Passive of reciprocal events impossible:
 * Dato dalap’arak’ebul ikna Nanas mier.
 D-Nom spoken was N by.
 ‘Dato was talked to by Nana.’

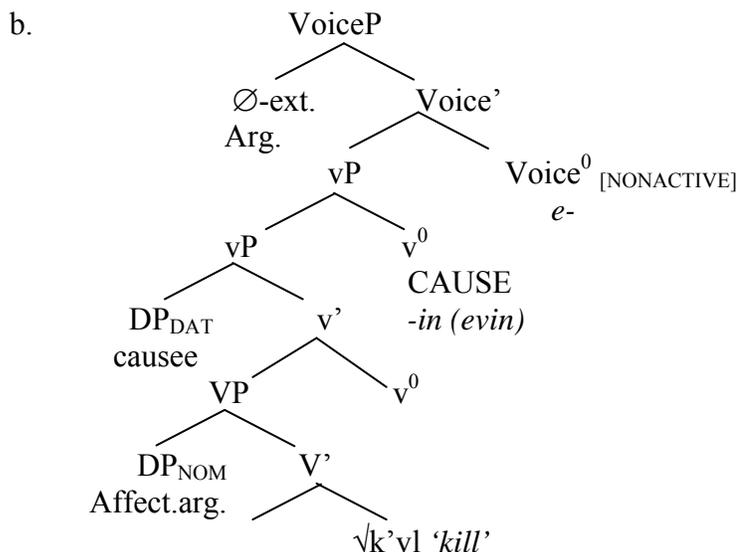
feature [NonActive] is also present in syntax driving A-movement of an internal argument to the subject position.

In adversity causatives, the feature [NonActive] may be also argued to be specified in syntax since the argument structure of these constructions seems to be very much similar to that of passive constructions: there is no overt causer argument projected by the Voice⁰ head and passive alternation of these structures is impossible as shown in (47). Although the non-active morphology does not effect a syntactic alternation in these constructions, the feature still has to be present in syntax to ensure that the external argument is not projected by Voice⁰. This is why I suggest that the feature [NonActive] is present in the syntax of all these constructions.

I hypothesized above that the null exponent for CAUSE in the pre-base position is due to the feature content on the Voice head. The CAUSE is realized with the null exponent in the pre-base position freeing up the slot for the VI of the Voice⁰. Thus, the morphological shape of adversity causatives in Georgian is correlated with the argument structure of the predicate and the feature content on the Voice⁰ head. Here is the structure showing the derivation of adversity causatives:

(48) The structure of adversity causatives

- a. m- e- k'vl- evin- eb- a
 1S- voice- kill- CAUS- TH- 3O
 'Something causes me to kill him/her.'



Note that the nominative argument is interpreted as an affected argument. The causer argument is not overtly projected in these structures and it may be assumed to be implicit. Arguably this affected argument marked with the nominative case checks its nominative case against Tns since the dative case on the causee argument is inherent and does not intervene between the Tns and the affected argument to check the nominative. The CAUSE in these structures takes a vP complement rather than the VP as said above. However, this does not amount to the bi-eventive analysis of these causatives because arguably there is no causer argument projected in this structure and the causee and the affected argument are processed as if they belong to the same ‘clause’. This can be shown by the test of depictive modification in which the depictive phrase can modify the affected argument when it attaches before the verb as shown in (49a) while the lower modification of *Dato* is degraded as in (49b):

(49) **Depictive modification test**

a. dato-s *ivane* *mtvral-i* e-k'vle-evin-eba.
 D-Dat I-Nom drunk-Nom Voice-kill-CAUS-

‘Dato is caused to kill Ivan drunk.’

b.?? *dato-s* *ivane* *e-k’vlev-in-eba* *mtvrali*.
 D-Dat I-Nom Voice-kill-CAUS- drunk
 ‘Dato is caused to kill Ivan drunk’.

As seen from these structures, depictive modification of the affected argument is possible only when the depictive phrase is local to this argument while the lower modification of the same argument is degraded as seen in (49b). This illustrates that the mono-eventive analysis of adversity causatives is an option for these types of structures since there is just one attachment site for the depictive to occur. This could be taken as evidence for mono-eventiveness of adversity causatives. Note also that the causee and affected argument do not participate in a passive alternation and cannot occur with the by- phrase:

(50) The passive and by- phrase of adversity causative impossible:

- a. * *iremi* *monadires* *e-k’vl-evin-eb-a* *ikna*.
 Deer-Nom hunter-Dat CAUS.to.kill BE
 ‘The deer is caused to be killed by the hunter.’
- b. * *iremi* *monadires* *e-k’vl-evin-eb-a* *dato-s* *mier*.
 Deer-Nom hunter-Dat CAUS.to.kill D-Gen by
 ‘The deer is caused to be killed by the hunter with Dato’s interference.’

As seen in (50), neither the nominative affected argument, nor the dative causee can A- move to form the passive. Thus, adversity passives are different syntactically from these adversity causatives.

The morphological similarity of adversity causatives with passives and reciprocals can be due to the feature content on the Voice⁰ head. The hypothetical [NonActive] feature may be responsible for the Voice syncretism in all these structures.

2.7 ‘Pretend’-type predicates and their causatives

2.7.0 Introduction

This section discusses causative alternation of the complex predicates formed by the composition of the grammaticized light verb ‘*pretend to be*’ and the CAUSE resulting in the syntactic causative with *make X pretend to be Adj/N* meaning. With the projection of the external argument in the specifier of the VoiceP these structures resemble ‘reflexive’ unergative verbs, which are also formed via NI/AI (Noun Incorporation and Adjective Incorporation, respectively). Similar constructions are attested in various languages (Nahuatl, Hiaki) and they are considered as multi-headed complex verbs (Baker 1996).

As seen in (51), the morphologically complex structure contains the matrix and the embedded verbs the latter being formed by the incorporation of a noun or an adjective (*dead*) into some verbal head. Baker (1996) argues that alternatively the matrix verb may have a ditransitivized reflexive form. In such cases the embedded verb is understood as active:

(51) Complex predicate in Nahuatl:

A:mo ni- c- no- chīhua- l- **toca**
 Not 1sS- 3sO- 1REFL- make- NONACT- **consider**
 ‘I don’t pretend to have made it.’ (Launey 1981: 269-271)

The meaning of ‘*pretend to be*’ may be also rendered with the grammaticalized suffix ‘consider’ as in the following structures:

(52) Complex predicates formed with compounding in Nahuatl:

ō- ni- c- mic- cā- **toca-** ca
 PAST-1sS- 3sO- die- PART- **consider-** PAST/PERF
 ‘I had believed him dead.’ (Launey 1981:269-271)

The matrix verb may involve the epistemic verbs such as *mati* ‘know, consider’, and *toca* ‘believe, consider’.

In Georgian, the related constructions grammaticalize only ‘pretend’ and the embedded verb is often derived via the incorporation of a noun or an adjective. Interestingly enough, the embedded verb has the reflexive frame in Georgian.

2.7.1 Derivation of ‘pretend’-type complex verbs

The following examples show the morphological structure of ‘pretend’ verbs:

- (53) a. mo- v- i- mk’vdar- **un-** e (tavi)
 prev- 1S- REFL- dead- **pretend-** Aor self
 ‘I pretended to be dead.’
- b. mo- v- i- mdz’inar- Ø- e (tavi)
 prev- 1S- REFL - sleeping- - **pretend-** Aor self
 ‘I pretended to be sleeping.’
- c. mo- v- i- gizhian- Ø- e (tavi)
 prev- 1S- REFL- crazy.with- **pretend-** Aor self
 ‘I pretended to be crazy.’
- d. mo- v- i- nayvlian- Ø- e (tavi)
 prev- 1S- REFL- sad.with- **pretend-** Aor self
 ‘(I) pretended to be sad.’
- e. mo- v- i- k’at’- **un-** e (tavi)
 prev- 1S- REFL- cat- **pretend-** Aor self
 ‘(I) pretended to be like a cat.’

Notice that the allomorphy *-un/-Ø* is associated with the ‘pretend’ part of this predicate. The morpheme realizing ‘pretend’ is root-adjacent but its insertion may not be subject to root-conditioned allomorphy. The affix *un-* for Pretend⁰ is inserted in the forms with mono-syllabic complex roots, while the zero allomorph of ‘pretend’ shows up in

elsewhere contexts. Since the VIs for the Pretend⁰ are insulated from the Root with the derivational affixes it may be that these derivational affixes block the insertion of the VI -*un* for Pretend⁰. Based on the data above I tentatively posit the environments for the insertion of VIs for Pretend⁰ as conditioned by the number of syllables in the Root + Derivational affix complex. When this complex is just mono-syllabic, the insertion of -*un* is not blocked, but when it exceeds this phonological shape, then the null exponent for Pretend is realized. Here are these items:

(54) VIs for the ‘pretend’ head

- a. -*un* ↔ Pretend⁰ / root + Der. Affix = [σ] _____
- b. -∅ ↔ Pretend⁰ / elsewhere

This evidence shows that the complex root containing the category-defining head may be still visible at the point when Pretend⁰ merges as the allomorphy of the latter is root-conditioned. This grammaticalized head Pretend⁰ is thus a non-cyclic element that can ‘see’ the root upon the merger.

Notice also that the lexical V⁰ in these verbs is ‘complex’, in the sense that the root is accompanied by category-defining affixes:

(55) *Complex* Vs of ‘pretend’-type predicates

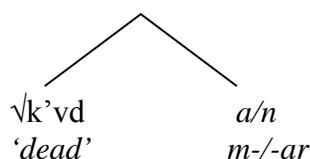
- | | |
|--|---|
| <ul style="list-style-type: none"> a. m-k’vd-ar der-die-der ‘Dead’ | <ul style="list-style-type: none"> b. m-dʒ’in-ar der-sleep-der ‘Sleeping person’ |
| <ul style="list-style-type: none"> c. gizh-ian crazy-der ‘With crazy’ | <ul style="list-style-type: none"> d. č’k’v-ian smart-der ‘With smart’ |
| <ul style="list-style-type: none"> e. naɣvl-ian sad-der ‘Sad’ | |

In these complex words, the category-defining morphemes merging with roots also have allomorphs (*m--ar*, *-ian*). Presumably, these derivational affixes categorize roots as adjectives or nouns (Aronson 1990). Following Embick (2009), I assume that these category-defining heads are cyclic but they may not prevent the root-conditioned allomorphy of outer non-cyclic heads such as Pretend⁰. The relevant evidence will be presented after the structure of these complex words in (53)–(54) is shown:

(56) Complex Vs in ‘pretend’-type predicate

- a. *m-k’vd-ar-(i)*
*der-die-der*⁴⁰ - (Nom)
 ‘Dead’

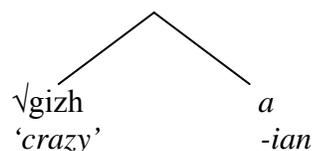
b.



(57) Complex Vs in ‘pretend’-type predicate

- a. *gizh-ian- (i)*
crazy-der (Nom)
 ‘Crazy.with’

b.



Furthermore, I assume that the reflexive Voice is merged in these structures whose head is realized with the prefix *i-*. This prefix also marks reflexive applicatives⁴¹ and there is a notable pattern of syncretism of this marker across various classes of verbs including other reflexive verbs, which denote events directed to the body parts such as

⁴⁰ The VIs inserted in the category-defining heads such as *a* or *n* are glossed as derivational because these affixes are highly idiosyncratic occurring with the particular stems. There are many such affixes in Georgian but the roots in ‘pretend-type’ predicates use only a few of them.

⁴¹ The derivation of the structures with reflexive applicative markers will be discussed in the next chapter.

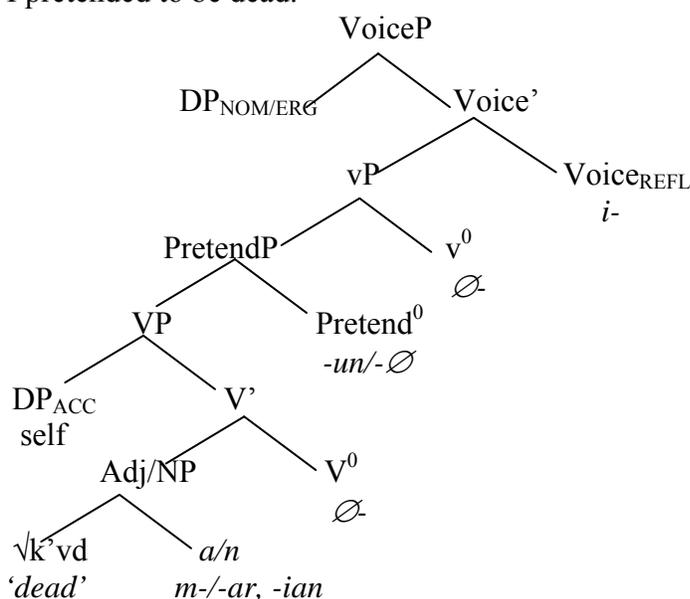
comb, shave, passives, etc.⁴² There is no evidence that root-conditioned allomorphy is associated with this VI (the affix *i-*) though. This is perhaps due to the fact that Voice is an outer cyclic head or it merges above vP whose head is cyclic. Thus, the lower portion of the complex verb including grammaticalized ‘Pretend’ is not visible to the functional heads merged later in the derivation. See also Appendix A for the syncretism associated with the affix *i-* as the reflexive Voice marker.

The structure of ‘Pretend’ predicates may be sketched the following way:

(58) ‘Pretend’ -type predicate

a. mo- v- i- mk’vdar- un- e
 prev-1S- REFL- dead- pretend- Aor
 ‘I pretended to be dead.’

b.



I assume that the Root first is merged with *n* or *a* categorizing head and then this structure is again categorized as a verb with the verbalizer v^0 . Apparently, the inner category-defining head *a* or *n* is not a cyclic head and does not send the structure off for LF/PF processing, since the functional head Pretend⁰ merged above these categorizing

⁴² I will not go into the details of this syncretism as it is irrelevant for the present purposes.

elements is still sensitive to the properties of Roots plus the derivational elements. Recall that this was a property of non-cyclic heads as argued in the introduction in the discussion on Embick (2009). Note that the affix realizing the reflexive Voice is inserted into the slot of argument structure-changing morphemes and the verb incorporates into it after the event-introducing v^0 head which verbalizes the assembled structure.

2.7.2 Causative alternation of ‘pretend’-type verbs

CAUSE takes a complete vP, with all its arguments, as its complement. The morphological shape of these causatives resembles those of *make X do V* syntactic causatives of unergative and transitive verbs where the affixes *a-* and *-in* are present as the phonological exponents of two CAUSES since in addition to the transitive structure of the Pretend-type predicate with its implicit ‘self’ argument, the causee argument is also projected in this structure. I assume that this is expected given the [+ ditrans] feature on v^0 head. First observe the empirical base of causatives formed from such predicates:

(59) Causative alternates of ‘pretend’ type predicates

a. v- **a-** mk’vdar- **un-** eb- **in-** eb
 1S- CAUS- dead- **pretend-** TH- CAUS- TH
 ‘I caused X to pretend to be dead.’

b. v- **a-** mdʒ’inar- eb- **in-** eb
 1S- CAUS- sleeping- TH- CAUS- TH
 ‘I caused X to pretend to be asleep.’

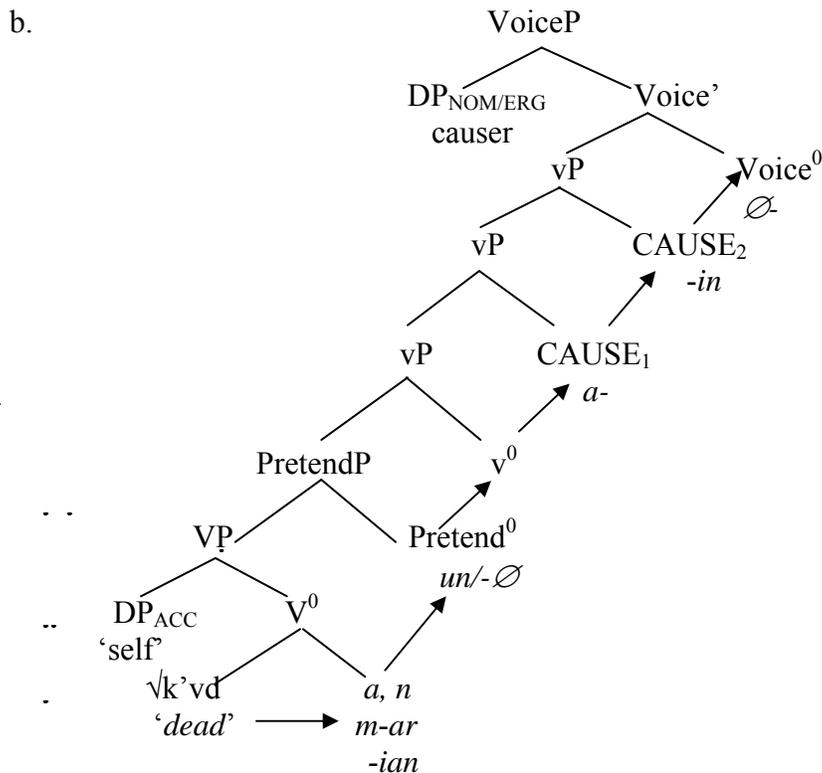
c. v- **a-** gizhian- eb- **in-** eb
 1S- CAUS- crazy.with- TH- CAUS- TH
 ‘I caused X to pretend to be crazy.’

d. v- **a-** k’at’- **un-** eb- **in-** eb
 1S- CAUS- cat- **pretend-** TH- CAUS- TH
 ‘I caused X to pretend to be a cat-like.’

The argument structure of ‘pretend’-type causatives includes the causer argument, which is projected by the active Voice⁰ (marked with nom/erg/dative cases across the series). The causee is presumably projected by the vP complement that the lower CAUSE selects and is marked with the dative case. There is a sense that the anaphoric argument is also projected in the structure, interpreted as *self* as in (53). As suggested in (23), the VIs for CAUSE in such constructions containing both *a-* and *-in* exponents may be analyzed as realizing two separate causative heads. The argument case-marking follows a monoclausal pattern. CAUSE is not subject to the root-conditioned allomorphy presumably because it is insulated from the root with double-bracketing:

(60) Causative of ‘pretend’-type predicate

a. v- **a-** mk’vdar- **un-** eb- **in-** eb
 1S- CAUS- dead- **pretend-** TH- CAUS- TH
 ‘I cause X to pretend to be dead.’



Note that in (60b) the arrows do not indicate the order of linearization applying to the morphemes realizing the relevant functional and lexical heads in this complex structure. It is assumed that the post-syntactic pre-insertion rules modify this order which will not be discussed here.

We can use adverbial, negation scope tests to establish the complex syntactic structure of the causative forms derived from *pretend-type* predicates. These tests illustrate that VP-modifying adverbials can scope over both the causing and the resulting event. A negative marker should also do the same depending on the attachment site, low or high:

(61) VP-modifying adverbial test

a.	datom	gia-s	tavi	mo- a-	mk'vdarun-	eb-	in-	a
	D-Erg	G-Dat	self	prev-CAUS-	dead.pretend-TH-	CAUS-	3S	

isev.

again

‘Dato caused Gia to pretend to be dead again.’

b. *datom* *gias* *tavi* *isev* *mo- a-* *mk’vdarun-* *eb-* ***in-*** *a*
 D G self *again* prev-CAUS-dead.pretend-TH-CAUS- 3S

In (61a), the adverbial modifier scopes over the causing event carried out by *Dato* while in (62b) it modifies the event carried out by the agentive causee *Gia*. This means that the structure is internally complex and the adverbial ‘again’ (*isev*) modifies two separate events. Thus the structure can be considered as bi-eventive. The following test employing the placement of negative marker with respect to the causee argument also shows the similar bi-eventive properties of these constructions:

(63) Negation test

a. *dato-m* *gia-s* *tavi* *ar* *mo- a-* *gizhianeb-* ***in-*** *a*.
 D-Erg G-Dat self not prev-CAUS-crazy- CAUS-
 ‘Dato cause Gia not to pretend to be crazy.’

b. *dato-m* *ar* *mo-a-gizhianeb-* ***in-*** *a* *gia-s* *tavi*.
 D-Erg not -CAUS-crazy- CAUS- G-Dat self
 ‘Dato did not cause Gia to pretend to be crazy.’

The negative marker (*ar*) can either modify the causing event (the matrix verb) or the caused event (the embedded one). Georgian is Low-attachment language for the NegP and this means that Neg head cannot scope over the entire clause. We find two kinds of readings for each of these structures: 1) Dato did not cause Gia to pretend as if he is crazy, and 2) Dato caused Gia not to pretend to be crazy, I will conclude that the

causative structures (as evidenced with the Negation test) are complex syntactically and that word formation parallels the syntactic derivation⁴³.

2.8 Psych verbs and causative alternation

2.8.0 The empirical base of state, dynamic passive, and activity psych verbs

In Georgian and the related languages Mingrelian and Svan, three types of psych-verbs emerge in terms of morpho-semantics: state, dynamic passive, and activities (following Aronson 1990). In what follows, I will assume that state psych verbs express ‘non-core’ events in the sense of Tenny (2000), which essentially are stative eventualities, while dynamic passives and activity verbs express non-stative events (Bach 1986). These three classes show a differential ability to alternate with causatives and passives, namely, only activity psych verbs can do both. Here are some examples:

(64) State psych verbs

a. m- i- q’var- s
 1S- applic⁴⁴- love- 3O
 ‘I love X.’

b. m- ʒ’ul- s
 1S- hate- 3O
 ‘I hate X.’

⁴³ It should be mentioned though that the Negation test is not as robust as other relevant tests used above because Georgian is a non-strict Negative concord language (Haegemann 2006, Zejstra 2005) and in a number of cases (such as one containing several negative words—nobody never cause nobody to do nothing) the negative marker is not required to precede the verb and is dropped. Often such languages do not have Negative Polarity Items (NPI) like English. Due to these properties it can be argued that the negation test can work with the sentences without multiple negation words in Negative concord languages.

⁴⁴ The applicative morpheme in this verb does not have the same semantics as it would have in the transitive counterpart and in the traditional literature it is referred to as the *version* marker. In the following transitive applicative structure *I build the house for myself* (*a-v-i-shen-e*) the prefix *i-* clearly has an applicative meaning while in the above structure ‘I love’ it does not. However, we gloss this morpheme as applicative and in Chapter 3 of this dissertation, I will argue that it realizes the high Appl⁰ head in psychological predicates.

c. m- e- shin- i- a
 1S- voice- afraid- TH- 3O
 ‘I am afraid of X.’

d. mo- m- c’on- s⁴⁵
 prev- 1S- like- 3O
 ‘I like X.’

e. m- e- zizγ- eb- a
 1S- voice- loath- TH- 3O
 ‘I loath something.’

f. m- e- nat’r- eb- a
 1S- voice- miss- TH- 3O
 ‘I miss X.’

g. m- e- xamush- eb- a
 1S- voice- discomfort- TH- 3O
 ‘I am not comfortable with X.’

The state psych verbs in (64) project dative-marked experiencer arguments, which are interpreted as non-voluntary subjects. Experiencer arguments trigger the inverse agreement pattern (generally associated with dative subjects and spelled out as m-set markers on verbs)⁴⁶. Next, consider dynamic passives:

(65) Dynamic passives

a. m- i- q’var- **d**- eb- a
 1S- applic- love- pass- TH- 3O
 ‘I am falling in love with X’.

b. m- dʒ’ul- **d**- eb- a
 1S- hate pass- TH- 3O
 ‘I am becoming hateful of X.’

⁴⁵ Note that only (64d) is marked with the preverbal morpheme, which generally marks aspect on verbs. The VI *mo-* does not have any function in this form because statives usually do not express achievements or perfective events as argued by many (Tenny 2000). It is inserted for morphological well-formedness. The realization of other morphemes in the set (e-, i- and Ø-) also depends on language-specific readjustment rules operating in the post-syntactic component and we do not discuss them here as they are irrelevant for present purposes.

⁴⁶ See Introduction of the dissertation for discussion on the agreement patterns in Georgian.

c. m- zizɣ- **d-** eb- a
 1S- loath- pass- TH- 3O
 ‘I am becoming *loathful of X.’

d. m- i- sc’or- **d-** eb- a
 1S- applic- straighten- pass- TH- 3O
 ‘I enjoy X.’⁴⁷

Dynamic passives also contain the inverse person agreement markers (m-set) which index dative experiencers much like in states shown in (64). Another common syntactic property that dynamic passives share with states is that they cannot alternate with causatives, i.e. these structures cannot add the causer argument:

(66) a. State verbs cannot causativize:

* m- a- q’var- s
 1S- CAUS- love- 3O
 ‘I am caused to love X’

b. Dynamic passives cannot causativize:

*m- a- q’var- d- eb- a
 1S- CAUS- love- pass- TH- 3O
 ‘I am caused to fall in love with X.’

It is also notable that states and dynamic passives have the same applicative marker *i-/u-*, which is sensitive to the person feature of the dative experiencer: [+ participant] experiencers are marked with the affix *i-* while [-participant] ones with *u-*:

(67) States

a. m- **i-** q’var- s
 1S- applic- love- 3O/pres
 ‘I love X.’

b. g- **i-** q’var- s
 2S- applic- love- 3O/pres

⁴⁷ The form in (79d) is interpreted idiomatically, as the root has a different meaning (*straighten*) from the resulting predicate (enjoy).

‘You love X.’

- c. **u-** q’var- s
 applic- love- 3O/pres
 ‘He loves X.’

(68) Dynamic passives

- a. m- **i-** q’var- d- eb- a
 1S- applic- love- PASS- TH- 3O/pres
 ‘I am falling in love with X.’
- b. g- **i-** q’var- d- eb- a
 2S- applic- love- PASS- TH- 3O/pres
 ‘You are falling in love with X.’
- c. **u-** q’var- d- eb- a
 applic- love- PASS- TH- 3O/pres
 ‘He is falling in love with X.’

Observe that the morphological shape of the activity verbs is quite different from the above two classes. In what follows first I present the examples of activity psych verbs followed by the analysis of the morphological make-up of these verbs:

(69) Activity psych verbs

- a. v- i- q’var- eb
 1S- REFL- love- TH
 ‘I am loving X.’
- b. v- i- dʒ’ul- eb
 1S- REFL- hate- TH
 ‘I am hating X.’
- c. v- i- c’on- eb
 1S- REFL- like- TH
 ‘I am liking X.’
- d. v- i- zizʁ- eb
 1S- REFL- loath- TH
 ‘I am loathing X.’

e. v- i- nat'r- eb
 1S- REFL- dream- TH
 'I will dream about X.'

Experiencer arguments of activities are marked with nom/erg/dative cases across the series and the Case features are checked by the Voice⁰ head (and like external arguments of transitive verbs they trigger the basic pattern of agreement that is spelled out as v-set). Presumably, the surface position of experiencers in activities is different from that of the dative arguments of dynamic passives and states. In the analysis of these classes, I will argue below that the dative experiencers are projected by a different functional head than the nom/erg/dative arguments of activities. Another difference between activities and the other two classes is that the prefix *i-* in activities is not sensitive to the person feature of the experiencer argument as in states and dynamic passives shown in (67)-(68). Following Aronson (1990), I interpret this morpheme as the marker of the Reflexive Voice⁰ head, which merges in various two-place reflexive verbs to express events directed to one's own body parts (*shave, wash, comb, braid, etc.*) and also, in some applicative structures, to express the progressive possession meaning⁴⁸. In psychological verbs this meaning is absent though. Here are the examples showing that the VI *i-*, which is not sensitive to the person features of the external argument, is present in activity psych verbs:

(70) Activities

a. v- i- q'var- eb
 1S- REFL- love- TH

⁴⁸ In this dissertation I follow Pylkkanen (2002) in classification of applicatives into high and low structures based on the attachment site of the ApplP. See chapter 3 for detailed discussion of these and reflexive applicatives.

