

# *Asymmetries in Form and Meaning: Surface Realization and Interface Conditions*

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## Abstract

This paper addresses the issue of how languages package the same features of meaning into morphophonological units of different sizes, giving rise to mismatches between surface form and meaning. A contrastive study of causatives in Japanese and Eastern Armenian shows that the same syntactic properties and semantic information are surfaced as a single word in Japanese while they are realized as a phrase in Eastern Armenian. The paper provides an account for the distinct surface realizations of similar causative constructions in these two languages based on interface relations between syntax and the PF and LF components. In particular, it is argued that the different surface realizations of predicates across languages can be captured by a language parameter that determines the spell-out to the PF interface.

## 1 Introduction

Languages package the same features of meaning into morphophonological units of different sizes, which gives rise to an asymmetry between the surface form of predicates and their meaning. This phenomenon has often been observed in complex predicates such as causative constructions.

Causative constructions refer to predicates formed by the combination of a causative event with an underlying predicate. The addition of the causative verbal element also adds a new participant (a causer), which initiates or controls the event of the underlying predicate. As the examples below illustrate, languages may adopt different methods of forming a causative predicate. Causatives in Japanese are expressed as a single word as exemplified in (1), whereas the causative predicate in Eastern Armenian shown in (2) appears as two verb forms and the causation is obtained by adding the verb *t'al* (give) to the base predicate.<sup>1</sup>

- (1) Ken-ga Naomi-o suwar-**ase**-ta (Japanese)  
Ken-Nom Naomi-Acc sit-Caus-Past  
'Ken made Naomi sit.'
- (2) Ara-n yerex-in p'at'uhan-e bats-el **t'v-ets** (Eastern Armenian)  
Ara-Nom child-Dat window-Acc open-Inf give-Aor.3sg  
'Ara made the child open the window.'

The mismatch between form and meaning often observed among complex predicates is referred to as the *Expression Problem* by Ackerman and Webelhuth (1998), which states that the information associated with a linguistic predicate can find very different surface expressions in the world's languages. The investigation of the syntactic and semantic properties of causatives in Japanese and Eastern Armenian shows that the verb form *suwaraseta* in the Japanese example (1) above and the causative phrase *batsel t'vets* in Armenian shown in (2) both behave as analytic causatives despite their distinct surface forms. Both predicates are bi-predicative, have agentive embedded subjects, do not give rise to idiomatic readings and are iterative.

The surface realizations of causatives across languages (i.e., as words or as phrases) cannot be captured by the strict lexicalist approaches, which attempt to form all complex predicates in the lexicon. Classical generative approaches, which assume distinct domains of formation for words and phrases, are also unable to explain the form and meaning asymmetry observed. We thus propose a framework in which all complex predicates are formed within the same component. In addition, we adopt the idea of derivation by phase or 'multiple spell-out' to capture the relation with the interfaces (Chomsky 1999, Uriagereka 1999). These models, however, posit a unique node that determines the point of spell-out to the interfaces. Instead, we propose that the spell-out node to PF should be taken as a parameter across languages in order to capture the observed asymmetry between surface form and meaning.

The paper is organized as follows: The following section examines the syntactic and semantic properties of causative predicates in Eastern Armenian. Section 3 provides a predicate-based approach to causative formation, which combines the primitive

1. Eastern Armenian is an independent language of the Indo-European family; the data presented here are mainly from the Armenian dialect spoken in Iran. The characters *p'*, *t'*, *k'* refer to the unaspirated versions of voiceless *p, t, k*, respectively.

components of the verbal construction using syntactic principles within a single computational system (Hale and Keyser 1993, Marantz 1997, among others). Section 4 reviews properties of Japanese causatives and contrasts them with those of the Armenian causative constructions. Section 5 shows that the distinct surface forms of causatives across the two languages can be accounted for by a parameter determining the interface conditions. Section 6 presents a discussion and the last section concludes the paper.

## 2 Armenian Causative Constructions

There are two ways to form causative constructions in Eastern Armenian: The examples in (3) illustrate a morphological causative (MC) construction. The sentence in (3a) contains an intransitive verb, whose causative variant is formed through the affixation of the bound morpheme *ats(n)* or *ets(n)* to the verbal root as illustrated in (3b). The sentences in (4) illustrate the analytic causative (AC) in which the causation is obtained when the verb *t'al* (give) is added to the underlying predicate, as shown in (4b). In each of these sentence pairs, the subject of the underlying predicate in (3a) and (4a) is expressed as the causee in the causative predicate and is marked with Dative case.

- (3) a. shor-er-e chor-an-um en  
 dress-pl-Nom dry-Inch-Imp be-3pl  
 'The clothes are drying.'
- b. Nairi-n shor-er-e chor-atsn-um e (MC)  
 Nairi-Nom dress-pl-Acc dry-Caus-Imp be-3sg  
 'Nairi is drying the clothes.'
- (4) a. yerexa-n p'at'uhan-e bats-ets  
 child-Nom window-Acc open-Aor.3sg  
 'The child opened the window.'
- b. yerex-in p'at'uhan-e bats-el t'v-ets-i (AC)  
 pro child-Dat window-Acc open-Inf give-Aor-1sg  
 'I made the child open the window.'

### 2.1 Distribution

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

The first group consists of deadjectival predicates that denote a change of state, as illustrated in the second column in (5). These verbs are intransitives, often referred to as *inchoatives* or *anticausatives*, and have the interpretation 'BECOME Adjective'. These verbs behave as transitives when they are causativized, as shown in the third column below.

(5)	<u>Adjective</u>	⇒	<u>Change of State</u>	⇒	<u>CAUSE change of state</u>
	chor (dry)		choranal (dry)		chor-ats-nel (dry)
	metz (big)		metzanal (grow)		metz-ats-nel (grow, bring up)
	arag (fast, quick)		araganal (quicken, speed up)		arag-ats-nel (accelerate)
	chaq (fat)		chaqanal (become fat)		chaq-ats-nel (fatten)
	sev (black)		sevanal (blacken)		sev-ats-nel (blacken, darken)
	urax (happy)		uraxanal (become happy)		urax-ats-nel (make happy)
	jqayn (angry)		jqaynanal (become angry)		jqayn-ats-nel (make angry)

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

(6)	latsel (cry)	⇒	lats-ats-nel (make cry)
	vazel (run)		vaz-ats-nel (make run)
	tzitzaqel (laugh)		tzitzaq-ats-nel (make laugh)
	xosel (speak, talk)		xos-ets-nel (make speak, make talk)

knel	(sleep)	kn- <b>ats</b> -nel	(put to sleep, marinade)
xaqal	(play)	xaq- <b>ats</b> -nel	(make play)

Finally, a small group of transitive verbs can form morphological causatives, exemplified below. The transitive verbs that allow morphological causatives are members of the “ingestive” category, physically such as *xmel* (drink) or figuratively such as *hask’anal* (understand).

