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# Theme (Vowel) Allomorphy in Italian? A DM account of the *-isc-* augment

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# 1. The Puzzle

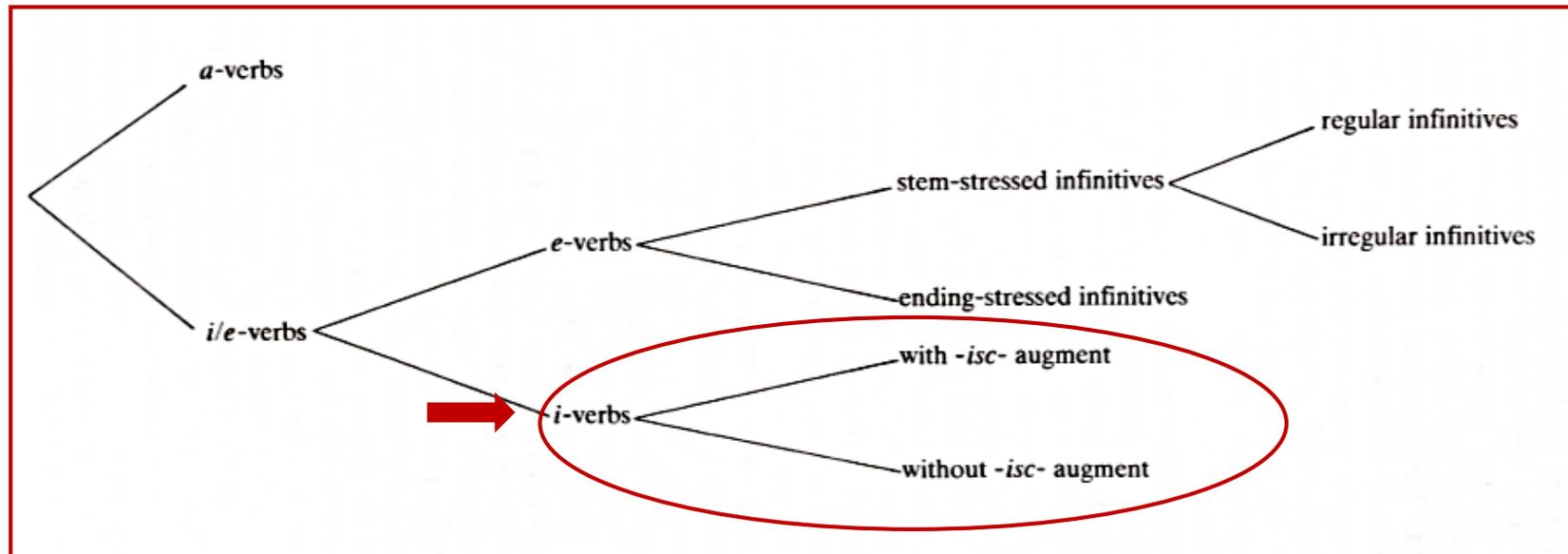
- In Italian, traditionally, three conjugations are distinguished based on the theme vowel (TV) preceding the infinitive ending (Serianni 1989, Dardano & Trifone 2010, Dardano 2017):

Conjugation I ending in *-are* as in *parl-a-re* ‘to speak’

Conjugation II ending in *-ere* as in *tem-e-re* ‘to fear’

Conjugation III ending in *-ire* as in *sent-i-re* ‘to feel’

- The division does not account for similarities between II and III conjugation verbs.
- Alternative proposal:



Model of Italian Conjugation Structure (Vincent 1988: 295)

II and III conjugation verbs share common properties (Iacobini & Thornton 2016: 197):

- endings (TV+desinence) of e.g. *prendere* ‘to take’ & *sentire* ‘to feel’ 3sg pres. ind. (*prend-e*, *sent-e*), 3pl pres. ind. (*prend-ono*, *sent-ono*), 2sg imp. (*prend-a*, *sent-a*) etc.
- if used in derivation processes, their stems terminate in *-i* (e.g. *accogliere* ‘to welcome’ > *accogli-ment-o* ‘reception, acceptance’; *accanire* ‘to rage’ > *accani-ment-o* ‘fury’)
- regular and irregular past participle forms (e.g. *esistere* ‘to exist’ > *esistito* & *partire* ‘to leave’ > *partito*; *temere* ‘to fear’ > *temuto* & *venire* ‘to come’ > *venuto*)

# 1. The Puzzle

(1) a. Normalmente **finisco** di lavorare alle cinque.