‘I am loving X.’

b. **i-** q’var- eb
REFL- love- TH
‘You are loving X.’

c. **i-** q’var- eb- s
REFL- love- TH- 3O/pres
‘He/she is loving X.’

Another observation about the three types of psych predicates is that only activities alternate with causatives and passives. They may have so called *reflexive* and *non-reflexive* causative alternates. The latter are interpreted as syntactic causatives with *makes X love... Y* meaning in which CAUSE is marked with the *a-* and *-in* exponents, while reflexive causatives are interpreted as *make X love... self*. These are marked just with the affix *a-*. Observe the data in the following:

(71) Non-reflexive causatives of activity psych verbs

a. v- **a-** q’var- eb- **in-** eb
1S- CAUS- love- TH- CAUS- TH
‘I caused X to love Y.’

b. v- **a-** **dʒ’ul-** eb- **in-** eb
1S- CAUS- hate- TH- CAUS- TH
‘I caused X to hate Y.’

c. v- **a-** c’on- eb- **in-** eb
1S- CAUS- like/approve- TH- CAUS- TH
‘I caused X to like/approve Y.’

d. v- **a-** zizɣ- eb- **in-** eb
1S- CAUS- loath- TH- CAUS- TH
‘I caused X to loath Y.’

(72) Reflexive causatives of activity psych verbs

a. v- **a-** q’var- eb
1S- CAUS- love- TH

‘I am causing X to love (me).’

b. v- a- dʒʷul- eb
 1S- CAUS- hate- TH
 ‘I am causing X to hate (me).’

c. v- a- cʷon- eb
 1S- CAUS- like/approve- TH
 ‘I am causing X to like (me).’

d. v- a- zizχ- eb
 1S- CAUS- loath- TH
 ‘I causing X to loath (me).’

Notice that the morphological shape of reflexive causatives is similar to that of causatives derived from inchoative verbs. Activities also alternate with passives as expected and this is shown in the following example:

(73) Passive of *activities*
 Bavshvi she- qʷvar- eb- ul- i- a
 Child prev- love- TH- der- TH- BE
 ‘The child is loved (by X).’

As seen in (71)-(72), activities alternate with passives and causatives. This syntactic property can be associated with transitive eventful structures. Thus, activities crucially differ from dynamic passives and states with their syntax and morphology as well.

It is also of interest to note that psych verbs in Svan come into two semantic varieties of stative and activity verbs like in Georgian:

(74) State and activities in Svan

Lentex dialect

a. xalätʷ
 ‘he loves’

b. i- latʷ- un- e
 applic-love- CAUS-tense
 ‘He is falling in love.’ (Topuria 1967: 235)⁴⁹

⁴⁹ Note that the glossing of these forms is mine (L. L while the forms are taken from the mentioned source *verbatim*)

I propose that the morphosyntactic properties of the three classes of psych verbs may be analyzed in terms of the feature content and the selectional properties of the Voice⁰ head, which selects different complements in these three structures.

In states and dynamic passives, dative experiencer arguments are interpreted as involuntary, non-instigator subjects (Mithun 1986), which trigger the inverse agreement ('m-set') on verbs illustrated in (64)-(65). These properties are presumably associated with the lower structural position of dative arguments. Specifically, I argue that the structural position of dative Experiencers in states and dynamic passives is the specifier of high ApplP and this case is presumably checked against the Appl⁰. However, in activities, the position of the external argument is in the specifier of the reflexive Voice⁰, which is realized with the exponent *i-*.

The relevant question is which functional head in dynamic passives is marked with the suffix *-d*. Following Embick (1997), I assume that this morpheme may be associated with the [Passive] feature on the Voice⁰ head. Note also that states and dynamic passives have dative subjects projected by the high Appl⁰ head. The high ApplP presumably is selected by the Voice⁰ head which bears different feature than the Voice⁰ head in activities, since the latter projects the external argument. Given these structural differences, I argue that the Voice⁰ head in states and dynamic passives bears a feature which I tentatively call [NonActive] which is the same feature as argued to exist in adversity causatives above. NonActive Voice⁰ head selects for the ApplP. The morphological realization of [NonActive] may be zero, since in the position where the Voice⁰ is realized the applicative marker *i-/u-* shows up. I propose that the applicative

marker blocks the insertion of the VI for the non-active Voice both in states and dynamic passives. Therefore, this non-active Voice feature may be realized with *e-* or null elsewhere item.

As opposed to these two classes, I argue that the Voice⁰ in activities is specified for the [+ Refl] feature, which is realized with the affix *i-* in all three persons. Observe the feature content on Voice⁰ in all three structures:

- (76) The feature specification on Voice⁰:
- a. States [+ NonActive]
 - b. Dynamic passives [+ NonActive] [Passive]
 - c. Activities [+ Refl]

It is evident that the feature [Passive] is realized in the post-base position because the VI for this feature is not blocked by any other VI in this post-base slot. Another conclusion that we can draw based on the morphological shape of these causatives is that the VIs inserted into these different functional heads such as Voice and Appl⁰ realized in the pre-base slot can be represented with a hierarchy within a rule block for the terminal node (Halle & Marantz 1993 and others) in which the higher item with more specific features wins over the lower listed items for the insertion in this slot. From the data above, it was shown that the reflexive Voice beats the VI for the applicative in active structures and the latter beats nonactive Voice exponent in states and dynamic passives. Thus, the rule block for the realization of this slot in all three classes of psychological predicates exhibits the following ordering:

- (77) The rule block accounting for the insertion of VIs in the third slot

- a. *i-* ↔ Voice_{REFL} / Class 1⁵²
 b. *i-* ↔ Appl⁰ / [Dat] [+1], [+2]
 c. *u-* ↔ Appl⁰ / [Dat] [+3]
 d. *e-* ↔ Voice_{NONACTIVE}
 e. ∅ ↔ elsewhere

Based on this rule block the items listed higher will be inserted first into the third position of the template in these psych verbs and the higher listed item will win over the lower ones.

Now the syntactic structure of states and dynamic passives may be presented in the following tree in (86c):

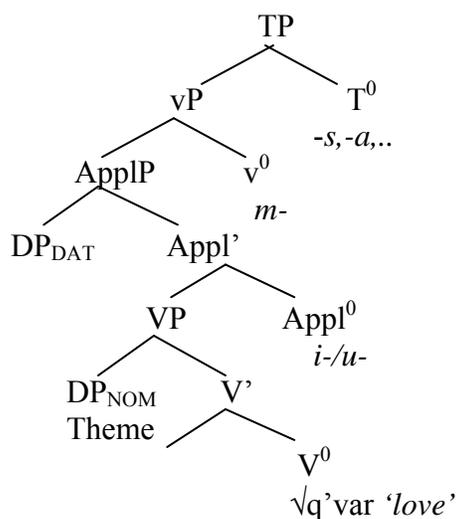
(78) State

a. m- i- q'var- s
 1S-applic- love- 3O/pres
 'I love X.'

Dynamic passive

b. m- i- q'var- d- eb- a
 1S-applic- love- pass- TH- 3O/pres
 'I fall in love with X.'

c. The tree for states and dynamic passives

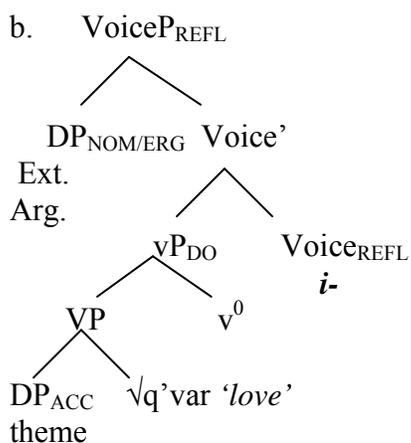


⁵² I assume that the Class 1 is represented with the activities.

As opposed to states and dynamic passives, the reflexive Voice head in activities with its [Refl] features projects an external experiencer/agent argument. This construction can alternate with passives and causatives. The derivation of activity psych verbs can be sketched in the following:

(79) Activities

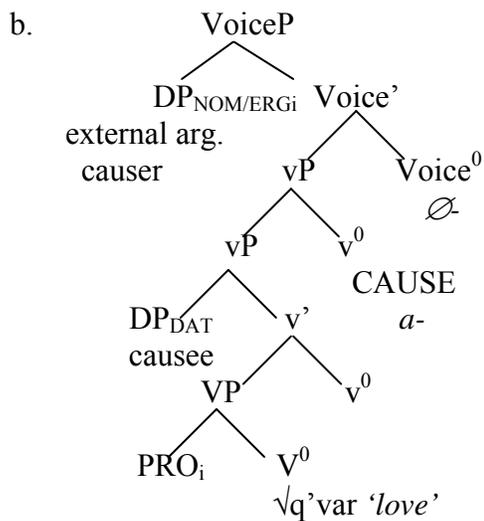
a. v- i- q'var- eb
 1S- REFL- love- TH
 'I am loving X.'



Now the analysis for non-reflexive and reflexive causatives of psych verbs is presented. In reflexive causatives, the external argument causer and the theme are co-referential, while in non-reflexives, they are not. I argue that due to the presence of reflexive Voice, an empty argument PRO is projected in the specifier of VP and it is controlled from the external argument. The causer and the causee arguments are projected due to Voice and the vP complement that the CAUSE selects for in these structures. It is expected that the root-conditioned allomorphy associated with the CAUSE may not be an option in these verbs:

(80) Reflexive causative of activities:

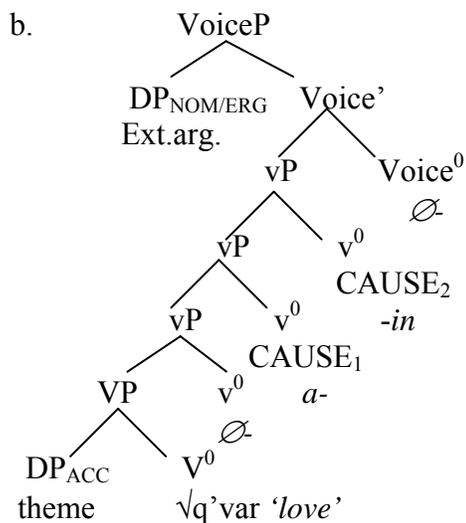
a. v- a- q'var- eb
 1S-CAUS- love- TH
 'I make X love me.'



The structure for the non-reflexive causative with no anaphoric causee argument may be assumed to contain two CAUSES and the lower one takes an argument-full vP as its complement:

(81) Non-reflexive causative of the activity psych verb

a. v- a- q'var- eb- in- eb
 1S- CAUS- love- TH- CAUS- TH
 'I make X fall in love with Y.'



The structural difference between reflexive and non-reflexive causative structures is that in the former, the theme and the causer external argument are co-referential and this can be interpreted as transitive structure conditioning the insertion of only *a-* into the CAUSE. The morphology therefore resembles that of causatives formed from inchoatives and generally, two-place predicates as shown above. Non-reflexive causatives clearly are ditransitive because co-reference between the causer and the theme is not present. It can be argued that the morphological marking of these causatives again reflects the argument structure of these predicates with two CAUSES introduced in it.

Thus, the feature specifications on the Voice⁰ head and the ability of these constructions to add the causer argument account for the absence of causative alternates in states and dynamic *passives*. Since states are non-eventive predicates (Bach 1986), they are unable to add the causer to the structure, while dynamic passives denote the type of events that cannot add the causer due to the [passive] feature on Voice. Thus the features of main functional projections above the root determine the argument structure of these verbs and the morphological marking of these heads is consistent with these features.

2.9 Causative predicates in related languages (Mingrelian and Svan)

Mingrelian/Laz and Svan, the two languages spoken in the western part of Georgia, display similar causative constructions to Georgian.

2.9.0 The causative alternation in Svan

The material for this section came from V. Topuria's (1931, 1967) text on Svan. Topuria classifies verbs into two general classes of intransitives and transitives. As the

author notes, most of the intransitives can be transitivized in all three dialects of Svan. I will interpret this alternation broadly as a causative alternation or applicativization as shown in the following:

- | | | |
|------|------------------------|---------------------------------|
| (82) | Intransitive | Transitive |
| | a. xug (I am standing) | b. m-īg (it is standing for me) |
| | | c. m-ag (It is standing on me). |

The transitive verbs with two different morphological shapes in (80) are attested in two dialects: (80b) in Bal-Zemouri and (80c) in Lentex dialects. This alternation between inchoative/transitive pairs presumably involves causation as well. Based on the forms in (82)-(83), it is evident that inchoative-causative alternation is attested in Svan and is marked with the elsewhere prefix *a-* much like in Georgian:

- | | | | |
|------|--|---------------------------------------|---------------------------------------|
| (83) | Zemo-Svan dialect | Lashx dialect | Lentex dialect |
| | a. mi xû- a -k're
I open (it/them) | xû- a -k'ren
open (it/them) | xû- a -k'äre
open (it/them) |
| | b. si x- a -k're
you open (it/them) | x- a -k'reni
“ | x- a -k'äre
“ |
| | c. ed3-a a -k're
he/she opens (it/them) | a -k'reni
“ | a -k'äre
“ |

Notice that in the absence of preverbal morphemes (which in Svan marks the aspect) only person agreement and valency-changing morphemes precede the verbal base in (78). After excluding 1-2 person subject agreement morphemes the root (*k're*) and the causative marker *a-* can be separated from these forms.

Topuria notes that a more typical causative morpheme in Svan is the suffix *-un*. This marks the syntactic causative of *make X do V* type:

- (84) Svan causatives

- a. xašx- **un-** e
burn- CAUS- Tns
'X causes Y to burn Z.'
- b. xak'r- **un-** e
open- CAUS- Tns
'X causes Y to open the door.'
- c. xat'x- **un-** e
return- CAUS- Tns
'X makes Y to return Z.'

This suffix is common in the Lashx dialect, while in the Zemo-Bal dialect *al-ûn-e* or *a-ûn-e* and its phonological allomorphs may be inserted in CAUSE. The Georgian causative prefix *a-* appears to be related to it. Some further evidence is presented next:

(85) **Intransitive**

- a. i- ûʒ- e
intrans-sleep-Tns
'He is sleeping.'
- c. i- zg- e
intrans-live- Tns
'He lives.'
- e. i- čexû
intrans-graze
'(A cow) grazes.'
- g. ʒecx- n- i
wake-tense-TH
'X is awakening.'

Causative

- b. a- ûʒ- **un-** e
CAUS- sleep- CAUS- Tns
*'He sleeps X.'
- d. ä/a- zg- **un-** e
CAUS- live- CAUS- Tns
'He/she settles X down.'
- f. ä- čx- **un-** e
CAUS- graze- CAUS- Tns
'He/she lets (cows) to graze.'
- h. ä- ʒcx- **un-** e
CAUS- wake- CAUS- Tns
'X causes Y to awake.'

Note that the exponents *ä(a)-* and *-un* of the causative head is also found in Svan. This is similar to Georgian *a-* and *-evin(-in)* marking in the causative alternates of transitive verbs and 'pretend'-type predicates. The causative of unergative verbs in Svan also has the same marker, which corresponds to the projection of the causer and the causee arguments yielding transitive structure. The same morphological reflex is present

in Georgian when complex bi-eventive structures are projected for the syntactic causatives of various classes of verbs.

In the Russian synopsis of the Svan grammar, Topuria (1967) describes the causative formation rule which entails *-e /-i* deletion with *-un* suffixation. The latter suffix can be preceded by *-al* or *-ä* (in High Bahl dialect), which marks repeated events, and in Low Bahl and Lent'ex dialects, by *-al* or *-a*, etc. (Topuria 1967:286). These affixes may be followed by *-ün/-un*. Sometimes these suffixes may be lost such as in the Low Bahl dialect shown in (84b):

(86) Causatives of transitives in Svan

High Bahl
a. xamārā/ûne → xamarä**ûne**
forces to prepare/cook something

Low Bahl
b. xamaralne

c. xamārune → xamār**ûne**

The same *-un* marks the causatives of the unaccusative verbs such as *sleep*:

(87) Transitives in Svan

a. iûʒe → a-ûʒ**une**
sleeps 'X causes Y to sleep'

b. aq'ure → aq'û**ne**
'X lies' X lies Y down

It can be argued that in many respects the causatives of various classes of verbs in Svan are very much similar to those in Georgian. The causatives of inchoative and transitive verbs may be marked with the suffix *-un* which is the phonological homologue of the Georgian affix *-in*. The limited data suggests that the variety of verb classes that causativize in this language is almost the same as in Georgian as the limited data suggests.

2.9.1 Causative alternation in Mingrelian

Kajaia's (2001) Mingrelian-Georgian dictionary is used as my primary source here. This book also contains some discussion of causativization. Causatives in Mingrelian can be formed from the Aorist screeve by adding the *-ap-u* suffix. Here are some examples (Kajaia 2001:58):

Table 5. **The transitive and causative predicates in Mingrelian**

Infinitive		Aorist causative	
a. č'ar-u-a write-infix-infin	To write	o-č'ar-ap-(u)-[u]	'Cause X to write'
b. tol-u-a	To peel	o-tol-ap-u-[u]	'Cause X to peel'
c. zal-a	To mix dough	o-z-ap-u-[u]	'Cause X to mix'
d. č'al-a	To sew	o-č'-ap-u-[u]	'Cause X to sew'
e. txu-al-a	To ask for	o-txu-ap-u-[u]	'Cause X to ask for'

These examples show that in the Aorist screeve *-apu* is immediately adjacent to the root which may or may not be reduced (such as in (86d)). Thus no morphology interferes between the root and the causative suffix. I suggest that that the CAUSE takes the phase complement (vP) in these causative structures of inchoatives and this explains the absence of idiomatic readings for all these forms. The morphological structure of causatives in these examples is almost the same as in corresponding Georgian counterparts in the Aorist screeve. The only difference between the Georgian syntactic causatives of *make X do V* type and the Mingrelian counterparts listed in Table 5 is the absence of the homologous causative marker in Mingrelian. Compare the following Georgian causatives to those above:

(88) Transitive verbs and their causative alternates in Georgian

Infinitive	Aorist causative
a. c'er-a write-INF 'to write'	da- a- c'er- in- a Prev-CAUS- write- CAUS- Aor 'Cause X to write'
b. prckvn-a peel-INF 'to peel'	da- a- prckvn- evin- a Prev-CAUS- peel- CAUS-Aor 'Cause X to peel'
c. zel-v-a mix-infix-INF 'to mix the dough'	mo- a- zel- v- in- a Prev-CAUS-mix- INF- CAUS- Aor 'Cause X to mix the dough'
d. k'er-v-a sew-infix-INF 'to sew'	she- a- k'er- v- in- a Prev- CAUS- sew- INF- CAUS-Aor 'Cause X to sew'
e. txovn-a ask-INF 'to ask/request'	a- txovn- in- a Prev- request- CAUS- Aor 'Cause X to request Z.'

In Georgian, both the prefix *a-* and the suffix *-in/-evin* are inserted as VIs for the causative head in the syntactic causative. As seen in (88), the VIs inserted into the CAUSE are not sensitive to the morphophonological properties of roots. This may be expected given the uniform syntactic structure of these causatives across these languages.

As for the Mingrelian examples in Table 7, I attribute the loss of causative prefix to diachronic development, assuming that in Proto-Kartvelian the prefix *a-* was present based on the data of Georgian and Svan causatives. The empirical evidence from the three languages shows the similar morphological shape of causative predicates and almost all classes of verbs can participate in causative alternation. It thus seems reasonable to assume that Mingrelian and Svan causatives show the same syntactic

properties in terms of bi-clausal/bi-eventive behavior. This requires further empirical verification with native speakers.

2.10 Conclusions

The chapter showed empirical evidence of causative constructions in three related languages: Georgian, Mingrelian, and Svan and argued that they display common morphological properties of lexical and syntactic causatives formed from inchoative, unergative, transitive and other classes of verbs. The inchoative/causative alternation is both morphologically and syntactically distinct from the *make X do V* causative alternation in these languages. This suggests that morphology is consistent with the syntax of these constructions. Specifically, the prefix *a-* inserted into the causative head in inchoative causatives ‘signals’ the feature [trans] of the vP and correspondingly, the causer and theme or the causer and the causee arguments are projected into the structure, while the additional marker for CAUSE *-in* is inserted in iterated causatives of unergative, transitive and other types of verbs, which presumably aligns with the ditransitive structure, combining the causer, the causee(s), and the theme arguments. Table 8 below summarizes the morphological marking of these constructions by the class of verbs:

Table 6. The morphological marking of causatives of various verb classes

CAUSATIVE	VIs for CAUSE	
	<i>a-</i>	<i>a-/ -in</i>
Inchoatives	<i>Bake, open, break, etc.</i>	
Unaccusatives		<i>Roll, cool, warm up, etc.</i>
Unergatives	<i>Sing, scream, cough, laugh,...</i>	
Transitives		<i>Sow, make, eat, etc.</i>
'Pretend'-type predicates		<i>Pretend to die, pretend to sleep, etc.</i>
Psychological verbs (reflexive)	<i>X makes Y love X, X makes Y hate X, etc.</i>	
Psychological verbs (non-reflexive)		<i>X makes Y love Z, X makes Y hate Z, etc.</i>

The distinct morphological shape of syntactic causatives is also associated with the syntactic behavior of the mentioned causatives in terms of VP-modifying adverbials, adjunct control and other syntactic tests, which show that *make X do V* causatives are complex syntactically. Two different meanings are interpreted in the clauses where the adverbial scopes over the event performed by the causer and the causee. The adverbials in the causatives of inchoative verbs do not show such bi-eventive properties. Similarly, the test of depictive modification applied to lexical and syntactic causatives has also shown that the former have mono-eventive properties since only agentive modification is allowed while *X makes Y do V* causatives display bi-eventive through the depictive modification of both the causer and the causee arguments. The chapter has illustrated, however, that the case-marking of the causer and the causee follows the mono-clausal pattern and that these arguments are marked in a way that shows they are projected in the same clause.

Another result of the research on causative constructions showed that the Vocabulary Items for the causative head may be homophonous across different classes of verbs but these items are different with their insertion contexts and distribution. For example, the phonological exponent *a-* inserted into the CAUSE of lexical causatives is sensitive to the root properties while the same phonological exponent in *X makes Y do V* causatives is sensitive to the [trans] feature of v^0 merged in these structures. The research has also found that the double marking of the causative head in syntactic causatives is the natural consequence of two CAUSE heads merged in these types of structures. Such transparent correlation between the syntactic heads and their morphological realization is of interest given a wide distribution of null exponents as default markers of different functional heads in this language. These findings on the interaction of the functional morphology with the argument structure and generally, the syntax of causative constructions will be further examined in the larger context of applicative constructions in the three related languages, which is explored next.

CHAPTER 3

APPLICATIVES AS COMPLEX PREDICATES

3.0 Introduction

The chapter explores the morphosyntactic properties of applicative constructions in three languages: Georgian, Mingrelian, and Svan in which the Applicative head (Appl⁰) is marked morphologically. The main goal of this research is to identify the syntactic and morpho-phonological rules whose interaction determines the morphological shape and associated meaning of these constructions. Since all three languages under investigation are polysynthetic, a particular emphasis is placed on the morphological realization of applicative heads in various syntactic contexts and the interaction of the applicative morphology with other argument structure-changing morphemes.

3.1 Theoretical goals

3.1.0 Outline of the chapter

The goal of the chapter is to come up with a unified theory of how the meaning and the morphological structure of applicatives are derived in syntax in Georgian, Mingrelian, and Svan. The theoretical premise that underlies this goal is that the morphological realization of the Appl⁰ head may not be uniform across various syntactic contexts and may be subject to contextual allomorphy. Sometimes the applicative relations may be expressed not by the specialized Appl⁰ head but by another functional projection. There are also cases where the Appl⁰ head is not morphologically realized but the low

applicative meaning is still present⁵³. Therefore, this chapter aims to explore the role of various rules and principles of Distributed Morphology (DM) with regard to the interface between the syntactic-semantic and morphological components for a better understanding of where the above relations between arguments come from in the absence of applicative morphology. The ancillary goal of this research is to find out whether the grammar of polysynthetic languages differentially marks high vs. low Appl⁰ heads.

Section 3.2 analyzes low Recipient and Source applicatives along with low applicatives of stative possession. In section 3.3 low applicatives of unaccusative and inchoative verbs are discussed. Their morphological shape is accounted for based on a proposal of feature-delinking in the Morphological Structure (MS), (Harley & Noyer 1997). The delinking of the person features on the Appl⁰ head is argued to stem from the feature-geometry in the sense of Harley (1994) and universal feature hierarchy of Noyer (1992). The upshot of this morphological process is that instead of the morpheme inserted into the Appl⁰ head the morpheme realizing the Voice⁰ head shows up in the pre-base position of the verbal template.

Section 3.4 discusses low applicatives formed from Noun- and Adjective-incorporated verbs and their distinct morphological shape is accounted for referring to the feature content on the Voice⁰ head and feature delinking on the Appl⁰ head. In section 3.5 a new type of low applicative construction is analyzed as a reflexive structure. The novelty in this analysis of these constructions is that the relation between the external argument and the theme, which is very similar to the applicative, is expressed through the reflexive

⁵³ See the difference between high and low applicative structures and their semantics in the Introduction, Section 1.4.

Voice head, which indicates the projection of an empty argument (PRO) in the specifier of the ApplP. This empty argument c-commanded and bounded by the external argument keeps the local low applicative relation with the theme. The structure thus contributes to the Recipient relation between the external argument and the theme.

Section 3.6 analyzes the possessor dative constructions as low applicatives and it is argued that Georgian and related languages provide the semantic interpretations of stative possession in low applicatives through the little v_{BE} head. The eventualities such as *know*, *approve*, etc., which have activity frame in these languages with nominative/ergative subjects, are capable of forming such relations. However, it is argued that psychological verbs denoting states in these languages only form high applicatives. This is due to the lower structural position of the dative experiencer argument itself, which prevents the projection of another dative applied argument in the structure. Section 3.7 introduces four-place complex predicates with location-as-object meanings that lexicalize a path component in their semantics. These complex applicative structures are argued to combine both high and low applicative heads since they show transfer-of-possession through the Recipient argument and also, the high applicative relation between a Benefactee argument and an event. Some of these complex predicates are argued to combine the causative head with the postpositional locative phrase in which animacy of the Goal argument is the key component. The following table summarizes low applicative structures analyzed in this dissertation and the types of little *vs* associated with their meanings:

Table 7. **Low applicatives in Georgian**

	Dynamic Relation		Static relation
	TO	FROM	AT
Meaning/ type of v^0	Recipient	Source	Stative Possessor
Transitive (v_{DO})	Write, send, bake	Lose, hide	
Unaccusative/ Inchoative (v_{GO})	Arrive		
Unergative (v_{DO})	Ripe, blossom		
Psychological predicates of activities (v_{DO})			Like, approve, adopt, etc.
Reflexive applicative (v_{DO})	Bake, build		

Section 3.8 analyzes high applicatives formed from various classes of verbs such as psychological, unaccusative, and existential predicates. The three morphosyntactic classes of psychological verbs in Georgian discussed in Chapter 2 on causatives can differentially express low and high applicative meaning. For example, activity psych verbs can only express the low applicative relation, and the nom/erg/dative experiencers projected in these active structures are interpreted as voluntary, instigating subjects behaving like external arguments of transitive verbs. These active psychological verbs add a dative applied argument, which is interpreted as the possessor of the theme argument.