(7)	xmel	(drink)	⇒	xm- <b>ets</b> -nel	(make drink)
	haknel	(wear, put on)		hak- <b>ts</b> -nel	(make wear, put on)
	hask’anal	(understand)		hask’- <b>ats</b> -nel	(make understand)
	sovorel	(learn, get used to)		sovor- <b>ets</b> -nel	(teach)

Analytic causatives, on the other hand, are formed on regular transitive verbs. Hence, most transitives can become causatives by adding the verb *t’al* to the base predicate. Thus, verbs such as *open*, *write* and *kill* can only form analytic causatives in Eastern Armenian as illustrated in the examples in (8).

(8)	p’asht’el	(admire/worship)	⇒	p’asht’el	<b>t’al</b>	(make admire/worship)
	k’ot’Rel	(break)		k’ot’Rel	<b>t’al</b>	(make break)
	batsel	(open)		batsel	<b>t’al</b>	(make open)
	grel	(write)		grel	<b>t’al</b>	(make write)
	sp’anel	(kill)		sp’anel	<b>t’al</b>	(make kill)

Light verb constructions (predicates composed of a nominal or adverbial preverbal element and a light verb) can only form analytic causatives.

(9)	het’ gal	(back come = return)	het’ gal	<b>t’al</b>	(make return)
	telefon anel	(phone do = call; phone)	telefon anel	<b>t’al</b>	(make phone)
	man gal	(promenade come = walk)	man gal	<b>t’al</b>	(make walk)

In addition, most verbs that form a morphological causative can also appear in an analytic construction, but with distinct syntactic and semantic properties as will be discussed in Section 2.4. In what follows, I will investigate the properties of the two causative types in Eastern Armenian and will show that they differ in that the underlying predicate of the analytic causative, but not that of the morphological causative, has an external argument. A study of the clausal properties further demonstrates that the morphological causative is monoclausal whereas the analytic causative displays biclausal properties.

## 2.2 Binding Facts

Subject-oriented anaphors in Armenian are bound by the closest c-commanding subject antecedent as the following examples illustrate. In (10), the anaphor in the postpositional phrase can only refer to the matrix subject and not to the dative element. In (11) two subjects are available, but only the first c-commanding subject, i.e., the embedded subject, is able to bind the embedded anaphor.

(10)	Vrej-e <sub>i</sub>	Armen-in <sub>j</sub>	[ <b>inkn ir</b> <sub>i/*j</sub>	t’an	mech]	handip’ets		
	Vrej-Nom	Armen-Dat	self-Gen	house-Gen	inside	met-3sg		
	‘Vrej <sub>i</sub> met Armen <sub>j</sub> in his <sub>i/*j</sub> own home.’							
(11)	Vrej-e <sub>i</sub>	uzum	er	[ vor	Armen-e <sub>j</sub>	<b>inkn ir</b> <sub>i/*j</sub>	das-e	gri]
	Vrej-Nom	wanting	was	that	Armen-Nom	self-Gen	lesson-Acc	write-Subj/3sg
	‘Vrej <sub>i</sub> wanted Armen <sub>j</sub> to write his <sub>i/*j</sub> own lesson.’							

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

Although the judgments with the subject-oriented anaphor are not always clear, speakers of Iranian-Armenian dialects note the contrastive behavior of the causee in the two constructions as illustrated in the examples below. In morphological causatives, a subject-oriented reflexive that appears in the lower clause can only refer to the causer, i.e., the matrix subject.

- (12) ?? Ara-n<sub>i</sub>      yerex-in<sub>j</sub>      **inkn ir**<sub>i/\*j</sub>      deq-e      xm-ets-rets      (MC)  
 Ara-Nom      child-Dat      self-Gen      medication-Acc      drink-CAUS.Past.3sg  
 ‘Ara<sub>i</sub> made the child<sub>j</sub> drink his<sub>i/\*j</sub> own medication.’

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

- (13) ? Ara-n<sub>i</sub>      yerex-in<sub>j</sub>      **inkn ir**<sub>\*i/j</sub>      senyak’-e      dasavorel      t’vets      (AC)  
 Ara-Nom      child-Dat      self-Gen      room-Acc      organize      gave.3sg  
 ‘Ara<sub>i</sub> made the child<sub>j</sub> clean up his<sub>\*i/j</sub> own room.’

Hence, subject-oriented anaphors in the lower clause can only have the causee as antecedent in the analytic causatives and the matrix subject in the morphological causatives. Since the anaphor is always bound by the closest c-commanding subject in the clause, then we can conclude that there exists a distinction between the two causees based on their agency or subjecthood properties.

Similarly, when the subject-oriented anaphor occurs within an instrumental adjunct in the lower clause of a morphological causative, only the subject of the matrix clause can act as an antecedent for the reflexive as shown in (14). In the analytic causative construction, on the other hand, the anaphor in the adjunct phrase can refer to either the embedded subject (the causee) or the matrix subject (the causer) as exemplified in (15).

- (14) tzaqratsu-n<sub>i</sub>      Ara-in<sub>j</sub>      [ **inkn ir**<sub>i/\*j</sub>      k’uk’la-y-ov]      tzitzaq-ats-rets  
 clown-Nom      Ara-Dat      self-Gen      doll-Inst      laugh-CAUS-Aor.3sg  
 ‘The clown<sub>i</sub> made Ara<sub>j</sub> laugh with his<sub>i/\*j</sub> own doll.’
- (15) pRofesor-e<sub>i</sub>      ashak’ert’-in<sub>j</sub>      [ **inkn ir**<sub>??i/j</sub>      heRat’esil-ov ]      ast’qer-e      nayel      t’vets  
 professor-Nom      student-Dat      self-Gen      binocular-Inst      stars-Acc      watch      gave.3sg  
 ‘The professor<sub>i</sub> made the student<sub>j</sub> watch the stars with his<sub>??i/j</sub> own telescope.’

I suggest that the analytic causatives form bi-predicative structures with the embedded predicate acting as a syntactic and semantic argument of the causative verbal element. In these constructions, the subject of the embedded clause is the causee, which has agentive properties. The morphological causatives, on the other hand, are monoclausal and only the matrix subject possesses agentive properties.

### 2.3 Manner Adverbs

Additional support for the fact that the embedded subject or causee has subject-like properties in analytic causatives, but not in the morphological construction, comes from the interpretation of the manner adverb. The adverb *vst’ah* has the meaning ‘with confidence’ when used as a manner adverb<sup>2</sup>. When *vst’ah* appears in a sentence containing a morphologically causativized verb, it can only refer to the subject of the matrix clause. This is illustrated in (16i) where the manner adverb is interpreted as referring to *Ara*. This is in clear contrast with (17i), in which the manner adverb refers to the subject of the embedded clause and not to the matrix subject.

