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A Macro-Comparative Perspective on Thematic Elements

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Contents

1	Theme elements	1
1.1	Introduction	1
1.2	Theme elements or theme vowels?	2
1.3	Distributed morphology	4
1.3.1	Post-syntactic operations	6
1.3.2	DM and theme elements	7
1.4	Theme vowels in the literature	10
1.5	A heterogeneous phenomenon	12
2	Language sample	19
2.1	Romance languages	19
2.1.1	Catalan	20
2.1.2	Spanish	24
2.2	West Armenian	26
2.3	Slavic languages	30
2.3.1	Slovenian	31
2.3.2	Serbo-Croatian	37
2.4	North Saami	41
2.5	Conclusion	48
3	Discussion	51
3.1	Introduction	51
3.2	Common points	51
3.3	Thematic elements and diachronic change	53

3.4	Theory and Language sample	56
3.4.1	Slavic Languages	57
3.4.2	West Armenian	59
3.4.3	Romance Languages	61
3.4.4	North Saami	62
3.4.5	Comparative overview	63
3.5	Conclusion	67
4	Theme elements and Germanic Languages	69
4.1	Introduction	69
4.2	Kayne (2016)	69
4.2.1	The status of <i>went</i>	74
4.2.2	The status of the theme vowel	75
4.2.3	Suppletive allomorphy	76
4.3	On theme vowels	77
4.4	The suppletion of <i>went</i>	80
4.5	Conclusion	82
	Bibliography	85

Chapter 1

Theme elements

1.1 Introduction

The main goal of this work is to describe the behaviour of theme elements cross-linguistically. Therefore, we are going to consider a small sample of languages in order to compare the wide phenomenon of theme vowels and try to give a cohesive account for it, putting together multiple preexisting approaches. In the first chapter we are going to introduce the topic by understanding what is the definition of a theme element and briefly exploring the framework of reference, Distributed Morphology.

Then, in the next section, we are exploring a small sample of languages that display theme elements in order to see what are some of the approaches to this topic proposed in the literature. Next, we are going to suggest a possible way to keep these different approaches together by analysing what they have in common and we are going to review the languages from our sample from our account's point of view. Additionally, we are going to try to describe the position of the Germanic languages, English in particular, in this respect.

One of the problems that we are going to face is that theme elements are difficult to classify as they do not convey a clear and univocal meaning or take a homogeneous form. The cross linguistic variation is quite extensive. Moreover, over time the label theme vowel has been used in the literature for different elements in the

morphology. An effective way to be able to draw a comprehensive picture of this phenomenon could be to take a step back and analyse the matter from a macro-comparative point of view. As we are going to see in the next chapters, this is not an easy task.

A very important point to keep in mind is that in the literature the term *theme vowel* has been used to describe a range of similar phenomena, and it is not always clear if it is possible to keep all of them under the same umbrella. Is it possible to identify some parameters to consider theme elements a feature that surfaces in many different ways across the languages? Ideally, at the end of this work we are going to answer this question and try to describe theme elements cross linguistically.

In the literature we can find numerous accounts that try to describe how theme elements work, each of them focusing on a different language and taking different theoretical approaches as the reference framework, but what brings them together? Is there a way to unify them all? Our goal is to provide a tool to observe the phenomenon of theme vowels from a macroscopic viewpoint, so we are not going to question any of the accounts proposed for the various languages, instead we are going to try to find common points among them, as well as differences in order to be able to present a macro-comparative perspective to show how theme elements work.

1.2 Theme elements or theme vowels?

In the verbal domain, some languages belonging to the Indo-European family display a morpheme that does not seem to belong to the verbal root and does not seem to belong to the inflection of the verb either. This obscure segments in the verb can be identified as a theme element. In the Romance domain it is traditionally interpreted as a conjugation class marker, but we will see that this is not always the case. As we are going to see later, concerning ancient Indo-European languages, theme elements do not always signal conjugation classes, instead they form tense and aspectual themes.

Theme elements have long been an understudied field in morphology but lately the debate has become more interesting because several authors have worked on this topic from different perspectives. The recent work that has been done on the matter covers the phenomenon of theme elements in different languages and this allows us to have a wider understanding of the subject. We will see that theme elements are not homogeneous in many aspects, but firstly we can say that phonologically they are often a vowel, but this is not always true. Let us consider some examples of verbs that display a theme element.

- | | |
|-------------------|--------------------|
| (1) a. Spanish: | c. Serbo-Croatian: |
| cant -a -s | bra -∅ -ti |
| sing -TV -PRS.2SG | pick -TV -INF |
| ‘you sing’ | ‘to pick’ |
| b. Slovenian: | d. West Armenian: |
| mi -ne -mo | xos -i -l |
| PASS -TV -PRS.1PL | speak -TV -INF |
| ‘we pass’ | ‘to speak’ |

In the literature the term used most frequently for the morpheme between the root and the inflection in a verb is ‘theme vowel’, probably because in the many languages it is indeed a theme vowel, as in the examples 1a and 1d. However, what we see in the example 1 is that the morphological material corresponding to a theme vowel, can surface as a vowel and some consonantal material, as we see in 1c but it can also not be there for all the forms of a verb, as we see in 1b.

Pomino and Remberger (2022) in their paper refer twice to theme vowels as ‘theme extensions’, without further motivating their choice. We also deem that the term theme vowel is not precise because it does not include all the possible occurrences of this phenomenon cross linguistically. In this work we will mainly use the more ample term ‘theme elements’ as well as the traditional ‘theme vowels’, as the latter is vastly widespread in the literature.

Most of the latest contributions on this subject belong to the Distributed Morphology framework (Halle, Marantz, et al., 1993), that we are also going to refer to in this work. In the next section, we are going to briefly report the most important aspects of it.

1.3 Distributed morphology

Distributed Morphology (DM) is a framework first introduced by Halle, Marantz, et al. (1993) and Halle and Marantz (1994). Bobaljik (2017) states that

DM represents a set of hypotheses about the interaction among components of grammar: Morphology, in DM, is (a part) of the mapping from the output of a syntactic derivation to the (input to) the phonology.

As we see in the architecture of this framework in 1.1, Morphology in DM is part of the mapping from the output of a syntactic derivation to phonology.

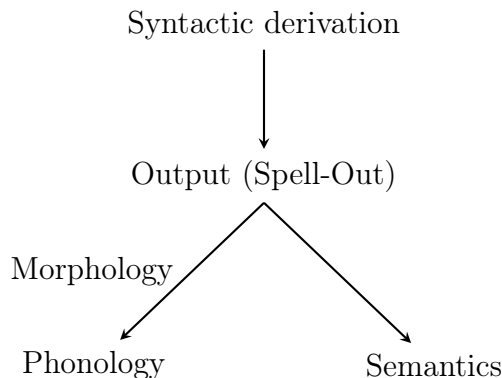


Figure 1.1: The Architecture of DM, from Bobaljik (2017)

The DM approach stands on two main hypotheses. The first is that syntax operates both above and below word level, so word formation is governed by syntax, this is usually called *Syntax-all-the-way-down*. The second hypothesis is called *Late insertion* which means that the functional morphemes lack phonological content, and are paired with phonological features post-syntactically. In DM the functions

of morphology are distributed in three different lists: the Lexicon, the Vocabulary and the Encyclopedia. The *Lexicon* is constituted by abstract items, which are features or bundles of feature, manipulated by syntax to create complex terminal nodes. In the lexicon there are the roots and the affixes. The roots are items with lexical properties and they are category neutral, (the functional elements assign a category). The affixes are terminal nodes of the syntactic structure and they hold the morphosyntactic content which has to be realised by *Vocabulary insertion*. The *Vocabulary* is a list of items which represent the phonological exponents associated to morphosyntactic features post-syntactically, they have some semantic content.

Distributed morphology differs from other theoretical frameworks because morphological derivation works after syntax with representations that are the output of it ‘including potentially, internally complex X° nodes created in the syntax’ (Bobaljik, 2017).

The idea is that morphology operates after syntax and prior to vocabulary insertion, with morphological operations such as morphological merger, movement, impoverishment, fusion, fission and lowering. Vocabulary insertion is competition-based and it is subject to some rules. One of them is the *Subset principle* stated in Halle 1997 (see Oltra Massuet, 1999, p. 17).

(2) Subset principle

The phonological exponent of a Vocabulary item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme.

In short, a vocabulary item is inserted if it is the one that matches best the features of the node, without being redundant. After vocabulary insertion, the operation that matches the terminal nodes to items in the *Vocabulary*, there are *Readjustment rules*, they have the function of altering the form of an underlying representation, mainly at a phonological level.

At the end of this cycle, the output is confronted with the *Encyclopedia*, which is responsible for the interpretation of terminal nodes, a list of the knowledge regarding the meaning of words in context. These operations work with some restrictions

regarding the adjacency of the nodes in the structure, the nodes obey the conditions of *Locality*. The features are spelled-out in cycles. The nodes that are embedded deeper in the structure are firstly spelled-out by an inner cycle, and then all nodes are spelled-out together by an outer cycle (Embick, 2010).

Another principle followed by the operations in DM is the *Containment Principle*. The Containment Principle first formulated by Bobaljik (2012), introduced by Caha (2009), states that ‘The representation of the superlative properly contains that of the comparative (in all languages that have a morphological superlative)’.

This means that in conditions of locality, the vocabulary item associated with the biggest bundle of features is selected over the others. As in the example of good/better/best.

1.3.1 Post-syntactic operations

We are now going to see which are the post-syntactic operations that are applied to vocabulary insertion and which rules they follow.

Over the years, many morphological operations have been proposed to solve problems of correspondence between the Lexicon list and the Vocabulary list. Here we report the most important ones for our analysis.

Fusion is the morphological operation that allows two adjacent nodes to be spelled out by a single morpheme. For example, fusive languages often spell out Tense and Agreement with the same, fused, vocabulary item. These are also called portman-teau morphs.

Fission happens when a node is split in two different nodes, so that a single feature is expressed by more than one node.

Deletion on the other hand, is an operation that neutralises a node in the structure, it is an impoverishment rule. The node cannot be expressed even if it is still part of the structure.

Movement/merger is the operation that moves some nodes upwards in the structure. This operation accounts for cases like the verb inversion in the interrogatives.

Lowering represents another kind of operation where a node moves down in the structure in order to be visible to other pieces of it. A famous example of lowering

is the English subject that is lowered for the verb to be able to interpret the feature of agreement.

Vocabulary items can be seen as rules of exponence (Bobaljik, 2017), and two general principles that regulate the interaction of rules in DM are:

- Rules apply: a rule applies wherever its structural description is met
- Elsewhere condition: when more than one mutually exclusive rule may apply, (only) the most highly specified rule applies

To see how these rules work in DM, let us consider the example in 3, a well known case of underspecification. The rules of exponence in the example 3 will apply following these principles. So for example, in English inflection, if the subject third person singular, the features [3PRS.SG] go in the INFL node and give the input for the rule in 3a, as it is the most specific applicable.

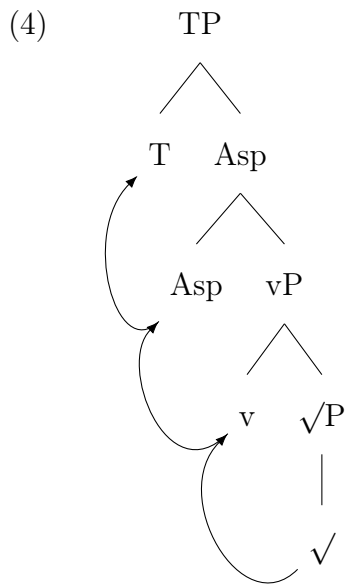
(3) Vocabulary of English (fragment)

a. [3SG,PRES] \Leftrightarrow -s

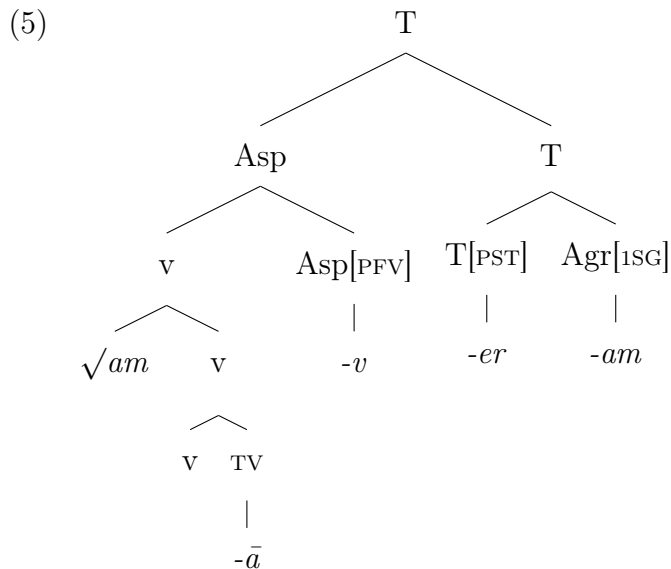
b. [PRES] \Leftrightarrow \emptyset

1.3.2 DM and theme elements

Now that we have seen the most important points of the framework of DM, let us consider how theme elements function in this environment and what constraints they follow. The first thing to consider is the construction of a verb in DM. Grestenberger (2023) says that ‘a synthetic verb is [...] a complex head built by successive cyclic head movement and adjunction of terminal nodes of verbal functional projections’ and gives the following example in 4.



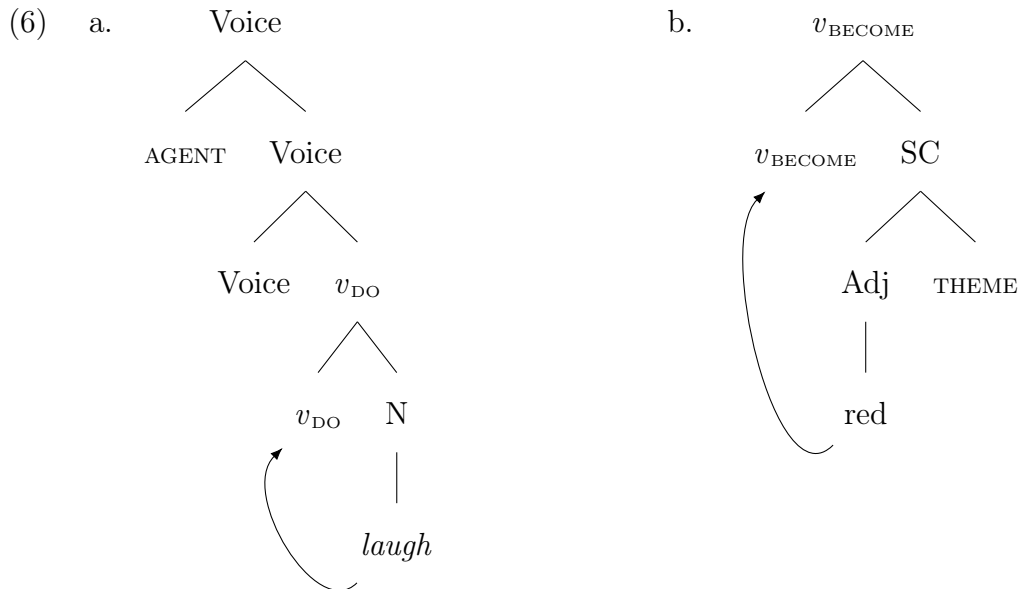
We can see that the root, which is categorially unspecified, merges with the verbaliser, the functional projection v . It later merges with the functional projections of Voice, Aspect and Tense. The root then moves upward and forms ‘a complex head with v ’ which proceeds to move upward. This results in a linear order, as illustrated in the example 5 of the Latin verb *amāveram* ‘I had loved’ from Grestenberger (2023).



Theme elements and Agreement morphology are assumed to be adjoined post-syntactically to functional projections, in Grestenberger (2023). Roots merge with categorisers to get their category, nominalisers n for nouns, verbalisers v for verbs and adjectivisers a for adjectives.

It is argued that v comes with a range of different features such as v_{CAUSE} for causatives, v_{BECOME} for anticausatives/inchoatives, $v_{\text{BE/STATE}}$ for states and v_{DO} for unergatives. Grestenberger (2023) deems that ‘argument and event structure alternations such as the causative alternation, passivization, etc., are due to the interaction of v with the external-argument introducing projection *Voice*’ and that different kind of verbalisers interact in a specific way with cross-categorial derivation.

The following trees from Grestenberger (2023) show the said interaction of unergatives in 6a and unaccusative verbs in 6b with the layer *Voice*.



Grestenberger (2023) uses this argument to prove that it is possible to assume that even morphemes are subject to ‘upward reanalysis’ just as lexical items are. Under this assumption, it would be possible to talk about *cycles* for morphemes such as verbalisers. She states that ‘for derivational and categorizing affixes, we now expect an $n > v$ cycle, [...] an $a > v$ cycle’ as she illustrates with 7a and 7b.