The dative subjects of dynamic passive and stative psych verbs form high applicative relations as their dative arguments indirectly benefit from an event expressed by stative predicates.

Existential predicates such as *'happen'*, *'occur'*, etc. combine with the high applicative head in Spanish (Cuervo 2003). In Section 3.8 high applicatives formed from similar verbs are analyzed and also it is shown that they are morphologically realized the same way as low applicatives. Unaccusative and unergative verbs like *'arrive'*, *'run'*, and stative *'hold'* may also form high applicatives in Georgian.

A special Section 3.9 is dedicated to applicative constructions in related languages: Mingrelian and Svan, which show almost the same range of applicative meanings as Georgian.

The following table summarizes the high applicative constructions and their correlation with the event-introducing v heads:

Table 8. **High applicatives in Georgian**

	Stative relation	Dynamic relation
Psychological verbs of state (V _{BE})	Like, love, hate	
Unaccusatives of <i>happening</i> (V _{GO})	Happen, appear, occur	
Unergatives (V _{DO})		Walk, dance

Now I will review the proposals that are taken as the theoretical background for the analysis of applicative structures in this dissertation.

3.1.1 McGinnis on applicative structures as phases

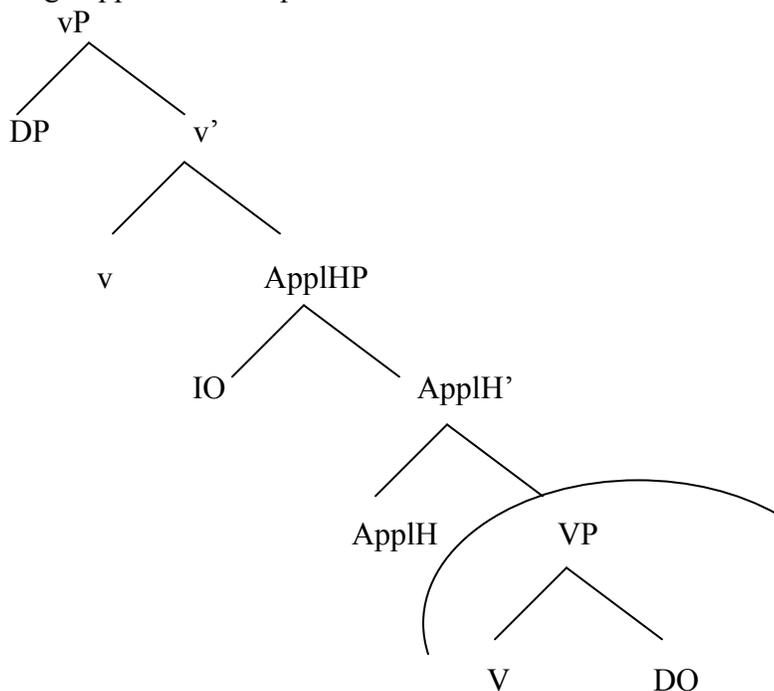
McGinnis' (2004) proposal centers on the different syntactic properties of applicative heads (high and low) that may affect not only the phrase structure but also the phasal architecture of applicative constructions (Chomsky 1999, 2001). In her theory, low and

high applicative heads may differ in terms of their ability to demarcate the domain of the phase as predicted by (1):

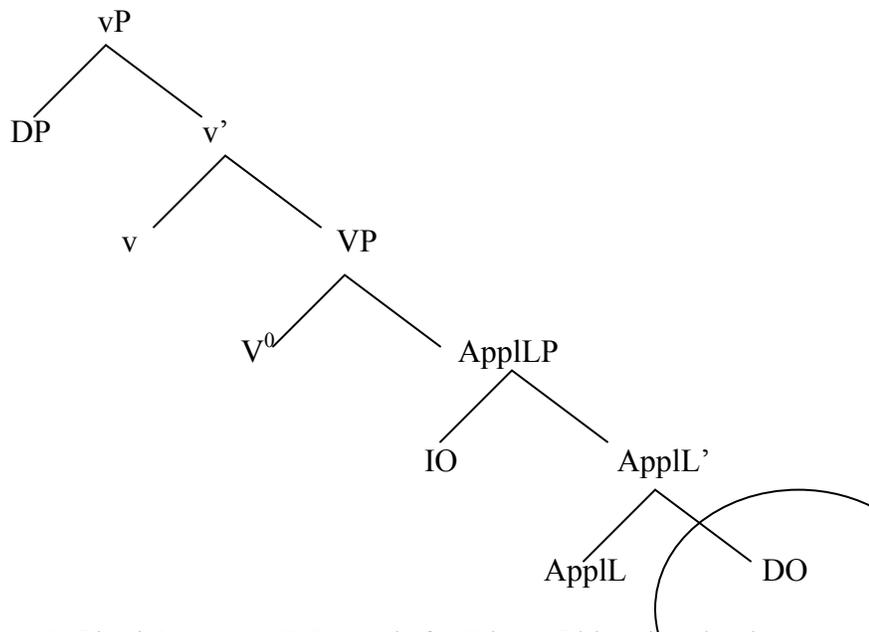
(1) *The sister of VP heads a phase if an argument is generated in its specifier.*

Based on this condition McGinnis derives the differing properties of high and low applicatives in terms of their ability to form phases. Namely, the high applicative heads a phase since it is a sister of VP and, in combination with VP, it assigns a theta-role to the applied argument as seen in (2a). In contrast to the high applicative head, the low applicative head is not a phase head because it is not a sister of VP. In low applicatives, V^0 may head a phase only in ‘special’ circumstances, i.e. when an argument is generated in its specifier. The following structures adapted from McGinnis illustrate this ability of Appl^0 heads to head a phase:

(2)a. High applicative = a phase



b. Low applicative ≠ phase



In McGinnis' system, DO stands for Direct Object i.e. the theme argument and IO for Indirect Object, i.e. the dative applied argument. As seen from these derivations, in the low applicative construction, the Appl^0 head does not demarcate the phase boundary in the sense of Chomsky (2001), since the Appl^0 is not a sister of VP. In contrast to low applicatives, the high applicative head is a phase head because the Appl^0 head is a sister of VP and the IO, i.e. the applied argument, is projected in the specifier of $\text{Appl}_{\text{HIGH}}$.

In light of McGinnis' findings, the question arising with respect to applicatives is whether the Appl^0 heads in high and low structures are cyclic or not. The answer may be given either by syntactic tests or by morphological evidence such as the presence of Root-determined allomorphy of these heads. I follow Embick's proposal (2009), discussed in the introduction, that this kind of allomorphy can be a test determining the cyclicity, in this case, of the Appl^0 head. Specifically, if Root-conditioned allomorphy is present both in high and low applicative heads, then these heads cannot be cyclic. If the

opposite evidence is found, i.e. the heads do not show allomorphy, the prediction will be that these heads may be cyclic.

One caveat for the syntactic structure of applicatives should be kept in mind though. In the low applicative, the Appl⁰ is introduced earlier in the derivation than the lexical V⁰ head itself. Due to this position of the Appl⁰ head, the expectation is that contextual allomorphy of the Appl-low⁰ will be impossible, because at the spell-out, the lower head cannot look ahead and ‘adjust’ to higher heads. Thus, the question about the cyclicity of the low Appl⁰ head may not be the right one to ask with respect to low applicatives.

Another possible argument suggesting that the low applicative cannot be a cyclic head has to do with the amount of structure projected at the point of the derivation when this head is introduced. The low applicative relates two arguments: the theme and the dative applied argument projected under ApplP, but there is just one DP (theme) to be sent off to LF. Presumably, the structure of this size cannot satisfy the requirements of phase size, which has been argued by Chomsky (1999) to be of the size of the transitive vP.

The situation is slightly different with high applicative heads. Based on McGinnis’ hypothesis, in contrast to the low applicative, the high applicative head defines the phase boundary. This means that when the high Appl⁰ head merges the lower structure will be sent off for LF/PF processing, and Root-determined allomorphy of this head will not be an option. This conclusion about the high applicative head will be examined in section 3.8 on high applicatives in this chapter. It should also be kept in mind that the category-defining head (*v*), which has been argued by some morphologists to be a cyclic head

(Embick & Marantz 2008), may intervene between the Root and the high Appl⁰ head, which would render the Root-determined allomorphy of the latter head impossible. This is also expected in noun and adjective-incorporated unergative verbs where the category-defining heads (*n*, *a*, etc.) may be overt and the morphemes realizing these heads would possibly intervene between the Appl⁰ head and the Root rendering the applicative morphemes resistant to root-conditioned allomorphy. Thus, the question whether the Appl⁰ head is cyclic or not may not be answered based on the absence of the contextual allomorphy of these heads.

Another related question regarding the syntactic structure of applicative predicates is whether low or high applicative structures can be formed from verbs with various lexical semantic properties. The relevant observations in the existing literature will be shown next.

3.1.2 Transitivity restrictions on high and low applicatives (Pylkkanen 2002)

Pylkkanen identifies several syntactic tests to distinguish between high and low applicatives. One such test for low applicatives is that they cannot occur with completely stative verbs such as ‘hold’. Here is the structure illustrating her point:

(3) High applicative of stative

* I held him a bag. (Pylkkanen 2002:24)

Since English is a language which selects only the low applicative head to express the Recipient or the Source relations between the applied argument and the theme, the verbs whose lexical semantics are interpreted as stative eventuality such as in (3) cannot form Double Object Constructions (DOCs) with the mentioned thematic relations and

meanings. However, in Luganda, which is a high applicative language⁵⁴, stative events can combine with the high Appl⁰ head:

(4) High applicative of stative verb

Katonga	ya-	kwant-	i-	dde	Mukasa	ensawo.
K	Past-	hold-	APPL-	PAST	M	bag
'Katonga held the bag for Mukasa.'				(Pylkkanen 2002: 25)		

Pylkkanen's main argument to distinguish high from low applicative is the existence of transfer-of-possession semantics between the applied argument and the theme. As seen in above structures in (3)-(4), in no way does *the bag* become the possession of the applied argument as the result of the event, although the high applied argument *Mukasa* benefits from the event described by the verb.

Another syntactic restriction that Pylkkanen identifies is that only high applicatives can combine with unergatives, while low applicatives cannot. The following structures illustrate that applicative arguments are impossible in English; this is because English only has low applicatives, which require an internal applied argument to combine with the theme. Since unergatives lack internal applied arguments, low applicatives may not occur with them, and high applicatives are unavailable in English:

(5) Applicative of unergative impossible in English:

a. *I ran him. (unergative) (Pylkkanen, 2002: 24)

[Intended meaning]: "I ran for him."

b. *I walked him.

⁵⁴ It should be noted though that Pylkkanen's (2002) analysis of applicatives does not exclude the possibility that there are languages which combine both high and low applicative heads and both types of structures may exist in the same language (cf. Cuervo (2003)).

[Intended meaning]: “I walked for him.”

The verbs in (5) cannot occur in DOCs in English to render the Benefactee reading for the applied argument. This means that in no way can the applied argument can either be a Recipient, or the Source. However, in the following Venda sentence, Pytkkanen demonstrates that high applicative is possible with the unergative verb:

(6) Venda high applicative of Unergative verb

Ndi-do-shum-el-s musadzi
 1SG-FUT-work-APPL-FV lady
 ‘I will work for the lady’. (Pytkkanen 2002:25)

Based on this evidence, it can be argued that some languages can form high applicatives with unergative verbs. Having established the contrast between high and low applicatives in terms of the verb classes that these heads can combine with, Pytkkanen also shows that thematic/semantic relations in an applicative sentence can also be used as a diagnostic:

(7) Chaga high applicative

n-a'-y'-lyi-`a m-k`a k-e'lya'.
 Foc-1sg-PRES-eat-APL-FV 1-wife 7-food
 ‘He is eating food for his wife.’ (Bresnan & Moshi 1993: 49-50)

In this Chaga example, *food* in no sense becomes a possession of *wife*, which can be used as another diagnostic for the high applicative, in contrast to low applicatives which entail a possession relation between the Theme and the applied argument. Thus, Pytkkanen concludes that only high applicative heads can combine with unergative verbs (as well as other verb classes) while low applicative heads must combine with various transitive structures. The restriction on stative eventualities combining with low

applicative heads has been modified by Cuervo (2003) given empirical evidence from Spanish which is discussed next.

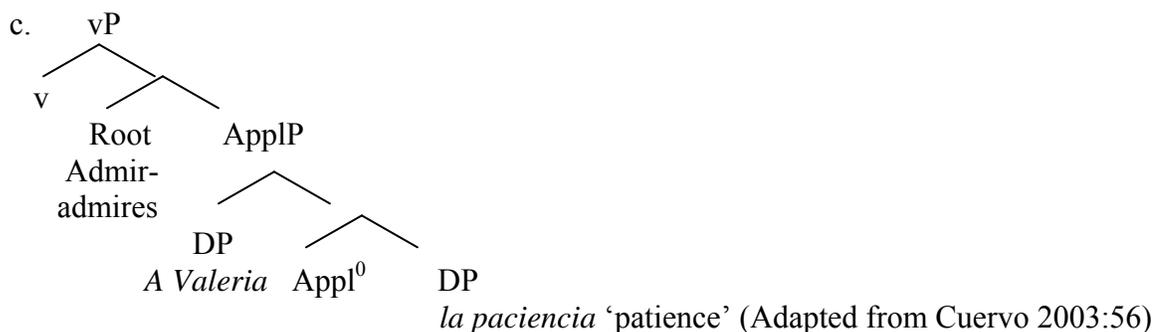
3.1.3 Cuervo (2003) on low and high applicatives in Spanish

Cuervo (2003) identifies several types of high and low applicative constructions in Spanish that allows the possibility of combining high and low applicative heads in the same language. Low applicatives in this language are DOCs in which three different types of relations can be established: recipient, source and stative possessor of the theme. She additionally illustrates that the low applicative head can combine with stative eventualities introduced by v_{BE} , i.e. a stative event head, which, beyond the stative meaning of an event itself, can show the affectedness of the subject argument as well. Thus, the low applicative relation need not always express *transfer-of-possession* between the two arguments but may also imply just ‘a static relation of possession between two individuals’, as illustrated in the following examples:

(8) Spanish low possessor applicatives

a. Pablo le admira la paciencia a Valeria
 Pablo CL.DAT admires the patience.ACC Valeria.Dat
 ‘Pablo admires Valeria’s patience.’ (lit: Pablo admires Valeria the patience).

b. Pablo le beso la frente a Valeria.
 Pablo CL.DAT. kissed the forehead.ACC Valeria.Dat
 ‘Pablo kissed Valeria on the forehead.’ (lit: Pablo kissed Valeria the forehead).



(8a) involves the state psychological verb *admira* ‘admires’ along with the stative possessor relation between the applied argument and the theme. However, (8b) is clearly an active structure where the same stative relation is expressed between the applied dative argument and the theme (*Valeria* and *the forehead*). This dissertation also shows empirical evidence from South Caucasian languages in which non-transfer predicates can be either stative (the Appl⁰ head combining with the stative verbs *admire*, *have*, *see*, *envy*, etc.), or dynamic (such as *kiss*, *wash*, *touch*, etc). What unites these stative and dynamic structures is their dative argument, interpreted as a stative possessor (or location) of the theme. Thus, these low applicatives have the meaning of ‘at’ (possessor) rather than ‘to’ (Recipient), or ‘from’ (Source) applicatives. The meaning of ‘at’ possessor applicatives is shown in the following formalism:

(9) Low –APPL-AT (Possessor Applicative)

$$\lambda x . \lambda y . \lambda f \langle e \langle s, t \rangle \rangle \lambda e. f(e, x) \ \& \ \text{theme}(e, x) \ \& \ \text{in-the-possession}(x, y)$$

(Cuervo 2003:54)

The formalism illustrates that there are two variables in low applicatives: the applied argument (y) and the theme (x), and the truth conditions of the low possessor applicative depend on the calculus of these variables. The denotation of this expression shows that

possessor datives are instances of DOCs and the relation between the theme and the applied argument includes the fact that the theme (x) must be in possession of an applied argument (y).

The third type of applicative relation substantially widens the empirical base of applicative constructions cross-linguistically and clearly teases apart three types of low applicative meanings: Recipient (to), Source (from), and Possessor (at).

The conclusions drawn from the above research will be applied to the analysis of applicative constructions in Georgian and related languages.

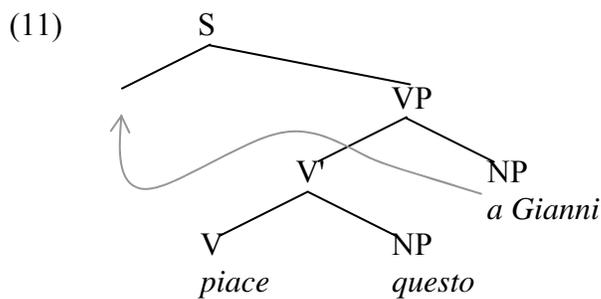
Now I introduce the common properties of dative arguments in three types of high applicatives based on Cuervo (2003), which will be discussed in detail below:

- (10)a. dative arguments are all licensed by the Appl⁰ head;
- b. in some high applicatives, the dative argument is the highest argument in the structure (such as psychological verbs), occupies the subject position, and exhibits all properties of subjects;
- c. in Spanish, Experiencer subjects, like other dative subjects, never trigger agreement with the verb. (Agreement is with the nominative object);
- d. dative DPs are external to the vP that the Appl⁰ head takes as its complement.

Therefore, there is no predication relation between the dative argument and the stative predicate, which means that only the stative theme and the verb enter into a predication relation.

The properties in (10a-c) are descriptive statements and (10d) needs to be developed in detail. The externality of dative experiencers from predication relations with

nominative objects results from the fact that most psychological verbs in Spanish can appear without an experiencer. These are the following verbs: *gustar* ‘like’, *importer* ‘matter’, *molestar* ‘bother’, etc. These verbs are similar to the Italian *piacere* class, which were analyzed in Belletti & Rizzi (1988, henceforth, BR) and were argued to have the following structure:

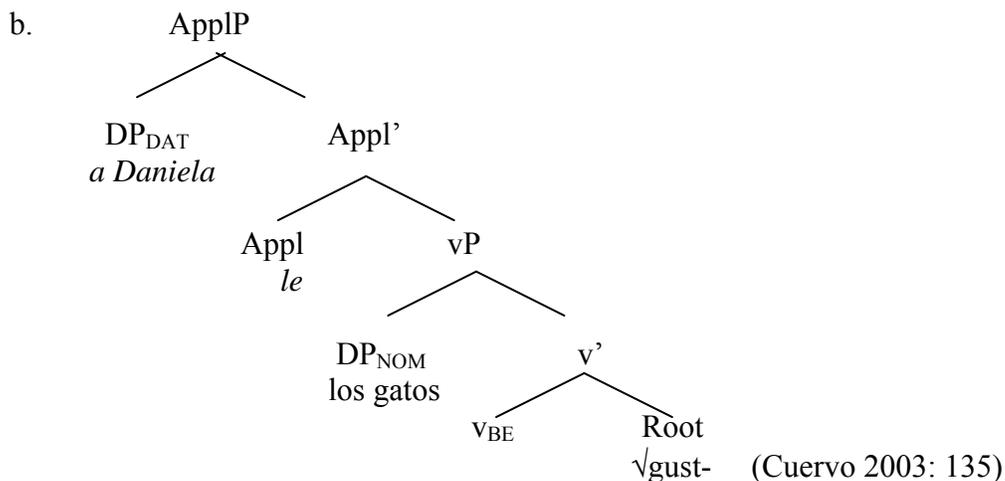


A Gianni **piace** questo.
To G pleases this.

In BR’s theory, the Experiencer argument *Gianni* asymmetrically c-commands the theme (*questo*) but either one can occupy the preverbal subject position. The structure for the high applicative of a psychological verb in Spanish has been presented in the introduction of this dissertation in (16) and here we are repeating for convenience as (12):

(12) a. High applicative of psychological predicate

A Daniela le gustan los gatos.
Daniela.Dat CL.Dat like.PL the cats.
‘Daniela likes the cats.’



It is evident that the nominative case is checked on the theme (*los gatos*) in a different position than the accusative in low applicative constructions with the possessor datives. The nominative argument is the subject of the vP ‘*gustar*’ (*likes*) rather than its object, as Cuervo argues. The dative experiencer is ‘external’ to the predication relation because the stative vP is the ‘first argument’ of the high App^0 head that licenses the dative DP *a Daniela*. Thus, the predication relation holds between the verb and the nominative DP ‘cats’, while dative argument is ‘external’ to this relation. This is one of the characteristics of high applicatives according to Cuervo. It should be noted, though, that the above structure is not ‘right’ in a sense that it allows the dative DP *a Daniela* to be projected higher than the nominative theme object *los gatos*. This configuration could be objected to on the grounds that it would involve a minimality violation for the purposes of nominative case checking on the theme argument *los gatos*. This violation would not occur, if the nominative argument is projected higher than ApplP itself by some other functional head and the nominative case checked against Tns via Agree with this argument. However, we are assuming that the inherent dative case of the experiencer argument makes it invisible to the case-checking Agree relation, and hence the structure

does not incur a minimality violation for the nominative theme to check its case against Tns via Agree.

These configurational properties of dative and nominative arguments in high applicatives substantially differ from those of experiencer and theme arguments in low possessor ‘AT’ applicatives. The contrast between low and high applicative meanings in psychological predicates is shown in the following sentences adapted from Cuervo (2003) again:

(13) Low applicative

A Laura	le	falta	la birome	de Pablo
Laura.Dat	CL. Dat	lacks	the pen	of Pablo

‘Laura is missing Pablo’s pen.’⁵⁵

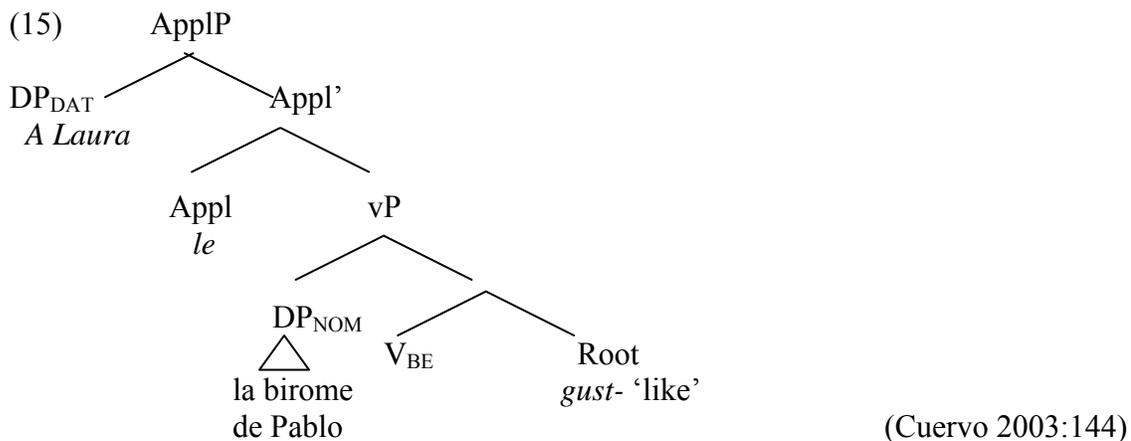
(14) High applicative

A Laura	le	gusta	la birome	(de Pablo)
Laura.dat	CL.Dat	likes	the pen	of Pablo

‘Laura likes the / Pablo’s pen.’

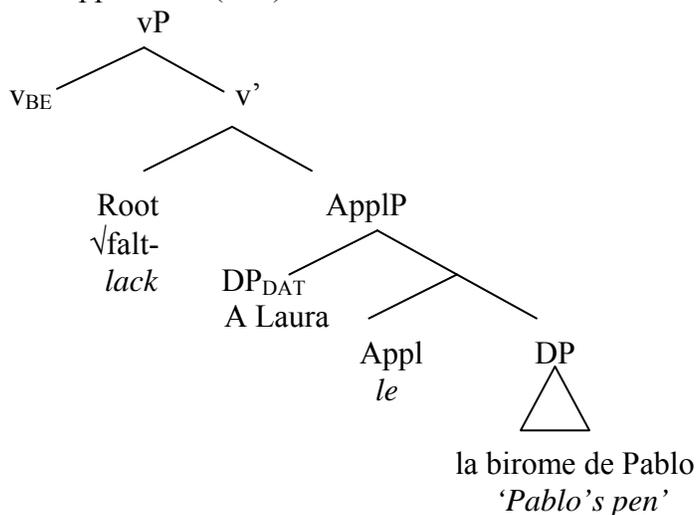
In (14), the dative and nominative arguments are in different domains and do not relate to each other directly, as shown in the following tree:

⁵⁵ In this sentence, the low applicative relation is established through the malefactive relation between the applied argument Laura and Pablo’s pen as shown in (27).



By contrast, in the existential construction (16), the relation between the theme and the predicate is not direct, but the dative argument Laura is in direct relation with the theme 'pen'. Syntactically, this relation exists due to the low applicative head projecting the dative subject in the specifier and the complex theme as its complement:

(16) Low applicative (=15)



These two structures indicate the semantic and syntactic differences between high and low applicatives combining with stative vPs. Some of these arguments underlie the analyses of similar constructions in Georgian and related languages, in which the Appl⁰ heads are realized with several VIs, which is unlike Spanish where only the clitic *le* spells

out the Appl⁰ head. The interaction between the morpheme of the Appl⁰ head and other argument-structure changing morphemes will be explored in each subsection along with the syntactic and semantic relations between these arguments.

3.2 Low applicatives in Georgian

3.2.0 Introduction

As mentioned in the literature review, three types of low applicative relations are found cross-linguistically: low recipient, source, and stative possession. An individual language may select all three, two, one, or none of them. This section illustrates that Georgian displays all three relations.

3.2.1 Low Recipient applicatives

Pylkkanen (2002) and Cuervo (2003) define low applicatives as involving a dynamic transfer- of-possession, which can be literal (*Maria gave John a book*) or metaphorical (*Maria showed Mercedes a book*). There can be two types of transfer: either a transfer ‘to’ or a transfer ‘from’. The difference between the two meanings is essentially attributed to the two types of applicative heads, which define how the applied argument will be interpreted: as the Recipient or the Source of the theme object. Thus, in the following structures of Georgian the applied argument is interpreted as a Recipient:

(17)a. nino-m ek’a-s c’ign-i u- q’ida.
 N-Erg E-Dat book-Acc APPLIC- bought
 ‘Nino bought Ek’a the book.

b. lali-m gia-s namcxvar-i gamo- u- cxo.
 L-Erg G-Dat cake-Acc prev- APPLIC- baked⁵⁶

⁵⁶ Recall that the abbreviations in this text stand for the following notions: ‘prev’ for preverbal marker of aspect and directionality; APPLIC- for the applicative marker; numbers stand for the person agreement affixes; Erg for ergative case, Dat for dative case and Acc for accusative case, etc.