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

- (17) Ara-n      Nairi-in      **vst’ah**      xos-el      t’vets      (AC)

2. *vst’ah* can also be interpreted as a sentential adverb in which case it means ‘certainly’ or ‘surely’; that interpretation is available in both morphological and analytic causatives. Moreover, *vst’ah* is also an adjective meaning ‘confident’.

- Ara-Nom    Nairi-Dat    confident    speak-Inf    gave-3sg  
 (i) ‘Ara made Nairi speak with confidence.’ (i.e., Nairi was confident, not Ara)  
 (ii) ‘Ara certainly made Nairi speak.’

## 2.4 Agency and Volition

An important distinction between the two causative constructions in Eastern Armenian lies in the interpretation of the causee. The causee in an analytic causative has agentive properties and seems to behave volitionally. The causee in a morphological causative, on the other hand, acts as a theme or patient. This difference in interpretation can be clearly seen in the causative formation of verbs that allow both the morphological and the analytic constructions. In all of the example pairs listed below, the causees in the analytic constructions are more agentive, whereas the causees of the morphological structures seem to undergo the action and lack volition. In the morphological constructions the action is being done to the causee without his or her agreeing. In the analytic constructions, there is the meaning in which the causee is performing the action or event on his or her own (even though he/she was made to do it), hence acting as an agent. This second interpretation is traditionally referred to as indirect causation. Thus, there is a strong semantic distinction depending on which causative structure is chosen.

To illustrate, consider the two sentences in (18). In (18a), the verb *m'mel* (enter) is causativized by attaching the morpheme ‘*ts*’ to the verbal root, deriving the morphological causative verb, *mt'tsnel*. In this sentence, the interpretation is that the soldier forcefully pushed the student into the car. In contrast, the analytic causative of the verb *m'mel* (enter) in (18b) allows an agentive interpretation of the causee. In this example, the student is still forced to enter the car but he or she enters the car on his or her own. Similar contrasts are represented by the examples in (19) and (20) below.

- (18) a. zinvor-e    ashak'ert'-in    mekena-yi    mech    mt' -ts-rets    (MC)  
 soldier-Nom    student-Dat    car-Gen    inside    enter-Caus-Past/3sg  
 ‘The soldier pushed the student in the car.’  
 b. zinvor-e    ashak'ert'-in    mekena-yi    mech    mt'nel    t'vets    (AC)  
 soldier-Nom    student-Dat    car-Gen    inside    enter    gave  
 ‘The soldier made the student enter the car.’
- (19) a.            Naira-in    hey    pt't' -ats-rank    minchev    vor    enk'av    (MC)  
 pro    Naira-Dat    continually    turn-Caus-Past/1pl    until    that    fell-3sg  
 ‘We kept turning/rotating Naira until she fell.’  
 b.            Naira-in    hey    pt't' -el    t'vank    minchev    vor    enk'av    (AC)  
 pro    Naira-Dat    continually    turn-Inf    gave-1pl    until    that    fell-3sg  
 ‘We made Naira turn until she fell.’
- (20) a. menk    Ara-in    lav    xm-ats-rank    (MC)  
 we    Ara-Dat    good    drink-Caus-Aor/1pl  
 ‘We made Ara drink a lot (i.e., we made Ara get drunk).’  
 b. menk    Ara-in    lav    xm-el    t'vank    (AC)  
 we    Ara-Dat    good    drink-Inf    gave-1pl  
 ‘We made Ara drink a lot.’

Further evidence for the close correlation of agency and the causee of the analytic causative comes from the following example, which shows that the causee of the analytic cannot be inanimate as illustrated by the ungrammaticality of (21b).

- (21) a. yerexa-n    k'uk'la-in    mt' -ts-rets    t'an    mech    (MC)  
 child-Nom    doll-Dat    enter-Caus-Past/3sg    house(Gen)    inside  
 ‘The child pushed the doll into the house.’  
 b. ?\* yerexa-n    k'uk'la-in    t'an    mech    mt'nel    t'vets    (AC)  
 child-Nom    doll-Dat    house(Gen)    inside    enter    gave  
 ‘The child made the doll enter the house.’

## 2.5 Idioms and Agency

Morphological causatives sometimes have an idiomatic meaning, in the sense that the meaning of the causative form of the verb does not necessarily mean ‘cause to V’ but takes on a special (though often semantically related) meaning. So for instance,

*knatsnel*, the causative form of the Armenian verb *knel* (sleep) can mean ‘to put to sleep’, but it also has the idiomatic reading ‘to marinate’. (22) illustrates some of these constructions that, in addition to their compositional meaning, also give rise to idiosyncratic interpretations.

(22)	tRnel	(fly)	⇒	tR-ts-nel	(steal)
	tzaqk'el	(bloom)		tzaqk'-ats-nel	(embellish)
	metzanal	(grow)		metz-ats-nel	(exaggerate)
	pt't'el	(turn)		pt't'-ats-nel	(take for a ride, carry around)
	knel	(sleep)		kn-ats-nel	(marinate)
	xaqal	(play)		xaq-ats-nel	(mess with, mock)
	neqanal	(thin, shrink)		neq-ats-nel	(disturb, bug)
	k'armrel	(redden, blush)		k'armr-ats-nel	(brown, saute)
	paxnel	(escape)		pax-ts-nel	(kidnap)

Following the observations in Marantz (1984,1997) and Ruwet (1991), I suggest that the external argument is not part of the idiomatic reading available in the verbal predicate. Marantz notes that there is a closer relation between a verb and its internal arguments than between the verb and the subject or external argument. Hence, the choice of the direct object can express a wide range of predicates whereas varying the subject of the verbal predicate does not give rise to similar idiosyncratic or idiomatic readings. Based on the preponderance of object over subject idioms, Marantz argues for an asymmetric representation of the verbal structure, whereby external arguments are projected by a separate verbal head *v* and are not directly related to the verbal root. In contrast, the internal arguments are in close relation with the verbal root. For our present purposes, this analysis indicates that external arguments are never included within the domain of idiomatic readings. Or put differently, idiomatic interpretations are only available if there is no agent within the idiom domain. This in effect supports the generalization that we have reached so far that the causee in the morphological constructions is not agentive (i.e., is not an external argument of the embedded clause) in Eastern Armenian. As the example below illustrates, the morphological causative in (23a) can give rise to the idiomatic reading ‘to steal’; the latter disappears in the analytic causative construction in (23b).