1.4 Theme vowels in the literature

One of the most popular interpretations of theme vowels comes from the work on Catalan theme vowels by I. Oltra Massuet ‘On the notion of theme vowel: a new approach to Catalan verbal morphology’ (Oltra Massuet, 1999). Oltra Massuet’s proposal is deeply rooted in the DM framework. Briefly we can say that the author considers theme vowels as the output of a well-formedness condition that surfaces in the structure in the functional head v , as in 8a and of all the other functional heads by extension, as in 8b. Theme vowels assign verbal roots a conjugation class, based on a markedness hierarchy.



The theme vowel is selected by the ornamental node combining the markedness of the theme itself and the markedness of the context. The issue with this is that, as we will see later, the markedness hierarchy assumed for theme vowels does not depend on anything else than the theme vowels themselves. As they appear as mere diacritics, there is no explanation for them to be ordered in a hierarchy.

Moreover, this approach gives theme vowels a clear position in the syntactic structure of the verb but it does not recognise theme vowels a syntactic or semantic function. In synchrony, this is true for some languages as we will see more in depth in Chapter 2, but for many others this is not a sufficient analysis.

Some of the latest trends on this topic take a diachronic perspective. For example, Grestenberger (2022) works on theme elements in Ancient Greek. Grestenberger (2022) argues that:

both thematic and athematic verbal stem-forming morphemes in AG pattern as verbalizers, and that the reanalysis of stem-forming morphology in denominal and deadjectival verbal derivation gave rise to new types of vocalic (and other) “themes” that interacted with older, inherited conjugational morphology.

She addresses the data on Ancient Greek to solve the issue of which theoretical perspective suits best theme vowels in this language. As a starting point, she assumes that at least some theme elements are verbalisers, because some analysis suggests that they take the same position in the structure as verbalisers, but she also argues that it is necessary to have a diagnostic in order to distinguish theme vowels from other types of stem-forming morphology.

Firstly, to do this she compares thematic and athematic verbs in Ancient Greek and she finds that thematic and athematic suffixes ‘compete for the same position and cause the same types of locally conditioned root allomorphy’. Thematic and athematic suffixes are in complementary distribution and the verb spells out $\sqrt{-v}/\text{Asp-Mod-T}/\text{Agr}$, where T/Agr also expresses active/nonactive Voice. Grestenberger (2022) provides multiple pieces of evidence in favour of the thesis that both primary athematic verbalisers and theme vowels, in Ancient Greek, spell out *v* or a node adjunct to *v* (for the theme vowel) rather than Asp.

The author further finds that the complex thematic suffixes -j(-)e/o and s(a) of Ancient Greek realise *v* through denominal and deadjectival verb formation that is ‘generally agreed to be one of the core properties of *v*’ (Grestenberger, 2022). These suffixes form denominal and deadjectival verbs in the oldest stage of Greek. At this stage - \check{e} -, - \check{a} - and - \check{o} -, from which the Modern Greek theme vowels are derived, still behave like nominal/adjectival affixes in the denominal and deadjectival contract verbs and it is not clear when they become part of the verbal domain. For example, we report below in table 1.1 some denominal verbs in - $\acute{e}\bar{o}$ (a.), - $\acute{a}\bar{o}$ (b.), - $\acute{o}\bar{o}$ (c.),

1pl.pres. and aor.act., active participles, verbal adjectives; nominal/adjectival. As in Grestenberger (2022) the stem is highlighted in bold and the verbal stem is underlined.

	Pres.act.	Ptcp.act.	Aor.act.	Ptcp.act.	Verbal adj.
a.	<u>philé</u> -o-men	<u>philé</u> -o-nt-	<u>philé</u> -sa-men	<u>philé</u> -sa-nt-	<u>philé</u> -tó- ‘loved, lovable’
b.	<u>tīmá</u> -o-men	<u>tīmá</u> -o-nt-	<u>tīmé</u> -sa-men	<u>tīmé</u> -sa-nt-	<u>tīmé</u> -tó- ‘respected’
c.	<u>kholó</u> -o-men	<u>kholó</u> -o-nt-	<u>kholó</u> -sa-men	<u>kholó</u> -sa-nt-	<u>kholó</u> -tó- ‘angered’

Table 1.1: Denominal verbs in Ancient Greek

What emerges from her analysis is that diachronic reanalysis of morphosyntactic features is possible as well as the reanalysis of the respective contexts in which it takes place. It is important because ‘this is the case even for developments that do not display traditional “grammaticalization”’ (Grestenberger, 2023) as in the case of theme elements.

1.5 A heterogeneous phenomenon

The thesis work by Manzato (2023) shows in detail some of the different approaches on theme vowels. His thorough analysis brings up all the pros and cons of using the DM framework to study this phenomenon. One of the obstacles to the understanding of theme elements is that there is no univocal way to identify them. Manzato (2023) provides a comprehensive account of the main classification problems that this phenomenon faces. We report here some of the challenges in identifying theme elements as well. This problem is particularly evident in languages where the theme elements are numerous so that it is difficult to dismiss them as mere conjugation classes.

Milosavljević and Arsenijević (2022), working on theme elements in Serbo-Croatian, defines this phenomenon as standing for a set of different properties, organised on a spectrum where on the one hand all the properties are realised by the theme element and on the other only a few are. These properties include ‘regular occurrence between the base and the inflection, realization by a single vowel, realization including a vowel, a set of available different realizations, a relatively large set of

selected bases at least for some realizations, absence of systematic semantic effects, or of systematic semantic, structural or phonological conditioning’ (Milosavljević and Arsenijević, 2022).

Simonović and Mišmaš (2022) and Simonović and Mišmaš (2023) address the problem too, having to deal with the classification of theme elements in Slovenian. Simonović and Mišmaš (2022) turn to previous works in the literature where the base, that consists of the root and the theme element, can be the same in all the forms of the verb or it can change and be different for the infinitival form and for the present form, so that Slovenian has a infinitival base and a present-tense base. For example Herrity (2015) defines conjugations on the basis of the present-tense bases (a, i, je, e and \emptyset), this can lead to many problems as some verbs, will be impossible to categorise.

A different solution is adopted by Marvin (2002) that works within Distributed Morphology, she notices that the non-finite theme elements surface in deverbal nouns and adjectives as well. Therefore, she takes the five non-finite theme elements to be the theme elements in Slovenian and she assumes that the present theme elements are the result of a complex phonological process. Simonović and Mišmaš (2022) recognise that it would be preferable to assume a single exponent for each theme vowel class marker, but they reckon that the only way to account for all of the Slovenian verb is assuming a combination of two theme elements. In another paper (Simonović and Mišmaš, 2023), the same authors confirm their view on the matter, as we can see in the example 9, it is impossible to account for Slovenian theme elements with a single exponent.

- (9) a. 'kis -a -ti, 'kis -a -mo
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
 ‘to acidify, we acidify’
- b. 'ris -a -ti, 'ris -je -mo
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
 ‘to draw, we draw’

They identify ten theme vowel classes and address further the theme vowel in-

determinacy problem. They refer specifically to verbs that may belong to different theme classes when parsed differently. In some cases it is easy to solve this problem, given that a different pattern would cause unpredictable root allomorphy, as we see in the example 10.

- (10) a. o'r -a -ti, 'or -je -mo (a/je)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
- b. o'r -a -ti, 'orj -e -mo (a/je)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
- c. o'ra -∅ -ti, 'orj -e -mo (∅/e)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
 'to plow, we plow'

In this example, the parsing in 10b and in 10c is not possible if we exclude root allomorphy, so the parsing in 10a is considered the correct one. However, there are other verbs for which it is not as easy to solve the indeterminacy problem. These verbs can be assigned to different theme vowel classes, depending on their parsing, without assuming root allomorphy. Consider the example 11 of the verb da'jati, 'to give'.

- (11) a. da'j -a -ti, 'daj -je -mo (a/je)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
- b. da' -ja -ti, 'daj -e -mo (ja/e)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
- c. da'ja -∅ -ti, 'daj -e -mo (∅/e)
 ✓ -TV -INF, ✓ -TV -PRS.1PL
 'to give, we give'

For this verb we can see that only the parsing in 11c causes unnecessary root allomorphy, but the ones in 11a and 11b are perfectly valid. Simonović and Mišmaš (2023) solve this indeterminacy assuming that the verb belongs to the largest class, in this case a/je. There are yet two more scenarios where it is impossible to select a class that eliminates unpredictable root allomorphy. For example in 12 there is

root allomorphy for every possible parsing.

- (12) a. 'kl -a -ti, 'kol -je -mo (a/je)
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
- b. 'kl -a -ti, 'kolj -e -mo (a/e)
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
- c. 'kla - \emptyset -ti, 'kolj -e -mo (\emptyset /e)
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
 'to slaughter, we slaughter'

While in the example 12 all the theme vowels are different in the infinitive and in the finite verb, in the example 13 the choice of the parsing can make a substantial difference. In 13a it would be necessary to assume that root allomorphy is triggered non-locally across the theme vowel, in order to explain why we find these two different outcomes. On the other hand, with the parsing in 13b the root allomorphy might still be locally triggered by the theme vowel or the adjacent inflection ending.

- (13) a. 'wz -e -ti, 'wza -e -mo (e/e)
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
- b. 'wze - \emptyset -ti, 'wza -e -mo (\emptyset /e)
 \checkmark -TV -INF, \checkmark -TV -PRS.1PL
 'to take, we take'

Since many verbs in Slovenian present the problems shown in the examples 12 and 13, Simonović and Mišmaš (2023) reckon that a theory of the correct parsing into roots and theme vowels as well as one on root allomorphy is necessary. What they find is that only the five classes *a/je*, *a/e*, \emptyset /*e*, \emptyset /*ne* and *e/e* trigger root allomorphy in Slovenian. In the process of determining which themes trigger root allomorphy they consider 'theme vowels as being maximally big and roots as being maximally small' Simonović and Mišmaš (2023). This solution that they adopt remains vague, and although they address the problem of identification of theme vowels vastly, they do not identify a clear solution.

Manzato (2023) turns then to the description of the paper Pomino and Rem-

berger (2022) that addresses the issue too, but this time the focus is on Romance languages, in particular French. As the title ‘Does French have theme vowels?’ states, the paper tries to clarify the structure of derived French words that appear to be less transparent than other Romance languages.

French is typically assumed to have three conjugation classes, with the infinitival endings *er*, *ir* and *oir*, even though the third class contains also all the other verbs that do not have any of these endings. Moreover, not all linguists agree on what should be considered an infinitival ending and whether or not it should be paired with a theme vowel or separated from it. Below in example 14 we report the possible parsings of the verb ‘aimer’ from Pomino and Remberger (2022).

- (14) a. *aimer* [ɛm-e^ʰ] The vowel is no longer conceived as theme vowel
b. *aimer* [ɛm-e^ʰ] With a theme vowel between the root and the verbal ending
c. *aimer* [ɛme-^ʰ] The vowel is no longer conceived as theme vowel.

In the literature there are different trends, some consider the *-r* to be the infinitival ending as in 14b and 14c, where in 14c the vowel is part of a non-segmented stem, while others prefer to analyse *-er* (as well as *-ir*, *-oir* and other endings) as the inflectional morpheme of infinite.

The problem found in French is similar to the theme vowel indeterminacy found for the Slovenian verbs. However, for French the focus is on understanding if the correct parsing of a verb is thematic or athematic. What Pomino and Remberger (2022) find is that some approaches tend to try ‘to keep the stems as regular as possible’, in this way it is necessary to assume for the same verbal form, various allomorphic suffixes.

This is the case of El Fenne (2020), That classifies French verbs as stems ending in a permanent consonant (PC) or in a floating consonant (FC). This means that when looking at the difference between verbs as *vivre*, that sometimes appear with the stem *vi-* and sometimes with the stem *viv-* (nous vivons ‘we live’ vs. nous vivrons ‘we will live’), and verbs as *arriver*, that always appear with the stem *arriv-*, the

author introduces the notion of FC and PC to set them apart, instead of assuming two different stems.

This approach minimises allomorphy but in order to do so it is necessary to assume more infinitival endings. Pomino and Remberger (2022) point out other shortcomings of this approach, for example, under these constraints, one would have to assume a specific stem for the future and for the conditional, even for the first conjugation class, that is completely regular.

On the other hand, there are approaches that ‘strive for the minimal allomorphy of inflectional endings [...], but then have to shift irregularity to the stem’ (Pomino and Remberger, 2022). In this second scenario verbs are all thematic. The infinitival ending for the first conjugation class is [e], and for all other verbs it is [ɛ]. This approach limits inflectional endings allomorphy but poses other concerns. Pomino and Remberger (2022) point out that while for verbs like *aimer* and *finir* it is easy to determine a root, a theme and an inflectional ending, this is not always the case for all other verbs ‘unless one is willing to propose unmotivated diacritic features and/or (readjustment) rules’ (Pomino and Remberger, 2022).

To conclude Pomino and Remberger (2022) observe that in French infinitival forms are exceptional and ‘do not give us a clear picture of ThVs’, what they do is follow a mixed approach, where they consider theme vowels to be relevant only for some conjugation classes.

Manzato (2023) proceeds to show in detail this issues in two other languages, Serbo-Croatian (Milosavljević and Arsenijević, 2022) and West Armenian (Dolatian, 2023; Guekguezian and Dolatian, 2021) that we will see in depth in the next chapter. He claims that ‘the crisis of identification seems to undermine the gains derived by adopting DM and its assumptions’.

To sum up, at the state of the art there are still some problems in the understanding of theme elements. The most important one is, as we just saw, the identification of theme vowels. Another problem that is still open is that there is not an approach that account for theme vowels cross-linguistically. As Manzato (2023) points out, there are many advantages in using the DM framework for the analysis of theme

vowels, but it may be worth it to investigate what are the implications of Nanosyntax on this issue.

In the following chapter we are going to discuss in detail the characteristics of theme elements from a sample of languages. In particular, we are going to consider what approaches have been used to describe them and how they surface in each language.

Chapter 2

Language sample

In this chapter we are going to see in detail the characteristics of theme elements in some languages. These languages will constitute our sample. As we will see, the characteristics of this phenomenon cross-linguistically are far from being homogeneous and span from being a matter of well-formedness to denoting semantic and syntactic morphological realisation. The analysis on theme elements is not only influenced by the different characteristics of the phenomenon in the various languages, but also by the approach chosen by the authors of the papers that we are going to see. The languages we will have a closer look at are Catalan, Spanish, West Armenian, Slovenian, Serbo-Croatian and North Saami. All these languages belong to the Indo-European family, beside North Saami which is a Uralic language.

2.1 Romance languages

Theme elements are present throughout the Romance languages. Even though they appear as mere conjugation class markers in these languages, their apparent lack of meaning leaves room for different interpretations. In this section we are going to give an overview of two well established accounts, one on Catalan (Oltra Massuet, 1999) and the other on Spanish (Fábregas, 2017).

The first one depicts theme elements as an expansion of a functional head with no meaning of their own while the second one considers them equal to verbalisers. As

we have said, it is possible to have several interpretations that differ widely from each other even for languages as close as these ones.

2.1.1 Catalan

One of the most important accounts on the topic of theme elements is the one by Oltra Massuet (1999). It stems from the lack of an effective way to describe the behaviour of the verbal theme in Catalan, and more generally in the Romance languages. We are going to see in short the main points of this approach along with a description of the verbal theme in Catalan.

Catalan has three conjugation classes, each determined by a theme vowel: *-a*, *-e* and *-i*. In table 2.1 we have the theme vowels of Catalan and some examples.

TV	Example	(inf.)
-a	cant-a-r	‘to sing’
-e	tém-e-r	‘to fear’
-i	un-i-r	‘to unite’

Table 2.1: Theme elements in Catalan

In the paper they are organised in terms of markedness. Oltra-Massuet reinterprets theme vowels, the phonological exponent of conjugation classes, as bundles of binary features $\pm\alpha$, $\pm\beta$ and $\pm\gamma$ that interact hierarchically with each other according to their degree of markedness. We can see in 15 the hierarchy she proposes.

- (15)
- a. Conjugation I $[-\alpha]$
 - b. Conjugation II $[+\alpha, +\beta]$
 - c. Conjugation IIIa (*unir*) $[+\alpha, -\beta, -\gamma]$
 - d. Conjugation IIIb (*sortir*) $[+\alpha, -\beta, +\gamma]$

The realisation of these values is affected by the context. This means that root allomorphy is determined by the interaction of two elements: the *markedness hierarchy* and the markedness of the environment, determined by the *tense morpheme*.

In Catalan only the first conjugation is fully productive and is thus considered the default one. The first conjugation does not include conjugational information on the roots, so some examples of verbal roots of the first conjugation would be $\sqrt{\text{kant}}$, $\sqrt{\text{plen}}$ and $\sqrt{\text{buid}}$.

On the other hand, the other conjugations take roots which bear some conjugational information, for example $\sqrt{\text{tem}_{+\beta}}$, $\sqrt{\text{un}_{+\alpha}}$ and $\sqrt{\text{surt}_{+\gamma}}$. The third conjugation class is only partially productive for causative deadjectival verbs. The third conjugation is divided in two different ones, with different feature values, because some forms of the present of IIIb show the morpheme $-\text{'}\epsilon\text{f-}$, while the other classes take \emptyset . The second conjugation class is not productive, and most irregular verbs belong to it.