‘Lali baked Gia the cake.’

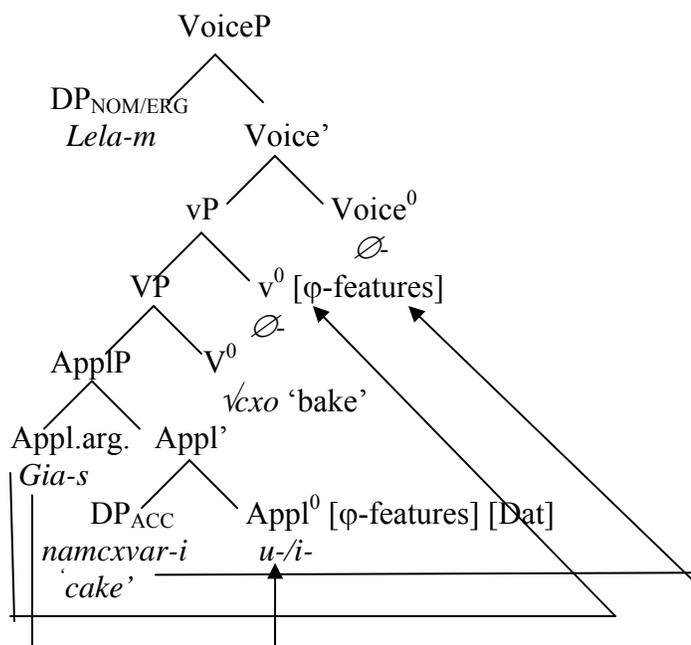
The dative applied arguments in these structures express the animate entities who ‘receive’ the object denoted by the theme. There is a clear sense that dynamic transfer-of-possession occurs between an external and an applied arguments. In order for such a transfer to happen, the predicate must express a dynamic event of acquisition such as (*buy*), or creation (*bake*), etc. Levin & Rappaport Hovav (1991, henceforth, L& RH) argue that *bake* may denote either change-of-state or creation. With the former interpretation *bake* can participate in the inchoative/causative alternation (*the cake bakes/ Sue baked the cake*) while with the latter meaning the same verb participates in the benefactive alternation (*bake a cake for someone/ bake someone a cake*, L & RH 1991: 139). I claim that the verb in (17b) is one of *creation*, while that in (17a) is a *change-of-state*. The products of these activities unambiguously belong to the class of dative applied arguments and the structures are therefore interpreted as low applicatives. The relation is applicative, if the arguments involved in applicative relations satisfy certain syntactic and morphological requirements. These requirements are: the applied argument must be assigned either inherent or structural dative case and projected in the specifier of the ApplP.

In Georgian, the dative case of applied arguments in low applicatives must be structural because it changes into another case when the verb is in the Perfective series, specifically, into the postpositional genitive. How this dative and the accusative cases are checked on these arguments is discussed after presenting the derivation of low applicative structures in two series (Present and Perfective):

(18) a. lali-m gia-s namcxvar-i gamo- u- cxo.
 L-Erg G-Dat cake-Abs prev- APPLIC- baked⁵⁷
 ‘Lali baked Gia the cake.’

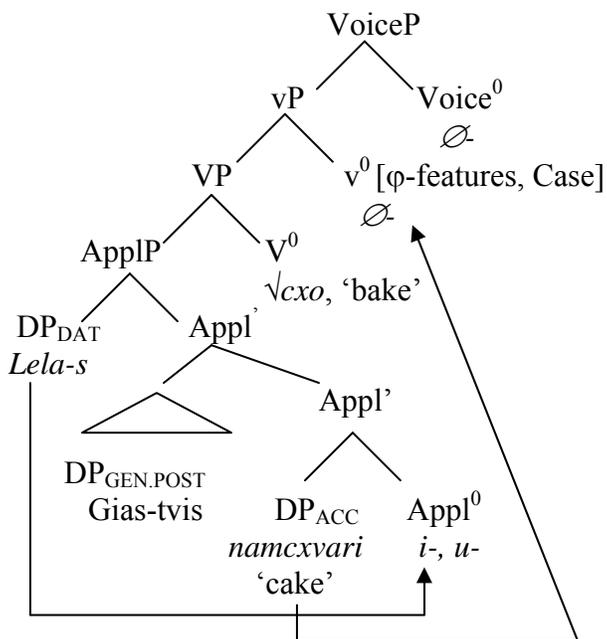
b. [VoiceP *Lelam* [voice' [vP [VP [AppIP *Gia-s* [Appl' namcxvari [Appl *u-/i-*]] $\check{v}cxo$] v°] Voice°]

c. The Present and the Aorist series low applicative



⁵⁷ Recall that the abbreviations in this text stand for the following notions: *prev* for preverbal marker of aspect and directionality; *applic-* for the applicative marker; numbers stand for the person agreement affixes; Erg for Ergative case, Dat for Dative case and Acc for Accusative case, etc. Also see the appendix 1 for fuller list of these glosses.

d. The Perfective series low applicative



As seen in (18c), the external argument is projected by Voice^0 and in the aorist series, Voice^0 checks the ergative case on this case-split external argument while in the Present series, Tns checks the nominative case feature on the same argument. The dative and accusative case features of two lower arguments in (18c) are checked as a bundle along with the phi-features of these arguments. As argued above, the dative case of the applied argument is structural and I assume that the accusative of the theme is also structural since the latter is specified on the DP in a certain syntactic configuration. Assuming bottom-up derivations for these constructions and the cyclicity of spellout of certain functional heads, specifically, that of little v^0 (Chomsky 1999), I claim that the phi- and case feature of the Appl^0 head is checked first against the applied dative argument via the head-specifier relation. I assume that when the little v^0 head is merged, the dative applied argument is still ‘active’, so that it can still match its features against the probe of the v^0

head which is looking down the structure for the goal and checks its case and phi-features again against the dative argument. Note that the applied dative argument must be marked, i.e. be specified for 1-2 persons in order to check the phi-features of the probe and get cross-referenced on the verb with the ‘m-set’ agreement markers⁵⁸. Recall from the Introduction that due to templatic constraints, only the most local marked argument to the v^0 or Tns^0 heads can be cross-referenced in the verbal template. Thus, I assume that the dative applied argument is privileged with respect to the person agreement marking than the lower Theme argument due to locality to the functional head specified for m-set agreement (v^0). In this scenario, I am positing the possibility that one argument can check the phi-features of two functional heads (v^0 and $Appl^0$) as long as these heads are merged in the same phase, i.e. under the little v^0 .⁵⁹

The lower theme argument checks its accusative against the v^0 via an Agree relation presumably. As illustrated by Chomsky 1995 and Bobaljik and Branigan 2006 among others, it is possible for one head to be specified for two different case features and particularly, the little v^0 head across various languages has been posited to be specified for the dative and accusative case features. Due to locality, I suggest that the structurally marked dative argument does not incur a minimality violation as it is already deactivated by checking the phi- probe of v^0 and this argument does not intervene between the theme

⁵⁸ This discussion on how the cross-referencing of the arguments on verb happens is in the Introduction, Section 1.8. The definitions for two types of agreement and two sets of the person agreement markers ‘v-set’ and ‘the m-set’ is also in the same section.

⁵⁹ This type of checking pattern is again supported by the morphological evidence, i.e. the separate morphemes inserted into the $Appl^0$ head and the person agreement presumably inserted in the little v^0 head as argued by Lomashvili & Harley (in press).

and the v^0 head for the latter to check its case features. Thus, the checking of case features in low applicatives may be accounted for with this kind of scenario. Further, we will be assuming that the similar checking pattern exists for other applied arguments and themes merged in DOCs.

Note that in the Perfective series, however, this mechanism is a little different because the external argument is marked with the dative case and it absorbs the case feature of an applied argument projected in the specifier of the ApplP. This dative case of the subject is checked against the Appl⁰ head. Since the position of an applied argument is taken by the dative subject, the former dative applied argument is projected as an adjunct marked with the postpositional genitive. It can be argued that this structure is no longer the true Double Object Construction (DOC) because the genitive applied argument is no longer an argument of the Appl⁰ head. The position of the accusative argument stays the same and presumably, its case is checked against the same functional head as in (18c), i.e. v^0 head.

Since the merging site of the Appl⁰ head is below the event-introducing functional head (v), we assume that the dynamic transfer-of-possession is due to the Appl⁰ head in this construction. The phonological exponents of the low Appl⁰ head in Georgian are *i-* and *u-*, which are sensitive to the features of the syntactic environment, i.e. the person features of the applied argument:

(19) VIs for the applicative head in low applicative:

- a. *i-* ↔ Applic⁰ low / [Dat] [+1] [+2]⁶⁰
 b. *u-* ↔ Applic⁰ low / [Dat] [+3]
 d. ∅ ↔ Applic⁰ low/ Elsewhere

As we have seen in the above examples, the Vocabulary Items (VIs) realizing the Appl⁰ head in these low applicatives are *i-* and *u-*, which are sensitive to the phi-features of the dative applied argument. There is also ∅ applicative marker in (19), which I assume is inserted into the Appl⁰ head in elsewhere contexts. Observe the following examples in which the elsewhere phonological exponent ∅ is inserted into the Appl⁰ head and in some of these DOCs, *a-* shows up in the place of the applicative marker arguably inserted in the CAUSE:

(20) Low Recipient applicatives:

- a. deda-m bavshveb-s velosiped-i a- chuka.
 Mother-Erg kids-Dat bicycle-Acc CAUS- presented⁶¹
 ‘Mother presented the kids a bicycle.’
- b. mama-m dato-s surat-i a- chvena.
 Father-Erg D-Dat picture-Acc CAUS- showed
 ‘Father showed Dato the picture.’
- c. deda-m nino-s sachukar-i mi- s- c- a
 mother-Erg N-Dat present-Acc prev- 3O- give- 3S
 ‘Mother gave Nino a present.’

⁶⁰ The number symbols stand for the person agreement, i.e. 1-2 person arguments check the relevant features on the Appl⁰ head and *i-* is inserted while *u-* is inserted when the 3rd person DP checks the relevant feature. We do not use Halle’s (1997) features [± PSE] (Participant of the Speech Event) or Noyer’s (1992) [± Addressee] for the features of these arguments for the reasons that become clear later when the impoverishment of these features is discussed in Sections 3.3. and 3.4.

⁶¹ The affix *a-* is tentatively glossed as the VI for CAUSE by assumption that the transitive structures projecting external arguments may be generally interpreted as causative eventualities. We also assume that this *a-* in Georgian and related languages is a multi-functional morpheme whose secondary exponence can be something like TRANS head (Jelinek 1988), which projects the theme argument in transitive structures. For the detailed analysis of secondary exponence see Noyer (1997).

A direct transfer-of-possession happens in (20a & c) while a metaphorical transfer in (20b). Both low applicative meanings result from the attachment configuration. Note that some of these verbs can in fact realize the allomorphy *i-/u-* in certain contexts. The verb *show* ‘*achvena*’ in (20b) illustrates this:

(21) Low applicative of ‘show’

m- **i-** chvena
 1S- APPLIC- showed
 ‘He/she showed me X.’

b. v- **u-** chvene
 1S- APPLIC- showed
 ‘I showed him/her X.’

However, two other verbs *a-chuka* ‘present’ and *mi-s-c-a* ‘gave’ do not show this allomorphy in any context:

(22) Applicative of *present* and *give* impossible:

a. *mo- m- **i-** sca
 prev- 1O- APPLIC- gave
 ‘He/she gave me X.’

b.* m- **i-** chuka
 1O- APPLIC- presented
 ‘He/ she presented me X.’

It is evident that the causative structure in (20b) can undergo applicativization while two other verbs (20a & c), which are semantically interpreted as the verbs of *giving*, resist this alternation, i.e. in no frame are they capable of including the phonological exponents *i-/u-* in their templates. The DOC data in (20) shows that the phonological exponents *a-*, *i-*, *u-* and \emptyset - markers may be realized in the same third position of a ditransitive verb template. These items are inserted into different functional heads such as Appl⁰ or CAUSE in specific environments bearing a different complex of contextual

features. The question is why some of these verbs ‘resist’ the insertion of *i-/u-* exponents and the Appl⁰ head in some of these structures is realized with the null phonological exponent.

I argue that the verbs of *giving* are ‘pure’ ditransitives and by default, such structures should deterministically project the applied argument along with two other main arguments—an external and a theme. In other words, the roots of such pure ‘ditransitive’ verbs when projected require the functional apparatus, which projects all three arguments. These types of structures may be considered as unmarked cases with respect to the applicative relation. Here are the structures illustrating this point:

- | | |
|--|------------|
| (23)a. John gave Mary a book. (Requires all three arguments) | DOC |
| b. *John gave a book. | TRANSITIVE |
| (24)a. Mary baked John a cake. (Adds the applied argument) | DOC |
| b. Mary baked a cake. | TRANSITIVE |

As indicated in (23), *give* is by default a ditransitive verb and when projected it requires all three arguments to be realized in the clause. Therefore, the transitive structure with this verb is not good (23b). This verb is different from *bake* which can occur in the monotransitive frame and can also add the applied argument to form DOC. Halle & Marantz (1993: 133-134) argue that in certain environments UG may provide a zero spell-out as a default phonological realization of a morpheme in an unmarked case. They consider English present tense forms without a suffix as the Elsewhere case, where Tns is

realized by a default null suffix.⁶² The conclusion is that the null phonological exponents are provided by the UG for unmarked cases and the same explanation may be assumed for the presence of null exponents for the Appl⁰ head in the verbs of *giving* since these semantically are unmarked with respect to the applicative relation.

Note that the allomorphs of the Appl⁰ head are not phonological or prosodic context-dependent in the sense that they are not conditioned by the phonological or prosodic properties of Roots. They differ in terms of their substantive morphosyntactic features, such as [Dat] and phi-features, but they are not sensitive to the kinds of root-specific contextual features which condition the allomorphy of CAUSE in Georgian (Chapter 2) and the tense suffixes of English. Recall that the allomorphy of CAUSE in the inchoative-causative alternations of *melt/melt* type was Root-conditioned, i.e. the syllabicity of Roots was of importance in the insertion of causative markers. In English, /t/ and /d/ are allomorphs of the Past Tense and they impose certain conditions on the verbal stem, namely, that the former requires a voiceless stem-final consonant, while the latter requires a stem ending on the voiced segment. Thus, the phonological exponents /t/ and /d/ are the instances of contextual allomorphy. Georgian applicative markers do not impose such phonological or prosodic constraints on verbal stems but they do show verb class-determined allomorphy as illustrated in the above discussion. This raises the question of whether the Appl⁰ head is cyclic or not.

The way to determine the cyclicity of the applicative head in a given structure comes from the allomorphy of this head across various verb classes. This proposal hinges on

⁶² The null suffix can also be homophonous, irregular and marked VI in other contexts, as it is the exponent of [+past] tense in the verbs like *drive* and *hit*.

empirical evidence shown in (20) where Roots are concatenated with the applicative morpheme in the template of a Georgian verb and no other morpheme intervenes between them. I repeat these examples here for convenience:

(25) The position of the applicative morpheme with respect to Roots

a. gamo- **u-** cxo
 prev- APPLIC- bake
 ‘X baked someone a cake’

b. **u-** chvena
 APPLIC- showed
 ‘X showed someone Y.’

I argue that the following assumptions are of relevance to determining whether the Appl⁰ head is cyclic or not:

(26) The assumptions regarding the Appl⁰ head allomorphy:

- a. The allomorphs inserted in the Appl⁰ head may show the contextual allomorphy sensitive to the phonological properties of Roots;
- b. VI for the Appl⁰ head may be determined by the class of Root (the morpheme should impose certain constraints on the class of Roots, such as unaccusative, unergative, etc.).⁶³

As seen in above examples, the VIs inserted into the Appl⁰ head showed sensitivity to the person features of the dative applied argument and the null elsewhere item was inserted into this head with the verbs of *giving*. This evidence shows that the low Appl⁰ head may not be cyclic since it shows verb-class determined allomorphic selection, consistent with Embick’s proposal that contextual allomorphy can be conditioned by the

⁶³ I assume that Roots are selected from the lexicon without categorical information (Marantz 1997, 2000) and that their syntactic behavior can be largely predicted based on the category-defining heads that they merge with.

class membership of Roots. The data from low Recipient applicatives demonstrate that the VIs realizing the Appl⁰ head show such sensitivity to the aforementioned Root properties.

3.2.2 Low Source applicatives

An applied dative argument can be licensed by the Appl⁰ head in the environment of transfer predicates that express reverse directionality (Cuervo 2003: 51). This direction may come from the applicative relation of Source when the Source is projected by the Appl⁰ head in the specifier of the ApplP. The transfer-of-possession happens from the Source to an external argument. Typically, the source is marked with the dative case and the theme with the accusative case in such structures cross-linguistically. In Georgian, the same cases are assigned to the applied argument and the theme. The source is interpreted as a ‘possessor’ of the theme respectively:

(27) Low source applicative

a. *erekle-m gia-s gasayeb-i da- u- mala.*
 E-Erg G-Dat key-Acc prev- APPLIC- hid
 ‘Erekle hid the keys from Gia.’

b. *dato-m lia-s c’ign-i da- u- k’arga.*
 D-Erg L-Dat book-Acc prev- APPLIC- lost
 ‘Dato lost Lia’s book.’ (lit: Dato lost a book from Lia’s possession).

c. *nino-m mak’a-s k’aba ga- u- q’ida.*
 N-Erg M-Dat dress prev- APPLIC- sold
 ‘Nino sold Mak’a’s dress.’ (lit: Nino sold a dress from Mak’a’s possession).

Notice that in all three examples, no direct transfer-of-possession occurs between the dative and external arguments. However, the relation between the dative applied

argument and the theme is one of possession. This relation is affected by the event whose endpoint marks the change of possession of the theme argument.

Note that English NPs which correspond to the dative arguments in Georgian are assigned the genitive case in the translation, as they appear internal to the theme NP as possessors of the NP. This could be due to language-specific constraints on the selection of the Appl⁰ head by the verbal head in these structures. In Georgian, the assignment of genitive case to the Source correlates with the disappearance of the applicative marker from the verb. Note that in (26), the dative argument is interpreted as ‘affected’ since it loses the possession of the theme in all three structures. The same ‘affected’ meaning is not available for genitive possessors as shown in the following examples:

(28) Genitive possessors

a. erek’le-m gia-s gasaʒeb-i da- mala.
 E- Erg G-Gen keys-Acc prev- hid
 ‘Erek’le hid Gia’s keys.’

b. dato-m lia-s c’ign-i da- k’arga.
 D-Erg L-Gen book-Acc prev- lost
 ‘Dato lost Lia’s book.’

c. nino-m ketevan-is k’aba ga- q’ida.
 N-Erg K-Gen dress prev- sold
 ‘Nino sold Ketevan’s dress.’

The disappearance of the applicative morpheme in (28) indicates that the Appl⁰ head is not introduced in these structures and the applicative construction turns into the simple transitive. The possessor relation between the genitive cased-marked DP and the theme is kept. There is no relation between the possessor and the event.

Note that the morphological realization of low Source applicatives is *i-/u-* as in low Recipient structures. The morpheme realizing the Appl⁰ head is sensitive to case and the phi- features of the dative argument ([Dat], [+1], [+2] and [+3]). These features on the DP presumably check the relevant uninterpretable person and case features on the functional head (Appl⁰). By assumption the case checking pattern of the lower dative and the accusative theme arguments is the same here as in the low recipient applicatives shown above. We do not repeat it here. By contrast to low Recipient applicatives, there is no evidence of Root-determined contextual allomorphy of the Appl⁰ head in these low Source constructions. I tentatively assume that low Appl⁰ head in these constructions is not a cyclic head.

3.2.3. Low state applicatives: Possessor Datives (AT)

Recall that Spanish has low applicative structures formed by state and dynamic action verbs which do not express transfer-of-possession either literally or metaphorically. The following structures illustrate Cuervo's point repeated here as (29):

(29) State and dynamic applicatives (at)

a. Pablo le admira la paciencia a Valeria
 Pablo CL.DAT admires the patience.ACC Valeria.Dat
 'Pablo admires Valeria's patience.' (lit: Pablo admires Valeria the patience).

b. Pablo le beso la frente a Valeria.
 Pablo CL.DAT. kissed the forehead.ACC Valeria.Dat
 'Pablo kissed Valeria on the forehead.' (lit: Pablo kissed Valeria the forehead).

(Cuervo 2003: 53)

There is no sense in which the dative argument 'gets' or 'loses' the theme in these structures: simply, the applied argument is understood as the possessor (or the Location) of the theme.

In Georgian, similar structures have slightly different meanings as showed in the following:

(30) Dative possessors (AT)

a. dato-m lia-s motmineba mo- u- c'ona
 D-Erg L-Dat patience prev- APPLIC- approved
 'Dato approved Lia's patience.'

(31) Datives of activities (AT)

lela-m bavshv-s loq'eb-i da- u- k'ocna.
 L-Erg kid-Dat check-Acc prev- APPLIC- kissed
 'Lela kissed a kid's cheeks.' (Lit: Lela kissed the kid on the cheeks)

Dative arguments are interpreted as stative or inalienable possessors of the same possessee. *Patience* and *work* are themes that are abstract entities cultivated by the applied dative arguments. The event semantics of psychological verbs in these structures can be interpreted as *activities* as opposed to *states*. As mentioned earlier in Section 2.8, in Georgian, the psychological verb 'like' as well as *love*, *hate*, etc. comes in three semantic and morphological shapes denoting *state*, *dynamic passive*, and *active* events. The fact of interest is that only activity verbs project external arguments and can add the dative applied argument via the Appl⁰ head. This ability of *activity* psych verbs to add dative applied arguments correlates with low applicative meaning. In Spanish, as noted by Cuervo, low applicative meaning (possessor AT) can be expressed by certain psychological verbs denoting states, which project just the dative experiencer and the theme. Indo-European languages, including Spanish, lack the morpho-semantic variety of psychological verbs found in Georgian and related languages. The interpretation of psychological verbs in these languages is mainly stative. In what follows I illustrate that

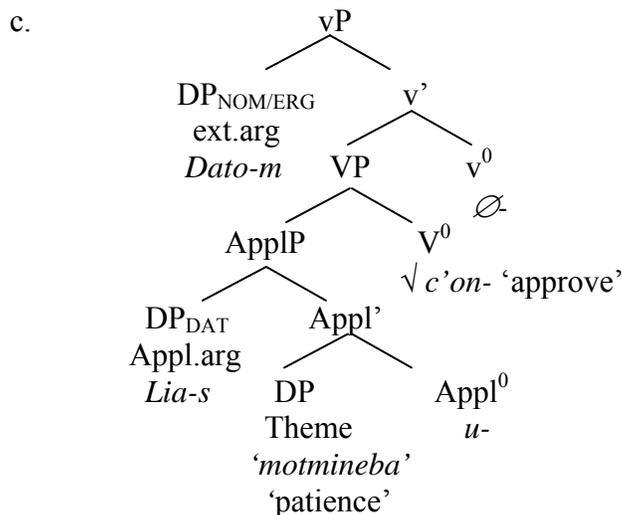
in Georgian, a low applicative possessor relation is expressed only in those structures where the dative applied argument is added to the argument structures of *active* psychological verbs. It should be kept in mind that the relation between the dative applied argument and the theme is still one of *stative possession* as illustrated in (30)-(31).

The low applicative meaning expressed by the activity verb ‘*kiss*’ in (31) shows inalienable possession of the theme by the dative argument. This possessor-possessee relation introduces two variables in the structure: the theme and the possessor dative argument. Here is the structure demonstrating this relation:

(32) Low possessor applicatives

a. dato-m lia-s motmineba mo- u- c’ona
 D-Erg L-Dat patience prev- APPLIC- approved
 ‘Dato approved Lia’s patience.’

b. [_{VP} Neli [_{v’} [_{VP} [_{AppIP} Kato [_{Appl’} shroma [_{Appl°} u-]]] √pasa] [_{v°} Ø]]



The morphological realization of the Appl⁰ head in this low possessor applicative is the same as in other types of low applicatives: the Recipient and the Source as illustrated above. The VIs inserted into the Appl⁰ head show the same kind of free allomorphy

which is sensitive to substantive features of the dative argument. Since the group of predicates showing such possessor relations is not large, it is hard to test whether the VI \emptyset is also available as an elsewhere item or not.

It can be argued that based on these structures, there is not enough evidence to determine whether the Appl⁰ head is cyclic or not. The vocabulary items are inserted in the contexts which are determined by the substantive morpho-syntactic features of dative arguments. This kind of sensitivity may be taken as evidence for non-cyclic Appl⁰ head.

For the purposes of comparison of these structures with the genitive possessor constructions, the following structures may shed light on the change in meaning and the morphological spellout of verbs:

(33) Genitive stative possessors

a. neli-m rusudan-is motmineba mo- i- c'ona.
 N-Erg R-Gen patience prev- REFL- approved
 'Neli approved Rusudan's patience.'

b. deda-m bavshv-is loq'eb-i da- k'ocna.
 Mother-Erg kid-Gen cheeks-Acc prev- kiss
 'Mother kissed the kid's cheeks.'

Along with the change in meaning, which is entailed as the result of the subtraction of one variable (dative applied argument) from the corresponding applicative structure, the verbal morphology also undergoes changes. The VI *i-* preceding the Root *c'on-* in (33a) can be analyzed as a Reflexive marker for a number of reasons. This VI is not sensitive to the phi-features of the applied argument and the series features of T⁰ or Infl⁰ like other morphemes that realize event heads in the same position. The details of the insertion are not relevant here, although they will be analyzed below, in Section 3.5 dealing with

reflexive applicatives. The following examples illustrate that the prefix *i-* is sensitive neither to the person feature of an external experiencer argument, nor to that of the theme:

(34) The psychological predicate and its morphology

a. mo- v- **i-** c'one
 prev-1S- REFL - like
 'I liked it.'

b. mo- **i-** c'one
 prev- REFL- liked
 'You liked it.'

c. mo- **i-** c'ona
 prev- REFL- liked
 'He/she liked it.'

Ignoring other morphemes in this paradigm, it is evident that the affix *i-* is not sensitive to the person feature of any argument projected in the clause (See Appendix A for detailed explanation of the homophony of this VI with other morphemes). The subject is assigned nom/erg/dative cases like the external arguments of DOCs or transitive verbs and the theme is assigned accusative. The checking pattern of these cases is the same as in Recipient applicatives shown above. For the interpretation of meaning in these structures only the theme argument is interpreted as a variable related to the event calculus of the applicative phrase.