Normally end.PRS.1SG to work at five

‘Normally I finish work at five.’

b. Il ruscello **finiva** nel lago.

The stream end.IMPF.3SG in the lake

‘The stream merged into the lake.’

c. Altri sostengono che il mondo **finirà** nel dicembre del 2020.

Others maintain.PRS.3PL that the world end.FUT.3SG in the december of the 2020

‘Others maintain that the world will end in December 2020.’

d. Ahimè, che a tali canti non vi **applaudisce** Iddio, non vi **applaudiscono** gl’angeli, e non vi **applaudiscono** i santi, ma vi  
Alas, that at such chants not you applaud.PRS.3SG god, not you applaud.PRS.3PL the angels and not you applaud.PRS.3PL the saints, but you

**applaudisce** solamente il demonio (Paolo Girolamo Casanuova, 1841).

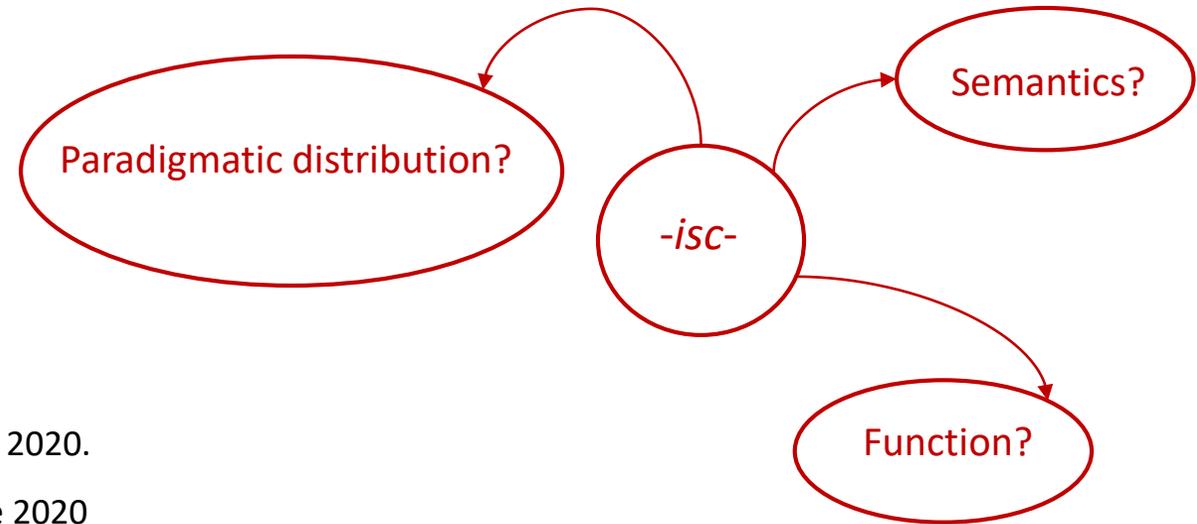
applaud.PRS.3SG only the demon

‘Alas, that god doesn’t applaud your chants, that not even the angels applaud you, and not the saints, but the only one applauding you is the demon.’

e. Tutti gli onorevoli senatori ed i ministri si alzano ed **applaudono**. Si **applaudisce** anche dalle tribune (Atti parlamentari, 1921).

All the honorable senators and the ministers get up and applaud.PRS.3PL. One applaud.PRS.3SG even from the tribune

‘All the members of the senate and the ministers get up and applaud. One applauds even from the tribune.’



# 1. The Puzzle

- The *-isc-* augment appears only in the sg and 3pl present tense indicative and subjunctive forms and in the 2sg imperative.
- The vowel /i/ preceding *-sc-* is always stressed.
- The augment is realized as /isk/ in the 1sg and in the 3pl; the velar /k/ is palatalized when it occurs before front vowels, therefore yielding the variant /ij/ in the 2sg and in the 3sg.