The markedness hierarchy Oltra-Massuet proposes considers the first class unmarked $[-\alpha]$ and the second marked, which is doubly marked in respect to the default class and to the third class $[+\alpha, +\beta]$. As we have seen, the third class is split in two types: verbs like *unir* seem to be the default ones and they assume the values $[+\alpha, -\beta, -\gamma]$ and verbs like *sortir* which are more marked $[+\alpha, -\beta, +\gamma]$. The theme vowel is then chosen through the redundancy rules in 16.

- (16) a. $[\emptyset] \longrightarrow [-\alpha]$
 b. $[+\beta] \longrightarrow [+\alpha]$
 c. $[+\alpha] \longrightarrow [-\beta, -\gamma]$
 d. $[+\gamma] \longrightarrow [+\alpha, -\beta]$

The markedness of the environment, that determines the insertion of the theme vowel as well, is represented by the markedness hierarchy in 17.

- (17) a. $[-\text{Past}]$ ‘unmarked T’
 b. $[+\text{Past}, -\text{Subj}]$ ‘marked T’
 c. $[+\text{Past}, +\text{Subj}]$ ‘doubly marked T’

This approach ultimately describes theme vowels as ‘the realisation of a morphological well-formedness requirement on a syntactic functional head *v*’ (Oltra Massuet, 1999). As we have seen in section 1.4 of Chapter 1, this requirement is

extended to all functional heads, so a verb can have as many theme vowels as it has functional heads.

The author assumes a set of rule to readjust the contexts where theme vowel insertion is not so regular. For example, to account for those contexts where a theme vowel is not realised, Oltra Massuet (1999) assumes that in certain environments the node Tense and the node Agreement are fused together. This special fusion process is only available in an unmarked environment. This is used by the author to explain the case of IIIb conjugation verbs with -'εʃ- in the present tense and in the present subjunctive, to fully account for this conjugation's distribution, she also assumes the presence of an impoverishment rule that deletes the T node (along with the fused node Agr). The fusion of the Tense and Agreement heads in unmarked environments is assumed to account for the behaviour of the future tense as well.

Oltra Massuet (1999) address the nature and function of theme elements. Firstly, she goes against the view of Aronoff (1993) on theme vowels, when he states that 'the function of the theme vowel is to select verbal ending'. While being true for some verbs, this does not hold throughout the Catalan verbal system.

Regarding the nature of theme vowels, Aronoff (1993) states that 'the theme vowel is thus a marker of the category verb' and that it appears after the root or after the affix. Oltra Massuet (1999) implements this statement saying that *v* cannot determine the category verb alone, because the verb is composed of a root and its c-commanding functional heads which are *v*, Tense, Agreement and Mood.

She deems that 'a root becomes verbal when it merges with the verbalizing head *v*, but it does not become a verb unless it is c-commanded by the functional head(s) T/A/M'. Under this analysis, theme elements are 'a morphological requirement on functional morphemes in the verbal environment' (Oltra Massuet, 1999). They are category markers.

Moreover, Oltra Massuet (1999) states that the position of the verbal stress is fully predictable under this analysis. Stress assignment is determined by the application of the following rule in 18.

- (18) Line 0
- a. Each vowel (syllable head) projects an abstract mark.
 - b. The T node projects a right boundary to its left (the left of the phonological exponent realizing T(/AGR)).
 - c. The rightmost element of each constituent on line 0 projects an abstract mark onto line 1.

Roots have no underlying stress and stress is always on the ‘stress-bearing unit’ that precedes Tense.

This approach successfully accounts for the verbal theme behaviour in Catalan and it has been applied to many other languages as we will see later in this chapter. It denies any correlation between theme vowels and semantic or syntactic meaning.

A critique that has been moved against this account is that, although the idea is valid and works well, it requires many *ad hoc* solutions to make everything fit into this description.

An example of this is the hierarchy that the author proposes for theme vowels, which resonates within the description of the verbal domain, but finds no real correspondence in the structure, as we briefly discussed in Chapter 1.

In Manzato (2023, pp. 128–132) we find a few of the critiques that have been moved against the analysis by Oltra-Massuet. The most important problem with this approach is that it depends deeply on the structure of DM, that allows for post-syntactic operations. As pointed out by Collins and Kayne (2020) not everyone agrees in considering the post-syntactic operations of DM legit, arguing that this is a shortcoming of the theory and that it uses strategies of the lexicalist approach. Fábregas (2023), which does not work in DM, does not allow for the presence of a morphological component too. Without it, Oltra-Massuet’s strategy does not hold. A more specific critique that has been moved to this approach, which is not concerned with DM, can be expressed with what is stated in Milosavljević and Arsenijević (2022). The authors note that Oltra-Massuet’s strategy is very good at creating a markedness hierarchy for theme vowels $[\pm\alpha, \pm\beta, \pm\gamma]$ because it eliminates the problem of having a list in the lexicon for each theme. However, the advantage of

this analysis is minimised by the fact that it fails to identify these features outside the pure hierarchy.

2.1.2 Spanish

For Spanish we are going to refer to Fábregas (2017). Catalan, as Spanish, is a Romance Language so its theme vowels behave in a similar way to it. However, Fábregas proposes a very different account. Fábregas' hypothesis is very simple, yet very strong. In his article he states that in neo-constructionist theories, as DM or Nanosyntax which assume a 'single engine hypothesis', opposed to lexicalist theories, theme vowels are inserted post-syntactically and that the verbaliser is the real verb (Halle, Marantz, et al., 1993). So if theme vowels are light verbs and light verbs are verbalisers they are the same object in syntax.

Here the light verb is intended as 'a constituent that licenses the presence of verbal functional structure, such as tense, aspect, mood and subject or object agreement, but does not introduce enough conceptual information to be a predicate by itself' (Fábregas, 2017). The light verb can additionally provide syntactic position in the structure that, however, cannot be interpreted autonomously. In the interpretation of light verb the author agrees with Kayne (2016) in saying that light verbs are difficult to define.

In the example that we report from the paper we can see the difference between a lexicalist approach and a generative approach. In the example 19a the theme vowel signals the conjugation class, and the base is already a verb. On the other hand in 19b the theme vowel is inserted post-syntactically to mark the conjugation class (Fábregas, 2017).

- (19) a. [_v cant - a]
b. [[[_v clas] ific] _v + a]

In order to explain this idea, the author firstly argues that the light verb *ser* in Spanish has no theme vowel, with some lexicalised exceptions. *Ser* is the prototyp-

ical light verb for two reasons, it cannot stand alone as a predicate and it has ‘plain uses as an auxiliary, in particular as a passive auxiliary’ (Fábregas, 2017).

The author also argues that other verbs such as the aspectual auxiliaries *estar* ‘be’, *haber* ‘have’ and *ir* ‘go’ are light verbs and have no theme vowel in the present tense conjugation.

Secondly, Fábregas (2017) argues that verbalisers, that are traditionally considered light verbs, are allomorphs of theme vowels. Verbalisers all contain a theme, as we can see in 20, Fábregas proposes some examples for the following suffixes: *-iza*, *-ifica*, *-ita*, *-ece* and *-ea*.

- (20)
- a. *-iza* autor-iza ‘authorise’
 - b. *-ifica* clas-ifica ‘classify’
 - c. *-ita* deb-ilita ‘debilitate’
 - d. *-ece* palid-ece ‘to become pale’
 - e. *-ea* tont-ea ‘to act silly’

According to him, not only they all contain a theme vowel but they also never appear in light verbs, suggesting that they occupy the same position in the structure.

What we can notice, however, is that the fact that they all contain a theme vowel also means that they co-occur with it, suggesting instead that they are not the same object in the syntax.

Fábregas (2017) argues that verbalisers seem to have an univocal connection to theme vowels, for example the verbaliser *-ifica* could never appear as **-ifice* or **-ifici*, whereas nominalisers and adjectivalisers do not show any univocal correlation of this kind. For the verbaliser *-ifica* there is an even stronger cue to identify it with a light verb, namely that it comes from an actual verb, the Latin ‘*facere*’.

This account is entirely based on the present tense. Regarding the additional theme that emerges in the past, Fábregas (2017) follows Oltra Massuet (1999) in saying that there is more than one position for theme vowels in the Romance languages.

- (21) a. er-a
 was-TV
 ‘It was’
- b. esta-b-a
 be-IMPF.-TV
 ‘It was’

Fábregas (2017) agrees with Oltra-Massuet in saying that Romance languages have more than one position for the theme vowel in the structure of the verb. Building on his approach on the present tense, he considers theme vowels to be a ‘light predicate corresponding to [PST]’ and not a dissociated morpheme with no additional meaning, as he shows in the example 21 reported above. However, this is left open for further investigation. The issue is not addressed even in a more recent work on verbalisers Fábregas (2023).

2.2 West Armenian

For the description of West Armenian we are going to refer to Guekguezian and Dolatian (2021) and Dolatian (2023).

West Armenian, as many other Indo-European languages displays elements that are usually called *theme vowels* in its verbal morphology. Guekguezian and Dolatian (2021) describe these elements of West Armenian. In this language there are three elements, namely *-e-*, *-i-* and *-a-* that are found between the root and the inflection. We can see one example for each class in table 2.2, reported from Guekguezian and Dolatian (2021). In West Armenian’s traditional grammars they form conjugation classes. The class that the theme *-e-* forms is considered the default one and most verbs in West Armenian belong to it.

TV	EXAMPLE	(inf.)
e	ker-e-l	‘to scratch’
i	xos-i-l	‘to speak’
a	gart-a-l	‘to read’

Table 2.2: Theme vowels in West Armenian

Guekguezian and Dolatian (2021) claim that West Armenian theme vowels can be considered ornamental objects adjoined to little *v*, similarly to what is proposed by Oltra Massuet (1999). The authors consider other hypotheses too, namely theme elements being exponents of little *v* or exponents of Voice. Moreover, they consider Fusion between the nodes little *v* and Voice. Later they set them aside because theme vowels ‘cannot be identified solely with either *v* or with Voice’. However, the choice of these theme elements depends on *v* and Voice for many roots. In fact, they show that verb without the theme often result in the corresponding noun or adjective, as we see in table 2.3.

jerk	‘song’	antsrev	‘rain’	xay	‘game’
jerk-e-l	‘to sing’	antsrev-i-l	‘to rain’	xay-a-l	‘to play’
azad	‘free’	nəman	‘similar’	kots	‘closed’
azad-e-l	‘to free’	nəman-i-l	‘to resemble’	kots-e-l	‘to close’

Table 2.3: Theme vowels as sole verbalisers

Concerning Voice, there are some tendencies that we will see later, but there are also many exceptions and for each class it is possible to identify transitive and intransitive verbs, as we see in the table 2.4.

	E-class		I-class		A-class	
Transitive	azad-e-l	‘to free’	naj-i-l	‘to look at’	ay-a-l	‘to grind’
	ned-e-l	‘to throw’	sorv-i-l	‘to learn’	havad-a-l	‘to believe’
Intransitive	hamper-e-l	‘to be patient’	barg-i-l	‘to lie down’	bor-a-l	‘to shout’
	pampas-e-l	‘to gossip’	məs-i-l	‘to feel cold’	mə-a-l	‘to remain’

Table 2.4: Transitive and intransitive members of each class

Guekguezian and Dolatian (2021) show in their paper that the choice of the theme vowel correlates with transitivity in the West Armenian verb. Analysing a wide sample of verbs they show the size of this phenomenon. According to them 87% of the verbs in their sample that belong to the *-e-* conjugation are transitive while the verbs in the other two conjugations *-i-* and *-a-* are mostly intransitive, respectively 91% and 71% of the verbs in these classes are intransitives. Unfortunately, all three conjugation classes have intransitive verbs, as we have seen in the table above,

so the choice of the theme vowels is still arbitrary but this can be considered to be a very strong tendency nonetheless.

The tendency to assign to transitive verbs the theme vowel *-e-* seems even stronger looking at minimal pairs of verb that present the same root and different theme, called equipollent roots in the paper. What Guekguezian and Dolatian (2021) observe is that these roots, can be realised as transitive or intransitive verbs. They take the theme *-e-* in the first case and the theme *-i-* in the second one. This happens in equipollent verbs much more regularly than in other verbs. They argue that ‘default rules insert the *-e-* vowel for transitives and *-i-* for intransitives’ (Guekguezian and Dolatian, 2021). Below, in 22, we can see how they express this rule.

$$(22) \quad \textit{Default insertion rule for equipollent verbs}$$

$$\emptyset \longrightarrow \text{E-CLASS}/\sqrt{\text{---}} \frown v/\textit{Voice}[+\text{TRNS}]$$

$$\text{I-CLASS}/\sqrt{\text{---}} \frown v/\textit{Voice}[-\text{TRNS}]$$

Here below in 23 we report some examples from the paper of equipollent roots and the infinitival verbs that they form.

- (23) a. jep-e-l ‘to cook x’ jep-i-l ‘to be cooked’
 b. mar-e-l ‘to extinguish x’ mar-i-l ‘to be extinguished’
 c. gədr-e-l ‘to cut x’ gədr-i-l ‘to be cut’

Guekguezian and Dolatian (2021) explain this phenomenon assuming that *v* and *Voice* undergo *Fusion* and the transitivity features of *Voice* determine the theme vowel.

Voice is interpreted as a binary feature, meaning that ‘the presence of *Voice* makes a verb transitive, while the absence of *Voice* makes it intransitive’ (Guekguezian and Dolatian, 2021). In short, these roots lack an arbitrary theme vowel so they are assigned the default one for transitive verbs, *-e-*, and the default one for intransitive verbs, *-i-*.

Dolatian (2023) and Guekguezian and Dolatian (2021) both also argue that

theme vowels correlate with Voice. In particular, in these papers the authors try to show it with causative verbs. In West Armenian one way of making a causative verb is morphological, namely by adding a suffix $\widehat{-ts\acute{e}n}$ after the root's theme vowel. The suffix $\widehat{-ts\acute{e}n}$ bears its own theme, $-e-$, because it is derived diachronically from a verb, $\widehat{ts^h}u\widehat{ts^h}an-e-l$ 'to show'. The Modern construction $\sqrt{TV}\widehat{ts\acute{e}}-e-l$ is derived from the compound construction in Classical Armenian $X-a-\widehat{ts^h}u-\widehat{ts^h}an-e-l$. The $-e-$ found in the modern construction is added in the Causative functional projection, linearly adjacent to the theme element of the root.

Concerning the structure of causatives, the authors state that one may expect to find two layers of little v /Voice, each corresponding to a theme, but this is not the case. The motivation for this is that Megerdooonian (2002) and Megerdooonian (2005) demonstrates that causatives in Eastern Armenian are semantically a single event, they are monoclausal. This matches the data of West Armenian. They provide the following example of the verb *sorv-i-l* 'to study' and its corresponding causative *sorv-e- $\widehat{ts\acute{e}n}$ -e-l* 'to teach'. In this case we can also see that causatives of the I-class almost never keep their original theme vowel, $-i-$ becomes $-e-$ for phonological reasons with this particular suffix, this effect is not present in the other theme vowel classes.

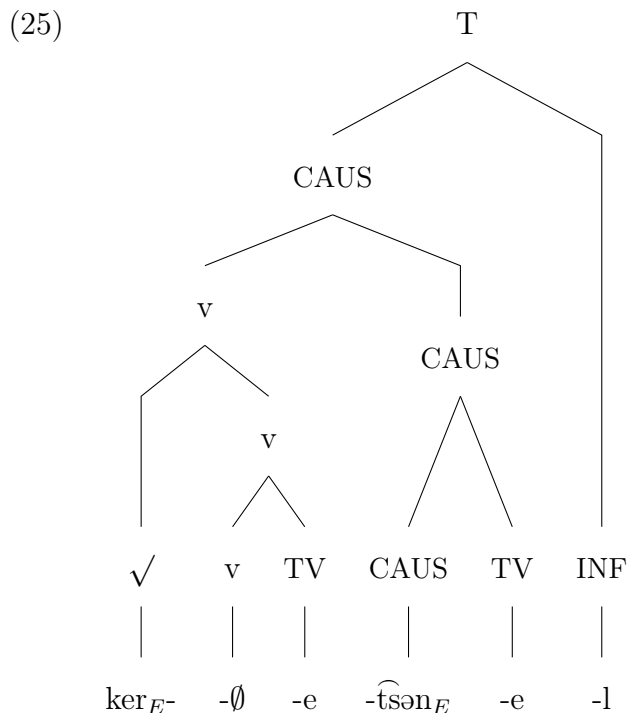
- (24) a. *tun ankleren gə-sorv-i-s*
 you.NOM English INDC-study-TH-PRES2SG
 'You study English'
- b. *jes kezi ankleren gə-sorv-e- $\widehat{ts\acute{e}n}$ -e-m*
 I.NOM you.DAT English INDC-study-TH-CAUS-TH-PRES1SG
 'I teach you English'

In the causativisation the verb becomes ditransitive and the indirect object receives dative marking but it has no agency.

This is why in the structure there can only be one node for Voice.