3.3 Low applicatives of unaccusative and inchoative verbs

3.3.0 Introduction

In Georgian unaccusative verbs, a low applicative relation can be expressed between the dative subject argument and the theme projected by the internally caused change-of-state verbs. Cuervo (2003) also discusses similar applicative constructions in Spanish but

none of her examples shows the Recipient relation between the dative applied argument and the theme. Instead, in her analysis, the notion of affectedness better accounts for the dative argument in the following applicatives whose event structure is argued to be complex, as in other inchoative verbs:

(35) Affected applicatives formed from inchoatives

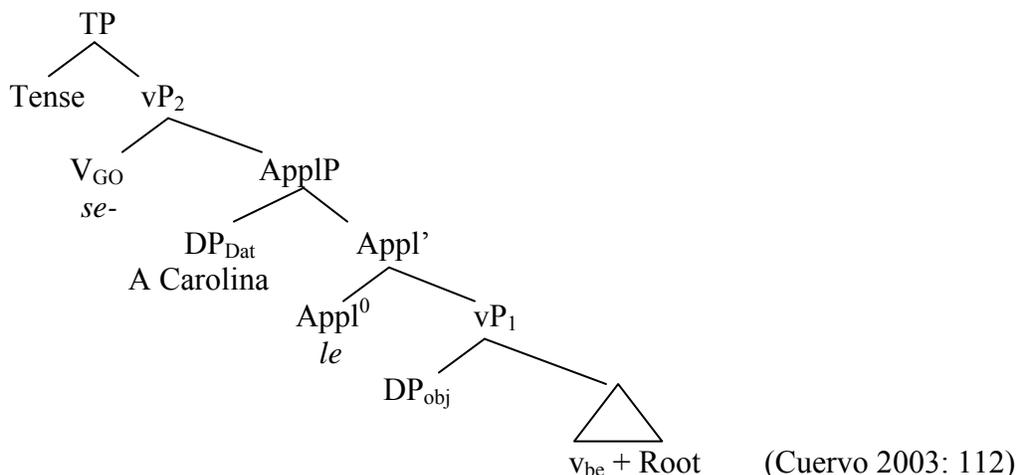
a. A Carolina se le rompio' el florero.

Carolina.Dat CL.Ref CL.Dat broke the vase

'The vase broke on Carolina.' (Lit: 'To Carolina broke the vase.')

b. [TP T [vP₂ [v_{GO} se] [AppIP [A Carolina] [Appl' [Appl le] [vP₁ v_{BE} + root [el florero]]]]]]]

c.



The structure of the affected applicative in (35) represents a complex event which can be decomposed into the higher v_{GO}, usually introducing change-of-state semantics in inchoatives (*fall, grow, break, etc.*), and the lower v_{BE} head, which expresses the resultant state. The dative applied argument is sandwiched between these vPs, staying external to vP_{GO}. No external argument is licensed in these structures. In this sense, *affected applicatives* are distinct from low applicatives and they are analyzed as a distinct kind of relation. None of the low applicative relations (Recipient, Source, and the Possessor) is present in the affected applicative illustrated above.

3.3.1 Empirical data and syntactic analysis

In what follows I argue that in applicatives of internally or externally-caused change-of-state verbs, as well as in certain inchoative and transitive verbs a low applicative relation obtains between the dative subject and the theme with the same morphological realization of all these diverse structures:

(36) Applicatives of unaccusative, inchoative and transitive verbs

a. m- e- purčkn- eb- a⁶⁴
 1S- voice- blossom- TH- 3O
 ‘It is blossomed for me. (Lit: ‘I am blossomed it.’)

b. m- e- zrd- eb- a
 1S- voice- grow- TH- 3O
 ‘It is grown for me.’ (Lit: ‘I am grown it.’)

c. m- e- γ- eb- a
 1S- voice- open- TH- 3O
 ‘It is opened for me.’ (Lit: ‘I am opened it.’)

d. m- e- c’er- eb- a
 1S- voice- write- TH- 3O
 ‘It is written for me.’ (Lit: ‘I am written X.’)

e. m- e- xvn- eb- a
 1S- voice- plow- TH- 3O
 ‘It is plowed for me.’ (Lit: ‘I am plowed it.’)

f. m- e- tes- eb- a
 1S- voice- sowed- TH- 3O
 ‘It is sowed for me.’ (‘I am sowed it.’)

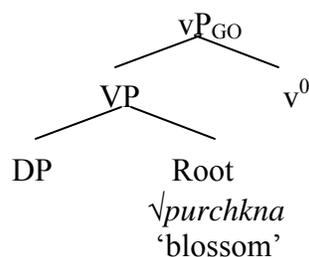
The dative subject argument in these structures is interpreted as the Benefactee of an event expressed by the verb. The theme argument undergoes internally or externally-caused *change-of-state* and, literally or metaphorically, the nominative theme argument

⁶⁴ In these structures, the Dative subject is indexed with the m-set markers in verbs based on the locality with the v⁰ head (see section 1.6 of Introduction for more details).

ends up in the possession of this higher dative argument. This meaning should involve the low applicative head that relates the dative argument to the theme. Also, notice that the morphological shape of these applicatives is uniform, although the event semantics of these verbs is not the same. In (36a & b), the events are internally-caused *changes-of-state*, while in (36c & f), the themes undergo externally caused *changes-of-state*. Generally, the verbs in (36d-f) are transitive, as opposed to inchoatives and unaccusatives in (36a-c). It may be suggested that the structures with the transitive verbs are passivized versions of the corresponding DOCs in which the applied argument becomes the subject of passive. The applicative in (36a) cannot appear in the transitive frame under any argument-structure changing operation. Irrespective of these differences, the derivation of all these events should involve the Appl⁰ head that relates the dative Benefactee argument to the theme and this relation can be expressed locally by these arguments. Before sketching the derivations for these structures, note that the event structure of the applicatives involves both simple and complex events and some of these structures should be analyzed individually. Following Cuervo (2003), I suggest that the internally-changed verb ‘*blossom*’ *gaipurchkna* consists of a simple event with the vP_{GO} expressing a change:

(37) The structure of a simple event of change (*gaipurchkna*)

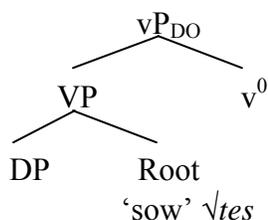
ga- i- purchkna
prev-REFL- blossom
‘It blossomed.’



The structures in (36d, e & f) clearly represent the passives of ditransitive verbs such as *John sowed Alex the field* in which Alex becomes the subject of the passive sentence shown in (36f). Below it will be argued that this is supported with the non-active voice morphology in these forms (the affix *e-*). The structure of a simple transitive verb corresponding to the mentioned passive would be the following:

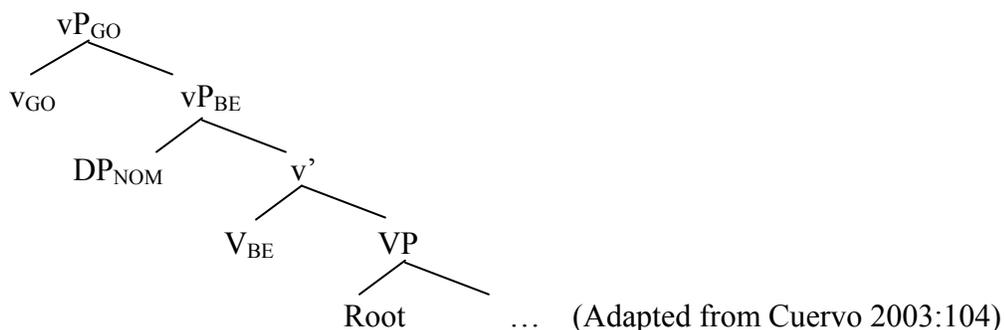
(38) The structure of an event in simple transitives:

Da- tesa
 Prev- sowed
 'He sowed X.'



However, the Roots like *grow*, *open* etc. that form the core of the applicatives in (36b & c) can participate in the inchoative/causative alternation and in their inchoative frame, they represent complex events combining two vPs in the derivation. It may be argued that the underlying structure of inchoatives can be the same as in other languages. Here is a structure of inchoative events adapted from Cuervo (2003):

(39) The structure of the inchoative = (36b&c)



Observe that v_{GO} in these structures does not project an argument. Only the lower stative head of vP_{BE} does. The subject of inchoative verbs is assigned the morphological nominative case across all three series. This case suggests that the subject in the construction like (36b & c) is like the underlying object of the corresponding transitive/causative structure, although it displays almost all of the properties of transitive verb subjects. As seen from (37)-(39), the verbs in (36) have different underlying syntax, namely the event-introducing heads (little vs) are different in them and in (39) the event structure is complex as it combines two vs (vP_{BE} and vP_{DO}).

I propose that the applicatives of various event types, shown in (38)-(39), have one common structural property: they introduce the ApplP whose head projects the dative applied argument in the specifier of this projection. Since a Recipient relation exists between the dative applied argument and the theme, structurally these arguments must be in the same local domain and ideally would be related to each other by the $Appl^0$ head when the dative argument is projected as the specifier of the $Appl^0$ head and the nominative argument as the sister of this head. However, the analysis of other Recipient low applicatives has shown that the theme argument was projected as the sister of the $Appl^0$ head (bearing the *accusative* case in Spanish and Georgian). This creates a problem for the analysis of the nominative theme arguments in applicatives of inchoative, or internally-caused change-of-state verbs. The nominative case-marked theme must be projected as the subject of vP as shown in (39).

Dative arguments in these structures are also different from dative arguments in DOCs. Recall from the introduction of the dissertation (Section 1.7, example (29)) that,

in the Perfective series, dative applied arguments are uniformly assigned the postpositional genitive and the applied argument is demoted to an adjunct position due to this change in case marking. Observe the difference of the case in the Perfective series verbs and the dative subjects of inchoative verbs:

(40) a. Genitive applied arguments of DOC in the Perfective:

Dato-s	Gia-s-tvis	saxl-i	a-	u-	shenebia
D-Dat	G-Gen.for	house-Acc	Prev-	APPLIC-	build

‘Dato (apparently) has built the house for Gia.’

b. Dative Benefactor argument of unaccusatives in the Perfective series:

Dato-s	q’vavil-i	ga-	purchknebia.
Dato-Dat	flower-Nom	Prev-	blossom

‘The flower has (apparently) blossomed for Dato.’

Thus, in DOCs, the Appl⁰ head checks the *structural* dative case of the applied argument as opposed to internally-changed and other activities shown in (36) and (40b) where the *inherent* dative case is marked on the Benefactee. Given these distinctions between the dative cases on applied arguments in (36) and the applied argument in DOCs, below I argue how structural and inherent cases on dative arguments are checked without incurring minimality violations.

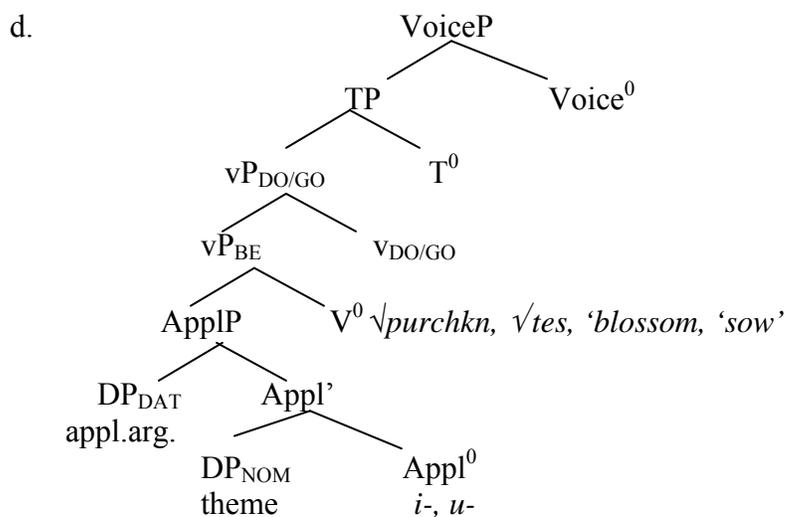
First let us analyze the properties of the theme arguments in applicatives of inchoatives. As mentioned above, these nominative themes are underlyingly like nominative subjects of unaccusative and inchoative verbs. However, these arguments must be c-commanded by the dative Benefactees as illustrated by the native speaker judgments. Therefore, the nominative theme which is a possessee of the dative argument must be projected lower in the tree. I propose that the dative benefactee and theme

arguments in applicatives of inchoatives and internally-caused change-of-state verbs are projected under the ApplP. I assume that case checking of the arguments may happen from other functional heads rather than from those which license these arguments (such as the Appl⁰ head may not check the nominative case of the theme, although the latter is selected as its complement):

(41) a. m-e-teseba ‘It is sown for me’

b. m-e-γeba ‘It is opened for me.’

c. [VoiceP [TP [T' [vP_{DO/GO} [DP_{nom} [vP_{BE} [VP [AppIP DP_{dat} Appl⁰] √*purchkn*] v_{BE}] v_{DO/GO}] T] e-]]



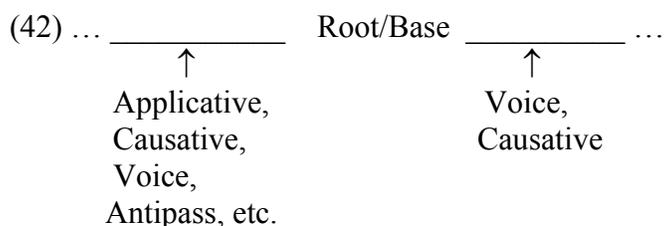
The benefactee does not represent a barrier for the case checking relation between the nominative theme and the T⁰ due to its inherent dative case. Thus, the dative case on these higher Benefactee arguments is checked against the Appl⁰ head and the nominative case on the theme against T⁰ via Agree.

3.3.2 Analysis of morphological marking

The morphological shape of the inchoative applicatives indicates that, instead of the *i-/u-* and \emptyset exponents of the Appl⁰ head, the voice marker *e-* shows up in the pre-base

position of the argument structure-changing morphemes. Recall from Chapter 2 that the same VI appears in contexts where the head of the VoiceP projection bears the [NonActive] feature. I assume that this feature is also present on the Voice head in these constructions, and consequently, Voice⁰ does not project the external argument in these constructions.

The question arises as to why the morpheme realizing the Voice⁰ shows up instead of the VI of the Appl⁰ head. Recall from the introduction (Section 1.7) that in Georgian and related languages, language-specific constraints are imposed arbitrarily on the verbal template and they allow only one argument structure-affecting morpheme to be realized in the pre- and the post-base positions. The following schema shows this constraint:



These functional heads affecting the argument structure have just two positions-of-exponence in the verbal template, one in the pre-base and another in the post-base position. In inchoative applicatives, only one VI marking either the Applicative or the Voice head can receive a spell-out in the verbal template. The data in (36) shows that only the VI *e-* realizing the Voice⁰ is inserted. The question is what privileges the VI of Voice over the Appl⁰.

There can be two different answers to this question. The first could be provided by a pre-insertion impoverishment rule, which changes the feature content on certain functional heads (Halle & Marantz 1993, Halle 1997) bleeding the insertion of the

applicative morpheme. The second answer could be provided by the existence of a null exponent for the Appl⁰ head in certain contexts. For the first scenario, I propose that an impoverishment rule applies to the person features of the Appl⁰ head. The impoverishment in this approach is represented as *delinking*, which means that the delinking of certain features entails the delinking of features dependent on them. I follow Noyer (1992) and Harley (1994) in positing this process and in recognizing that the following hierarchy of features: 1>2 >3> pl > dual > fem underlies the feature geometry shown in (43). In Georgian, delinking of the feature [+1] entails delinking of [+2] and consequently, of [+3] while the case feature [Dat] dominates the phi-features and it is kept intact since the delinking applies just to person agreement features:

(43) Impoverishment as Delinking

[Dat]		[Dat]
≠		
[+1]	→	∅-
[+ 2]		
[+ 3]		

As the result of this delinking, only the dative case feature will be left on the Appl⁰ head and the phonological exponent of Voice⁰ will be realized in the same position unobstructed.

The second solution is compatible with the syntactic structure that these verbs project and the feature content on the heads that introduce arguments in these applicatives. As argued above, the Voice cannot project an external argument due to the feature [NonActive] and the dative Benefactee/Recipient has the same relation to the theme as other dative applied arguments in DOCs. It could be that the feature content on the Voice has some relevance for the phonological realization of the Appl⁰ head. A zero exponent

for Appl⁰ may be inserted in elsewhere contexts as argued in Section 3.2 on low applicatives. Recall that the verbs of *giving* appear to realize a null exponent of the Appl⁰ head. Similarly, I may argue that the null elsewhere item is inserted into the Appl⁰ head in structures where the Voice head bears this specific [NonActive] feature due to which it cannot project an external argument. The presence of this null exponent does not prevent the exponent of [NonActive] feature from being realized in the same position as the VI of the Appl⁰ head.

As for the preference between these two analyses, it can be argued that the second is more ‘economical’ because it does not need to posit the special rule for featural economy as presented in the delinking analysis. Halle (1997), Siddiqi (2009) among many others argue for both featural and exponential economy whereby UG restricts the featural content on the nodes positing only those morphosyntactic features which are relevant for the derivation of the structure. Siddiqi (2009) argues for the principle that minimizes exponence, i.e. the derivation realizes “all the formal features of the derivation with the fewest morphemes” (Siddiqi 2009:4). These are two different kinds of economy principles that are active in vast majority of languages and I may also argue following these accounts that the ‘Rule economy’ could be a better option for explaining the appearance of the Voice morpheme in above applicatives.

3.4 Low applicatives of Noun/Adjective-incorporated predicates

The following set of verbs illustrates low applicatives of noun- or adjective-incorporated (henceforth, NI and AI) verbs which project dative Benefactee subjects and

nominative theme arguments undergoing a change-of-state. These structures resemble the applicatives in the above section in many ways:

(44) Applicatives of AI- and NI- incorporated verbs

a. m- **i**- mc'ip- d- eb- a
 1S- APPLIC- ripe- pass- TH- 3O
 'It is ripened for me.' (lit: 'I am ripened.')

b. m- **i**- ʎvin- d- eb- a
 1S- APPLIC- wine- pass- TH- 3O
 'It is wined for me.' (lit: 'I am wined')

c. m- **i**- lp'- eb- a
 1S- APPLIC- decompose- TH- 3O
 'It is decomposed on me.' (lit: 'I am decomposed it.')

d. m- **i**- sc'or- d- eb- a
 1S- APPLIC- straight- pass- TH- 3O
 'I am satisfied with it.' (lit: 'I am straightened-')

e. m- **i**- tvinier- d- eb- a
 1S- APPLIC - tame- pass- TH- 3O
 'It is tamed for me.' (lit: 'I am tamed X.')

f. m- **i**- sxr- eb- a
 1S- APPLIC- heal- TH- 3O
 'It is healed on me.' (lit: 'I am healed it.')

Note the difference between the morphological shape of these applicatives and that shown for the inchoative applicatives in (44). In these structures, the pre-base position of the argument structure-changing morphemes is realized with *i-/u-* allomorphy, which is sensitive to the person feature of the dative subject. This can be seen in the following examples:

(45) Adj-incorporated applicatives

⁶⁵ I assume that all these forms in English are impossible.

⁶⁶ The latter verb has acquired idiomatic meaning recently—'I like something.'

a. m- i- mc'ip- d- eb- a
 1S- APPLIC- ripe- pass- TH- 3O
 'I am ripened'

b. g- i- mc'ip- d- eb- a
 2S- APPLIC-- ripe- pass- TH- 3O
 'You are ripened.'

c. u- mc'ip- d- eb- a
 APPLIC- ripe- pass- TH- 3O
 'He/she is ripened.'

The Voice⁰ head in these structures is not active since no external argument is projected into the clause. The applicative relation is interpreted as low because the theme argument undergoing the change-of-state directly benefits or affects the subject argument.

Another morpheme of interest in these structures is the post-base *-d*, which realizes either the Voice⁰ head or some verbalizer functional head *v*⁰. I analyze this morpheme as another VI of Voice⁰. The reason will become clear below in this section where the interaction between the VIs realizing the Voice and Appl⁰ heads is analyzed. This *-d* consistently shows up in Noun or Adjective-incorporated unergatives as well as the dynamic passive psychological predicates:

(46) AI and NI dynamic events

a. mc'ip- d- eb- a
 ripe- pass- TH- 3S
 'It is ripened.'

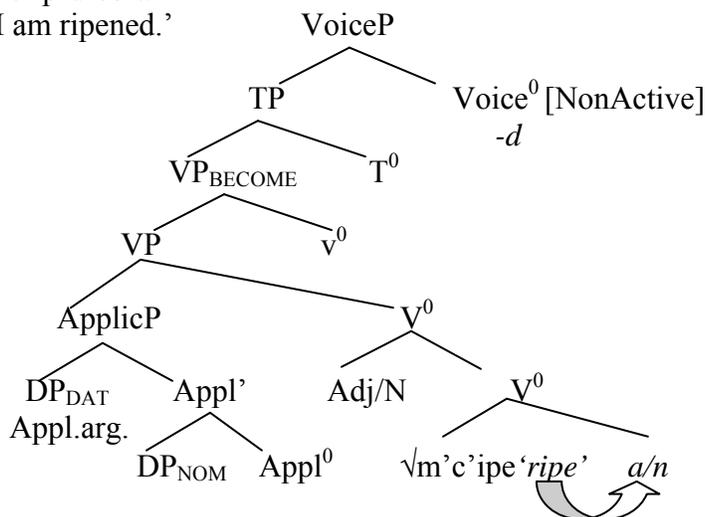
b. tvinier- d- eb- a
 tame- pass- TH- 3S
 'It is being tamed.'

Following Hale & Keyser's theory of argument structure (2002) these forms may be analyzed as Noun and Adjective-incorporated verbs in which the Roots are incorporated

into the verbalizing v^0 head. Following Harley (1995), I assume that the verbalizing head may be interpreted as BECOME. In Cuervo's system, this v^0 head may be interpreted as the v_{GO} of changes. The derivation of the applicative construction from these verbs will involve a low $Appl^0$ head projected below VP, and this VP is composed of the acategorical Root first combining with a categorizing head of an adjective or a noun (*a*, *n*) and then conflated with the empty V^0 head, as shown in the following structure:

(47) Noun/Adj- incorporated applicative

m-i-mc'ip-d-eb-a
Lit: 'I am ripened.'



As seen from this structure, the dative argument is projected in the specifier of the ApplP and the argument checks its inherent dative case against Appl⁰ head. The nominative case of the lower theme argument is checked against Tns via Agree since there is no structurally-marked argument intervening between this nominative theme and the T⁰.

Next we address why the VI of the Appl⁰ head shows up in the pre-base position rather than the Voice⁰ morpheme. Note that the Voice⁰ head specified for [NonActive]

feature was realized as *e-* in the applicatives of inchoatives, while in NI and AI-applicatives the Voice⁰ head is additionally specified for [+A] and [+N] features. It can be assumed that Roots enter the derivation with the same features and VI for these features is (*-d*). Thus, the following items can be inserted into the Voice⁰:

(48) VIs for Voice⁰:

- a. *-d* ↔ Voice⁰ [NonActive]/ Roots [+ N], [+ A]_____
- b. *e-* ↔ Voice⁰ [NonActive]/ Roots (inchoative, etc.)_____
- c. \emptyset ↔ Voice⁰ [NonActive] / Elsewhere

The post-base position of the argument structure-changing morphemes will be filled by *-d* due to the Elsewhere principle which privileges the VI with more specific feature specifications compatible with the environment where it is inserted. Thus, I claim that when *-d* is discharged in the post-base position and the pre-base position remains empty for the VI realizing the Appl⁰ head, the VIs of this head will be inserted. This kind of relation between the VIs realizing the Voice can be called as *discontinuous feeding* (Noyer 1997) with which the two exponents of the same head do not bleed each other, rather the insertion of one exponent such as that of Voice in the post-base position ‘feeds’ the pre-base position by insertion of the phonological exponent of the Appl⁰ head. This happens with the VIs of the Voice⁰ and Appl⁰ head in above examples. Thus, DM provides adequate explanation of the morphological shape of NI and AI applicatives.

3.5 Reflexive applicatives

3.5.0 Introduction

Georgian and related languages can express a benefactive relation between an external argument and a theme with dynamic events. Verbs that participate in the paradigm are of wide semantic variety such as creation (*bake, cook, prepare, etc.*), locative/locatum (*sew, stitch, load, etc.*), etc. These are typical transitive structures projecting agentive external arguments where the latter are assigned the nom/erg/dat cases across series. The applicative relations of Recipient and Source are formed between the external argument and the theme and this distinguishes them from regular transitive structures. Essentially, the external argument acts like the dative applied argument in DOCs in many respects. However, the relation between the dative applied argument and the theme in DOCs is one of transfer-of-possession, while in these constructions, which I provisionally refer to as *reflexive applicatives*, the theme is in the prospective possession relation with the external argument. First, observe the examples:

(49) Reflexive applicatives:

a. lela sach'mels i- mzadebs
 L-Nom food REFL- prepare
 'Lela is preparing the food ~~for herself~~.'

b. gela-m shuki a- i- nto
 G-Erg light prev- REFL- switch
 'Gela turn on the light ~~for himself~~.'

c. aleksi-m xaliča ga- i- shala.
 A-Erg. carpet-nom prev- REFL- spread
 'Alex spread the carpet ~~for himself~~.'

d. me saxli a- v- i- shene.
 I-Erg house prev- 1S- REFL- built
 'I built the house ~~for myself~~.'

e. nino-m namcxvari gamo- i- cxo.
 N-Erg cake prev- REFL- bake

‘Nino baked a cake ~~for herself~~.’

f. shen kart’opili she- i- c’vi
 You-Erg potatoes prev- REFL- fry
 ‘You fried potatoes ~~for yourself~~.’

Notice that all these forms have the VI *i-* in the pre-base position. In contrast to the applicative markers *i-/u-*, this morpheme is not sensitive to the person features of the external argument that can be seen from (49d, e & f), where the subjects are of three different persons: first, third, and second respectively. Below I argue that this *i-* realizes the reflexive voice head rather than the Appl⁰.

Recall that the transfer-of-possession relation between the dative argument and the theme was the defining structural feature of low applicatives in Pylkkanen (2002) and the subsequent work. Therefore, it may be assumed that morphologically such a semantic relation will have to be expressed differently than applicatives with transfer-of-possession relation between the external and Theme arguments. External arguments and themes should not form close-knit semantic relationships. Nevertheless, this appears to be present here. First, note that in the following reflexive verbs, VI *i-* occupies the pre-base position of the argument structure-changing morphemes:

(50) Reflexives in Georgian

a. ek’am tav-i da- i- bana.
 E-Erg head-Acc prev- REFL-washed
 ‘Ek’a washed her head.’

b. dato-m p’ir-i ga- i- p’arsa.
 D-Erg face-Acc prev- REFL- shaved.
 ‘Dato shaved his face.’

These verbs denote dynamic events directed towards one’s own body parts. The phonological exponent *i-* shows the same properties as the one in the applicative

structures in (49). Specifically, this *i-* is not sensitive to the person features of the external argument or to the series features as is detected with the same exponent of the Voice⁰ with unergative verbs. Below I argue that this *i-* is the exponent of the reflexive Voice:

(51) The VI *i-* in unergatives across series:

a. Present series

v- cek'v- av⁶⁷
 1S- dance- TH
 'I am dancing.'

b. Aorist series

v- i- cek'v- e
 1S- VOICE- dance- Aor
 'I danced.'

c. Perfective series

m- i- cek'v- i- a
 1S-VOICE- dance- TH- 3O
 'I have (apparently) danced.'