(23)	a. Ara-n	tRchun-in	tR-ts-rets	
	Ara-Nom	bird-Dat	fly-Caus-Past/3sg	
		(i) ‘Ara made the bird fly.’		
		(ii) ‘Ara stole the bird.’		
	b. Ara-n	tRchun-in	tRnel	t'vets
	Ara-Nom	bird-Dat	fly	gave
		(i) ‘Ara made the bird fly.’		
		(ii) * ‘Ara stole the bird.’		

## Summary

So far, we have shown that the underlying predicate of the Analytic Causative has an external argument. This is in contrast with the causee in the Morphological Causative which lacks the properties of an external argument. This distinction suggests that the Analytic Causatives consist of two distinct predicates, each with its own external argument, whereas the Morphological constructions are monoclausal. In the next section, I will show further arguments to illustrate the distinct clausal properties of the two causative types in Armenian.

## 2.6 Adverbial Scope

The scopal interpretation of manner adverbs supports the clausal distinction suggested in the previous section. Adverbs are able to modify the causation event independently of the basic predicate in analytic causatives, but can only refer to the whole predicate in the morphological causative. Thus, in the morphological causative in (24), the adverb refers to the whole event consisting of the cause+verb unit. In the analytic counterpart in (25), the adverb can modify either event independently: In the first interpretation in (25) the adverb refers to the action of the matrix subject and means that the doctor made a slow or quiet motion to the prisoner to sit. In the second interpretation, however, the adverb refers to the base predicate and means that the doctor made the prisoner sit down slowly because he or she was afraid that the prisoner might make a sudden move.

(24)	bjishk'-e	bandark'yal-in	k'amats	nst'-ats-rets	(MC)
	doctor-Nom	prisoner-Dat	slow	sit-Caus-Past/3sg	
	‘The doctor sat the prisoner down slowly.’				

- (25)    *bjishk'-e*        *bandark'yal-in*        *k'amats*        *nst'-el*        **t'v-ets**        (AC)  
 doctor-Nom        prisoner-Dat        slow        sit-Inf        gave.3sg  
 (i) 'The doctor slowly/quietly made the prisoner sit down.'  
 (ii) 'The doctor made the prisoner sit down slowly.'

## 2.7 Negation

Additional support for the existence of two distinct predicates in analytic causative constructions, as opposed to the morphological causatives, is provided by the following examples:

- (26)    *yes ashak'ert'-ner-in*    *ays girk-e*        *k'art-al*    **t'vetsi**, *bayts deR mi t'oq el ch-en*    *k'artatsel*    (AC)  
 I    student-Plur-Dat    this    book-Acc    read-Inf    gave    but    yet    one    line    even    Neg-are    read  
 'I made the students read this book, but they haven't yet read a single line.'
- (27)    \**usutsich-e*        *Ara-in*        *ays girk-e*        *k'art-ats-rets*, *bayts deR mi t'oq el ch-i*    *k'artatsel*    (MC)  
 teacher-Nom        Ara-Dat        this    book-Acc    read-Caus-Past    but    yet    one    line    even    Neg-is    read  
 'The teacher made Ara read this book, but he hasn't yet read a single line.'

The underlying event can be negated independently of the causation in analytic constructions as shown in (26). Although the event of 'reading' has been caused in this example, it does not necessarily need to have taken place and can be negated. In contrast, the sentence in (27) demonstrates that the basic predicate cannot be interpreted independently from the causative predicate in a morphological causative construction, as shown by the ungrammaticality obtained when the caused event is negated. These examples suggest that the caused predicate and the causation form a single event in the morphological causative but constitute two independent events in the analytic construction.

## 2.8 Embedded Causatives

Causativization of a causative predicate can only be formed using the analytic causative. As illustrated in (28), if a predicate already contains a causative morpheme (i.e., it is a morphological causative) as in (28a), it cannot be causativized again using another causative morpheme (28b). It can, however, form a causative by the addition of the verb *t'al* (give) and an external argument as shown in (28c).

- (28)    a. *Anush-e*        *yerex-in*        *kn-ats-rets*  
       *anush-Nom*    *child-Dat*        *sleep-Caus-Past.3sg*  
       'Anush put the child to sleep.'
- b. \* *Ara-n*        *Anush-in*        *yerex-in*        **kn-ats-ats-rets**        (MC)  
       *Ara-Nom*    *Anush-Dat*    *child-Dat*        *sleep-Caus-Caus-Past.3sg*  
       'Ara made Anush put the child to sleep.'
- c. *Ara-n*        *Anush-in*        *yerex-in*        **kn-ats-nel**        **t'vets**        (AC)  
       *Ara-Nom*    *Anush-Dat*    *child-Dat*        *sleep-Caus-Inf*    *gave*  
       'Ara made Anush put the child to sleep.'

Moreover, the analytic causative must be used with verbs that are traditionally analyzed as "lexical causatives" such as *sp'anel* (kill), or with the transitive variant of transitivity alternation verbs such as *k'ot'rel* (break). We can therefore formulate the generalization that the analytic causative is used when the underlying predicate contains a causation event and an external argument is projected.

## 3 Analysis

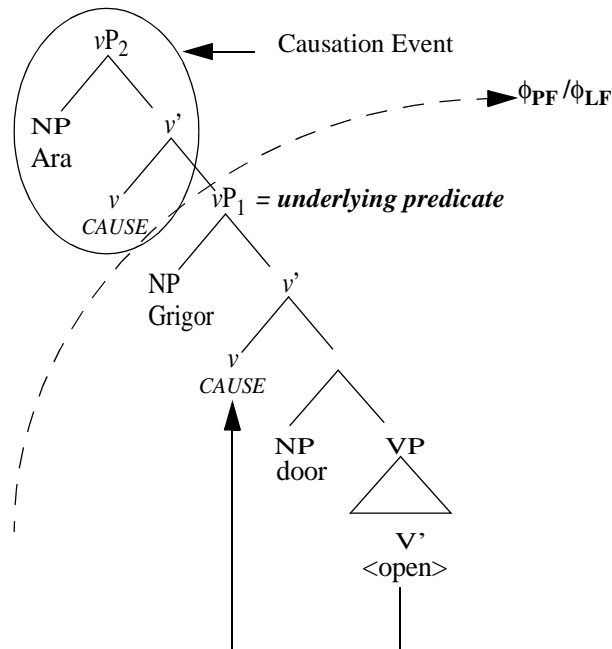
In the previous section, we looked at evidence from anaphoric binding, adverbial interpretation and derivational properties of embedded predicates such as negation and causativization. The data discussed in this paper support the claim that the clausal structures of the two causative constructions in Eastern Armenian are different. In the morphological causative, the causative morpheme affixes to the underlying verb, with which it forms a single predicate. In the analytic causative, however, the causative predicate and the underlying verbal clause behave as two independent predicates. I therefore propose that the analytic causative is obtained when the base predicate already contains a CAUSE event projecting an external argument, and the morphological causative is formed when the underlying predicate lacks the CAUSE event.