The authors state that in the structure, while the root's theme vowel is adjoined to little v , the theme vowel of the suffix is adjoined to the Voice head. In denom-

inal causatives the layer little *v* remains covert. The suffix is then expressed by the causative node, as we see in the structure in 25 representing the causative verb derived from *ker-e-l* ‘to scratch’.



Ultimately Guekguezian and Dolatian (2021) argues that theme vowels do correlate strongly with transitivity but they also correlate with Voice and with roots so their choice is still considered arbitrary. In particular, the authors deem that theme elements can be adjoined both to *v* and to Voice, depending on the verb, as we have shortly seen in the example of causatives. In some the theme vowel depends on *Voice*, as we have seen for the equipollent roots. For other verbs it is the root that selects the theme vowel. This is why the choice can only be considered arbitrary, West Armenian verbs do not display a consistent pattern.

2.3 Slavic languages

Theme elements are also present in Slavic languages but, as we will see, in the languages we are going to take into account they appear in a slightly different way as

they do in other languages we have seen so far. In the next section we are going to focus on two Slavic languages, Slovenian (Simonović and Mišmaš, 2022; Simonović and Mišmaš, 2023) and Serbo-Croatian (Milosavljević and Arsenijević, 2022).

2.3.1 Slovenian

Concerning the description of theme vowels in Slovenian we are going to refer to Simonović and Mišmaš (2022) and Simonović and Mišmaš (2023). These two papers address theme vowels' classification in Slovenian as well as some important morphological aspects regarding them. The first point that Simonović and Mišmaš (2022) cover is whether or not theme-vowel classes can be directly linked to certain argument structures.

In order to do this, the paper provides a detailed account of the behaviour of theme vowels in Slovenian. In Slovenian the minimal verb structure includes a root, a theme element and tense and agreement morphology, here we report an example from Simonović and Mišmaš (2022).

- (26) a. trp - e - ti, trp - i - mo
 √ - tv1 - inf, √ - tv2 - prs.1pl
 'to suffer, we suffer'
- b. drž - a - ti, drž - i - mo
 √ - tv1 - inf, √ - tv2 - prs.1pl
 'to hold, we hold'

In this language, verbs tend to have two different theme vowels one for the infinitive and one for the finite tense, in the example 26 they are called tv1 and tv2 in the gloss. To successfully account for every verb occurrence the authors identify ten different theme-vowel combinations: a/a, i/i, a/je, ∅/e, ni/ne, e/i, a/i, a/e, ∅/ne and e/e, as reported in the table 2.5. It is important to know that in Slovenian the classes a/a and i/i are the ones that include most verbs, they are much bigger than the others.

TV	EXAMPLE (inf., pers.1pl., gloss)		
a/a	del-a-ti	del-a-mo	‘work’
i/i	del-i-ti	del-i-mo	‘share’
a/je	or-a-ti	or-je-mo	‘plough’
∅/e	pas-∅-ti	pas-e-mo	‘graze’
ni/ne	mi-ni-ti	mi-ne-mo	‘pass’
e/i	zven-e-ti	zven-i-mo	‘sound’
a/i	bež-a-ti	bež-i-mo	‘flee’
a/e	br-a-ti	ber-e-mo	‘read’
∅/ne	sta-∅-ti	sta-ne-mo	‘cost’
e/e	um-e-ti	um-e-mo	‘know’

Table 2.5: Theme elements in Slovenian

Traditional grammars and more recent accounts choose to classify theme elements in Slovenian in different ways. The authors consider this to be the best system to describe most verbs without being redundant. The theme combinations are assumed to be encoded in each verb.

Slovenian verbs are ‘typically assumed not to categorically correlate with argument structure’ (Simonović and Mišmaš, 2022), because as we can see in the example 27, from the paper, a different number of arguments can be assigned to verbs from the same class.

- (27) a. Družina joka. (jok-a-ti, jok-a-mo) 1 argument
family cries (to cry, we cry)
‘The family is crying.’
- b. Tim kuha kosilo. (kuh-a-ti, kuh-a-mo) 2 arguments
Tim cooks lunch. (to cook, we cook)
‘Tim is cooking lunch.’
- c. Ana donira denar živalim. (donir-a-ti, donir-a-mo) 3 arguments
Ana donates money animals (to donate, we donate)
‘Ana is donating money to the animals.’

In this paper, the authors take a significant sample of verbs and use the L-participle as a test to detect the unaccusativity of these verbs. The reason for this is that in Slovenian only L-participles of unaccusative verbs can appear in reduced relative clauses, whereas the transitive verbs take passive (E)N/T-participles in reduced relative clauses and the unergative verbs do not allow any participle in

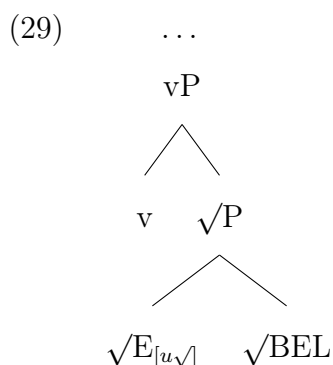
tion and the verb obtained can become imperfective by suffixation. While the first operation does not affect the theme element, the second one does, and if the test were to work on imperfective forms this would interfere with the data on theme vowel classes.

The unaccusative verbs from the sample were also tested for perfectivity and telicity and out of 111 verbs, 108 were both perfect and telic. Following this observation, the authors find a strong relation between unaccusativity and telicity, this has also been observed other times in the literature, in particular they report (Van Hout, 2004), but it is a topic that needs further exploration.

Simonović and Mišmaš (2022) account for the special behaviour of the theme vowel class e/i, also in relation to stress, as a piece of evidence demonstrating that it is not a theme vowel class but rather a transitive root. Let us see what this means. In 97% of the occurrences of the verbs in the sample, belonging to the e/i class, the theme vowel is stressed both in the infinitive and in the finite form. This class presents almost a uniform behaviour in respect to stress.

The Slovenian verb can bear the accent on the theme vowel or on the syllable preceding it. Building on the notion that stress in Slovenian can be considered a two-way system with some limits. Referring to Marvin (2002) the authors reckon that if stress has to be assigned in the first cycle ‘a theme vowel can only be stressed when it is in the spellout domain of the root, whereas unstressed theme vowels are outside of the spellout domain of the root’ (Simonović and Mišmaš, 2022).

To advance this hypothesis means that the e/i class does not fit in the ornamental description of theme vowels (Oltra Massuet, 1999). The stress pattern and the shape of the roots of this class indicate that this theme should be merged with a root. In the structure this means that \sqrt{E} is a root that ‘cannot project at a phrasal level without a complement’. Simonović and Mišmaš (2022) assume that \sqrt{E} comes with an uninterpretable feature called $[u\sqrt{E}]$ that must be checked by a complement. This leads \sqrt{E} to have a root selecting behaviour. We can see the structure of the inchoative verb ‘bel-e-ti’ (to whiten) in the structure in 29 below.



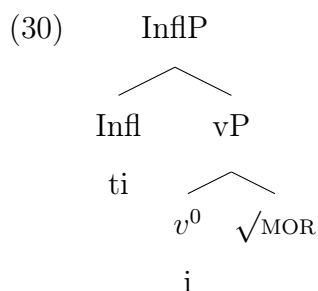
In this paper, the authors claim a strong bond among theme vowels, stress and argument structure. In doing this they reckon that the class *e/i* stands out as it behaves differently and can therefore be considered a derivational affix, or better a root as for the reanalysis of suffixes in DM by Lowenstamm (2010). This claim stands on two notions, the first one is that in Distributed Morphology the root does not carry information about the category, but the category is determined by a categorial head (Marantz, 1997).

The second notion comes from a proposal by Lowenstamm (2010) and it says that derivational affixes are bound roots that can select both other roots and categories. Derivational affixes as other roots ‘have semantic and/or phonological content, while categorial heads are typically phonologically empty (since either all or most ‘traditional’ nominalisers, verbalisers and adjectivisers are now viewed as roots)’ (Simonović and Mišmaš, 2022).

In the paper ‘Theme-vowel class indeterminacy and root allomorphy in Slovenian’ by Simonović and Mišmaš (2023) another issue about Slovenian theme vowels is tackled. The authors turn to analyse the problem of root allomorphy in Slovenian, in particular, they take into account verbs with a different root for the non-finite verb form and for the finite verb form. In order to do so, they make a deep description of the Slovenian verb.

The Slovenian verb structure plays a crucial role in this paper, especially in its relation to theme vowels, that they assume to be placed in the verbal structure between the root and the inflectional ending. In this paper the authors follow Quaglia et al. (2022) in saying that theme vowels are the spellout of the verbalizing head v^0 . For

example, they show the tree of the verb mo'r-i-ti 'to murder'.



As we have seen before (Simonović and Mišmaš, 2022), theme vowel classes in Slovenian need to be described by pairs of theme vowels, the one that surfaces in the infinite form and the one that surfaces in the finite form. On the nature of theme vowels Simonović and Mišmaš (2023) follow the view that they are to be treated as verbalisers, adjoined to the functional head *little v*, following Fábregas (2017), Grestenberger (2022) and Simonović and Mišmaš (2022).

As we have seen in Chapter 1, the theme vowel indeterminacy plays a crucial role in this paper, Simonović and Mišmaš (2023) focus on those verbs that present root allomorphy, like those in the examples 31 and 32.

- (31) a. 'kl -a -ti, 'kol -je -mo (a/je)
 $\sqrt{\text{-TV -INF}}, \sqrt{\text{-TV -PRS.1PL}}$
- b. 'kl -a -ti, 'kolj -e -mo (a/e)
 $\sqrt{\text{-TV -INF}}, \sqrt{\text{-TV -PRS.1PL}}$
- c. 'kla - \emptyset -ti, 'kolj -e -mo (\emptyset /e)
 $\sqrt{\text{-TV -INF}}, \sqrt{\text{-TV -PRS.1PL}}$
 'to slaughter, we slaughter'
- (32) a. 'wz -e -ti, 'wza -e -mo (e/e)
 $\sqrt{\text{-TV -INF}}, \sqrt{\text{-TV -PRS.1PL}}$
- b. 'wze - \emptyset -ti, 'wza -e -mo (\emptyset /e)
 $\sqrt{\text{-TV -INF}}, \sqrt{\text{-TV -PRS.1PL}}$
 'to take, we take'

In the example 31a, b and c we can see the different parsings that can be made of the same verb, in 31a the theme class is a/je, in 31b it is a/e and in 31c it is \emptyset /e.

The same goes for the verb in 32 where the example 32a presents the theme *e/e* while the example 32b shows \emptyset/e .

Simonović and Mišmaš (2023) state that this problem of parsing is impossible to solve, at the moment, without choosing an arbitrary guideline. The guideline that they follow in determining to which theme vowel class a verb belongs to is ‘if it looks like a theme vowel, it is a theme vowel’. This idea is proposed for Italian by Calabrese (2015). They adopt it to minimise the cases of root allomorphy. In Slovenian this would bring up more issues so they implement it by saying that they analyse theme vowels as being ‘maximally big and roots as being maximally small’ (Simonović and Mišmaš, 2023).

What Simonović and Mišmaš (2023) find is that four classes never host unpredictable root allomorphy: the classes *a/a*, *i/i*, *e/i* and *ni/ne*. The theme vowel classes *a/a* and *i/i* are the largest classes and are often considered the default ones for Slovenian verbs. The theme vowel classes *e/i* and *ni/ne* stand out because they disassociate from the view that theme vowels do not convey argumental structure or semantic meaning. What the authors show is that the class *e/i* correlates with inchoative verbs, while the class *ni/ne* seems to correlate with semelfactive verbs. This last point is not the main topic of the article so it is not further explored, but it seems reasonable to think that what the authors are proposing is to consider these two classes, as derivational suffixes rather than theme vowels as well, as we have seen in Simonović and Mišmaš (2022).

2.3.2 Serbo-Croatian

We now turn to Milosavljević and Arsenijević, 2022 for a description of the behaviour of theme vowels in Serbo-Croatian. As for Slovenian, Serbo-Croatian theme vowel classes are determined by pairs of theme vowels, referred to as infinitive vowel and present stem vowel. They form the infinitival stem and the present stem. The first one is used to form the infinitive, the aorist, the active participle, the past adverbial participle and for some verbs the imperfectum and/or the passive participle. The second one forms the present, the imperative, the present adverbial participle and

for some verbs the imperfectum and/or the passive participle. As we see from table 2.6, there are eight different theme vowel classes in Serbo-Croatian: a/e, \emptyset /e, i/i, e/i, a/i, e/e, a/je and a/a.

TV	EXAMPLE (inf., pers.1sg., gloss)		
a/e	greb-a-ti	greb-e-m	‘sretch’
\emptyset /e	bra-ti	ber-e-m	‘pick’
i/i	ljub-i-ti	ljub-i-m	‘kiss’
e/i	vol-e-ti	vol-e-m	‘love’
a/i	trč-a-ti	trč-i-m	‘run’
e/e	sm-e-ti	sm-e-m	‘dare’
a/je	pis-a-ti	pis-je-m	‘write’
a/a	pad-a-ti	pad-a-m	‘fall’

Table 2.6: Theme vowels in Serbo-Croatian

Milosavljević and Arsenijević (2022) investigate the two largest theme vowel classes in Serbo-Croatian, to verify if theme elements ‘are markedness-based realizations of the same syntactic feature specification’ or if different theme elements carry different syntactic features.

Their proposal’s aim is to avoid the many problems of an account where theme vowels are purely ornamental, as well as the issues that arise in stating that they carry morphosyntactic content. They consider theme elements to have syntactic significance and to be determined by a procedure that operates on degrees of markedness. This procedure ‘considers a set of relevant properties of the local syntactic and phonological context of the ThV, each of which has a range of potential values which are projected on a scale of markedness, and are computed into the aggregate degree of markedness of the verb’ (Milosavljević and Arsenijević, 2022).

This aggregate degree then determines which theme element has to be chosen. The authors build a markedness scale on the semantic aspects of boundness and scalarity to evaluate the two theme-vowel classes a/a and i/i, the largest and most productive classes in Serbo-Croatian.

Under this analysis, all theme vowels carry the verbal category and they ‘match context of various degree of markedness’. What they do is examine the change in the meaning of roots that are possible with both themes, examining minimal pairs

allows for the verbs to be in the same phonological context. Their view is that theme elements are the result of a range of constraints.

They find that the i/i theme is overall marked and the a/a theme is unmarked, but they do not express the features of boundness (perfectivity) and scalarity in a linear way.

- | | | |
|------|-------------------------------------------------------------|-------------------------------------------------|
| (33) | a. s-prem-i-ti
with-prepare-TV-INF
'prepare' (perf) | c. bac-i-ti
throw-TV-INF
'throw' (perf) |
| | b. s-prem-a-ti
with-prepare-TV-INF
'prepare' (imperf) | d. bac-a-ti
throw-TV-INF
'throw' (imperf) |

In evaluating these minimal pairs they find that they pattern in three ways. They divide the roots in three types, based on how they behave. Type one verbs are perfective (bounded) with the theme i/i and imperfective (unbounded) when they display the theme a/a, as in the verbs from the example 33.

The verbs of the second type combine with the themes \emptyset/e , i/i and a/a. Verbs with \emptyset/e , like those in 34a, are perfective, those with i/i are secondary imperfectives, hence unbounded. The verbs that have a/a, like the example in 34c are also imperfective and unbounded but they have 'a meaning that involves unstructured pluractionality and/or lack of scalarity'. Milosavljević and Arsenijević (2022) further proposes that, the prefix, required in this kind of triples by the verbs with the theme \emptyset/e , could indicate the possibility that i/i and a/a are added on top of \emptyset/e . Their function would be to 'neutralise the bounded interpretation of the original theme vowel'. i/i adding scalarity and a/a not. The authors leave this matter open for further investigations.

- | | |
|------|--------------------------------------------------------------------|
| (34) | a. *(do-)nes- \emptyset -ti
to-carry-TV-INF
'bring' (perf) |
|------|--------------------------------------------------------------------|

- b. (do-)nos-i-ti
to-carry-TV-INF
'bring/carry' (imperf)

- c. (*do-)nos-a-ti
to-carry-TV-INF
'carry around' (imperf)

The third type of verbs takes the theme i/i and a/a. Both verbs are imperfective and unbounded but the one with the theme a/a is also non-scalar. The verb in 35a is argued to be scalar, opposed to the unergative manner verbs in 35c and 35d which are non-scalar. The examples in 35d and 35f are strictly non-scalar and they are less directed or pluractional. The authors 'take that non-directedness and pluractionality emerge as prototypical non-scalar interpretations'.

- | | | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (35) | <ul style="list-style-type: none"> a. jad-i-ti
misery-TV-INF
'grieve (someone)'
 b. jad-a-ti
misery-TV-INF
'lament' (repeated actions)
 c. trag-i-ti
trace-TV-INF
'search, request' (directed action) | <ul style="list-style-type: none"> d. trag-a-ti
trace-TV-INF
'be on the search' (non-linear)
 e. gnjur-i-ti
dive-TV-INF
'dive' (singular, directed motion)
 f. gnjur-a-ti
dive-TV-INF
'dive' (repeated actions) |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

In all of these three types that we have seen in the examples 33, 34, 35, the theme element a/a, always correlates with verbs that are unbounded in relation to aspect. The theme a/a in two out of three contrasts appears with non-scalar verbs. On the other hand, the theme i/i appears two times unbounded and once bounded. The strong hypothesis proposed by the paper is that a/a is unspecified while i/i carries

the feature [SCALE]. Moreover, when the verb is bounded it also carries the feature of scalarity.

However, it must be considered that in verbs that do not share the same phonological content this link is weaker and this hypothesis faces many hurdles when applied to all Serbo-Croatian verbs. One simple example is that it wrongly predicts the theme i/i to never occur in non-scalar verbs.

The data reflect the fact that these are only tendencies and it would be impossible to support a strong hypothesis based on feature specification as saying that the theme i/i always correlates with scalarity or boundness. Milosavljević and Arsenijević, 2022 state that the best way to classify theme vowel classes in Serbo-Croatian is with markedness hierarchies. This weaker approach is necessary in order to frame correctly the tendential correlation between aspectual properties and theme vowel classes. This means that in Serbo-Croatian the themes carry only the features of [v]. The authors think that, for a limited set of roots, the different realisations of theme vowels can be interpreted idiomatically. Another option is that these realisations are mapped post-syntactically by markedness hierarchies of the context.

2.4 North Saami

Unlike all the languages we have seen so far, North Saami is a Uralic language and, even though it does not belong to the Indo-European family, this language shows an interesting morphological element, called *latus*, that correspond to the nucleus of the second syllable in a word. Julien (2015) in her analysis calls the *latus* a theme vowel, and proceeds in her analysis treating it as such.

Before proceeding, we need a short description of the verb in North Saami, to better understand how the *latus* can be assimilated to theme elements. Verbs in North Saami are of three types and they are distinguished by their infinitive forms.

According to Laakso, Skribnik, et al. (2022) the first type, called vowel stem verbs or gradating verbs, usually have an even number of syllables, these verbs in the infinite form end in *-at*, *-it* or *-ut*, and the vowel preceding *-t* is generally considered part

of the stem. Some examples of this verb type are ‘geahčč-at’ (to look), ‘oasti-t’ (to buy) and ‘goarru-t’ (to sew).

These verbs have consonant gradation in the last syllable of the foot (a group of syllables, where the first one is stressed), which means that the consonants in this position can assume a strong form or a weak form depending on the verb inflection. The second type of verbs in North Saami are called consonant stem verbs, their infinite form has an odd number of syllables and the infinitive end is *-it*. As we can see in the following examples, the stem ends with a consonant: ‘sàmàst-it’ (to speak Saami), ‘rehkenastal-it’ (to try to calculate).

The third type of verbs is called contracted verbs or *j*-stem verbs, the infinitive form ends in *-àt*, *-et* or *-ot*. These verbs have an even number of syllables and two stems, one that ends in a vowel and behaves like the first group and one that ends in *-j* and behaves like the second group, depending on the inflected form of the verb. For example the verb ‘čilget’ (to explain) has two stems one is ‘čilge-’ and the other is ‘čilgej-’. In table 2.7 we have a schematic description of theme elements in North Saami. For a more detailed description of the verb in North Saami see UiT The Arctic University of Norway (2008).

Verb class	Theme elements
Vowel stem verbs	-a-
	-i-
	-u-
Consonant stem verbs	-i-
Contracted verbs	-à-
	-e-
	-o-

Table 2.7: Theme elements in North Saami

The theme elements in North Saami are quite interesting as these morphemes show a correlation to different semantic meanings. A good description on how they work in this language can be found in the account by Julien (2015). This paper also shows how they correlate with inceptive, semelfactive and passive verbs. Firstly, it is important to remark that in North Saami a theme element is present at the end of verbs, nouns and adjectives. In particular in the verb we can see from the

example that it stands between the root (which always has a consonantal coda) and the suffix, in this case the infinitival ending *-t*.

- (36) Verb (inf.), Noun
- a. *atnit* ‘to use’, *atnu* ‘use’
 - b. *diehtit* ‘to know’, *diehtu* ‘knowledge’
 - c. *johtit* ‘to travel’, *johtu* ‘movement’

- (37) Verb (inf.), Noun
- a. *jurrat* ‘to make noise, hum ’ *jurra* ‘noise, hum’
 - b. *murret* ‘to chop wood’ *muorra* ‘wood’
 - c. *dulkot* ‘to interpret’ *dulka* ‘interpreter’

In the example 36 we see some examples of verbs of the first type, the vowel stem verbs, while in the example 37 we see verbs from the consonant stem group. In the first case, the names are derived with the suffix *-u*, and for the second group with the suffix *-a*.

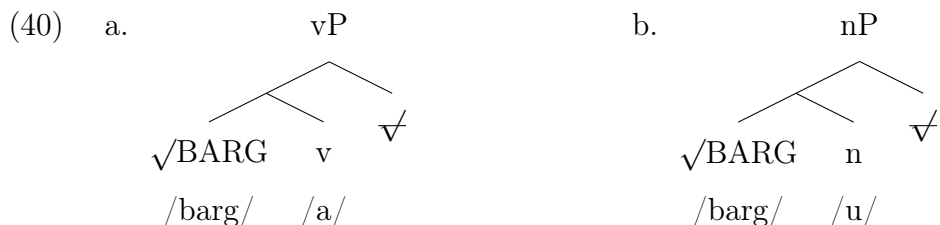
The ending *-u-* and *-a-* in nouns cannot be interpreted as nominalisers, as many names display it even when they are not related to verbs. As stated by Julien (2015) in the examples 38 and 39:

- (38) a. *dàllu* ‘farm, house’
b. *girku* ‘church’
c. *mànnu* ‘moon, month’

- (39) a. *àrba* ‘scar’
b. *giella* ‘language’
c. *juvla* ‘wheel’

Julien (2015) shows that even though in DM theme vowels are indicators of conjugational class, added post syntactically to meet a well-formedness requirement (Halle, Marantz, et al., 1993; Oltra Massuet, 1999), in North Saami theme elements are a combination of conjugational class markers and an indicator of whether the

root will be a noun or a verb. The author indicates North Saami theme vowels to be realisations of the v head or of the n head, as we see in 40.



The trees in 40 show the structure involved in the formation for the stem of the verb *bargat* ‘to work’ in the infinitival form and of the noun *bargu* ‘work’. It should be noted that the theme vowels that form verbs in North Saami do not also form nouns. Moreover, nouns do take a theme vowel but this is not the only way to form one. As for verbs, they follow the pattern that we have seen above in selecting their theme.

While inflection is crucial in the verb, according to Julien (2015) ‘there are cases in North Sámi where a change of theme vowel is the only signal that a word derivation has taken place’. In North Saami the first two types of verbs, vowel stem verbs and consonant stem verbs, interact with inceptive, causative and passive verbs. Inceptive verbs mark the beginning of an event and they can be formed from stative verbs as well as from activity verbs. Firstly, Julien (2015) shows that inceptives in this language can be formed by two different means. If they are formed by means of an auxiliary, they are called high inceptives as the ones in the example 41. These verbs in North Saami have an agentive subject.

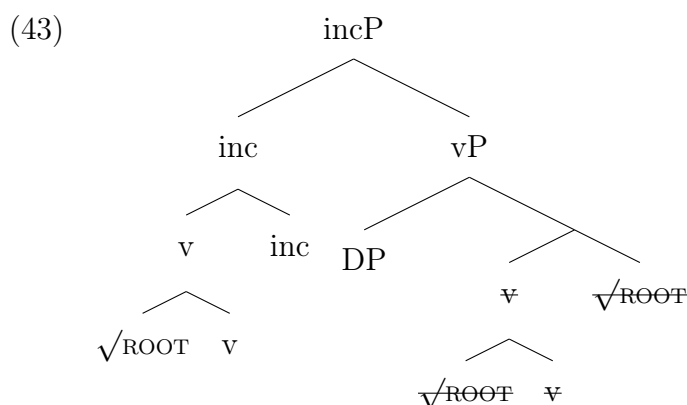
- (41) a. Peter àlgii bargat juovlamànus
 Peter begin_{PST.3SG} work_{INF}. December_{LOC}.
 ‘Peter started to work in December’

On the other hand, morphological inceptives, called low inceptives, have no agentive subject. They are derived from stative verbs (examples 42a and 42b) and activity verbs (examples 42c and 42d) with a change in the theme vowel. While the underived roots belong to the even-syllabled class, the low inceptive verbs belong to

the contracted class. The changes in the consonants are due to consonant gradation.

- (42) a. goallut ‘feel cold’ > goallát ‘begin to feel cold’
 b. gohci ‘be awake’ > gohccát ‘wake up’
 c. johtit ‘to travel’ > johttát ‘begin to travel’
 d. orrut ‘stay’ > orrot ‘settle down’

For these verbs, Julien (2015) as well as Julien (2013) proposes that stative verbs are formed combining the root with a stative verbaliser while activity verbs are formed combining the root with a processual verbaliser. Subsequently, low inceptives are formed adding an inceptive projection on top of the VP structure, she proposes the following tree.

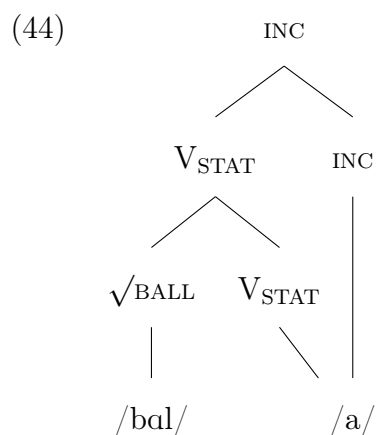


In the syntactic structure for inceptive verbs Julien (2015) proposes that this verb is formed by ‘successive cyclic head movement of the root to the verbaliser, and of the root and verbaliser to the inceptive head’. The subject is taken to be the specifier of *v*, while the inflectional part of the verb is higher up in the structure. Theme vowels realise the inceptive head and they are linearly adjacent to the root, since the intervening head (the verbaliser) has no phonological representation. The author refers to Embick (2010) and Embick (2013) in saying that inceptive aspectual heads should be non-cyclic, like tense heads and that inceptive markers should be able to make reference to the root.

To explain the behaviour of theme elements, Julien (2015) postulates that ‘the

stative verbaliser and the inceptive head are spelled out together by one single vocabulary item’. In DM this would be an example of *Fusion*, but the author deems this concept to be problematic because it would mean that ‘the syntax can tailor the syntactic structure to fit the contents of the vocabulary’. Instead of fusion, she proposes the concept of *Spanning* which assumes that ‘two or more nodes can be spelled out by one singular vocabulary item, without any fusion operation preceding vocabulary insertion’. Svenonius (2012) on spanning says that it is possible when the heads involved belong to the same functional sequence and are in complement relation with each other.

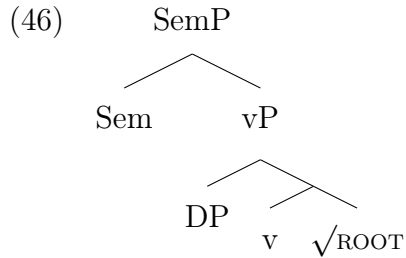
In North Saami, low inceptives spanning would involve the stative verbaliser and the inceptive head. The author explains that the item that spells out both nodes is always the one that wins because it is the more specific one. In the example 44 we see the representation of the inceptive stem of the verb *ballàt* ‘to begin to fear’.



The second kind of verbs that present a distinction based on the theme element are the semelfactive verbs. These verbs, which can be described as dynamic, punctual and atelic, can be derived in North Saami from continuative verbs by changing only the theme vowel and maintaining the same root. These shift conjugation class from the first one to the second one too. The verbs in the example 45 are in the infinitival form *-(u/e)t*.

- (45) a. čuorvut ‘to shout (repeatedly)’ > čurvet ‘to shout once’
 b. diškut ‘to splash (repeatedly)’ > dišket ‘to splash once’

As for the inceptive verbs, Julien (2015) proposes a tree with a semelfactive head added outside of vP, but in this case she shows the configuration before head movement of the root to v and Sem.



Passive verbs, are the third group of verbs in North Saami that show an alteration in theme elements. For monosyllabic verbs with the themes /at/, /it/ and /ut/, the passive can be formed in two ways, the first one is by changing the theme vowel to /o/, while the second is formed adding the suffix -juvv-. These two methods are used interchangeably.

- (47)
- a. borrat ‘eat’ > borrot, borrojuvvot ‘be eaten’
 - b. addit ‘give’ > addot, addojuvvot ‘be given’
 - c. goarrut ‘sew’ > gorrot, gorrojuvvot ‘be sewn’

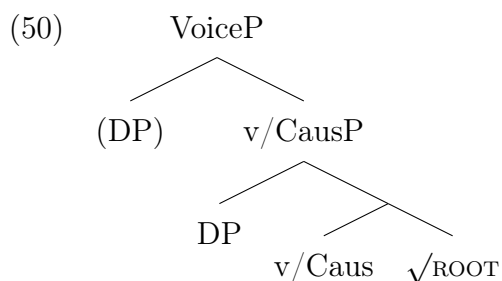
For the verbs with /a/, /e/ and /o/ as theme vowels, the only way to form a passive in adding the suffix -juvv-, as we see in the example 48.

- (48) Active (inf.), Passive
- a. sahàt ‘to saw’ sahàjuvvot ‘be sawn’
 - b. čorget ‘make clean, tidy’ čorgejuvvot ‘be cleaned, tidied’
 - c. dulkot ‘interpret’ dulkojuvvot ‘be interpreted’

For the consonant final stem verbs, the passive is made adding the suffix -uvvo-, as we see in the example 49.

- (49) Active (inf.), Passive
- a. buoridit ‘improve’ buoriduvvot ‘be improved’
- b. mitalit ‘tell’ mitaluvvot ‘be told’

These verbs are inflected for Tense and Agreement outside the passive marker. So if we take the passive marker to be the realisation of the Voice head [passive], Voice and Caus are separated in North Saami. Caus and Voice are not bundled in this language. Julien (2015) states that ‘these verbs involve a root-selecting causative’ and proposes the structure in 50 for the passive verbs.



The formation of inceptive, semelfactive and passive verbs brings the author to assume that conjugation class membership is not determined by the root in North Saami. The verbs we have seen so far with a change in theme vowel from the vowel stem group pass to the contracted group, so Julien (2015) states that ‘it cannot hold for North Saami that conjugation class membership is marked as a diacritic feature on the root’. The same root can appear in different verbs, in different conjugation classes.

2.5 Conclusion

In conclusion, we have seen that it is possible to describe a similar phenomenon from many different viewpoints. These different approaches have some points in common too. The authors find that the distribution of theme elements depends on the syntactic structure and its constraints, even though they approach this view in different ways and to different extents.

In these languages, the theme elements are interpreted as being either verbalisers or

exponents of *v*. They are sensitive to their surrounding structure and they tend to correlate with argument structure, Voice and Aspect.

These approaches highlight how the syntactic structure is not perfectly mirrored in the morphological structure and adopt different strategies of DM to explain this mismatch. The papers that we have seen try to provide an explanation for the behaviour of theme vowels in order to make their distribution predictable. For example, we have seen that sometimes they are spelled out together with other functional nodes, as in the case of North Saami spanning or they follow other constraints as the markedness of the context as in the case of Slavic languages.

For sure, some of these approaches take a more comprehensive look at theme vowels, while others aim to capture their behaviour more closely and in detail. To sum everything up we can say that the most conservative account, that regards theme vowels as conjugation markers, is the one on Catalan (Oltra Massuet, 1999). On the other hand, the approach that makes the strongest case is the one on Spanish (Fábregas, 2017) along with the one on North Saami (Julien, 2015). Most of the other accounts stay in the middle, recognising the role of theme vowels and their correlations to the syntactic structure but also underlying how this is only a trend and not a consistent pattern.

In the next chapter we are going to attempt to address some issues like which are the functional properties that are more often associated to the theme vowels, which are the theoretical constraints that regulate theme vowel insertion and when a span of $\text{AspP} < \text{Voice} < v$ requires the expression of a theme vowel.

Chapter 3

Discussion

3.1 Introduction

From all the data that we collected in Chapter 2 it is clear that what lacks is a comprehensive approach with the right tools to hold this heterogeneous phenomenon together. Each of the analysis in Chapter 2 seems tailored to fit the languages taken into account, but what emerges putting them all together is that there are common points, from which it is possible to start a more comprehensive approach.

What we are going to do in this chapter is gather the most important characteristics of theme elements as well as the theoretical tools to frame them. In the first part of this chapter we are going to see some trends in the literature and see how they can be compatible with the issue at hand. In the second part, we are going to compare these approaches to our languages from Chapter 2.

3.2 Common points

In this section we are going to consider the trends of the literature on this issue. Firstly we can say that, from the different approaches that we have seen in of Chapter 2, in the literature there are two main trends. The first and probably most prominent one is the approach proposed by Oltra Massuet (1999). As we have seen, there are many authors that agree with her account of theme elements. However, it is important to remember that her analysis fits best Romance languages.