Thus, I argue that the phi-feature insensitive *i-* realizes not the Appl⁰ head but rather the reflexive Voice in (49). Note also that the exponent *i-* is not found in many transitive structures as illustrated in the following:

(52) Transitive activities

a. v- ch'- am
 1S- eat- TH
 'I eat X.'

b. v- c'er
 1S- write
 'I write it.'

c. v- tamash- ob
 1S- play- TH

⁶⁷ Note that in (61a) the insertion of the reflexive morpheme is sensitive to the series features, i.e. in [present] the default VI \emptyset is inserted into the Refl⁰.

‘I play X.’

This evidence will support the analysis of the morphosyntax of reflexive causatives which is discussed next.

3.5.1 Analysis of morphosyntax of reflexive applicatives

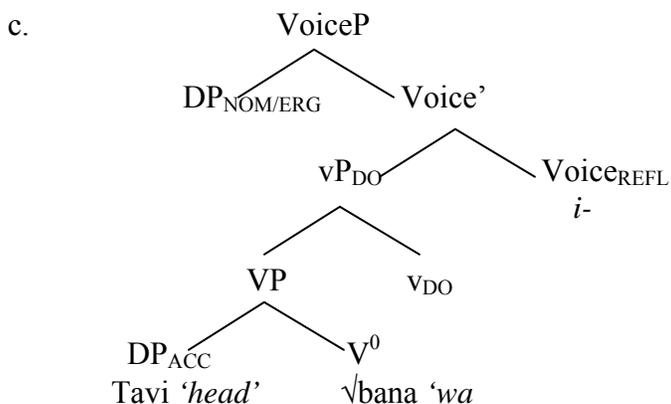
I propose that both reflexive and reflexive applicative structures combine the same reflexive Voice realized with the exponent *i-* in their derivation with the event-introducing and lexical heads (v_{DO} and V^0). In reflexive applicatives, the ApplP also merges. Presumably, the exponent of the reflexive Voice bleeds the affixes *i-/u-* of the Appl⁰.

Summarizing what I have said above, the structure for the ‘pure’ reflexive events should be the following:

(53) The structure for reflexives

a. da- i- bana
 prev-REFL- washed
 ‘He/she washed (~~his~~ head).’

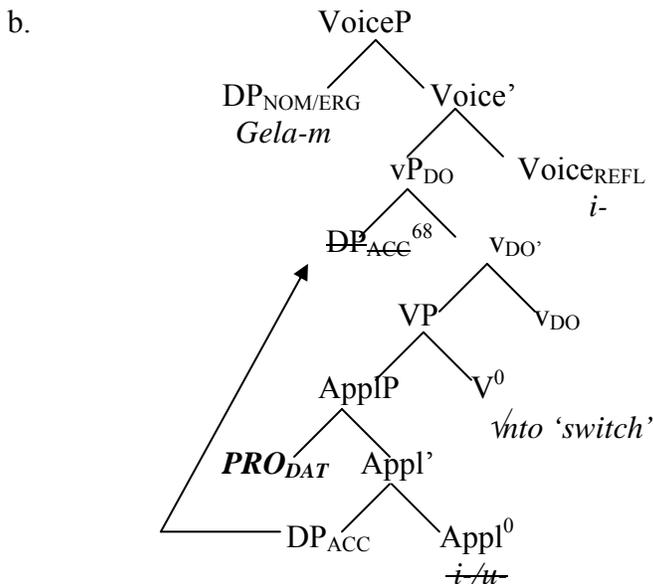
b. [_{VoiceP} External Arg [_{vP_{DO}} [_{RefIP} [_{VP} theme \sqrt{bana}] [_{RefI^o} i]] v_{DO}] Voice^o]



This configuration of the Voice head with respect to the theme does not necessarily entail a close relation between the external argument and the theme but the import of this structure will soon become clear when the structure of reflexive applicatives is analyzed below.

I conceptualize ‘pure’ reflexives much like high applicative structures where the relation obtains between the external argument and an event. Inalienable possession does not need to be represented with the local relation between the arguments. Likewise, the benefactive and *prospective possession* meaning between the external argument and the theme in reflexive applicatives can be attributed to the low attachment site of the Appl⁰ head, which relates the theme to the external argument through some syntactic mechanism. In syntax, this relation is implemented in the following way: The reflexive Voice head reflects that the Appl⁰ head has projected PRO in the specifier of the ApplP rather than the full dative applied argument. This empty element is coindexed with the external argument. The accusative theme can thus be selected by the Appl⁰ head:

- (54)a. Gela-m shuk-i a- i- nto.
 Gela-Erg light-Acc prev- APPLIC- switch
 ‘Gela turned on the light for himself.’



The accusative case of the theme can be checked against v_{DO} via Agree since no other argument intervenes between the theme and this functional head to incur the minimality violation. I assume that the case of the external argument is checked against the $Voice^0$ and Tns depending on the series features (Present or Aorist).

Thus, applicative relations can be expressed via the empty argument PRO and the reflexive Voice head in these structures. The transfer-of-possession meaning between the external argument and the theme can be obtained through the local relation between these arguments. Language-specific templatic restrictions are responsible for bleeding the exponent of the $Appl^0$ head and leaving the reflexive Voice exponent in the surface structure.

A somewhat similar proposal about the ReciprocalP has been advanced in Ndaiyragije (2006) about Kirundi, a Bantu language. He argued that the ReciprocalP attached in low and high applicative, yielded a Recipient meaning for the applied argument in these

⁶⁸ We assume that the accusative argument does not need to move to the specifier of vP position in order to check its case. This happens via Agree of its features with the head of vP.

structures. However, in Georgian, the morphological evidence does not allow us to argue that the Appl⁰ head composes with the Reflexive like in the following Kirundi structure in (64b):

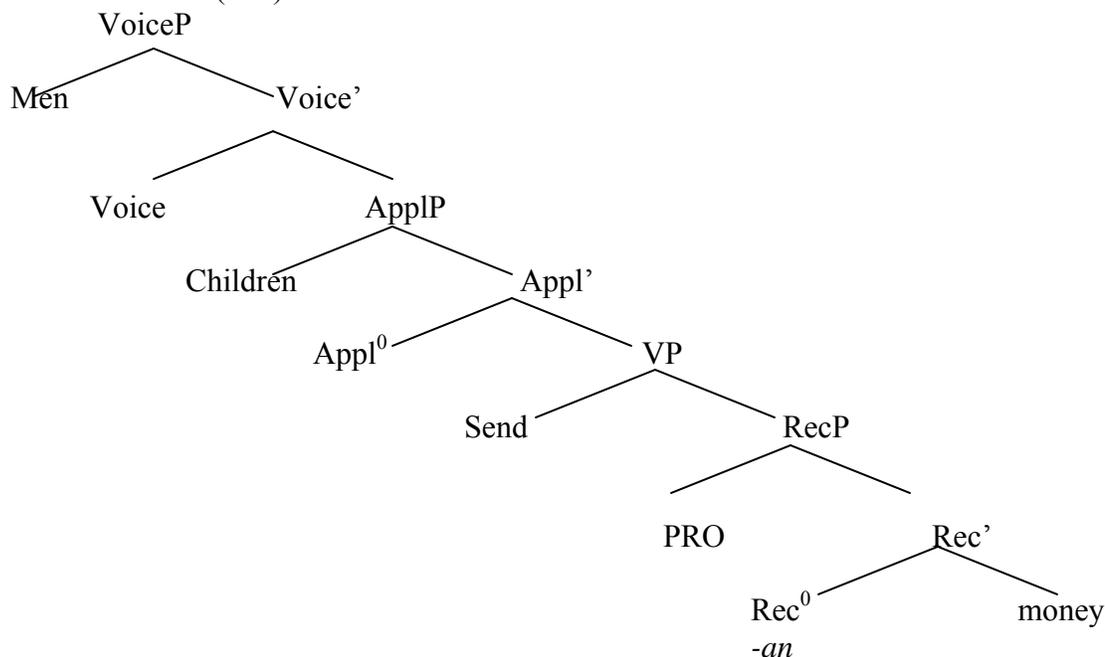
(55) a. Kirundi applicative

abo bagabo ba-a-rungik-ir-ye abana amahara..
 Those men 3p-PST-send-APPLIC-Asp children money
 ‘Those men sent children money.’

b. Reciprocalized applicative

Abo bagabo ba-a-rungik-ir-an-ye amahara..
 Those men 3p-PST-send-APPLIC-AN-Asp money
 Those men sent money to each other /people_{arb.} (Ndaiyragije 2006: 288)

c. The structure for (55b)



As shown in these sentences, reciprocalization of an applicative structure results in the complex morphological form which, along with the applicative marker, realizes the Reciprocal⁰ head: the applied argument is no longer projected due to the reciprocal

marker *-an*. Thus, PRO is generated in the RecipP as the applied argument. This proposal does not argue for high/low attachment of the Reciprocal head though.

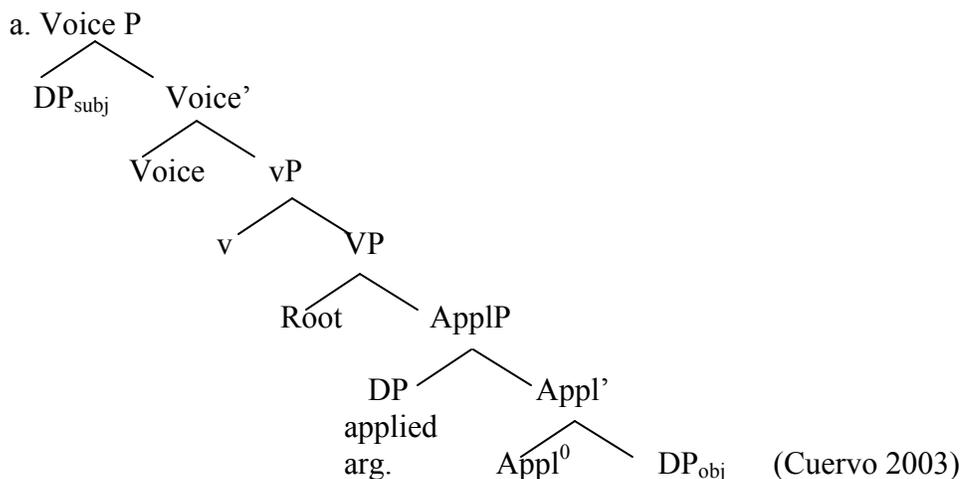
The following section illustrates other types of low applicatives where the Appl⁰ head has the interpretation ‘AT’ of stative possession.

3.6 Possessor Datives as low applicatives

3.6.0 Introduction

Cuervo (2003) considers possessor dative arguments embedded under the stative predicates (*admirar* ‘admire’, *envidiar* ‘envy’, *conocer* ‘know’) or non-directional activity verbs such as *look* ‘mira’, ‘*sostener*’ ‘hold’ as low possessor applicatives. In these structures, the applied argument is licensed by a low applicative head and this argument is related to the theme as a ‘stative’ possessor. As dative arguments in DOCs, these dative arguments bear no direct relation to the event. The analysis of such low applicatives presupposes the merger of a distinct type of Appl⁰ head that establishes a static relation between the applied argument and the theme, but crucially not dynamic transfer-of-possession. The syntactic structure of applicatives formed with such events results from the merger of low applicative head with the Root that is embedded under the dynamic event-introducing head v_{DO} (*wash*, *kiss*), static event introducer v_{BE} , or dynamic unaccusative v_{GO} head. With these structures we find the static possession between the dative argument and the theme mediated through the configuration of the dative argument as the specifier of ApplP and the theme as the complement of the Root. The following structure illustrating these relations in possessor datives is adapted from Cuervo (2003):

(56) Structure for possessor datives



b. [VoiceP DP_{subj} [Voice [vP v [VP root [ApplP DP_{applied} [Appl⁰ DP_{obj}]]]]]]]

The goal of this section is to present empirical evidence for this hypothesis. First, stative psychological verbs with the event head v_{BE} are discussed, and then those of non-directional activity verbs (*wash, kiss, hold, etc.*)

3.6.1 Low applicatives of stative eventualities

Examining some stative verbs in Georgian such as *love, know*, etc, it appears that some verbs fail to project dative applied arguments, even though genitive possessor arguments are felicitous with those structures:

(57) Genitive possessors with stative events

a. dato-s shurs ketevan-is motmineba
 D-Dat envies K-Gen patience
 'Dato envies Ketevan's patience.'

b. datum icis ninos adgilsamq'opel-i.
 D-Erg knows N-Gen whereabouts-Nom
 'Dato knows Nino's whereabouts.'

c. *dato-s shurs ketevan-s motmineba.
 D-Dat envies K-Dat patience
 'Dato envies Ketevan's patience.'

d. deda-m eliso- s k'aba da- **u-** c'una.
 Mother-Erg E-Dat dress prev- APPLIC- disapprove
 'Mother disapproved of Eliso's dress.'

e. nino-m Salome-s p'erangi mo- **u-** c'ona
 N-Erg S-Dat shirt prev- APPLIC- liked
 'Nino liked Salome's shirt.'

The stative event shown in (57b) does not project the dative argument while the psychological verbs in (57a, d & e) do. The following non-directional activity verbs also project dative arguments denoting the possessor relation with their themes:

(58) Non-directional activities and statives

a. ekim-ma pacient-s chriloba mo- **u-** rchina⁶⁹.
 doctor-Erg pacien-Dat wound prev- APPLIC- cure
 'A doctor cured a patient's wound.'

b. ekim-ma pacient'-s ch'riloba **u-** mkurnala
 doctor-Erg patient-Dat wound APPLIC- healed
 'A doctor healed a patient's wound.'

c. nana-m eka-s chanta da- **u-** chira
 N-Erg E-Dat bag prev- APPLIC- hold
 'Nana held Eka's bag.'

Note that in (58), both psychological and non-directional activity verbs form low applicatives where the relation between the applied dative argument and the theme is one of inalienable or alienable possession. The morphological realization of the Appl⁰ head is *i-/u-*, which is sensitive to the phi-features of the dative possessor argument.

The relevant question might be why some psych verbs can form low applicative relation while others cannot. Recall from the chapter two of this dissertation, that in Georgian and related languages, three types of psych verbs were identified in terms of

⁶⁹ Note that some of these verbs take the preverbal morphemes to mark perfective aspect, while some as in (68b) does not. This property can be correlated with the lexical semantics of these verbs and since it is not relevant for present purposes I will not pursue its analysis here.

their event semantics. They were called *activities*, *state*, and *dynamic passives*. Their morphological idiosyncrasy correlated nicely with the syntactic and semantic properties of experiencers in these contexts. The experiencers of activities were interpreted as voluntary subjects while involuntary subjects appear in state and dynamic passives. Here is an example of the verb ‘*like*’, which can express only two types of semantics:

(59) a. State
 mo- m- c’ons
 prev- 1S- like
 ‘I like X.’

b. Activities
 v- i- c’on- eb
 1S- REFL- like- TH
 ‘I am liking X.’

Notice that this predicate does not form a dynamic passive. The prefix *i-* in activities presumably marks the Refl^0 head because it is not sensitive to the phi-features of both arguments. The *i-/u-* allomorphs show up in the applicative structure when the dative applied argument (in these structures, the possessor) is introduced by the Appl^0 head. Thus, the psychological verbs forming the low applicative relation in (57d & e) express an activity rather than a state. The activity psychological verbs *like*, *approve*, etc. in their active meaning can express a low applicative relation between the dative applied argument and the theme. Crucially, this relation is that of static possession denoting AT, but not Recipient (to) and Source (from). The stative counterparts of *like* and *approve* cannot add the applied dative argument as shown in the following:

(60) State psychological predicates

a. me	ketevan-is	motmineba	mome’ons.
I-Dat	k-Gen	patience	like

‘I like Ketevan’s patience.’

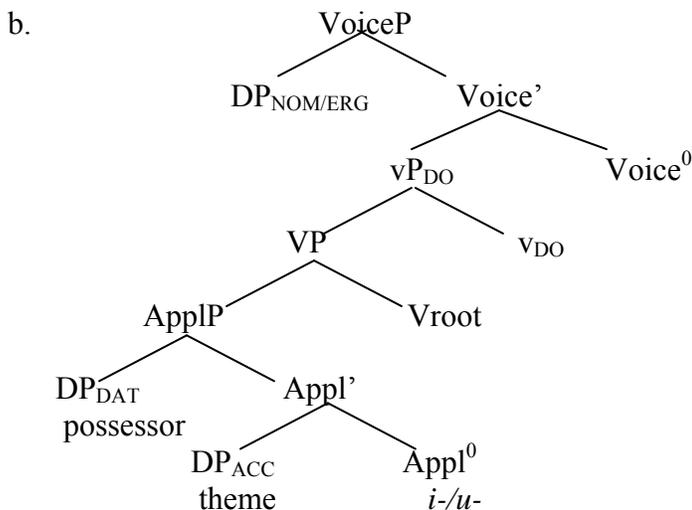
b.* me ketevan-s motmineba momc’ons.
 I-Dat k-Dat patience like

These sentences illustrate that *state* psychological predicates resist applicativization.

Low possessor applicatives (AT) of Spanish have corresponding Georgian counterparts expressed by the psychological verbs of activities, which involve the active event head v_{DO} rather than the v_{BE} head:

(61)a. v- u- c’on- eb
 1S- APPLIC- approve- TH

Lit: ‘I approve it for somebody.’⁷⁰



I argue that the reason why state verbs cannot add the applied arguments is that their experiencer subjects are assigned an inherent dative case in the specifier of the ApplP. Since the structural position of the dative experiencer argument is the spec of ApplP, there is no place for the applied argument to be projected. This is a tentative conclusion based on the structural positions of dative experiencers.

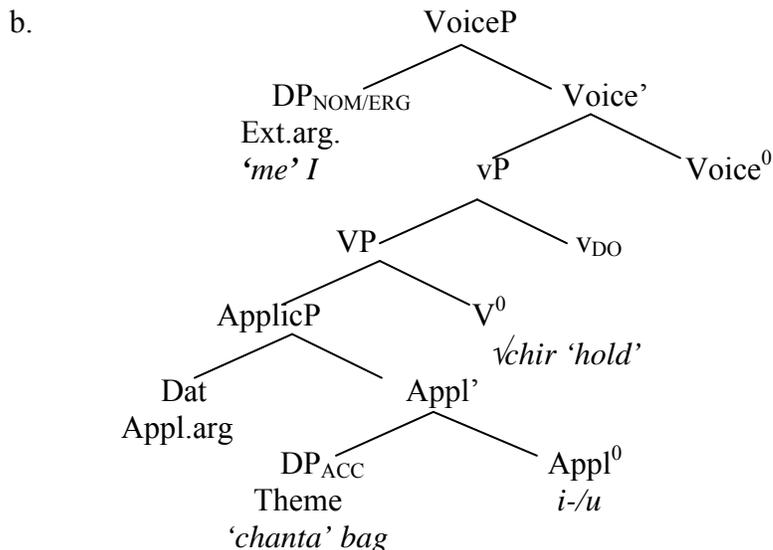
⁷⁰ Note that this translation in English does not represent an applicative relation since the Benefactee argument is marked with the preposition.

3.6.2 Other activity verbs in applicative constructions

Non-directional activity verbs such as *cure*, *heal*, and *hold* can also add dative arguments and express a stative low applicative relation between the applied dative argument and the theme. These dative arguments are added via an Appl⁰ head. I analyze the structure of applicatives formed with these verbs below and argue that it includes the v_{DO} of activity event type above the ApplP, which relates the dative argument to the theme. The meaning of this relation is interpreted as one of stative possession (AT) much like in the activity psychological verbs shown in the preceding section. Crucially, these non-directional activities also owe their semantics to v_{DO} . The Roots like *hold*, *heal*, *cure* can be embedded under this event head and receive activity reading. The subjects are interpreted as voluntary agents and are assigned nom/erg/dative cases across series. The dative applied argument can be added through the low Appl⁰ head and this argument bears stative possession (AT) to the theme. The following derivation illustrates the mentioned semantic and syntactic properties of low applicatives:

(62) The low applicative of ‘hold’

a.	me	dato-s	chanta	da-	v-	u-	ch’ire
	I-Erg.	D-Dat.	bag-Acc	Prev-	1S-	APPLIC-	hold
	‘I held Dato a bag.’						



I assume that the case checking relations in these structures is the same as in DOCs where the Recipient and Source applied arguments were projected. However, in the following example observe that the same verb *hold*, denoting a stative eventuality, cannot add a dative applied argument and form the low applicative because the dative argument is projected as a subject of such verb:

(63) Stative eventuality of *hold* impossible in an applicative construction

a. * me ketevan-s chanta m- i- ch'iravs
 I-Dat K-Dat bag 1S- APPLIC- hold
 'I am holding Ketevan's bag.'

b. me ketevan-is chanta m- i- ch'iravs
 I-Dat K-Gen bag 1S- APPLIC- hold
 'I am holding Ketevan's bag.'

As seen in (63b), only the genitive possessor structure is available for the stative interpretation of *hold*. However, the morpheme inserted into the pre-base position in (63b) is sensitive to the phi-features of the dative subject and this prompts me to suggest that the structure will be interpreted as a high applicative below.

Georgian fits the class of languages, which selects for a low applicative head and can express Recipient, Source, and stative Possessor relations between the applied dative argument and the theme. However, in contrast to Spanish, the low applicatives are not available for stative eventualities, and even Roots, which typically show up in stative contexts in other languages, in Georgian appear to form applicatives only with activity semantics. Moreover, it has been shown that applicative relations can exist not only in DOCs or psychological predicates, but in a wider variety of syntactic contexts, such as inchoative, NI and AI environments, and reflexive Voice contexts. The morphological realization of the Appl⁰ head is uniform across different constructions where Appl⁰ head takes different types of vP complements.

3.7 Four-place predicates as hybrid type applicatives

3.7.0 Introduction

Four-place predicates present an interesting case of applicatives combining high and low applicative relations in the same structure as well as high applicative relation with path conflation. Some of these predicates project a location/locatum argument which thematically is interpreted as a location or the stative possessor of the theme. First, observe empirical facts:

(64) Four-place predicates in Georgian

a. man me anzor-s c'erili mi- m- i- c'era.
 He/she me-Dat A-Dat letter prev- 1O- APPLIC- wrote
 'He wrote a letter for me to Anzor.'

b. man me k'aba-s ᳵili mi- m- i- k'era
 he/she me-Dat dress-Dat button prev-1O-APPLIC- stitched
 'He/she stitched a button to the dress fro me.'

- c. man shen statia-s abzaci mi- g- i- bech'da.
 he you-Dat article-Dat paragraph prev- 2O- APPLIC- typed
 'He/she typed you a paragraph to the article.'
- d. man me mat manipesti mi- m- i- marta.
 He me-Dat them-Dat manifesto prev- 1O- APPLIC- addressed
 'He addressed them with the manifesto for me.'
- e. man shen p'erang-s naxat'i mi- g- i- c'eba.
 He you-Dat shirt-Dat picture prev- 2O- APPLIC- glued
 'He glued you the picture to the shirt.'
- f. man shen kedel-s surati mi- g- i- xat'a.
 he you-Dat wall-Dat picture prev- 2O- APPLIC- painted
 'He painted the picture for you on the wall.'
- g. man shen kurtuk'-s pasi da- g- i- k'lo.
 He/she you-Dat jacket-Dat price prev- 2O- APPLIC- decrease
 Lit: 'He lowered you the price of the jacket.'

Notice that the two dative arguments in these structures have different meanings: the higher one being interpreted as a Benefactee of an event performed by the Agent, while the lower dative argument is interpreted either as a location (64b, c, e & f) or the Recipient/Possessor of the theme (64a, d & g)⁷¹. It is of interest to note that in Georgian, the differential thematic interpretations of these lower dative arguments is associated with the animacy of nominals projected in this low position. In (65), observe that animate dative arguments alternate with the locatives marked with the postposition *-ze* 'on', while inanimate datives with the nouns marked with the postposition *-tvis* 'for'/'to':

(65) Postpositional marking of lower dative arguments associated with animacy:

- a. man me Anzor-tan c'erili mi- m- i- c'era.
 He/she me-Dat Anzor-Dat.to letter prev- 1O- APPLIC- wrote

⁷¹ The lower dative arguments in all these structures freely alternate with the postpositional adjuncts denoting LOCATIONS or Recipients as shown in (61).

‘He wrote a letter for me to Anzor.’

b. man me k’aba-ze γili mi- m- i- k’era
 he/she me-Dat dress-Dat.on button prev-1O- APPLIC- stitched
 ‘He/she stitched a button to the dress fro me.’

c. man shen statia-ze abzaci mi- g- i- bech’da.
 he you-Dat article-Dat.on paragraph prev- 2O- APPLIC- typed
 ‘He/she typed you a paragraph to the article.’

d. man me mat-tan manipesti mi- m- i- marta.
 He me-Dat them-Dat.to manifesto prev-1O- APPLIC- addressed
 ‘He addressed them with the manifesto for me.’

e. man shen p’erang-ze naxat’i mi- g- i- c’eba.
 He you-Dat shirt-Dat.on picture prev- 2O- APPLIC- glued
 ‘He glued you the picture to the shirt.’

f. man shen kedel-ze surati mi- g- i- xat’a.
 he you-Dat wall-Dat.on picture prev- 2O- APPLIC- painted
 ‘He painted the picture for you on the wall.’

g. man shen kurtuk’-ze pasi da- g- i- k’lo.
 He/she you-Dat jacket-Dat.on price prev- 2O- APPLIC- decrease
 Lit: ‘He lowered you the price of the jacket.’

This difference in postpositional marking shows the correlation between postpositional case marking with the animacy and thematic interpretations of these lower arguments: animate arguments are interpreted as RECIPIENTS or Possessors (61g) as opposed to inanimates, which are interpreted as LOCATIONS. This kind of correlation between the case marking and semantic interpretations of arguments is not unique. Jelinek (1999) and Jelinek & Carnie (2003) show that in Yaqui (Hiaki, an Uto-Aztecan language spoken in Sonora, Mexico, and Arizona), the arguments of ditransitive verbs allow their internal arguments are marked either with the accusative/dative or the accusative/accusative cases

depending on semantic interpretations of these arguments. Such verbs include ‘give’, ‘teach’, ‘borrow’, and ‘take’. Here is an example including ‘give’:

(66)a. ‘aapo Huan-tau ‘uka vachi-ta maka-k (Acc/Dat)
 he John-Dat Det.Acc corn-Acc give-Perf
 ‘He gave John the corn.’

b. ‘aapo Huan-ta ‘uka vachi-ta miika-k (Acc/Acc)
 he John-Acc Det.Acc corn-Acc give.food-Perf
 ‘He gave John the corn (as a gift).’

(Jelinek & Carnie 2003:273)

Jelinek & Carnie argue that the differential case marking on the goal DP induces distinct semantics. Namely, the acc/dative pattern is similar to English *to-dative* constructions with the location interpretation of dative argument, while the verbs that require the double-accusative marking must have animate goals and the dative argument be interpreted as ‘strongly affected’ by the action of the Agent. The “strongly affected” meaning of John is actually being *fed* the corn.