I adopt an analysis based on verbal decomposition as suggested by Chomsky (1995), Hale and Keyser (1993), Travis (1992), among others, where the substantive part of the VP-shell is denoted in the inner verbal domain or the VP node, which projects the change of state information and the internal arguments. In this structural configuration, causation is represented by a light verb *v*; the latter corresponds to the outer event and projects the external argument. Hence, a causative construction would include a little-*v* head providing the CAUSE information for the predicate. Consider the sentences below:

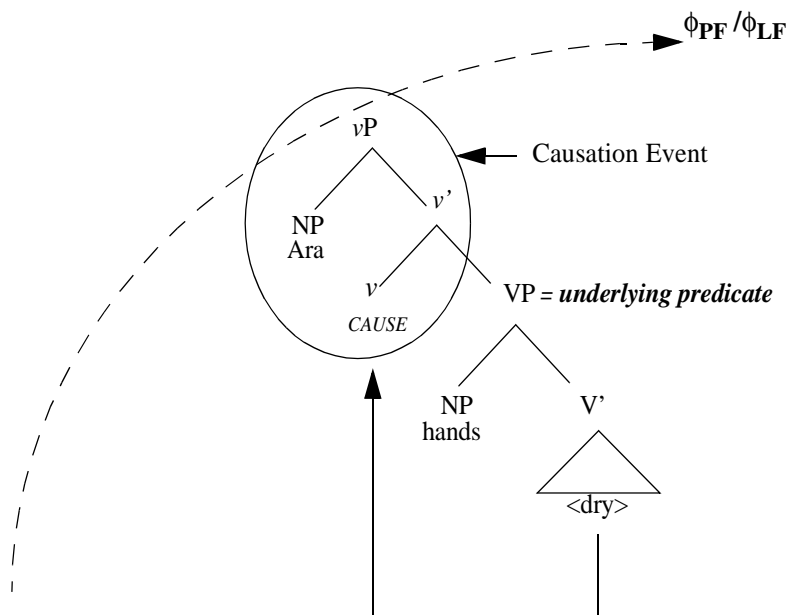
- (29) Ara-n Grikor-in duR-e **bats-el** *t'v-ets* (AC)  
 Ara-Nom Grigor-Dat door-Acc open-Inf gave.3sg  
 'Ara made Grigor open the door.'
- (30) Ara-n dzeRker-e **chor-ats-rets** (MC)  
 Ara-Nom hands-Acc dry-Caus-Past.3sg  
 'Ara dried his hands.'

(29) represents an analytic causative and (30) is a morphological causative. The main distinction between the morphological and the analytic causatives lies in the structure of the underlying predicate. If  $v_{cause}$  takes a full *vP* as complement, the analytic causative configuration in (31) obtains and the causation is realized as the causative verb *t'al* (give). In the morphological causative, the underlying predicate consists only of the lower VP node; it does not include a little-*v* representing causation. In this construction,  $v_{cause}$  takes the VP structure as a complement and forms a full verbal phrase or *vP* with the underlying predicate, as illustrated in the structure given in (32). In other words, the distinction between the two causative constructions resides in whether the higher causative event is part of the verbal complex as in the morphological causative in (32) or if it is added as a separate event on a full verbal predicate as in the analytic causative in (31).

(31) Analytic Causative:

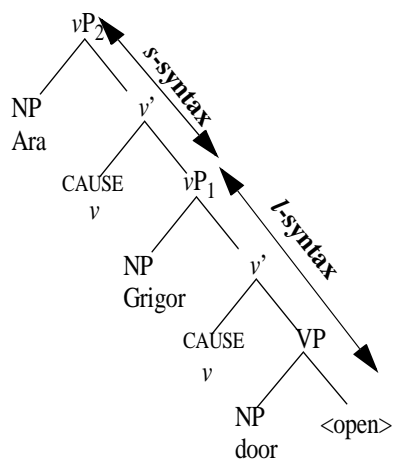


(32) Morphological Causative:



Traditionally, morphological and analytic causatives have been distinguished based on the component in which they are formed (Williams 1996, Di Sciullo and Williams 1987). In the analysis proposed here, however, the morphological and analytic causatives are both formed within the same computational system following a uniform set of word-formation principles. A similar analysis has been provided by Travis (1999) in which, following the terminology introduced in Hale and Keyser (1993), she makes a distinction between an *l-syntax* (lexical) causative and an *s-syntax* (productive) causative in Malagasy and Tagalog, based on the structural position of the causative morphemes. The phrase structure configuration in (33) could be used to schematize this approach for Eastern Armenian, in which *l-syntax* roughly corresponds to the domain of words and *s-syntax* includes phrase-level syntax.

(33)



In Travis (1999), the two domains of *l-syntax* and *s-syntax* are separated by the phrase structure node of Event Phrase. In the current analysis, I propose that the phase domain determines ‘wordhood’. In other words, the node at which the phrase structure is transferred to the interfaces marks the *l-syntax* domain. In Eastern Armenian, the phase node to LF (marked as  $\phi_{LF}$  in the configurations in (31) and (32)) occurs at the first  $v_{cause}$  forming the *vP*. Hence, the first use of the causation event and the first external argument are introduced through *l-syntax*, whereas all further iterations of the causative morpheme take place in *s-syntax*. In other words, the domain of *l-syntax* in Eastern Armenian can include at most one *CAUSE* event and one agent. The distinction between the morphological and analytic causatives in Eastern Armenian can now be reduced to the position occupied by the causation verb within the phrase structure.  $\phi_{PF}$  indicates the interface to the PF component and will be discussed further in Section 5.

## 4 Japanese Causatives

The structural analysis provided in the previous section can also account for the distinct properties of lexical and analytical causatives discussed in the Japanese literature. In Japanese, a predicate can become causativized by the addition of the suffix *sase* to the base verb. This causative morpheme forms a single morphophonological unit with the verb to which it is attached. The literature on Japanese has distinguished two types of causatives known as the ‘let’ or permissive causative and the ‘make’ or coercive causative, both of which display biclausal properties. It has also been noted that, in addition to these two constructions, there exists a third type of causative interpretation which exhibits properties of a monoclausal structure. The latter is usually formed on intransitives and ingestive transitives and has been referred to as a ‘lexical causative’ in the literature.<sup>3</sup>

- (34) a. *let* causatives:  
 John-wa Mary-ni ik-(s)ase-ru  
 John-Top Mary-Dat go-Caus  
 ‘John lets Mary go.’
- b. *make* causatives:  
 John-wa Mary-o ik-(s)ase-ru  
 John-Top Mary-Acc go-Caus  
 ‘John makes Mary go.’
- c. *lexical* causatives:  
 Hahaoya-wa akachan-ni kutsushita-o hak-ase-ta  
 mother-Top baby-Dat socks-Acc put.on-Caus-Past  
 ‘The mother put the socks on the baby’s feet.’