As we mentioned in Chapter 1, the solution adopted by Oltra Massuet (1999) is very specific to Catalan and in general it works well in the Romance language, where there is no semantic meaning that can be synchronically attributed to theme elements.

The other papers from Chapter 2 that adopt the same theoretical approach are: Simonović and Mišmaš (2022) and Simonović and Mišmaš (2023) for Slovenian, and Dolatian (2023) and Guekguezian and Dolatian (2021) for West Armenian. However, to consider the theme element the fulfilment of a well-formedness requirement on a functional head, as Oltra-Massuet does, does not provide a sufficient explanation for this heterogeneous phenomenon in every language that presents it. Let us see what strategies are adopted by other scholars to overcome this issue.

Simonović and Mišmaš (2022) and Simonović and Mišmaš (2023) for Slovenian, recognise that not all theme elements in this language fit this view, but they still use this framework because it does provide a valid viewpoint on the matter. For example, we can see how this is a problem, when they consider excluding *e/i* from theme elements because it does not correspond to the description of Oltra Massuet (1999). The problem with this solution that they adopt is that it provides a split view on the same matter.

As we have seen, in Slovenian there are strong tendencies which indicate that it is difficult to dismiss theme elements in this language as semantically and syntactically empty. On the other hand, it is only possible to talk about tendencies, as the correlations between theme elements and syntactic structure are not present in the entire verbal system regularly.

In other cases, as we have seen for North Saami in Julien (2015), it is possible to see and consider more clearly that theme vowels cannot be considered ornamental as they convey meaning and are part of the syntactic structure of some verb. In North Saami theme vowels build concrete opposition in the language among verbs.

On the other hand, other scholars go in the opposite direction of the thread by Oltra Massuet (1999). To this trend belong accounts like the one by Fábregas

(2017) and Grestenberger (2022). Fábregas (2017) for example, sustains the hypothesis that theme elements are verbalisers. For Ancient Greek Grestenberger (2022) follows this path too but from a diachronic perspective.

More generally we can say that in the framing of theme elements there are still some open questions that need to be addressed. The first one is if it is correct to consider them as a whole even if they clearly display different features, if any, and cover different parts of the syntactic structure. An open question to address is which part of the structure theme vowel usually correlate to, and which are the relations that the theme holds with the adjacent parts of it. It is still not clear which ones are the theoretical mechanism involved in the selection of theme vowels. Another empirical point to explore is whether or not it is possible to account for theme vowels properly without considering their diachrony.

3.3 Thematic elements and diachronic change

From the papers in Chapter 2 we see that it is impossible to frame theme elements, that exist in so many different forms, with a single approach. With these considerations alone, we can already see that there are two different possibilities of realisation for theme elements. The first realisation, the one in which theme elements have lost any sort of meaning and are strictly ornamental, this first one can be considered *weak*. The second case, is the one of Slovenian for example, in which some theme elements are empty and some carry some meaning, can be considered *mixed*.

To frame this complex situation, we are going to rely on some trends in the literature that can help in making the situation clearer. In particular, we would like to consider Bertocci (2024), and what he proposes to account for all the different theme elements. This paper works within a diachronic perspective, but we deem that this would also work in synchrony.

Bertocci (2024) works on the procedure that is behind the change of theme elements from Latin to Italian, from the perspective of the two most important trends in the

literature in synchrony studies, namely the *ornamental* point of view and the *verbalisers* point of view.

The author proposes firstly that theme elements were present in Latin in a *strong* form with specific morphosyntactic functions. Subsequently theme elements assumed a *weak* form in the Proto-Romance languages, in which they are ornamental and have no function.

Firstly the function of theme elements in Latin is discussed, what emerges is that \bar{a} is a functional morpheme. Bertocci (2024) focuses on the structural differences between the class \bar{a} (and to some extent this is valid also for some verbs with \bar{e} and \bar{i}) and the theme element of the third conjugation: \bar{i}/\bar{u} . The author states that these theme vowels occupy different positions in the word structure and that they are selected in different contexts. \bar{i}/\bar{u} is the theme vowel of the third conjugation in Latin. Some properties of this conjugation class indicate that it belongs to the domain of inflection. Below, we find the characteristics of this theme vowel in Latin:

1. it always comes before the inflectional morphemes
2. it is present only in the present tense and in the future tense, meaning that it correlates with Tense and Aspect.
3. it is ungrammatical before *Aktionsart* morphemes ($-j$, $-n$, $-sc$), but it can follow them.
4. it requires a present tense root inherited (e.g. *ferunt*, *ducunt*) or *Aktionsart* morphemes.

On the other hand \bar{a} is part of the domain of the verbal action. The characteristics of this theme element, listed in Bertocci (2024) are:

1. it is almost never placed after *Aktionsart* morphemes
2. it has some argumental constraints, it is preferred with secondary verbs or derivative structures.
3. it is not always contiguous to inflectional morphemes

What emerges clearly from the different characteristics of $-\bar{a}$ and $-i/-u$ is that they have different structures. Therefore, Latin did not have an homogeneous theme vowel system. In other words, they are exponents of different parts of the structure, as we see in 51 reported here below from Bertocci (2024).

- (51) a. $/\bar{a}/ \Leftrightarrow_{\text{voice P}} [+ \text{voice}_v [+ v$
 b. $/i, u/ \Leftrightarrow_{\text{TP}} [-\text{past}_{\text{AspP}} [+/-\text{perf}$

The author notices that these contrasts are not present in the theme vowels of the Romance languages, where the theme vowels are allomorphs and they all occupy the same portion of the structure. Bertocci (2024) investigates what brought from the Latin theme vowels to the ones of Italian. Since there is no phonological change, we must look at the morphosyntactic structure. The hypothesis is that the constraints that regulated theme vowels in Latin, lack in the Italian verbal system, causing theme vowels to be neutralised. What is necessary to do then, is to look at the changes in the parts of the structure that surround theme elements, instead of looking for changes in the themes.

In the development of Latin the contexts that are decisive for the theme vowels insertion are weakened and become more ambiguous. As a result, all theme vowels seem to be competing for the same position, namely the post-radical one, without the interference of other constraints or features.

In this diachronic development, theme vowels in the beginning were sensitive to functional morphemes, while at the end they are only sensitive to lexical ones. This process could be cautiously considered the opposite of a grammaticalisation as functional elements become lexical ones.

According to Bertocci (2024) this is how the theme elements of Latin became empty functional elements in Italian, and in languages where they can only be considered markers of lexical categories. So from a *mixed* theme vowel system, where some theme vowels hold functional meaning, the language developed into a system where theme elements only represent a morphological requirement.

For simplicity, we could call this second system, the one of Italian and Romance languages in general, *weak*.

This paper seems important for our discussion for two reasons. The first and most important one is the idea that the context and the constraints that regulate the insertion of theme elements, could be more important than the theme elements themselves, in determining their nature. The second reason is that what we are probably observing in synchrony are all the stages of this development in different languages.

3.4 Theory and Language sample

What we are going to do next, is try to find if, in the language that we have seen in Chapter 2, it is possible to observe in synchrony what we find in diachrony. The languages in which we see theme vowels might present different stages of the diachronic change and resemble more the situation of Latin or the one of the Romance Languages. What we expect to find is that for some languages, like Latin, it is possible to find in the structure constraints that select theme vowels in relation to the context, associated with certain morphosyntactic features and that this relation is different for different themes. On the other hand, we expect to find also languages that will resemble the development of Latin and to Romance languages, where theme vowels are selected by constraints of the structure, but they do not appear in function of morphosyntactic features.

To better address this issue we are going to briefly introduce a different framework that is in many ways similar to DM but adopts different strategies: Nanosyntax. Nanosyntax, mainly introduced by Starke (2002) and Caha (2009), is a framework that, as Distributed Morphology adopts *Late insertion* and *Syntax all the way down*. Unlike DM, Nanosyntax has *No bundling* and *No morphology*. No bundling means that ‘each morphosyntactic feature corresponds to its own syntactic terminal’ (Caha, 2019), the features cannot be fused or deleted. This approach avoids the issue of accounting for the complexity of the bundles of features found in DM. In Nanosyntax the lexical entries are part of the syntactic structure, they are constituents. No morphology means that no post-syntactic operation is allowed and there is no inde-

pendent morphology in the framework.

We introduce briefly this framework to see two principles that can be useful in the following sections. These are the *Superset principle* and the *Containment principle*, briefly introduced in Chapter 1. The first one, states that ‘a lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node’ Starke (2009). The Containment principle, present in DM too, says that in locality conditions, it is the vocabulary item associated with the most features that wins and is selected. This accounts for the impossibility of *ABA paradigms, of which the most famous example is good/better/best (Bobaljik, 2012). These two principles explain why in Nanosyntax the lexical entries are assumed to be *Overspecified*, which means that the lexical item selected for the spell-out, must contain the entire node of which it is the exponent, as opposed to *Underpecification* in DM where the vocabulary item selected for the spell-out has to contain at least a part of the node.

3.4.1 Slavic Languages

We will start by looking at Slavic languages as they are probably the most similar to the phase of Latin where the system is *mixed*.

Bertocci (2024) refers to Milosavljević and Arsenijević (2022) as they recognise that in Serbo-Croatian theme elements interact with Aspect. Moreover, they also suggest that theme vowels of Serbo-Croatian are not all empty and therefore the system by which they are selected should be considered *mixed*.

Let us see more in detail what this means. We can recall from our brief description of Milosavljević and Arsenijević (2022) in Section 2.3.2 that they analyse a set of minimal pairs of verbs that combine with the theme elements a/a and i/i, the most productive theme vowels in Serbo-Croatian.

Milosavljević and Arsenijević (2022) not only analyse the characteristics of theme elements, but also the characteristics of the structure that is immediately adjacent to them. Their idea is that ‘the realization of the ThV is a matter of resolution of a range of constraints, rather than being uniquely determined by one property’. They classify the verbal structure, that includes root, theme element and inflectional morphemes, in terms of boundness (perfectivity) and scalarity. In particular, they

consider that ‘where the verb is bounded, scalarity is a component of boundedness, and where it is unbounded scalarity alone characterizes the verb in the relevant way’ (Milosavljević and Arsenijević, 2022).

We might tentatively add that this shows a case of overspecification. The reason for this is that the theme a/a seems to be the one for unbounded verbs, and the theme i/i the theme for bounded verbs. However, whenever a verb expresses scalarity, the theme i/i is selected even if the verb is unbounded, as we have seen from the examples in the previous chapter.

As they manage to assign semantic meaning to two theme elements, while they consider the others to be empty, we can classify the Serbo-Croatian system to be *mixed*. The two most productive themes correlate with the semantic meaning of the context and them and their properties can be organised on a hierarchy, depending on which parts of the structure are covered. On the other hand, the rest of the themes are considered ornamental elements.

This corresponds to some extent to the stage of Latin described in Bertocci (2024). It is important to remember that in Serbo-Croatian these correlations between theme elements and Aspect are strong tendencies, not rules, so it would be interesting to investigate if this represents a changing point in the diachrony of the language, where the contexts that are responsible for the selection of theme elements are becoming more and more ambiguous. If this hypothesis were to be true, the irregularities that we see in synchrony would only be a part of a much bigger picture.

We now turn to Slovenian, the other Slavic language that we have seen in section 2.3.1. Simonović and Mišmaš (2022) and Simonović and Mišmaš (2023) focus mainly on the argument structure distribution among theme vowel classes. As for Serbo-Croatian, the authors try to analyse the structure that surrounds theme elements rather than their nature. Out of the ten theme vowel classes they find a particular relation with some of them and unaccusativity, perfectivity and telicity. In particular, they find that the verbs that belong to the classes a/a, i/i and a/e get mostly accusative arguments. On the other hand, most unaccusative verbs have the

theme e/i. We can recall that they also find a correlation between unaccusativity and telicity and leave the discussion open for further studies.

Simonović and Mišmaš (2022) argue that the e/i class should not be considered a theme vowel also because of its accent pattern. Most e/i verbs bare stress on the theme both in the finite and in the infinitive form, this does not happen with other theme elements. The authors state that this behaviour of the stress means that the theme element e/i is spelled-out inside the root and not outside it. What we deem is that this is further proof that also in Slovenian theme elements do not always spell-out the same portion of the structure. As for Latin, we can consider this system *mixed* because theme elements behave in two different ways, creating different relations to the other parts of the structure.

In conclusion, we deem that both Serbo-Croatian and Slovenian can be considered mixed theme element systems, where theme elements correlate with the part of the structure concerned with Asp and v. In particular, the most consistent correlations are with perfectivity, and argument structure.

3.4.2 West Armenian

Let us now consider West Armenian. What we have seen in Chapter 2, Section 2.2 is that theme vowels show a correlation with transitivity. As for Slovenian and Serbo-Croatian it is only possible to talk about tendencies. However, this does not make the existing relations invalid. Once again, the work on theme elements in the papers that we have seen focuses on the adjacent structure. In particular, with a closer look to equipollent verbs, the theme -e- correlates with transitivity and the theme -i- correlates with intransitivity.

Let us recall that Guekguezian and Dolatian (2021) assume that theme vowels are adjoined to little v, and, when it correlates with transitivity/intransitivity, this node is fused with Voice. This holds for minimal pairs of roots that take both theme vowels. For the other verbs, where the relation of v with Voice is not straightforward but only represents a tendency, the theme vowel is assumed to be selected by the

root. The theme vowels that are fused with Voice express two opposite features of the same portion of the structure, namely the span $v/Voice$, while when they are adjoined to little v they occupy a different portion of the structure. We can schematically see how theme vowel selection should work in West Armenian in the table 3.1.

Position in the structure	TV	TV selection
$v/Voice$	-e-	transitive
	-i-	intransitive
adjoined to little v	-e-	
	-i-	arbitrarily selected by root
	-a-	

Table 3.1: Theme vowel selection in West Armenian

For the causatives we have seen that the position of Voice in the structure is occupied by its own exponent, the suffix $-\widehat{ts}\acute{e}n$. In fact, in causatives there is no fusion of v and Voice.

In West Armenian theme vowels are selected by a *mixed* system. Moreover, we notice that a diachronic analysis would be in point, to investigate why the theme $-a-$ shows a weaker relation with intransitivity, that is nonetheless noticeable. We recall from Chapter 2 that 76% of the predicates from the sample considered by Guekguezian and Dolatian (2021) are intransitive. It would be interesting to look for a diachronic change in those verbs that select $-a-$, to see if this weak relation can be due to a different context.

To sum up we can say that what we see in West Armenian is a correlation of the theme vowels with the span $v/Voice$. The operation that sustains these verb structures is fusion. However, this is only true in the roots that allow for these operations, the ones that are not specified for theme vowel. The others simply have their theme adjoined to v .

3.4.3 Romance Languages

Romance languages should pose no problems and be coherent with the explanation we found in Bertocci (2024) for why they became empty morphemes. Let us see more in detail the two accounts that we proposed in Chapter 2 for Catalan and Spanish.

Even though the theme vowels in Catalan and Spanish do not hold any semantic relation to the adjacent structure, the authors provided for them two opposite explanations. For Catalan Oltra Massuet (1999) argues that theme elements are *ornamental*, on the other hand Fábregas (2017) thinks that Spanish themes should be considered verbalisers. Since theme elements in the Romance Languages are very close it seems impossible for both of these accounts to be correct at the same time, as they should hold for both languages. We deem that the account by Oltra Massuet (1999) is better suited to explain theme vowels in the Romance Languages.

The first reason for this is that structurally, it seems more reasonable to put theme elements in an expansion of the *v* node, as her account does, rather than considering theme elements as verbalisers. Considering theme elements verbalisers would also go against the widespread view that they are inserted post-syntactically (Halle, Marantz, et al., 1993; Grestenberger, 2022).

The paper on Catalan is successful in describing the empty nature of theme elements, in showing that the relations to the context are purely morphological. Even in the complex hierarchies that she assumes for theme vowels, there is no semantic meaning associated to these morphemes.

It seems reasonable to consider this account coherent with the behaviour of theme elements in Romance Languages empty. The system in which we can identify theme elements of Catalan, Spanish and the other Romance Languages is *weak*, as the context is not a part of the constraints that regulate theme vowel insertion.

3.4.4 North Saami

Lastly, we are going to attempt to place North Saami in this picture. In section 2.4 of Chapter 2 we have seen how these theme elements, interact with the structure of the verb. From the theme vowel selection, it is clear that some theme elements hold semantic relation with the verb. In particular, we have seen that it is possible to consider some semantic oppositions between the Vowel stem class and the Contracted class.

The relation that theme elements hold seem to involve semantic properties that interact with the aspectual inceptive and semelfactive layers, postulated by Julien (2015) and with Voice (stative/inceptive, continuative/semelfactive, active/passive). As for the Consonant stem class no correlation is mentioned to the verbal structure. We should also keep in mind that the phonological system of North Saami seems more complex than the ones found in the other Indo-European Languages that we have seen so far. From the data available it is not clear whether these relations are consistent throughout the verbal system or not.