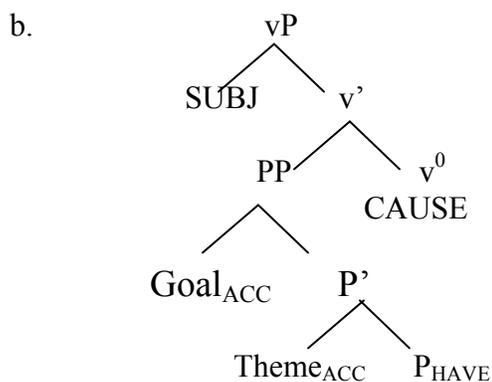
A similar parallelism between the case marking in double-object constructions (DOCs) and semantic interpretations of dative arguments is detected in Korean (Jung & Miyagawa 2004, henceforth, J & M). J & M base their analysis of Korean ditransitive structures on Harley’s (2002) proposal of *give* as a verb with two possible decomposition scenarios: according to her, as argued in Section 3.2 of this dissertation, *give* in the DOC *John gave Mary the book* has the meaning *John CAUSED Mary to HAVE a book* and this interpretation is associated with two functional elements: CAUSE and P_{HAVE}, the latter being interpreted as HAVE⁷². In its prepositional version, *John gave a book to Mary* the

⁷² Pyllkanen (2002) is not sympathetic with the small clause analysis of DOCs (Guéron, 1986, Hoekstra, 1988, Harley, 2000) which treat DOCs as types of causatives taking the Goal predicate as a complement.

P_{LOC} is interpreted as LOCATION⁷³. The conclusion drawn about ditransitive structures cross-linguistically is that double-object and to-dative constructions can be decomposed into CAUSE and P_{HAVE}/P_{LOC} components in different languages such as English and Korean. Additionally in Korean, like in the Hiaki examples above, there is a correlation between the case-marking of goal arguments and their semantic interpretation. In DOCs, Goals are marked with the accusative case creating double-accusative marking for internal arguments. The accusative applied argument has obligatory *specific* interpretation. J & M suggest that this ‘obligatory specificity’ is a corollary of double accusative marking by CAUSE in these contexts. In locative structures, Goals are marked with dative and they are not interpreted as specific. Observe the following structures adapted from J & M (2004):

(67) Double Object Construction (DOC)

- a. Mary-ka John-ul chayk-ul cwu-ess-ta.
 Mary-Nom J-Acc book-Acc give-Past-Dec
 ‘Mary gave John a book.’ (Jung & Miyagawa 2004:17)

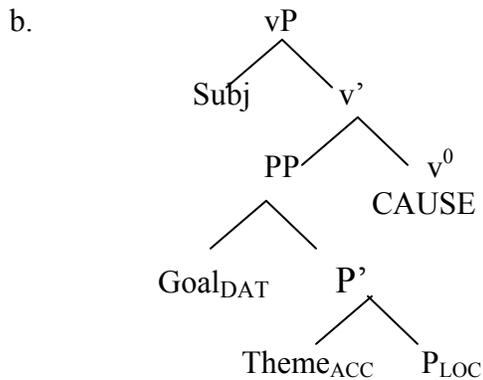


Pylkkanen argues that this type of analysis is good for *give* but not for other DOCs given contrasts like: #I broke the vase but it didn't break, or DOC: *I wrote Sue the letter but she never got it*, etc.

⁷³ The analysis of HAVE as a preposition rather than a verb have been discussed by many authors (Benveniste 1966, Freeze 1992, Gueron 1995, & Kayne 1993). The details of their analysis are irrelevant here.

(68) To-Locative construction

a. mary-ka John-eykey chayk-ul cwu-ess-ta
 Mary-Nom John-Dat book-Acc give-Past-Dec
 ‘Mary gave a book to John.’



As said above, no specific meaning is available for the Locative argument in (68).

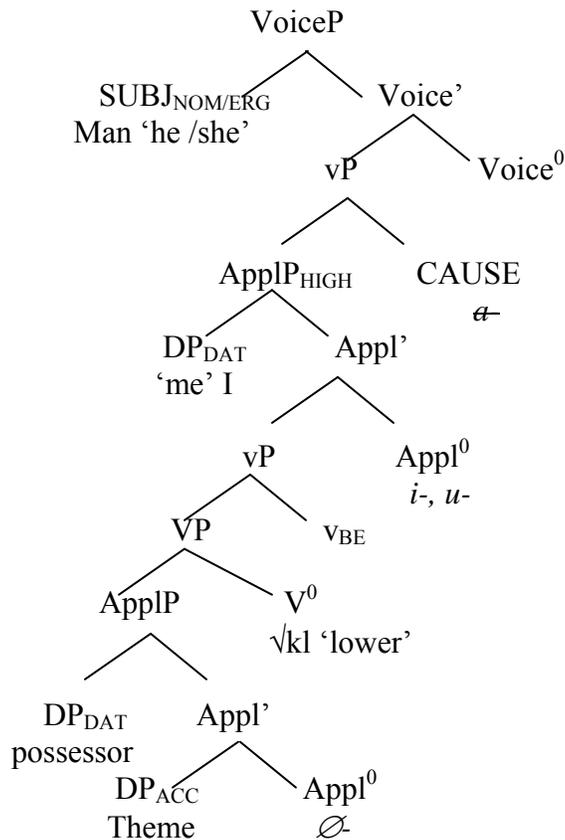
These observations on the argument structure of ditransitives may be of relevance for analyzing Georgian four-place predicates illustrated in (65).

3.7.1 Analysis of morphosyntax of four-place applicatives

As indicated above, the higher dative arguments are Benefactees. I interpret the relation between this high dative argument and an event as a high applicative in which no *transfer-of-possession* obtains between two arguments. Given these observations, I argue that in Georgian four-place verbs, animacy is key to the Recipient/possessor versus Location interpretations of lower dative arguments. Following Harley and J & M, I propose that in the structures where the lower dative arguments are animates and marked with the postposition *-tan*, these dative arguments are interpreted as Recipients much like accusative arguments in Korean by P_{HAVE}, while inanimate dative arguments correspondingly marked with *-ze* postposition can be interpreted as Locations projected by P_{LOC}.

Also, as mentioned above, the higher dative argument in (65g) is interpreted as the Benefactee of an event performed by an external argument. I suggest that the lower dative argument in (65g) thematically can be interpreted as stative possessor of the theme. I conceptualize the relation between this lower dative and the theme arguments with the low applicative head introducing the possessor dative argument. The stative possession relation may be introduced by the event head v_{BE} (of stative possession) as argued by Cuervo (2003) for Spanish psychological predicates and in Sections 3.6 and 3.8 of this dissertation for certain classes of Georgian verbs. The external argument of this construction is projected by the Voice head and the case of this argument checked against this head. Therefore, the structure in (61g) may be decomposed in the following way:

(69)a. man shen kurtuk'-s pasi da- g- i- k'lo.
 He/she you-Dat jacket-Dat price prev- 2O- APPLIC- decrease
 Lit: 'He lowered you the price of the jacket.'



This is a hybrid type applicative structure combining two applicative heads: high and low and two vPs one being a CAUSE and another, the stative event-introducer v_{BE} . It is the latter v^0 head that is responsible for stative possession relation between the lower dative argument and the theme. Another question to ask is which head is realized with the *i-/u-* affixes. In low applicatives, discussed so far, the low applicative head was realized with this allomorphy. Now observe the following data, which shows that *i-/u-* is sensitive to higher dative argument, i.e. Benefactee:

(70) The paradigm of 4-place predicate 'write'

- a. datom me ek'a-s c'erili mi- m- i- c'era.
 D-Erg me-Dat E-Dat letter prev- 1O- APPLIC- wrote
 'Dato wrote me the letter to Ek'a.'

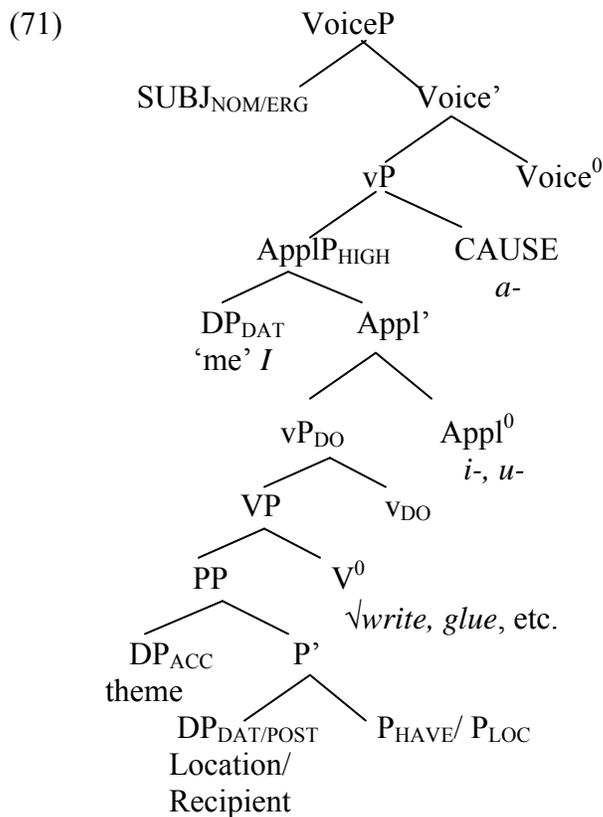
- b. datom shen ek'a-s c'erili mi- g- i- c'era.
 D-Erg you-Dat E-Dat letter prev- 2O- APPLIC- wrote
 'Dato wrote you the letter to Ek'a.'
- c. dato-m ma-s ek'as c'erili mi- u- c'era.
 D-Erg him-Dat E-Dat letter prev- APPLIC- wrote
 'Dato wrote him/her the letter to Ek'a.'

The VI for the Appl⁰ head is sensitive to the person feature of the higher dative argument, i.e. the Benefactee projected by the high Appl⁰ head. Therefore, I assume that only the high Appl⁰ head is realized in these constructions. This can be expected given templatic constraints on the realization of argument structure-changing morphemes in the Georgian verb template. Therefore, the insertion of the second set of *i-/u-* affixes is prevented. The morphological realization of these hybrid type applicatives with two Appl⁰ heads is no different from that of the low applicative head in DOCs.

The case marking of the four arguments in these structures is of interest because the two dative cases checked on the Benefactee and Recipient arguments are structural as they both change into the postpositional genitive or dative in the Perfective series. I assume that these dative cases are checked against the applicative heads that introduce them. The accusative case on the theme may be checked against v⁰ head the same way as it was argued for the low Recipient and Source applicatives above.

Now the structures for the rest of four-place predicates will be analyzed. As mentioned above, in (65a-f) the two dative arguments are projected the higher one receiving the Benefactee thematic interpretation while the lower one either Recipient or Location depending on the animacy. Following Harley (2002) and J & M (2004), I claim that these relations in (66) can be decomposed in two types of PPs, which embed two

postpositional DPs in their specifiers one being interpreted as HAVE with the animate DP and another as LOCATION with inanimate. Here is the structure showing these interpretations of lower applied arguments:



The higher dative argument has high applicative relation with the event and it is introduced by the Appl⁰ head merging above VP. The structural dative of this argument is presumably checked against the Appl⁰ head. The lower applied argument is in the sister position of the P head which may be considered as functional rather than lexical and following various researchers (Hale & Keyser 2002 among them). The oblique postpositional cases do not require checking and the accusative of the theme may be checked against the v⁰ head via Agree because no other argument intervenes between them to incur the minimality violation.

The morpheme order in these four-place predicates is subject to linearization rules which may be language-specific, governed by morphological well-formedness conditions (as argued in the introduction). As shown in (71), only one high applicative head is merged in these structures and its morphological exponent bleeds the exponent realizing the CAUSE due to constraints imposed on the spellout of argument structure-changing morphemes.

3.8 High Applicatives in Georgian

3.8.0 Introduction

This section on high applicatives focuses on dative arguments that do not relate to the theme, but rather to an event expressed by the verb. Cross-linguistically, such structures express three types of semantics (Cuervo 2003), which are distinguished by the type of the vP complement that the Appl⁰ head takes: stative vP_{BE}, a dynamic non-agentive vP_{GO} or a dynamic agentive vP_{DO}. Languages differ as to how many of these heads may be selected. They may select one, two or all three vP complements.

In 3.8.1 I develop an analysis of applicative constructions whose head selects for the stative vP_{BE} complement. The psychological state verbs like *love*, *like*, *hate*, etc. are analyzed as high applicatives due to their morphological shape and the relation of the dative argument with the event. The section does not focus on the activity psychological verbs which have been shown above to take v_{DO} and form low applicatives. In 3.8.2, applicative structures taking vP_{GO}, i.e. non-agentive dynamic events will be analyzed *moxda* ‘happen’, *chamouvida* ‘arrive’, *mouvida* ‘occur to somebody,’ *gamouvida* ‘appear’, etc. Some of these structures are argued to show low applicative meaning

(*arrive for somebody, got/receive something*). Section 3.8.3 analyzes those dynamic agentive events (*walk, dance*) that are argued to have high applicative meanings across many languages (Pylkkanen 2002, Jeong 2007 among others). The semantic interpretation of dative arguments varies in these structures, sometimes showing benefactive, and sometimes malefactive meanings.

3.8.1. High applicatives with stative unaccusative predicates

In Georgian, the morphological shape of psychological predicates with stative interpretations includes the applicative morpheme, which is sensitive to the person feature of the dative Experiencer argument:

(72) State psychological verbs:

a. me q'vavileb-i m- i- q'var- s.
 I-Dat flowers-Nom 1S- APPLIC- love- 3O
 'I love flowers.'

b. shen q'vavilebi g- i- q'var- s.
 you-Dat flowers 2S- APPLIC- love- 3O
 'You love flowers.'

c. mas q'vavilebi u- q'var- s.
 he/she-Dat flowers APPLIC- love- 3O
 'He/she loves flowers.'

This paradigm shows that the allomorphy associated with the Appl⁰ head is sensitive to the person features of dative experiencer arguments much like with the dative applied arguments in DOCs. Dative arguments may also be interpreted as locatives or inalienable possessors as shown in (73):

(73) Experiencer dative argument

a. m- i- nda
 1S- APPLIC- want
 'I want X.'

b. g - i- nda
 2- APPLIC- want
 ‘You want X.’

c. u- nda
 APPLIC- want
 ‘He/she wants X.’

(74) Locative dative arguments:

a. me pexi m- i- chans
 I-Dat foot-Nom 1S- APPLIC- seen
 Lit: ‘I have my foot seen.’⁷⁴

b. shen pexi g- i- chans
 you-Dat foot 2S- APPLIC- seen
 Lit: ‘You have your foot seen.’

c. mas pexi u- chans
 he/she-Dat foot APPLIC- seen
 Lit: ‘He/she has her foot seen.’

The dative argument in (73) is interpreted as an involuntary experiencer, while in (74) as an inalienable possessor of the theme, although the English translation does not render the meaning of this Georgian verb adequately. The interpretation is that the part of the body or the property of the dative argument ‘is seen’ and the applied dative argument is interpreted as a possessor of the property or the body part denoted by the theme. Observe the metaphorical possessor meaning of this relation:

(75) ‘Seen’ locative

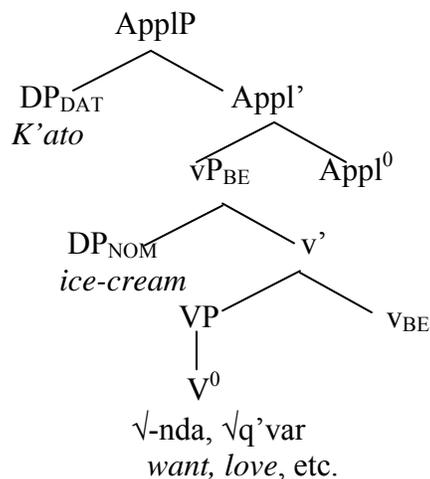
ninos motminebas sazyvari ar u- chans.
 N-Gen patience-Dat boundary not APPLIC- have/seen
 ‘Nino’s patience does not have a boundary.’
 (Lit: The boundary of Nino’s patience is not/cannot be seen.’

⁷⁴ These free translations are awkward in English but this is only interpretations of these Georgian structures.

In both (73) and (74), the dative DP is assumed to be introduced by the Appl⁰ head, but there is a clear sense that the relation between the dative argument with the theme in *love* and *want* is different from that in *seen*. In the former, the Experiencer argument does not bear either Recipient, or Source or Possessor meaning, while in ‘*seen*’ the dative argument is a location whose integral part is the theme. Thus, it can be argued that the structures in (73)-(74) encode a high applicative relation between the dative argument and an event while the applicative in (74) is interpreted as low because the relation of the dative argument with the theme is one of part/whole or stative possession. I follow Cuervo (2003) in these interpretations of the high vs. low distinction and propose that locative/possessor datives can be analyzed as low applicatives where the head is the complement of a stative vP_{BE}. By contrast, the experiencer dative DPs are projected by a high Appl⁰ head that takes a stative vP_{BE} (i.e. v_{BE}) as its complement. Thus, the structures of high applicatives can be sketched the following way:

(76)a. k’ato-s u- qvars/unda naq’in-i.
 K-Dat APPLIC- loves/wants ice-cream-Nom
 ‘k’ato loves/wants the ice-cream.’

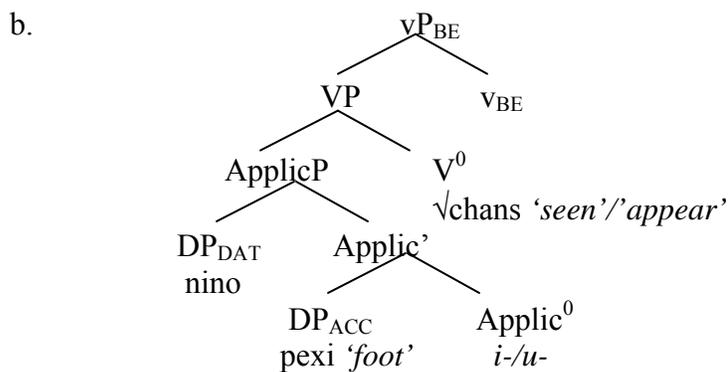
b.



In this configuration, the theme DP is in the specifier of the event head and is not related to the higher dative argument through the Appl⁰ head⁷⁵. In the low applicative with the *stative* predicate the configuration is different since the dative experiencer and the theme are projected as the specifier and the complement of the Appl⁰ head. This configuration ensures that the semantics of part/whole or possession between the theme and the dative argument is syntactically established. Here is the structure:

(77) Low applicative of Locative

a. nino-s u- chans pexi.
 N-Dat APPLIC- seen foot
 ‘Lit: ‘Nino’s foot is seen/appears.’



These structures show the necessity of careful elaboration of the diagnostic tests for high and low applicatives when seeing such subtle distinctions in meaning in state psychological and locative predicates. Structurally, dative arguments are very similar to each other both in high and low positions because they are the highest arguments of the clause and move to the subject position. The morphological properties of high

⁷⁵ Note the position of Nom theme in this structures. I assume that this case cannot be assigned in head-sister relation with V⁰. Therefore, the position of the Nom object can be in the spec of VP.

applicatives are no different from low ones because the head is also realized with the allomorphy *i-/u-*. The evidence then for the different positions is purely semantic.

3.8.2 High applicatives of other unaccusative predicates

This section presents a range of high applicative constructions where the Appl⁰ head takes a v_{GO} complement (i.e. unaccusative verbs with *change-of-state* meaning or the verbs of happening). In these structures, no direct relation exists between the dative argument and the theme, but between the dative argument and an event such relation does obtain:

(78) High applicative above unaccusative verb

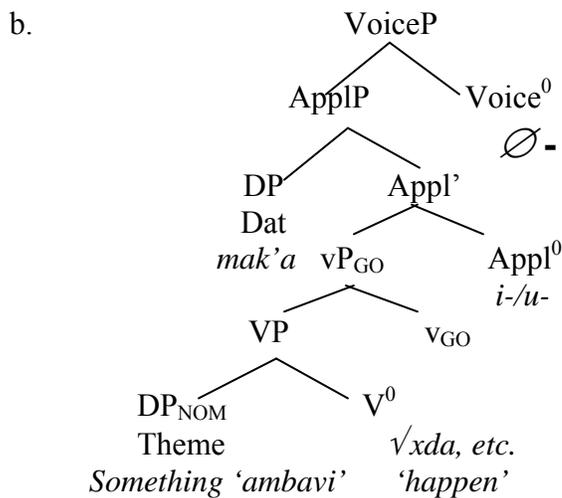
a. mak'a-s cudi ambavi mo- u- xda.
 M-Dat bad thing-Nom prev- APPLIC- happened
 'Something bad happened to Mak'a.'

b. elene-s c'q'ali gadmo- u- vida kvabi-dan.
 E-Dat water prev- APPLIC- flow.over casserole.from
 Lit: 'Water overflowed from the casserole on Elene.'

The dative arguments in these sentences are not in any way related to the themes: *Mak'a* to something bad and *Elene* to water. Both applicatives have a malefactive reading. The allomorphy *i-/u-* is again sensitive to the person feature of the dative argument. High applicative meaning is encoded in the ApplP taking a dynamic v_{GO} as its complement and this syntax is associated with the relation between the dative argument (subject) and an event adversely affecting this argument. In (78b), the Root of the motion verb *-vid* 'go' expresses the movement of an inanimate entity from the designated location. The dative argument does not bear the possession relation with *the water* in this context:

(79) High applicative of unaccusative verb:

a. mak'a-s cudī ambav-i mo- u- xda.
 M-Dat bad thing-Nom prev- APPLIC- happened
 'Something bad happened to Mak'a.'



The crucial aspect that distinguishes unaccusative verbs forming high applicatives

from those unaccusatives that form low ones is whether the dative argument gets/receives the theme directly or metaphorically. If dative argument 'receives' the theme, then it would form low applicative relation though. Compare:

(80) Applicatives with unaccusative verbs

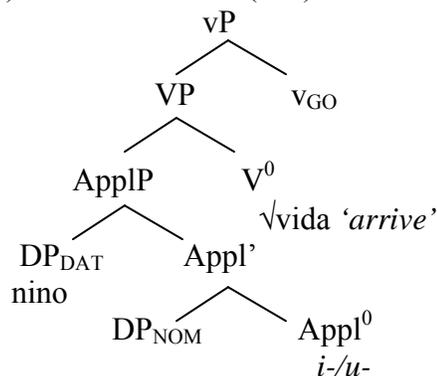
a. nino-s mama chamo- u- vida
 N-Dat father prev- APPLIC- arrived
 'Nino's father arrived for Nino.'

b. tekle-s saxe-ze pucuxebi gamo- u- vida.
 T-Dat face.on pimples prev- APPLIC- came.out
 'Tekle got pimples on her face.'

Notice that 'arrive' may express a low applicative meaning by relating the two individuals (Nino and the father) to each other as the recipient and theme. Crucially, both arguments are projected under the vP so that the low Recipient relation between the

nominative theme (*father*) and the dative Recipient (*Nino*) argument. As I have argued above in Sections 3.3. & 3.4, although the position of nominative theme is low, it checks the case against T^0 without incurring the minimality violations. The dative argument is introduced by the Appl^0 head checking its case as well:

(81) The structure for (80a)



Similarly, the structure in (80b) is analyzed as a low applicative with the same v_{GO} taken as a complement in ‘overflow’, and in this structure, the Appl^0 head relates the dative and theme arguments as a part/whole.

Note that these distinctions in applicative meaning are not associated with a change in morphology, namely in the marking of the high vs. low applicative heads. The general picture of applicative morphology in Georgian and related languages is not complex, but it still shows mismatches between the syntax-semantics and the morphological components of the language. Both high and low applicative semantics can be obtained via the same affixation or even with the zero applicative marker in elsewhere contexts. The mismatch between these components of language can be due to many factors. One such factor is language-specific constraints on realization of argument-structure changing morphemes in the pre-base and post-base positions of the verbal template.

3.8.3 High applicatives with dynamic activity verbs

One of the tests to distinguish between high and low applicatives in Pylkkanen (2002, 2008) is whether the Appl⁰ head can combine with dynamic unergative verbs like *walk*, *dance*, etc. The following sentence with the high applicative head projecting dative benefactee argument illustrates that Luganda selects for the high applicative head:

(82) High applicative in Luganda:

mukasa	ya-	tambu-	le-	dde	katonga.
M	PAST.	walk.	APPL.	PAST	K

‘Mukasa walked for Katonga.’

The same diagnostics can be applied to Georgian dynamic action verbs such as *dance*, *ran*, etc. and it appears that it is possible to form high applicative structures with dative arguments as Benefactees. However, it is important to note that although these structures contain canonically intransitive verbs, in the applied structures with these verbs, there is in fact an accusative Theme present:

(83) High applicatives in Georgian

a. nik’o-m	natia-s	maratoni	ga-	u-	rbina.
N-Erg	N-Dat	marathon	prev-	APPLIC-	ran

‘Nik’o ran marathon for Natia.’

b. lado-m	mak’a-s	mteli	γame	u-	cek’va.
L-Erg	M-Dat	all	night	APPLIC-	danced

‘Lado danced all night long for Maka.’

c. dato-m	nadia-s	burti	u-	gor - av-	a.
D-Erg	N-Dat	ball	APPLIC-	rolled- TH-	3O

‘Dato rolled Nadia the ball.’

In these constructions, the dative arguments can be interpreted as benefactees of the events performed by the external arguments. More precisely, it is in the dative argument's interests that the action is completed by the external argument. Such situations may well exist in the world but note the presence of theme arguments in some of the above structures. Their presence is necessary in order for the structures in (83a & c) to be well-formed. I would rather argue that in no sense the dative arguments 'receive' or 'possess' these themes. In Spanish, the constructions equivalent to (83a & b) are considered low applicatives since the beneficiary is not directly related to the event but to the theme. I depart from an analysis of these structures as low because the relation between the dative argument and the theme does not fall into any of the low applicative meanings such as recipient, source, or possessor. In (83a), *Natia* is a beneficiary of the event performed by the external argument. *Nik'o* but crucially she does not relate to 'marathon' as a possessor, source, or as a recipient. The same can be said of *Mak'a* in (83b). Even when the theme argument is restored in the structure—and it could be a certain kind of dance such as polka, tango, or waltz—the relation between *Mak'a* and the theme cannot be expressed. (83c) is a case in which the dative argument is interpreted as the Benefactee. Crucially, *Nadia* is not a Recipient of *the ball* because the event is not directed towards her in any sense, rather only for her benefit. Thus, again the relation is between the external argument and the event.