### 4.1 Binding Properties

Consider the sentences below from Matsumoto (1998), representing a *let* causative, a *make* causative and a causative of an ingestive verb, respectively. These examples show that the pronoun *kare* ‘he’ can be bound by the matrix subject in the two analytic constructions in (35a) and (35b), in clear contrast with the lack of coreference in the lexical causative in (35c). Since *kare* must be referentially disjoint from its clausemate, these results suggest that the structure in (35c) is monoclausal and confirms the biclausal nature of the ‘make’ and ‘let’ causatives.

- (35) a. *let* causatives:  
 Taro<sub>i</sub>-wa Jiroo<sub>j</sub>-ni sonomama kare<sub>i/\*j</sub> -o bengo s-asete oi-ta  
 Taro-Top Jiro-Dat as.it.is he -Acc defend do-Caus put-Past  
 ‘Taro appears to let Jiro continue to defend him.’
- b. *make* causatives:  
 Taro<sub>i</sub>-wa Jiroo<sub>j</sub>-ni muriyari kare<sub>i/\*j</sub> -o bengo s-asete oi-ta  
 Taro-Top Jiro-Dat forcibly he -Acc defend do-Caus put-Past  
 ‘Taro appears to make Jiro continue to defend him.’
- c. *lexical* causatives:  
 Anpanman<sub>i</sub>-wa akachan-ni kare<sub>\*i</sub> -o tabe-sase-ta  
 Anpanman-Top baby-Dat he -Acc eat-Caus-Past  
 ‘Anpanman gave his body to (feed) the baby.’

In addition, the agent-oriented reflexive *karejishin* ‘himself’, which must be bound within its clause, exhibits a behavior complementary to *kare* as shown below, thus confirming the clausal contrasts observed. *karejishin* can be bound by the causee in the two analytic causatives demonstrating the subjectlike properties of the causee in these constructions. However, the anaphor can only refer to the matrix subject in the lexical causative, reaffirming its monoclausal properties.

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3. All Japanese data are from Matsumoto (1996, 1998), Harley (1996) and Miyagawa (1989).

- (36) a. *let* causatives:  
 Taro<sub>i</sub>-wa Jiroo<sub>j</sub>-ni sonomama karejishin<sub>\*i/j</sub>-o bengo s-asete oi-ta  
 Taro-Top Jiro-Dat as.it.is himself-Acc defend do-Caus put-Past  
 ‘Taro appears to let Jiro continue to defend himself.’

- b. *make* causatives:  
 Taro<sub>i</sub>-wa Jiroo<sub>j</sub>-ni muriyari karejishin<sub>i/j</sub>-o bengo s-asete oi-ta  
 Taro-Top Jiro-Dat forcibly himself-Acc defend do-Caus put-Past  
 ‘Taro appears to make Jiro continue to defend himself.’

- c. *lexical* causatives:  
 Anpanman<sub>i</sub>-wa akachan-ni karejishin<sub>i</sub>-o tabe-sase-ta  
 Anpanman-Top baby-Dat himself-Acc eat-Caus-Past  
 ‘Anpanman gave his own body to (feed) the baby.’

## 4.2 Subject Honorification

Subject honorification has also been used by Matsumoto to demonstrate the subjectlike properties of the causee in the analytic constructions, in clear contrast to the lexical causatives. As the examples below illustrate, subject honorification can appear on the causee in *let* and *make* causatives, but it is disallowed on the causee of the lexical causative.

- (37) a. *let* causatives:  
 Karera-wa ooji-ni sono kutsushita-o o-haki ni nar-asete oki-mashi-ta  
 they-Top prince-Dat the socks-Acc H-put.on Cop become put-Pol-Past  
 ‘They let the prince (continue to) put the socks on his feet.’

- b. *make* causatives:  
 ?Karera-wa muriyari ooji-ni sono kutsushita-o o-haki ni nar-ase-mashi-ta  
 they-Top forcibly prince-Dat the socks-Acc H-put.on Cop become-Caus-Pol-Past  
 ‘They forcibly made the prince put the socks on his feet.’

- c. *lexical* causatives:  
 \*Karera-wa mada sankagetsu no ooji-ni sono kutsushita-o o-haki ni nar-ase-mashi-ta  
 they-Top yet three.moth Cop prince-Dat the socks-Acc H-put.on Cop become-Caus-Pol-Past  
 ‘They put the socks on the three-moth-old prince’s feet.’

## 4.3 Adverbial Scope

Further evidence for the biclausal nature of the *let* and *make* causatives comes from adverbial interpretation. As exemplified below for a *make* causative construction, the adverb can be interpreted either as part of the higher event or as a manner adverb, referring to the lower event.

- (38) Ken-ga damatta Naomi-o suwar-ase-ta  
 Ken-Nom silently Naomi-Acc sit-Caus-Past  
 (i) ‘Ken silently made Naomi sit.’  
 (ii) ‘Ken made Naomi sit silently.’

## 4.4 Idioms

Miyagawa (1989) notes that lexical causatives can have an idiomatic interpretation, which is not available to analytic causatives in Japanese. The examples below illustrate intransitive verbs that obtain idiomatic readings when causativized.

- (39) a. aw ⇨ tikara-o aw-ase  
 become together power-Acc together-Caus  
 ‘become together’ ‘pull together’

b. *hara-ga*          *her*                      ⇨          *hara-o*          *her-ase*  
 stomach-Nom        lesson    stomach-Acc      lesson-Caus  
 ‘get hungry’    ‘wait for a meal’

## 5 Phases

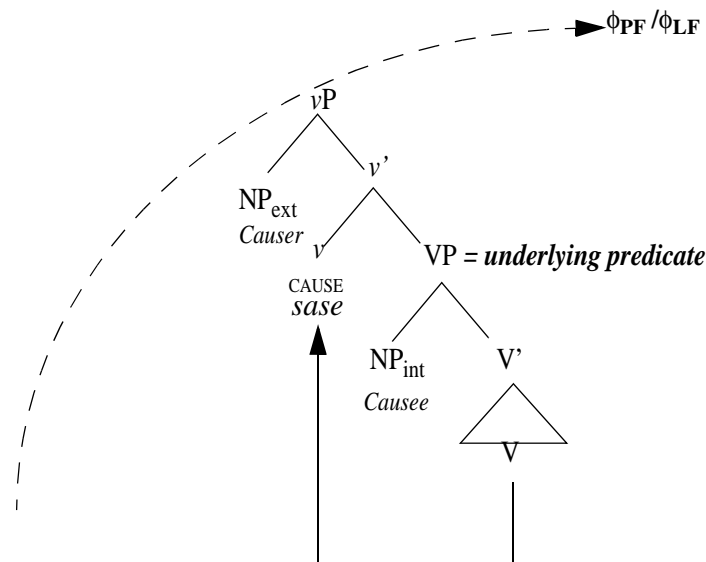
The table below summarizes some of the properties of the Japanese and Armenian causatives discussed so far. Concentrating on the distinction between ‘lexical’ and ‘let’ causatives in Japanese and contrasting them with the morphological and analytic causatives in Armenian, one can clearly see a parallel emerging.