To better assess this issue, it would be useful to do a qualitative analysis on a sample of North Saami verbs, as the ones on the Slavic Languages that we have taken into account. We can however, cautiously assume that the North Saami presents a *mixed* theme element system as well, given that some theme elements seem to depend on the morphological constraints of the context while others appear as a morpheme that simply stands between the root and the inflection. It is also reasonable to think that these two different theme elements occupy different portions of the structure, as we have seen in examples 43, 46 and 50 which reported the tree for inceptive, semelfactive and causative verbs.

Theme vowels in North Saami correlate with the layers of Aspect and Voice. Julien (2015) assumes that in the structure they are non-cyclic heads that interact with the roots with constraints of locality, similarly to Tense heads.

3.4.5 Comparative overview

In this section we are going to briefly sum up which are the characteristics of theme elements cross-linguistically. The aim is to have a comparative view on certain aspects of this phenomenon. We have seen before that theme elements generally correlate with the span Aspect < Voice < v. Aspect is intended here as *Aktionsart*, so regarding the characteristics of the action denoted by the verb (Scalise and Bisetto, 2008). Let us now consider the data comparatively. In the table 3.2 we find a schematic representation of the correlations that the languages hold with this span.

Language	Aspect	Voice	v
Catalan	x	x	x
Spanish	x	x	x
West Armenian	x	✓	✓
Slovenian	✓	✓	✓
Serbo-Croatian	✓	?	✓
North Saami	✓	✓	✓

Table 3.2: Theme elements and the Asp < Voice < v span

Going over each language briefly, we can see that the two Romance languages taken into account, Catalan and Spanish, do not correlate with the span, Aspect < Voice < v.

For West Armenian we have seen that in some cases the theme vowel is the fused exponent of the nodes Voice and v. In fact, there are verbs where a theme vowel (-e) is associated with transitivity, and another theme (-i) appears in correspondence of intransitivity.

Slovenian displays a correlation of theme elements with all the three layers of the span. We have seen that the most evident one is concerned with unaccusative/accusative verbs, but this further correlates with perfectivity and telicity. As for v, Simonović and Mišmaš (2022) deem that their account is compatible with the one proposed by Fábregas (2017), however they choose to put it aside. The correlation with v still holds as they treat certain themes (e/i) as transitive roots, following Lowenstamm (2010).

In the article that we have considered for Serbo-Croatian (Milosavljević and Ar-

senijević, 2022), Aspect is widely discussed and theme vowels are taken to interact with the presence of the features of boundness and scale. However, Voice and *v* are introduced only marginally in relation to other studies. In particular, the authors seem to believe in the fact that the theme expresses the feature [v]. It is not clear where they stand on the issue of Voice.

North Saami shows clear correlations with both Aspect and Voice, in the structure of passives, semelfactive and inceptive verbs. Concerning *v*, the author (Julien, 2015) proposes that it is spelled out in a span, for example with the node Asp for inceptive verbs, by one single exponent, the theme vowel.

It is important to keep in mind that each language organises internally which theme elements, if any, are in relation to the various parts of the span. To account for this, there are a few theoretical options that we can consider.

In DM we have seen that one possibility is to consider those thematic elements which are only ornamental adjoined to little *v* as a well-formedness requirement. On the other hand, we have seen that theme elements can be exponents of different parts of the morphosyntactic structure, the one concerned with Asp < Voice < *v*. In particular, we have seen that for most languages these two situations coexist. To try to give an explanation for this, we are going to consider the data from one of the languages above. For example, looking at the data in West Armenian we can assume that the following system is in place.

Theme vowel	Aspect	Voice	<i>v</i>
-e-	x	✓	✓
-i-	x	✓	✓
-a-	x	x	x

Table 3.3: Theme vowels of West Armenian

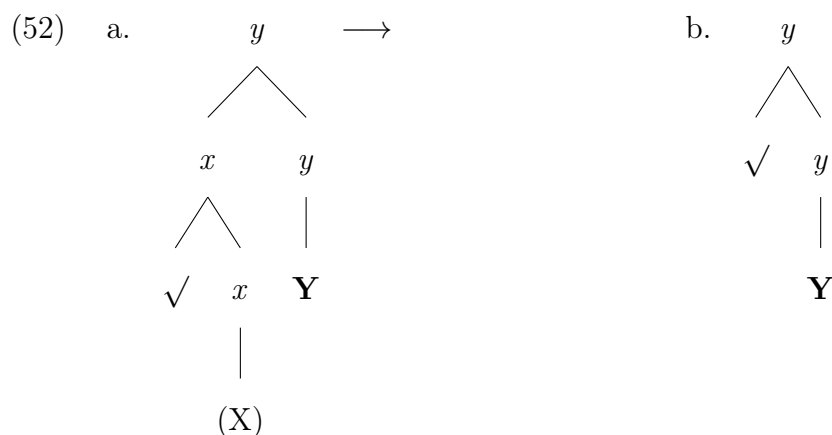
What is schematically displayed in table 3.3 is the fact that some West Armenian roots are minimal pairs that express transitivity/intransitivity in function of the theme that is selected. In these minimal pairs, the theme is taken to express the fused nodes *v*/Voice. These themes are -e- and -i-. As we have seen before in Chapter 2, most -e- verbs are transitive, while most -i- verbs are intransitive. The

theme -a- has a less significant percentage of verbs that can be considered intransitive and none that forms a minimal pair with one of the other classes.

Since there is no reason to consider these elements different objects in the syntax or to have a different origin, that we know of, we can attempt a formal explanation for this behaviour. From a DM viewpoint, we can say that for -a- selecting verbs, the node Voice is subject to deletion/impoverishment. This means that it is still present in the structure, but it is neutralised, coherently with the description of deletion. It cannot be associated to the theme vowel -a-, that is now chosen arbitrarily by the root. Under these assumptions, in diachrony we would expect to find a stage where -a- expresses the fused nodes v/Voice.

Thanks to the characteristics of West Armenian, namely the presence of three theme vowels and the interaction with the feature transitivity/intransitivity, this mechanism is pretty straightforward. For other languages this should work too, but with different degrees of complexity.

Calabrese and Grestenberger (2024) propose for Latin a similar solution. In their opinion, Latin theme vowels are subject to ‘semantic bleaching’ and upward reanalysis. Semantic bleaching is explained as ‘loss of functional projections/features’ (Grestenberger, 2022). Subsequently, semantic bleaching causes the reanalysis of these morphs, which become ornamental.



In the example 52 we report the structure for semantic bleaching that they pro-

pose.

To account for how theme elements are selected, there is another possibility from the framework of Nanosyntax. We have seen briefly how this framework functions at the beginning of this section.

From table 3.2, there is one empirical observation that emerges. Theme elements seem to follow the hierarchy of Asp < Voice < v. If a theme vowel can express Aspect, it can also express Voice and if a theme expresses Voice it also spells out v. Apart from the uncertain case of Serbo-Croatian, this holds in all the languages that we have considered.

This is compatible with the description of how the Superset Principle works (Starke, 2009; Caha, 2009). In fact, we can assume that theme vowels spell out the following combinations in the example 53.

- (53) a. $TV_1 \Rightarrow [\text{Asp}[\text{Voice}[\text{v}]]]$
b. $TV_2 \Rightarrow [\text{Voice}[\text{v}]]$
c. $TV_3 \Rightarrow [\text{v}]$

Taking for example the case of North Saami, we can postulate what stated in 54 for the three allomorphs, the exponents which are the themes of the contracted class.

- (54) -a-, -e-, -o- $\Rightarrow [\text{Asp}[\text{Voice}[\text{v}]]]$

The three theme vowel allomorphs express the whole span Asp < Voice < v. This is naturally selected for the verbs that are inceptive and semelfactive but, one of these allomorphs, namely -o-, is also the one chosen for passive verbs.

- (55) a. inceptives, semelfactives $\Rightarrow [\text{Asp}[\text{Voice}[\text{v}]]]$
b. passives $\Rightarrow [\text{Voice}[\text{v}]]$

In the Nanosyntax framework we can account for what we see in 55, applying the *Superset Principle*. In fact, the features of passive verbs in 55b are contained in

54. This is possible if we consider Voice to be a head introducing an external argument, following Kratzer (1994) and Pylkkänen (2008). ‘Voice is a functional head denoting a thematic relation that holds between the external argument and the event described by the verb’ (Pylkkänen, 2008).

Following Julien (2015), we can say that in North Saami the verbaliser is not realised phonologically, and the theme vowel allomorphs from the vowel stem class (-a-, -i-, -u-) do not express [Voice]. This means that the selection of theme vowels follows the *Elsewhere Condition*, that states the following:

The Elsewhere Condition: When two entries can spell out a given node, the more specific entry wins. Under the Superset Principle governed insertion, the more specific entry is the one which has fewer unused features. (Caha, 2019)

For the realisation of passives in North Saami the morph that manage to express Voice and leave as few unused features as possible is the same that realises the aspectual inceptives and semelfactives, as we see in 54.

If we assume that within the same language different parts of the structure are spelled out by different themes, and these are selected by the Superset Principle and the Elsewhere Condition, it should not be problematic to account for languages where theme vowels have different realisations, namely in the *mixed* systems that we have seen before.

This explanation also resonates with a tendency that we noticed, that the theme vowels that are specified for more features, are also the most frequent ones, this should be true if they are selected by the Superset Principle.

3.5 Conclusion

In this chapter we have seen that there is a need for a comprehensive account to frame theme elements under the same theoretical viewpoint. In doing this, it might be useful to consider that theme elements undergo diachronic change. What we have seen in synchrony might not always fit a single theoretical description, that is

why we need a theory that leaves room for all the different realisations of theme elements. We have seen that one way to achieve this aim, for the description of theme elements, is by focusing more on the context in which a theme element is produced, rather than on its nature. We identified in synchrony two systems in which a theme can appear. These two systems are *weak* or *mixed*, depending on which relations the theme element holds with the parts of the adjacent structure.

Taking this further we could advance the hypothesis that the irregularities of theme element insertion are an ongoing diachronic change, of course this would need further investigation and to be supported by the data.

Comparing this to the description of theme elements in Chapter 2, we can say that, for the languages with a *mixed* system, the theme correlates with the span Aspect < Voice < v, on various degrees. Some of the mechanisms that stand behind these structures, that the authors proposed, are fusion, spanning and cyclic head movement. Along with these, there are the themes selected by the roots that are generally considered to be adjoined post-syntactically to v. To account for the behaviour of theme elements, we have briefly reported two possibility, one in DM and the other in Nanosyntax.

Chapter 4

Theme elements and Germanic Languages

4.1 Introduction

In this Chapter we would like to consider the status of theme elements in the Germanic Languages.

The shared view is that Germanic Languages do not have theme vowels, however not everyone agrees on this. In particular, we would like to take in consideration Kayne (2016) ‘What is Suppletive Allomorphy? On *went* and on **goed* in English’. Our aim is to compare this paper with the discussion from Chapter 3 as well as with some contribution on the topic of suppletion by other authors.

4.2 Kayne (2016)

Kayne (2016) starts by giving a description of the well known allomorphy *go/went* and in general refers to all irregular verbs with root allomorphy in English. *-ed* is the suffix that forms both the past tense and the past participle indistinctly.

From this and from the observation of the English irregular forms, Kayne (2016) makes the following generalisation, which appears to be without exceptions:

- (56) An English verb disallows *-ed* in the past tense if that verb disallows *-ed* as

a past participle.

The author claims that what stated in 56 is another way to explain why *goed is not possible both in the past tense and in the past participle. *goed looks like a special example of 56 which would exclude for example verb that take -en in the past participle, these are not present in the English verbal system. 56 also seems to be compatible with all regular verbs, with all irregular verbs and also with roots that allow for a regular and an irregular form, as for example swollen/swelled, given that there is at least one form of the verb that takes the suffix -ed. Kayne generally works in a minimalism framework, which means that if -ed is the same in the past tense and in the past participle, it can be identified in the same morpheme. This is different from what would happen in DM, where the same phonological exponent does not necessarily spellout the same features.

After this general considerations on the English verbal suppletive allomorphy, Kayne (2016) makes some considerations about the behaviour of theme vowels in Italian and in French. In particular, what he notices is that the theme vowel is not always pronounced.

About the theme vowels that are not pronounced in Italian and in French Kayne (2016) explains that he believes them to be the product of deletion and not epenthesis. For Italian Calabrese (2015) says that a theme vowel gets deleted when it precede a suffixal vowel. For French, the author particularly focuses on the behaviour of French verbs of the -e- conjugation in the future and conditional forms. French forms the future with an ending that is almost certainly a form of the verb *avoir* 'to have'. For example *Je parlerai*, where ai is the form of the verb to have. The -e- in these forms is often reduced to /ə/ in the pronunciation and at times it get deleted. Similarly in Italian, verbs with the theme -a- are realised in the future and conditional with the theme -e-. To explain the case of the deletion of the /ə/ in French, the author refers to a rule that deletes the /ə/ optionally in the future and in the conditional, proposed by Dell (1973) and Dell (1976). If the verbs ends in an obstruent-liquid cluster, this deletion is avoided to prevent ill-formed verbs. Kayne (2016) states that the same could be in place in English, where in certain cases the -e- is not deleted as in *batted*, *thudded*.

From this, and from the position of theme vowels in Romance and Slavic languages, namely between the root and the inflection, the author makes the following generalisation:

(57) Some English verbs have a theme vowel.

Under this assumption all regular English verbs with the -ed suffix should be analysed as shown in 58.

- (58) a. request- e- d
 √- TV -PST.TNS/PST.PRT.
- b. swell- e- d
 √- TV -PST.TNS/PST.PRT.
- c. repair- e- d
 √- TV -PST.TNS/PST.PRT.
- d. touch- e- d
 √- TV -PST.TNS/PST.PRT.

Stating that -e- is a theme vowel means that the suffix -ed is bimorphemic. The morpheme -e- is often not pronounced, as we see in the examples 58b and 58c. Following Calabrese (2015), Embick (2010), and Embick (2015), the author takes the idea that the theme vowel prevents the root and the inflection from being in a relation of locality, to avoid allomorphy. The author assumes, in a more functionalist way, that the morpheme -e- ‘protects’ the root from allomorphy. So the root is not affected by the morpheme -d as in 59.

- (59) a. tell, told
 b. spell, spelled

Even when it is not pronounced, and it is only present in the orthography, the morpheme -e- blocks stem alteration, as in the cases of *repaired* and *touched*. Kayne (2016) states that there is difference between these verbs where the theme is not pronounced and irregular verbs that do not take -e(d) at all. For irregular verbs like *told* or *sold* he thinks that the morpheme -e- has not been merged, whereas the morpheme has only been deleted in verbs like *repaired* and *touched*, that show it in

the orthography. We can see this situation schematically in 60.

- (60) a. requested merged
b. repaired merged, deleted
c. told not merged

Since we are now considering -ed to be bimorphemic, Kayne (2016) sustains that the generalisations made above hold for -d as a single morpheme as well. He consequently affirms that:

- (61) An English verb disallows -d in the past tense if that verb disallows -d as a participle.

This resonates with the claim from Calabrese (2015) that ‘roots that take /-s-/ in the Past Participle are a subset of those taking /-s-/ in the perfect’. Under this assumption even verbs like *tell*, *told* present the regular morpheme -d. It is not clear in Kayne (2016) how this should affect the allomorphy of this kind of verbs. We assume that in these cases the suppletion is weaker because the inflectional part of the verb is transparent as in *tol-d* that presents what kayne assumes to be the regular exponent for the past, -d. In verbs like *split*, *felt*, *brought* we find instead the morpheme -t. On this Kayne (2016) states that:

- (62) Past tense/participial -t and past tense/participial -d are the same morpheme.

The difference between -d and -t is purely phonological. The motivation for this is that -t fits all the generalisations made for -d. The only exception known to the author is *went/gone*, because it does not follow the prediction that if the verb allows -t in the past tense it allows it even in the past participle.

The morphemes are said to be in complementary distribution. However, there is never an *-et morpheme in complementary distribution with -ed and the verbs that take -d with no theme vowel -e-, namely *told*, *sold*, *said*, *had*, *fled*, *shod*, *heard*, *made* never take -t. Moreover, the opposite is also true: no verb like *caught*, *lost*, *meant*, with the -t ending, ever takes -d. Lastly, on this matter the author states that:

- (63) Past tense/participial /t/ voices to /d/ if immediately preceded by a pronounced vowel.

The morpheme -t is then the underlying unvoiced morpheme for -d. The difference between the two is ultimately phonological.

To strengthen this point, Kayne (2016) brings an example from English plurals. The English plural morpheme -s can induce voicing of a stem-final unvoiced consonant. For example cases of English plural where this happens are *leaf/leaves* and *wolf/wolves*. According to the author, from these cases it is natural to assume an underlying voiced morpheme -s, which also explains why the English plural never induces devoicing of a stem-final consonant. On the other hand, the past tense/past participle inflectional morpheme ‘never induces voicing of a stem-final consonant’. In fact, it induces devoicing of stem-final consonants in certain cases as *lose, lost* and *leave, left*.