Another suggestion for these constructions is that the change-of-state verbs whose roots often form unergative structures (*dance*, *scream*, *roll*, etc.) may be used transitively by adding themes and such transitives may involve the merger of the high applicative

head which relates the external argument to an event rather than two individuals—the dative benefactee with the theme. If this analysis of above structures is tenable, I will assume that high applicatives can be expressed by transitive verbs of change-of-state. For the purposes of comparison with Spanish high applicatives, it should be noted that dative arguments in this language are not overtly expressed in certain high applicative structures and only the clitic indicates their presence. Cuervo uses the terms ‘datives of interest’ or ‘ethical datives’ to refer to such implicit DPs in high applicatives. Analyzing dative clitics as the spellout of the high applicative head, she argues that this head in Spanish is in a way ‘defective’ because it does not project a specifier. In Georgian, there is no evidence that the high applicative head is defective, since it can project the applied Benefactee argument. This argument is related to the dynamic event itself, rather than to the theme. The following sentences provide additional evidence for the high applicative head combining with the vP_{DO} as an introducer of a dynamic event of change:

(84) High applicatives

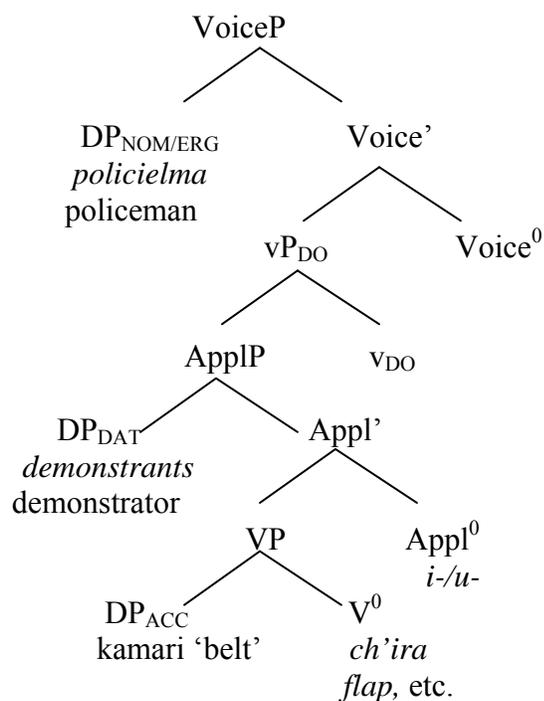
a. *gia-m nana-s k'art'i ga- u- tamasha.*
 G-Erg N-Dat card prev- APPLIC- played
 ‘Gia played out the cards for Nana.’

b. *policiel-ma demonstrant'-s kamari gada- u- ch'ira*
 policeman-Erg demonstrator-Dat belt prev- APPLIC- flapped.
 ‘The policemen flapped the demonstrator/protestor with the belt.’

In (84a), the applied argument *Nana* is in no way related to the theme argument, although the *cards* are played by *Gia* to her benefit. The dative argument (*Nana*) does not end up as a possessor or a ‘Benefactee’ of card play. Thus, the applicative relation is interpreted as high. (84b) is a case of interest because the theme argument is an

instrument of the event completed by the external argument and it is in no way related to the applied dative argument. These interpretations clearly fit the descriptions of high applicatives:

(85) The high applicative of dynamic unergative verb in (83b):



In the above examples, the high Appl⁰ head is realized with the same allomorphy *i-/u-* as the low applicative. The vast majority of applicative meanings can be realized with the *i-/u-* and the variability in marking is only detected in the psychological verbs (*love, hate, like, etc.*) where the high applicative head can be realized with the *i-/u-* and zero exponent.

3.9 Applicatives in related languages (Mingrelian and Svan)

3.9.0 Introduction

This section explores the morphosyntax of applicative constructions in Mingrelian and Svan in sections 3.9.1 and 3.9.2 based on the existing literature on these languages. The primary sources that I will refer to are Otar Kajaia's (2001) "Mingrelian-Georgian Dictionary" with a grammar synopsis of Mingrelian and Varlam Topuria's (1967) "Grammar of the Svan Language" written in a traditional grammar framework. The main research questions with respect to applicative constructions in these languages are primarily descriptive, i.e. whether they can express the same range of applicative meanings as we have seen in Georgian and how the syntax-semantics of these structures interacts with the morphology. I will be assuming the DM framework to account for syntax-semantics and morphology mismatches in these languages.

3.9.1 Applicatives in Mingrelian

Kajaia's grammatical note on Mingrelian outlines three types of applicative relations, which he refers to as version, the term used in traditional Kartvelian Linguistics for the applicative relation. One type of version, called "neutral", corresponds to regular transitive and DOCs that express no benefactor or possessor relation between the applied argument and the theme, as well as the external argument and the theme. The second type, termed "subjective", in Kajaia's system corresponds to reflexive applicatives. In these, the theme object is in the prospective possession relation with the external argument. The third constructions, "objective version" corresponds to high or low applicatives in which either a dynamic transfer-of-possession or source relation obtains

between two individuals, or the external argument simply relates to the event without specific possessor relation between it and the theme.

Both high and low applicatives of transitive verbs in Mingrelian can be expressed by the same allomorphy *i-/u-* as in Georgian:

(86) Mingrelian applicatives

a. m- **i-** bons
 1O- APPLIC- wash
 ‘X is washing Y for me.’

b. g- **i-** bons
 2O- APPLIC- wash
 ‘X is washing Y for you.’

c. **u-** bons
 APPLIC- wash
 ‘He is washing X for him/her.’ (Kajaia, 2001: 57)

In these examples the *i-/u-* allomorphy is sensitive to the person feature of the applied argument the same way as in Georgian. I assume that the VIs competing for the insertion in the Appl⁰ head are the following:

(87) Vocabulary Items for the Appl⁰ head

a. *i-* ↔ Appl⁰ / [dat] [+1] [+2] _____

b. *u-* ↔ Appl⁰ / [dat] [+3] _____

c. ∅ ↔ Appl⁰ / elsewhere

Observe that the low applicative relation in DOCs has the same morphological marking as in Georgian:

(88) Mingrelian applicatives

- | | |
|---|--|
| <p>a. m- i- tasuns
 1O- APPLIC- sow
 ‘X is sowing for me.’</p> | <p>u- tasuns
 APPLIC- sow
 ‘X is sowing for him/her.’</p> |
| <p>b. m- i- ch’ans
 1O- APPLIC- sew
 ‘X is sews for me.’</p> | <p>u- ch’ans
 APPLIC- sew
 ‘He/she sews for him/her.’</p> |

The person feature of the applied argument in low and high applicatives is crucial for vocabulary insertion.

In applicatives formed from passivization of DOCs, both low and high applicative meaning is expressed via the allomorphy *i-/u-* along with the passive suffix *-d*. In these constructions, the movement of the theme argument to the subject position of passive is impossible while that of the applied argument is acceptable:

(89) Mingrelian passive applicatives

- | | |
|--|---|
| <p>a. m- i- shkuron- d- u (n)
 1S- APPLIC- built- pass- 3O
 ‘It is built for me’ (Lit: ‘I am built it.’)</p> | <p>u- shkuron- d- u (n)
 APPLIC- built- pass- 3O
 ‘It is built for him/her.’ (Lit: ‘He/she is built it.’)</p> |
|--|---|

In these passive forms, the low transfer-of-possession relation between the applied argument and the theme does not change from the corresponding active structure. I suggest that the movement of the applied argument to the sentence-initial position is unobstructed because, as was noted above, the applied argument is projected higher than the theme, and asymmetrically c-commands the latter and the movement of the dative argument to sentence-initial position does not incur any minimality violation. In addition, the morphological marking reflects the changes in the syntactic structure as the suffix *-d* is inserted into the Voice⁰ head, which bears the feature [Passive].

Recall that in Georgian the following applicatives formed from inchoative and unaccusative verbs are common:

(90) Georgian applicatives of unaccusatives and inchoative verbs

- a. m- **i-** tbeba
 1S- APPLIC- warm
 ‘It is warming up for me.’ (Lit: ‘I am being warmed up X.’)
- b. m- **i-** t’k’beba
 1S- APPLIC- sweet
 ‘X is sweetened for me.’ (Lit: ‘I am being sweetened X.’)

The morphological marking of these applicatives is also sensitive to the person feature of the dative applied argument, which is the subject of the construction. These structures resemble reflexive applicatives, but are different from the latter in that they are formed from internally- or externally-caused change-of-state verbs. Therefore, no external argument is projected in these structures like in applicatives of internally-caused events discussed in Section 3.3. Mingrelian allows similar applicative structures as illustrated in the following:

(91) Mingrelian applicatives of change-of-state verbs

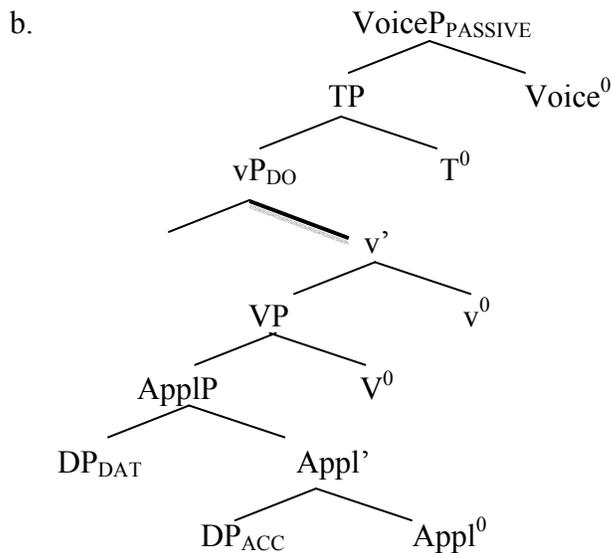
- a. m- **i-** t’ibu (n)
 1S- APPLIC- warm.up
 ‘It is warming up for me’
- b. g- **i-** tibu(n)
 2S- APPLIC- warm.up
 ‘It is warming up for you.’

The subject of these predicates is not an external argument in a crucial sense and it must be marked with the dative case because it triggers the inverse agreement pattern (‘m-set’) on verbs. I claim that the structures in (91) have a low applicative.

The passivized applicatives in Mingrelian do not presumably involve a full cycle, as shown in the following high and low applicative structures:

(92) Low applicative in Mingrelian:

a. m- **i-** shkurundu (n)
 1s- APPLIC- built
 ‘I am built it.’



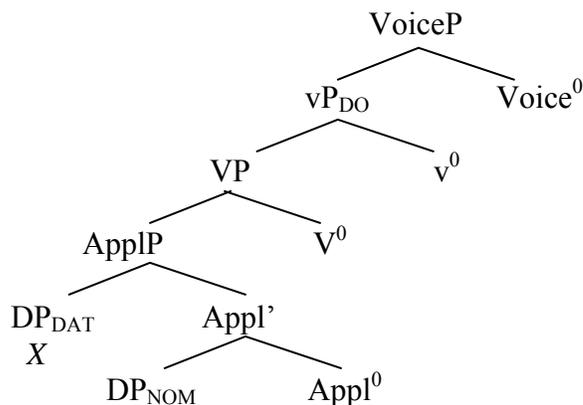
In this configuration of the argument structure, the semantic relation between the applied dative argument and the theme is that of transfer-of-possession. The dative on the applied argument is checked against the Appl head⁰. The accusative case of the theme is presumably checked against v_{DO} head.

Interestingly, the low applicatives of internally-changed verbs in Mingrelian are marked with *i-/u-* allomorphy as in (93):

(93) Low applicative of internally-changed verbs in Mingrelian:

a. **u-t'**ibu (n)
 ‘It is warmed up for X.’(Lit: X is warmed up Y.)’

b.



In both structures, the direct object undergoes the change-of-state and the applied argument ‘benefits’ from this event. The applicative relation is low because the dative argument is a Recipient of the theme, at least in a metaphorical sense.

There is evidence that Mingrelian also has *e*-prefixed low applicatives parallel to those formed from internally-changed verbs in Georgian in Section 3.3. Recall that the following forms were found in Georgian:

(94) Applicatives of internally changed verbs in Georgian

a. m- e- zrdeba
 1S- VOICE- grow
 ‘It is growing for me.’

b. m- e- teseba
 1S- VOICE- sow
 ‘It is sowed for me.’

In Mingrelian, a similar meaning is expressed via the prefix *a-*, which is inserted in the pre-base position where various argument-structure changing morphemes are inserted.

Observe the following forms:

(95) Mingrelian applicatives of inchoative and transitive verbs

- a. **a-** rdu-u (n)
 VOICE - grow-
 ‘It is grown for him/her.’
- b. **a-** tasu-u (n)
 VOICE- sow
 ‘It is sown for him/her.’
- c. **a-** char-u (n)
 VOICE- write
 ‘It is written for him/her.’
- d. **a-** xacku-n
 VOICE- till
 ‘It is tilled for him/her.’

The prefix *a-* is inserted into the Voice⁰ rather than in the Appl⁰ head. As argued in Section 3.3 for Georgian applicatives, the insertion of the VI in the Voice⁰ is due to the impoverishment of the person features from the Appl⁰ head and the result is the realization of the Voice⁰. Since the structures in (95b & c) resemble passivized applicatives of transitive verbs, I assume that the external argument is suppressed and the applied argument moves to the subject position.

The morphological marking of the Appl⁰ head in Mingrelian is in many respects similar to that in Georgian:

(96) VIs for the Appl⁰ head (Mingrelian)

- a. *i-* ↔ Applic⁰_{LOW} / [Dat] [+2] [+1]
- b. *u-* ↔ Applic⁰_{LOW} / [Dat] [+3]
- c. \emptyset ↔ Applic⁰ / elsewhere

Like in other languages in the family, only one morpheme can be spelled out for the Appl⁰ and Voice⁰ heads.

The last type of applicative construction is derived from stative and unergative verbs, and has high applicative meaning, since the applicative relation is obtained between an applied argument and an event. First, observe the empirical base in the following:

(97) High applicatives formed from stative verbs in Mingrelian

- a. **u-** dʒu(n)
 APPLIC- lie
 ‘He is lying for X.’ (Lit: X is laid Y.)
- b. **u-** dgu(n)
 APPLIC- stand
 ‘It is standing for X.’ (Lit: X is stood Y.)
- c. **u-** xe(n)
 APPLIC- sit
 ‘It is sitting for X.’ (Lit: X is sit Y.)

These examples show that presumably, stative eventualities can also express an applicative relation between the subject and event expressed through the theme undergoing the state of *lying*, *standing*, *sitting*, etc. The Mingrelian forms in (97) have parallel Georgian structures shown in the following:

(98) Georgian applicatives formed from statives:

- a. **u-** zis
 APPLIC- sit
 ‘It is standing for X.’ (Lit: X is stood Y.)
- b. **u-** dgas
 APPLIC- stand
 ‘It is standing for X.’ (Lit: X is stood Y.)
- c. **u-** c’evs
 APPLIC- lie
 ‘He is lying for X.’ (Lit: X is laid Y.)

Note that both in Mingrelian and Georgian, the VI is inserted into the Appl⁰ head is again sensitive to the person features of the dative argument, which is the subject in these constructions.

Unfortunately, there is little evidence for high applicatives formed from unergative verbs such as *dance*, *run*, etc. in Mingrelian. The comprehensive study of applicatives in this language should involve native speakers and detailed questionnaire of fieldwork study designed to elicit a whole range of applicative relations found in Georgian in this language.

3.9.2 Applicatives in Svan

Svan applicatives are similar to Georgian and Mingrelian in that they can express both the low and the high applicative relation and are morphologically realized via the *i-/o-* allomorphy (corresponding to Georgian and Mingrelian *i-/u-*). The reflexive marker is the same prefix *i-*, which is not sensitive to the person feature of the applied argument (Topuria 1967). It may be assumed that this *s-* is a Voice marker inserted into the Voice head due to the impoverishment of person features on the Appl⁰ head or the mentioned discontinuous feeding mechanism between the VIs of the Voice and the Appl⁰ heads. An alternative scenario for analyzing these argument structure-changing morphemes could be that the fusion rule, which applies before the Vocabulary Insertion, combines the morphemes of the Voice⁰ and Appl⁰ heads and the reflexive *i-* is inserted into this fused head instead of the VIs realizing the Voice⁰ and Applicative heads beating out other possible morphemes in a single competition. We will not pursue this scenario here but

this explanation may well be a case along with the impoverishment analysis proposed above.

Topuria also posits another type of applicative relation referred to as *sazedaŋ* (literally meaning ‘*on the top*’). This type of applicative (or “version”) indirectly expresses a transfer-of-possession relation between the applied argument and the theme.

Morphologically realized as a prefix *a-*, these Recipient applicatives encode a close spatial relation between two arguments without involving the postpositional marking of the applied argument, which is otherwise common on locative arguments:

(99) High Svan (a dialect) low applicatives

a. eĵa ečas x-ä-diäni ečas.
 He him/her lends it
 ‘He/she lends it to her/him.’

b. eĵa x- ä-bdine lemasgû ečas.
 He/she kindles fire him/her
 ‘He /she kindles fire for him/her.’

Bal-Zemouri dialect of Svan

c. bepshû x-ā-mne lezûebs mäjďars.
 Child feeds food hungry
 ‘A child feeds food to the hungry.’

Notice that in (99a) a transfer-of–possession relation obtains between the dative argument and the theme. (99b) can be interpreted as a high applicative predicate because the subject performs the event that the applied argument benefits from. However, the dative argument is interpreted as a Recipient of the theme again and the structure can be interpreted as a low applicative. In Georgian, the Appl⁰ head is realized via the *i-/u-*

allomorphy, while in Svan the VI is *a-*, which in Georgian has been argued to represent the marker for CAUSE in various contexts.

The Georgian translation of (99c) looks like a causative predicate because the causative marker *a-* is inserted into the third slot of the verbal template. Therefore, I assume that the corresponding form in Svan is also causative marked with the prefix *a-* of causative head. Many languages combine the causative heads with the event-introducing vPs and ApplP to express the complex relations between the arguments in DOCs. Such structures have not been discussed in this dissertation, but they are found cross-linguistically and this may be such an example. The meaning can be interpreted as ‘X causes Y to become satisfied as the result of eating.’ Svan predicates in (99) can be interpreted as low applicatives but their morphological realization with the default prefix *a-* suggests that the prefix *a-* realizes CAUSE, rather than the Appl⁰ head, which I assume is due to the discontinuous feeding between the VIs of these functional heads.

Now let’s look at the examples of *i-/o-* allomorphy of the Appl⁰ head in Svan:

(100) Svan low applicatives

eĵa	x-	o-	gem	kors.
He/she	3O-	APPLIC-	builds	house
‘He/she builds house for him/her.’				

The prefix *x-* in the above example indexes the third person argument and *o-* realizes the Appl⁰ head. The prefix *x-* indexes the applied argument because it is closer to the v⁰ head.

High applicatives in Svan have the same morphological marking as low applicatives, like in other Kartvelian languages. This is illustrated in the following:

(101) Svan high applicatives

a. x-o-xt'aûi

'He is painting for X.'

b. x-o-ben

'He is tying X for him/her.'

c. x-obne

'He is beginning Y for X.'

Observe that all these forms in (101) contain the applied arguments in a direct or indirect possessor relation to the theme and therefore, a low applicative interpretation is obtained, i.e. when the subject and the event are related to each other but not two individuals *per se*.

The last type of applicative relation that I will consider here is the one expressed by various intransitive verbs. They may have both low and high semantics, much like *e*-prefixed applicatives in Georgian derived from internally-changed verbs. In Svan, the same prefix *e*- that shows up in internally-changed verbs and in passive forms where the subject is suppressed and the applied argument moves to its position:

(102) Svan *e*-prefixed low applicatives

a. m- e- xt'aûi

1S- voice- paint

'I am painted X.'

b. m- e- ben/mi

1S- voice- tie

'I was tied for me.'

The applicatives in (102) contain implicit subjects and are derived through passivization of active applicative structures of di-transitive verbs. However, the

following forms can be argued to express a high applicative relation between the subject and a stative event:

(103) High applicatives of stative events in Svan

- a. m-e- jshx- [m]- i
 ‘X is named for me.’ (lit: ‘I am named X.’)
- b. x-e-g [m]- i
 ‘Something is standing for me.’ (lit: ‘I am stood X.’)

The following applicatives though are formed from internally-changed verbs and may be interpreted as low applicatives:

(104) Svan low applicatives

- a. ĵ- e- gûshi
 2S- voice- grow
 ‘(Wings) grow on you.’ (Lit: ‘I am grown wings’)
- b. m-e-dāʒsh-i-x
 Lit: ‘I am blackened.’

The forms in (104) show the resultant state of some internal event that subjects undergo. The structures are interpreted as reflexives, and I assume that the prefix *e-* is supposedly realizing the Voice⁰ in these forms. There are a number of verbs that may be interpreted as *adversity causatives* and show close resemblance to *e-*-prefixed high applicatives:

(105) High Svan (a dialect) applicatives

- a. x- e- pxʒeni
 3S- voice- scatter
 ‘Something was scattered on X.’

- b. x- o- gbeni
 3S- APPLIC- dirty
 ‘He was dirtied.’
- c. x- e- kûceni
 3S- voice- cut
 ‘He is cut.’
- d. m- e- kûreni
 3S- voice- decompose
 ‘It is decomposed on him/her.’
- e. x- o- tûpeni
 3S- APPLIC- lose
 ‘It is lost on him/her.’

The sentences in (105) are interpreted either as high or low applicatives, where the subjects are deep structure applied arguments and I assume that they are introduced by the Appl⁰ head giving them Source, Recipient or Benefactee interpretation. The latter arguments may have benefactive/malefactive interpretations.

3.10 Conclusions

In conclusion, it can be argued that applicatives in the Kartvelian languages can be both low and high, and their morphosyntax is very similar to each other in a way that suggests the unity of functional projections in the Proto-Kartvelian. The applicative heads of both low and high varieties show the same morphological realization in all three languages, much like causatives. There are instances of transparadigmatic syncretisms across voice, applicative, and causative morphemes, which are not explored here in detail but will be considered in future research that can be conducted on voice syncretisms in these languages. Here it can be definitively argued that applicatives derived from intransitive verbs are morphologically distinct than those derived from simple transitive

verbs. High/low semantics is not distinguished in the morphological component as is expected from the disjunction between grammar components where syntactic, semantic, and morphological information is processed.

CHAPTER 4

CONCLUSIONS

Causative and applicative structures in polysynthetic languages represent both syntactically and morphologically complex structures in which the syntax/semantics and the morphological realization of the functional heads may not be always straightforward. The study has attempted to show that the interaction between these components of grammar in lexical and syntactic causatives is largely determined by the variation in the complement size that the CAUSE takes in these constructions. Empirical evidence presented in the study has shown that morphological realization of the causative head is determined by whether the CAUSE takes RootP or vP complement. Given this observation, we conclude that the realization of the syntax at Morphological Structure (MS) is not entirely random but rather quite predictable in three languages: Georgian, Mingrelian and Svan.

The analysis of applicative structures also showed similar evidence with respect to the interaction between the argument structure and the morphological realization of applicative heads. It became evident that various Vocabulary Items (VIs) are sensitive to the morphosyntactic features of applied arguments, i.e. those arguments, which are definitive for this type of construction. As argued in the literature on applicatives, the applied argument is the one which is added to the argument structure of transitive verbs to form a Double Object Construction (DOC) in which applicative relations can be established between this non-core applied argument and an event or the theme argument.

Again empirical data from Georgian and related languages illustrated the fact that the addition of an applied argument to a transitive structure results in distinct morphological realization of predicates as opposed to regular transitive structures. Specifically, the latter realize CAUSE in the third slot of the verbal template while applicatives in DOCs realize the Appl⁰ head instead of the CAUSE. This unambiguously illustrates the transparent interaction between the syntax of applicatives and their morphological realization. Moreover, in so called reflexive applicatives when the applicative relation such as Recipient or Benefactee is established between the external argument and the theme, the morphological realization again ‘responds’ to the distinct syntax of such constructions. In these structures, a reflexive Voice head is merged and its phonological exponent is different from the one inserted into the Appl⁰ head in DOCs. Similarly, in the applicatives formed from internally- and externally-caused events, the morphological realization of the structure is different allowing the exponent of the Voice head to get realized, rather than the exponent of the Appl⁰ head through the mechanism of discontinuous feeding. Such an interaction between the syntax and morphology of these constructions is argued to result from various morphological rules such as discontinuous feeding or impoverishment of certain features on terminal nodes in the post-syntactic component of the grammar. Overall, evidence shows that in order for distinct applicative relations to get established between two individuals (low applicative) or an individual and an event (high applicative) it is *not* necessary to have distinct morphology.

Future research on these constructions should include the interaction between causative and applicative structures in complex constructions involving applicatives as

complements of syntactic causatives or vice versa. The interaction between the morphology and syntax in these complex embedding structures will shed light at the precise nature of language-specific morphological well-formedness constraints which preclude the realization of multiple exponents for the whole range of functional heads merging in these complex structures. We hope that this work is a modest starting point for the study of more complex predicate structures in these types of languages.

APPENDIX A

Homophony across phonological exponents of various morphemes in Georgian

I Phonological exponent *a-*

1. *a-* realizes CAUSE in lexical causatives formed from inchoative verbs such as in the following:

a- cxobs
 CAUS- bakes
 ‘He/she bakes it.’

2. The same exponent realizes CAUSE in syntactic causatives of *X makes Y do V* type:

a- k’ivlebs
 CAUS- scream
 ‘He/she makes X scream.’

3. The exponent realizes the aspectual marker in past and future tense verbs denoting the endpoint of an event:

a- txova
 prev- lended
 ‘He/she lended X it.’

4. The same phonological exponent at the end of the template marks non-local subject or object and in this position it is fused with the series marker:

utxr- **a**
 told- 3S/Ser
 ‘He/she told X.’

Here are the insertion contexts of these VIs:

- a. $a- \leftrightarrow \text{CAUSE} / a. a- \leftrightarrow \text{CAUSE} / ___ [\text{Root}_\sigma]$
- b. $a- \leftrightarrow \text{CAUSE} / ___ v^0_{[\text{TRANS}], [\text{DITRANS}]}$
- c. $a- \leftrightarrow \text{Asp}^0 [\text{Accomplishment}]$
- d. $-a \leftrightarrow \text{Tns}^0 + [\text{Person}]$

II Phonological Exponent *i-*

1. The exponent *i-* realizes the Appl⁰ head in an environment of the local dative applied arguments [1-2] person:

m- **i-** cxobs
 1O- APPLIC- bakes
 ‘He/she bakes me it.’

2. The same exponent realizes the Reflexive Voice in reflexive verbs such as in the following:

i- parsavs
 REFL- shaves
 ‘He/she shaves.’

3. The same exponent realizes the reflexive Voice in reflexive applicatives:

v- **i-** cxob
 1S- REFL- bake
 ‘I bake it ~~for myself~~.’

4. The same exponent is inserted as a thematic marker in a set of verbs as in the following:

prckvn- **i-** s
 Peel- TH- 3S/Ser
 ‘He/she peels it.’

5. The same exponent realizes an intransitivity marker, which is referred to as a passive voice marker in the traditional linguistics literature:

i- k’bineba
 intrans- bite
 ‘He/she bites.’

Here are the environments for the insertion of these VIs:

i- ↔ Appl / [Dat] [+1] [+3]
i- ↔ Voice_{REFL} / reflexives, applicatives
i- ↔ V_[INTRANS]
i- ↔ TH

III The phonological exponent *e-*

1. The phonological exponent e- is inserted in the [NonActive] Voice of adversity causatives:

m- e- k'vlevineba
 1S- Voice- kill
 'Something causes me to kill.'

2. The same exponent realizes the Voice in the applicatives of internally and externally caused verbs:

m- e- purčkneba
 1S- Voice- blossom
 'I am blossomed it.'

3. The same exponent marks the Voice in verbs denoting reciprocal action such as:

v- e- laparak'ebi
 1S- Voice- talk
 'I am talking to somebody.'

4. The same exponent realizes the Aorist marker fused with the [1-2] person subjects or objects:

Daviban- e
 Washed- 1O/Aor
 'I washed it.'

5. The same exponent realizes the passive Voice:

m- e- dz'γvneba
 1S- Voice- dedicate
 'I am dedicated it.'

Here are the insertion contexts of these VIs:

e- ↔ Voice_[NONACTIVE]/ causatives, applicatives
 e- ↔ Voice_[PASSIVE]
 e- ↔ Voice_[ACTIVE]/activities
 e- ↔ Tense_[AORIST] + φ-features

These are main types of syncretisms attested across various functional morphemes in Georgian

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