**Table 1: Properties of Japanese & Armenian Causatives**

	Japanese		Armenian	
	Lexical Causative	“Let” Causative	Morph. Causative	Analytic Causative
<i>kare</i> bound by causer	No	Yes	--	--
Agent-oriented anaphor bound by causer	Yes	No	Yes	No
Agent-oriented adverb refers to causee	No	Yes	No	Yes
Subject honorification on causee	No	Yes	--	--
Idiomatic reading	Yes	No	Yes	No
Base subject (causee) is agentive	No	Yes	No	Yes
Ambiguous adverbial & negation scope	No	Yes	No	Yes

Lexical causatives in Japanese display monoclausal properties, the causee is not agentive, and the causative may receive an idiomatic reading. These properties parallel the behavior observed with the morphological causative in Eastern Armenian. Hence, we propose a configuration for Japanese lexical causatives, similar to the structural configuration presented in the last section for Armenian morphological constructions, as illustrated in (40).

(40) Japanese Lexical Causative:

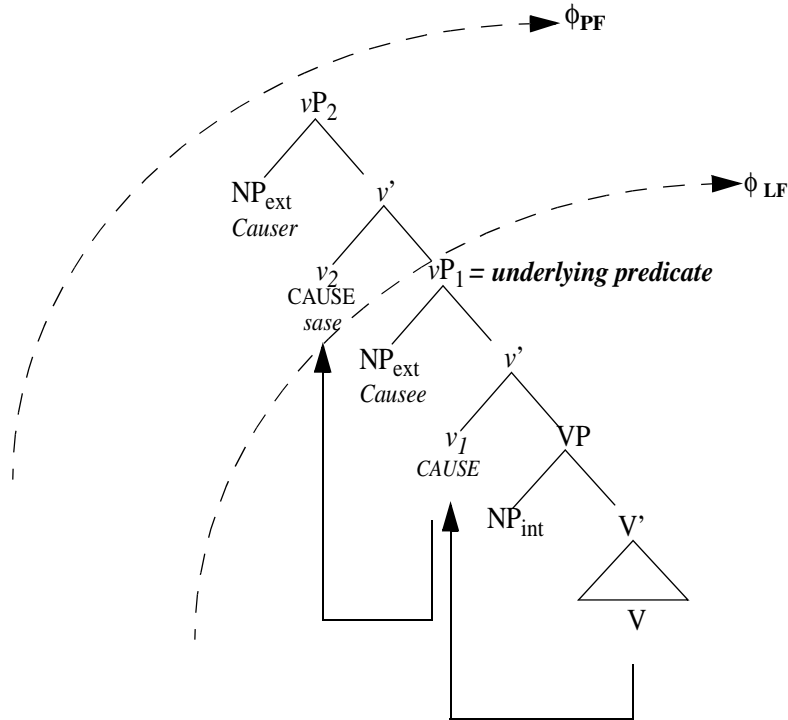


Similarly, both the Japanese ‘let’ causative and the Armenian analytic causative display biclausal properties since the subject of the underlying predicate behaves like an external argument with agentive properties in both constructions. The ‘let’ causatives in Japanese would then be represented as consisting of two distinct  $v_{cause}$  heads similar to the analytic causative in Armenian, thus forming two separate verbal predicates. In these constructions, *-sase* appears in the  $v_2$  position as shown in the

configuration in (41). I assume that the base verb incorporates into  $v_1$  which contains a zero affix and then incorporates further into the causative morpheme in  $v_2$  via head-movement.

Although the Japanese and Armenian analytic causatives discussed here demonstrate parallel syntactic and semantic properties, they differ in their surface forms: The Eastern Armenian causative is biclausal and also appears as two distinct verbs on the surface form. The Japanese ‘let’ causative, however, is biclausal yet is realized as a single morphophonological unit. Put differently, although both causatives have biclausal properties, the Armenian one surfaces as a phrase while the Japanese causative surfaces as a word. In order to capture the distinct surface realizations, I suggest that the spell-out node to the LF component should be distinguished from the PF phase node as indicated in the configuration in (41).

(41) Japanese *Let* Causative:



The reason for separating the PF and LF phases is due to the fact that the cross-linguistic data discussed in this paper have demonstrated that there is a direct correlation between the structure of a causative construction and the meaning obtained. The languages studied differ, however, with respect to the overt realization of the structure, since in Japanese all causatives are formed morphologically while in Eastern Armenian the surface forms of the morphological and analytic causatives are different. I propose that the phase relations to the interfaces of the language module are not unique, but should be divided into a notion of PF-phase ( $\phi_{PF}$ ) and a notion of LF-phase ( $\phi_{LF}$ ). I will assume that  $\phi_{LF}$ , which marks the interface to the logico-semantic component through LF, is constant in all languages and applies at nodes that Chomsky refers to as ‘strong’ phases. In terms of the configuration in (33) on page 9,  $\phi_{LF}$  would correspond to the boundary point between I-syntax and s-syntax.  $\phi_{PF}$ , on the other hand, varies from one language to another and thus gives rise to diverse surface forms and mismatches between form and meaning. Hence, for causatives in Eastern Armenian,  $\phi_{PF}$  will apply at the structural node  $vP$ . All structure below  $vP$  will then be realized as a single morphological word (or PF-word), while the causative  $v$  head above  $vP$  will be realized as a separate (light) verb. In the case of Japanese, the phase  $\phi_{PF}$  applies at a higher level, extending the domain of the morphological word while displaying the same semantic and syntactic properties as in Armenian. In this language, the verbal elements (little- $v$  heads) incorporate via head-movement until the  $\phi_{PF}$  node has been reached.