Going back to *goed, the author deems that this verb belongs to a class of verbs that cannot be merged with the theme vowel -e-. He explains that this is a consequence of the following assumption in 64.

- (64) English light verbs are incompatible with a theme vowel in the past tense/participle.

Although the notion of light verb is not clear, Kayne (2016) notices that the verbs that are usually considered light verbs do not have the theme -e-.

The interpretation that the author gives of light verbs can be associated with the working definition adopted by Fábregas (2017). Fábregas assumes light verbs to be constituents that allow the presence of verbal functional structure such as aspect, mood, tense and subject/object agreement but are not predicates by themselves, because they do not carry enough conceptual information. Fábregas (2023) refers to the extensive analysis on the light verbs and its properties by Butt (2010) and affirms that light verbs can be defined by the opposition with lexical verbs by negative properties, they ‘carry less conceptual semantics, ideally none’. This is why different kind of verbs can be defined light as copulative verbs, some auxiliaries and some lexical verbs which lost their main meaning. Fábregas (2023) states that light verbs fail to describe an eventuality completely and to be interpreted as part of a

predicate they need to combine with other elements.

4.2.1 The status of *went*

The author provides an explanation for the form *went* that is inserted instead of **goed*. This past tense form belongs to a set of verbs that behave similarly, namely *went, bent, sent, spent, lent*. These are paired to a set of roots *wend, bend, send, spend, lend* that appear in the present and in the infinitive forms of these verbs. This group is not homogeneous because even though these verbs look the same, they have different relation to the theme -e-. Three forms in particular are strongly incompatible with the theme vowel -e-, the following forms are never acceptable: **sended, *spended, *lended*. With the verb *bend* this incompatibility is weaker, as in the example 65a from the paper. On the other hand *wend* is possible in sentences like the one in 65b.

- (65) a. ?You should have bended it even more.
b. They wended their way through the forest.
c. They went/*wended to China twice last year.

However, in the example 65c we see that *wended* can be interpreted as $\sqrt{\text{GO+MANNER}}$. *wended* is selected in a more specific set of contexts and matches the root *wend*, whereas the interpretation on *went* is idiosyncratic in English and matches the root *go*. That is why *went/wended* is not blocked in the lexicon. Kayne (2016) assumes that since this meaning of manner is absent in *went*, it is present when the theme -e- is.

This situation is limited to the past tense, and the author thinks that it might be related to the particular use of *used to*. As we see in the example 66 the use of *used to* is not allowed in other tenses other than the past.

- (66) a. He used to live in Philadelphia.
b. *He uses to live in Philadelphia.
c. *He will use to live in Philadelphia.

We think however, that this is more likely to be a grammaticalisation of the type ‘be going to’ for English or the more idiosyncratic ‘être en train de...’ (to be doing something) for French. Verbs of motion like *to go* are known to follow this grammaticalisation pathways cross-linguistically too.

Kayne (2016) argues that the availability of *went* reflects that the relationship between *wend-went* is the same of the one in *spend-spent* (except for the meaning of manner). According to the author it also reflects that English is able ‘to drop the manner component of *wend* when the theme vowel is absent’.

4.2.2 The status of the theme vowel

Kayne (2016) argues that the theme vowel can only be absent in English in past tense and in the past participle, in the cases where it is not merged that we have seen before. Following what Calabrese (2015) says for Italian and the Romance Languages, he assumes that there are particular contexts where the theme vowel is not present, as we have seen before. On the other hand, the author believes that the theme is always present in all other cases even if it is not pronounced.

Under this interpretation, the theme vowel *-e-* is always present, although subsequently deleted in all finite and non-finite forms except the past/ passive participle. This, according to him, is compatible with the notion that the theme vowel protects the stem of the verb, and the only irregular forms are present in the past tense and in the participle but not in the other forms of the verb.

There are some verbs that do not follow this prediction, namely verbs with complex non-bare present tense forms. These are the verb *to be*, which presents the forms *am, is, are*, and that is in general considered exceptional, and the forms of the verbs with the third person *-s*. Among these, only four verbs present stem alteration.

- (67) a. does done
 b. says said
 c. has had

The author thinks that the forms that we see in 67 take the same vowel. While in 67c it is clear that *has/had* share the same root, the author also thinks that this

holds for 67a and 67b, despite the orthography. Kayne's generalisation on this is the following:

- (68) If a verb has a stem change in the -s form, that stem change is identical to a stem change found in the corresponding past/passive participle.

4.2.3 Suppletive allomorphy

From the analysis of Kayne (2016) follows that **goed* is not directly blocked by *went*. The reason why **goed* is unacceptable correlates with 'the impossibility of -ed with light verbs (and some others) that crucially never distinguishes past tense from past participle'.

In the second part of this paper, Kayne (2016) turns to two different questions, whether or not the case at hand is representative of suppletive allomorphy and what is the role of late insertion and cyclicity in this matter.

According to him, the first part of the article, demonstrated that in the case of **goed* and *went* late insertion is not invoked, because the reasoning on theme vowels is enough to account for it.

From Embick (2010) he considers cyclicity to be a vocabulary insertion that happens in an inner cycle, followed by an outer cycle, depending on how deep embedded a node is in the structure. In the paper this is considered to be redundant and to depend on late insertion. According to Kayne (2016) *Late insertion* is not part of the functioning of syntax, because feature are inserted in the lexical material. In a framework that does not assume the presence of bundle of features, independent from the lexicon, there is no reason to assume the presence of late insertion.

From Kayne (2005), the author proposes what stated in 69:

- (69) UG imposes a maximum of one syntactic feature per lexical item.

Under this proposal, it is not possible to bundle syntactic feature. Additionally, he proposes that 'every instance of Merge must be associated with a precedence relation'. This means that two syntactic features are bundled, which is now as merged, when one precedes the other.

From this point of view, that considers precedence relations very important, Kayne

(2016) assumes a bottom-to-top phrase structure, where phonology cannot be taken out of the structure. According to the author, if we assume a single merge engine, the structure of the derivations ‘must in fact start with phonological features, continue on up through the phonology and only then reach the syntax’. This hypothesis rules out late insertion.

Following this ideas, then, the phonological features must be temporally ordered.

In short, this paper considers the case of *went* and **goed* to depend on the notion on theme vowel, additionally it rules out late insertion. Instead, the author proposes phonology to be the starting point for bottom-to-top derivations based on merge.

4.3 On theme vowels

The analysis that Kayne (2016) proposes for the suppletive form **goed/went* is quite solid. The author makes some strong cases for his hypothesis. However, the paper presents some weak points too. One of the shortcomings of his analysis is that it requires a heavy mechanism to work. Under many points of view his explanation for theme vowels and suppletion is very complex. Moreover, there are some incongruities between English and the other languages that have theme vowels which are difficult to account for.

The first point that we would like to address is the one on the nature of the suffix *-ed*. Let us recall that the morpheme *-ed* is considered bimorphemic by Kayne. Despite the cases that he makes, there are also some reasons not to consider it as the union of *-e-* and *-d*.

The first reason for this is that there is no real contrast in the English verbal system to require for such a division. Observing empirically English verbs, there is no other element that appears between the root and the inflection, other than *-e-*. In this, the English verb is different from the Romance languages, let us see some examples from Italian in 70.

- (70) a. telefon- a- re
 √/telephone- TV- INF
 to telephone

b. cred- e- re
√believe- TV- INF
to believe

c. part- i- re
√leave- TV- INF
to leave

For the English verb the situation is different as we have seen in the example 58 that we report here below in 71.

- (71) a. request- e- d
√- TV -PST.TNS/PST.PRT.
- b. swell- e- d
√- TV -PST.TNS/PST.PRT.
- c. repair- e- d
√- TV -PST.TNS/PST.PRT.
- d. touch- e- d
√- TV -PST.TNS/PST.PRT.

If the English verb had theme elements, the only possible one would be *-e-*. This language would have an alternance of thematic verbs in *-e-* and athematic verbs. This situation would be peculiar and in contrast in what we have seen so far.

The languages we have seen in Chapter 2 all present a contrast of at least 3 theme elements.

Moreover, *-e-* is not associated with any meaning. As we have seen for the Romance Languages this would not be a problem and it could be considered empty. However, it also lacks a distribution independent from *-d*, for which it could be considered an abstract object in the morphology.

Another point to address is the following. From Chapter 3 we can generalise that every theme vowel in their language has had a syntactic or semantic function, at some stage in the diachronic evolution of the language. It would be of no use to have a single theme vowel that can form no visible function and cannot contrast with any other theme.

We also notice that there is another inconsistency in the comparison on the English verb and the verbal system of languages that present theme vowels. As Kayne (2016) says, it is true that languages like Italian and French fail to present a theme vowel in some specific contexts, but it is a phenomenon that pervades the verbal system. This also holds for the languages we took into account in Chapter 2.

To assume that these elements only surface in the past tense and in the past participle, but they are present, and deleted, in all other cases (finite and infinite) would be a very costly solution that is not consistent with the other ways this kind of phenomenon presents itself. If the theme *-e-* protects the root from alteration, this would mean that only suppletive verbs are athematic.

Another issue that we find in the explanation by Kayne (2016) of why *-ed* is bimorphemic is how he accounts for the different phonological realisations of *-ed*. Referring to phonology seems reasonable to account for the difference between verbs like *requested*, *swelled* and verbs like *repaired*, *touched*. However, to say that in the second cases the *-e-* is deleted but it is still there, leaves without explanation some verbs. In English the phonological realisations of the suffix *-ed* are three: /ed/, /d/ and /t/. The issue of *-t* is addressed by Kayne only in relation to irregular verbs of the type *felt*, *sent*, *kept*, here it is assumed to be the underlying, unvoiced form of *-d*. From this point of view, in verbs like *walked*, *talked*, where the theme vowel is pronounced /t/, the *-e-* would be merged and deleted, so that the *-d* can be pronounced /t/ despite the orthography. On this matter Kayne (2016) states that:

(72) The *-ed* of regular verbs is not paralleled by any past tense/participial **-et*.

What we see in 72 is true but can also be an argument against Kayne's hypothesis. If, in fact, phonology is the starting point of the derivation structure, and *-e-* is the theme vowel, how do we explain the presence of regular verbs with the suffix *-ed* realised as /t/ in the phonology? The absence of **-et* seems a point against the presence of theme vowels in English. Under these assumptions, from the point of view of phonology, the theme *-e-* either stands alone and gets deleted, or it is present only with the suffix *-d*.

Under Kayne's analysis, it seems that the theme *-e-* in English should be part of

the inflectional part of the derivation, as it always appears in relation to -d. In the other cases taken into account this was not the case, as the theme vowels are rather tied to the span that expresses the aspect, the voice or the verbalisation. In this sense too, English would be an unicum.

One last point that we think should be addressed is the presence of theme vowels diachronically. In fact, the theme vowels of the languages that we saw in Chapter 2 all have a diachronic pathway from which they descend, as we have seen in the diachronic change from Latin to the Romance Languages. For English, it is not possible to find such a token in diachrony, that we know of.

In short, we think that these points provide some reasons not to consider the suffix *-ed* bimorphemic and not to consider *-e-* to be the theme vowel of the English language.

The hypothesis of the presence of English theme vowels presents some incongruences from a more theoretical point of view too. The languages that we have seen all have a relation to the span Aspect < Voice < v, either in synchrony or in diachrony. This is not present in English and it would be difficult to argue that *-e-* is a theme vowel, if it does not cover the same parts of the structure that other theme vowels cover in the languages that do have them.

4.4 The suppletion of went

In the second part of the article Kayne (2016) addresses the suppletive allomorphy of *went* in relation to the verb *to go*. We would like to briefly compare this well known form of suppletion to other cases in the verbal domain.

In this we find particularly relevant the analysis on the suppletion of the Romance verb ‘go’ by Pomino and Remberger (2019).

On this matter the paper states that, suppletion is one of the reasons to assume *Late Insertion* also for roots, against what stated in the early stages of DM.

To explain how this works in DM Pomino and Remberger (2019) says that suppletion of this kind occurs when a root is realised by different phonological exponents that

depend on the context. In the case of *go/went*, for example the context is [+PAST]. In DM ‘suppletion is thus treated as contextual allomorphy regulated by the Subset Principle (...), including the Elsewhere Condition’ (Pomino and Remberger, 2019). From this paper we see that the suppletion of the verb ‘go’ in the verbal domain of Romance Languages is a very widespread phenomenon. One reason for this may be the high frequency of this token. In Pomino and Remberger (2019) it is argued that in the literature this high frequency verbs like *be, come, do and go* are more subject than others to have idiosyncrasies in their inflectional pattern and to undergo semantic change more often. Other verbs that behave in this way are often auxiliaries. This is compatible with the suppletion of the verb *go* in English as well. Pomino and Remberger (2019) explain root allomorphy in the Romance domain in a way that could fit the English verbs too. The authors state that the complex suppletion that we see in the Romance verbs for *go*, is the result of the application of the *Separation Hypothesis* and the *Subset Principle*.

The *Separation Hypothesis*, from Beard (1988), is the mapping of the morphosyntactic structure in a phonological representation. Let us see what this means for Latin with the list of semantically related root that form *go* in the Romance domain, from Pomino and Remberger (2019).

√IRE	<motion>	<in the direction of>	
√VADERE	<motion>	<in the direction of>	<in the direction of>
√AMBULĀRE	<motion>	<without direction>	<without temporal limits>
√VENIRE	<motion>	<in the direction of the deictic reference point>	

These roots are then selected by the *Subset Principle*, this means that depending on the context some roots will be more suited than others and are chosen as the better exponent.

√GO	<motion>	<in the direction of>	
√WEND	<motion>	<in the direction of>	<in a certain manner>

For English this could also be true in diachrony, since we have seen from Kayne (2016) that *went* comes from the archaic root √WEND, it may have been selected in

the same way the Romance verbs were.

Over time, as for the Romance Languages, *wend* might have lost part of its semantic meaning to acquire a more general one, as often happens in the cases of suppletion (Pomino and Remberger, 2019). Entering the paradigm of $\sqrt{\text{GO}}$, the form *went* was assimilated to it.

Pomino and Remberger (2019) further argue that the Latin monosyllabic verb $\bar{i}re$, becomes very unstable and subject to diachronic change. Its forms in Latin are weaker due to phonological changes. Suppletive forms like the ones we have seen above, are phonetically much stronger. It is also argued in the paper that these roots provide more substance to the whole verbal system, because they are thematic. These suppletive forms ‘mirror the structural complexity’.

From this point of view, which is mainly phonological, we can say that there is no reason not to assume that something similar happened to the English **goed* too. Monosyllabic verbs in English are more often subject to suppletive paradigms, especially the very frequent ones. As for the Latin $\bar{i}re$, the phonological form of **goed* would be very unstable, while *went* provides a phonologically stronger form, that makes the paradigm more stable.

4.5 Conclusion

In this Chapter we have seen the case that Kayne makes for the English theme vowel, based on the analysis of the verb *go/went* and the impossibility of **goed*. This paper provides a strong case for the existence of theme elements in the Germanic domain too.

Comparing this case to our considerations from Chapters 2 and 3 we have provided some points against this hypothesis. Considering it also in relation to the Romance domain and in particular to Pomino and Remberger (2019), we lean towards a different interpretation of *went/*goed*, closer to a more traditional understanding of suppletive allomorphy.

Conclusion

In the past chapters we have explored the description of theme elements cross-linguistically. The aim was to describe this phenomenon in a comparative way, in order to be able to identify which are the possible methods to describe it and which are some points that still need to be addresses. The framework most widely used to address this topic in the latest publications is DM. In this framework, one of the most popular view on theme vowels is that they are ornamental objects adjoined post-syntactically to little *v* as a well-formedness requirement of the root (Oltra Massuet, 1999).

A wider investigation outside the Romance Languages allows us to see that this is not always true, and that theme vowels can correlate with the span $\text{Aspect} < \text{Voice} < v$ of the morphosyntactic structure at different levels. Moreover, it is possible to notice that the context of realisation of theme elements plays a crucial role in determining their realisation. These last two point have been mainly supported by the evidence from Slavic Languages (Milosavljević and Arsenijević, 2022; Simonović and Mišmaš, 2022; Simonović and Mišmaš, 2023). The help of diachrony was fundamental to better understand how to frame and compare such a diverse phenomenon (Bertocci, 2024).

From a theoretical point of view we have seen that it is possible, within the DM framework, to consider the behaviour of theme elements as a consequence of impoverishment. On the other hand, it looks like it is also possible to explore how this phenomenon would work in Nanosyntax. For example, considering theme vowels the result of the selection of the Superset Principle and the Elsewhere Condition. Lastly, reviewing the work by Kayne (2016) in light of the observations on languages that display theme vowels, we stand against the possibility for English, and more in

general Germanic languages to have theme vowels.

The open questions on this issue are still many, but, as we have seen, it is also possible to expand the research to many fields, as for example investigating quantitative data for North Saami or the diachrony of West Armenian theme vowels.

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