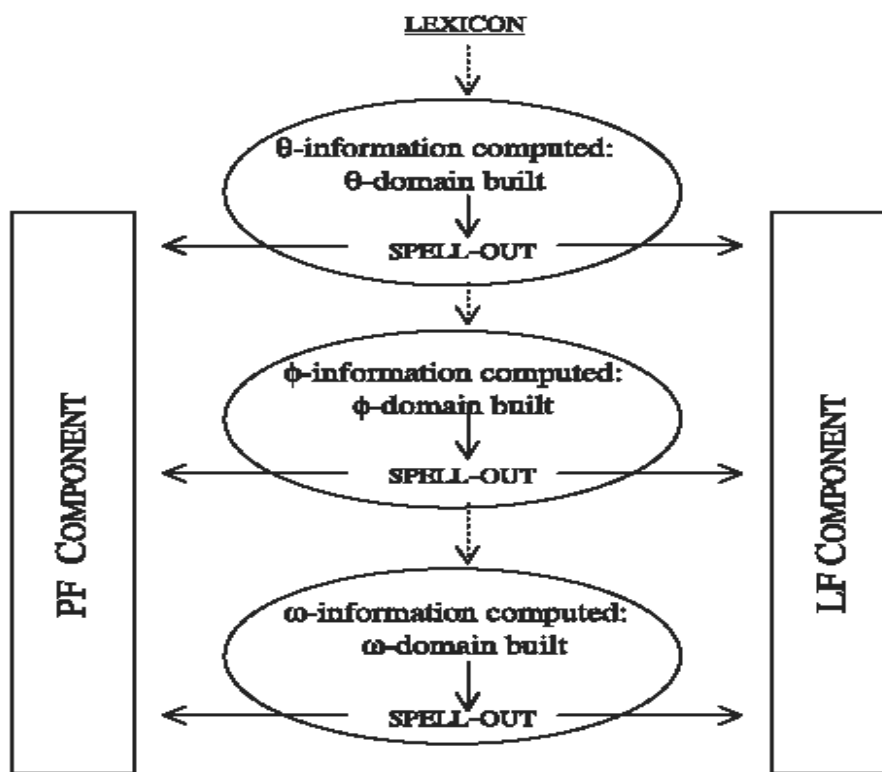
## 6 Interface Conditions and Surface Asymmetry

The notion of the cyclicity of spell-out has been proposed in several recent studies of linguistics. Chomsky (1998) attempts to eliminate the overt and covert distinction developed in earlier work, by allowing the possibility of multiple spell-outs. In this framework, an operation Spell-Out still delivers the structure that has already been formed to the phonological component, which converts it to PF. The distinction is in the fact that Spell-Out can now be applied at various phases in the derivation, where

phases are defined at the boundaries of independent syntactic objects that are “propositional”, such as verbal phrases with full argument structure and CP with force indicators. One of the main evidences for the choice of phases is provided by the degree of phonetic independence displayed by the syntactic object. Chomsky therefore suggests that CP or  $\nu$ P are phases, but the VP verbal phrase is not.

A similar model has been proposed by Uriagereka (1999). In Uriagereka’s model, spell-out applies every time a command relation is formed, at which point the syntactic information is sent to both LF and PF interfaces. In addition, a number of recent works have proposed a tripartite system of the computational model, separated at cyclic spell-out nodes. Grohmann (2000) divides the computation into three Prolific Domains. Each of these Prolific Domains contains an internal structure and licenses different grammatical properties (see figure 1). The  $\theta$ -domain refers to thematic roles, the  $\phi$ -domain represents tense and agreement relations, while the  $\omega$ -domain encompasses discourse phenomena. In this model, the linguistic object formed at each Prolific Domain is sent to the PF and LF components cyclically as shown in the figure below.

**Fig. 1: Grohmann’s three Prolific Domains**



The tripartite system that Grohmann presents is very similar to the tripartition of the clause structure in Platzack (2001) into the V-domain, the T-domain and the C-domain. The V-domain licenses thematic relations and holds the predicate and argument structure of the clause, the T-domain contains the grammatical aspects such as agreement properties, and the C-domain is the part of the derivation where discourse information, such as focus or *wh*-interpretation, is established. These domains are structural steps in the derivation that consist of functional projections of the same type and serve as spell-out nodes for the successive-cyclic computational process. Hence, in both Grohmann’s and Platzack’s systems, the  $\nu$ P, TP and CP domains constitute phase nodes.

What is different in the analysis put forth in this paper is the suggestion that the spell-out nodes could be a parameter of the language. In the framework developed here, I propose to treat the spell-out node to the phonological component as a parameter of predicate-formation while the LF-phase, which marks the interface to the logico-semantic component, is universal and applies at the ‘strong phases’. The variability of the PF phase node, it was argued, allows us to capture the ‘wordhood’ of verbal predicates at surface form, and to account for any discrepancies between meaning and surface realization observed. For instance, since the morphological causative constructions in Eastern Armenian correlate with word-like behavior (e.g., idiomatic readings, lack of productivity, non-agentive causee), we can conclude that PF and LF phases correspond in these cases. Hence, both phases occur at  $\nu$ P in the morphological causative, allowing the  $\nu$ P predicate to behave as a morphophonological word both semantically and syntactically. On the other hand, the analytic *-sase* causative in Japanese, although realized as a single morphophonological word, corresponds to a bigger structure (equivalent to the analytic causative in Eastern Armenian) and therefore I propose that the PF-phase is at a higher level than the LF-phase in this case. Since ‘wordhood’ is interpreted at the  $\nu$ P

projection across languages, the LF-phase is considered to be universal and would occur at vP, but the PF-phase applies at a higher node in this instance (i.e., at the next vP level including the second  $v_{cause}$ ). Hence, the main distinction in the PF node parameter between Armenian and Japanese could be defined in terms of the number of causation events or  $v_{cause}$  heads allowed prior to spell-out to the phonological component. It is crucially this discrepancy of cyclic spell-out to LF and PF that gives rise to the mismatches found in meaning and surface form of verbal predicates across languages by creating two distinct notions of “word”. Thus, I argue to distinguish PF-words, that can vary cross-linguistically in the sets of features they contain, from LF-words, which are universal sets of primitive features.

## 7 Conclusion

This paper presented a contrastive look at causative constructions in Eastern Armenian and Japanese and examined the mismatch in surface form with respect to the analytic causative in these two languages. This asymmetry in surface realization was accounted for by positing a parameter at which the spell-out to the prosodic interface takes place. The distinction between *words* and *phrases* was thus recast in structural terms, whereby the notion of “word” is split into an *LF-word* corresponding to the meaning of the predicate and consisting of a universal set of primitive features, and a *PF-word* representing the surface realization that can vary cross-linguistically in the sets of features it contains. Thus, we argue that any asymmetry between form and meaning is due to the universality of the LF-word and the language-particular character of the PF-word. The proposed analysis has a direct bearing on defining the process of derivation by phase, since it claims that the phase that delivers the syntactic constituent to LF is distinct from the phase that spells it out to PF.

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