	Present Indicative	Present Subjunctive	Imperative
1sg	fin[isk]o	fin[isk]a	
2sg	fin[ij]i	fin[isk]a	fin[ij]i
3sg	fin[ij]e	fin[isk]a	
1pl	finiámo	finiámo	
2pl	finíte	finiáte	finíte
3pl	fin[isk]ono	fin[isk]ano	

- The majority of *-ire* verbs present the *-isc-* augment (~ 450; Da Tos 2013).
- Some verbs display doublets (e.g. *applaudire* ‘to applaud’ 1sg *applaudo* vs. *applaudisco*, *mentire* ‘to lie’ 2sg *menti* vs. *mentisci* etc.) (see Thornton 2012 on overabundant forms).
- Same distribution pattern as in Romanian and Catalan (mostly overlap of the same verbs, but e.g. pres. ind. Cat. *servir* ‘to accomodate, to serve, to be of use’: *serveixo*, *serveixes*, *serveix*, *servim*, *serviu*, *serveixen* vs. It. *servire*: *servo*, *servi*, *serve*, *serviamo*, *servite*, *servono*)
- In Catalan, /ɛj/ occupies the theme position in the verb structure (Oltra-Massuet 1999).

# Aim of the talk

The overall aim is to provide an analysis of the verbal augment *-isc-* from a synchronic perspective within the framework of Distributed Morphology (DM).

- Diachronic Overview: formal and semantic changes from Latin to Italian
- Synchronic Overview: previous studies and dialectal data
- A DM-analysis of *-isc-*
- Contextual conditions for theme (vowel) allomorphy / root allomorphy

# Outline of the talk

1. The Puzzle
2. Diachronic Overview
3. Synchronic Overview
4. A DM-analysis of *-isc-*
5. Conclusions

## 2. Diachronic Overview

In Latin the highly productive derivational suffix -sc- is used to form inchoative verbs. These new verbs end up belonging to the third conjugation in -ĒRE. Some examples (Haverling 2000: 4):

- **V → V**

e.g. LUCĒRE 'to shine' > LUCĒSCĒRE 'to become bright'

CALĒRE 'to be warm' > CALĒSCĒRE 'to become warm'

FRĪGĒRE 'to be cold' > FRĪGĒSCĒRE 'to become cold'

- **A → V**

e.g. MITIS 'soft' > MITĒSCĒRE 'to become soft'

ALBUS 'white' > ALBĒSCĒRE 'to become white'

- **N → V**

e.g. IGNIS 'fire' > IGNĒSCĒRE 'to catch fire'

GEMMA 'gemstone' > GEMMĒSCĒRE 'to become like a gemstone'

“[T]he term *inchoative* is mostly applied to durative or durative terminative verbs which are derived from state predicates” (Lehmann 1995: 8).

→ suffix -ĒSC-?

## 2. Diachronic Overview

Other variants of the suffix (Bertocci & Pinzin in print):

- -ĀSC-

e.g. ROBOR 'strength' > ROBORĀSCĚRE 'to become strong'

FERUS 'wild' > (EF)FERĀSCĚRE 'to become wild'

AMĀRE 'to love' > AMĀSCĚRE 'to fall in love'

- -ĪSC-

e.g. LUX 'light' > LUCĪSCĚRE 'to become bright'

LAETUS 'happy' > LAETĪSCĚRE 'to rejoice'

SENTĪRE 'to feel' > SENTĪSCĚRE 'to begin to feel'

- Distribution pattern of suffixes (Bertocci & Pinzin in print)

-ĒSC- is the default suffix for

- the derivation of denominal and deadjectival inchoative verbs.
- *Caland Roots* (e.g. RŮBĚSCO 'I become red', RŮBĚO 'I am red', RŮBŮR 'redness' and RŮBĪDUS 'red').

-ĀSC- and -ĪSC- are used

- when the base verb presents the theme vowel -Ā- or -Ī-.
- when a stative component is semantically conceivable, but it is not overtly realized through -Ē-.

## 2. Diachronic Overview

In reality, the semantic thrust of our suffix usually involves a gradual transition into a new state, a meaning equivalent to 'becoming' rather than to 'beginning'. Admittedly, the distinction between 'becoming' and 'beginning to be' is a thin one, but Caesar's usage beautifully illustrates how the inchoative signifies merely a type of change while an accompanying auxiliary expresses the inchoative aspect: *Cum frumenta maturescere inciperent* [...].

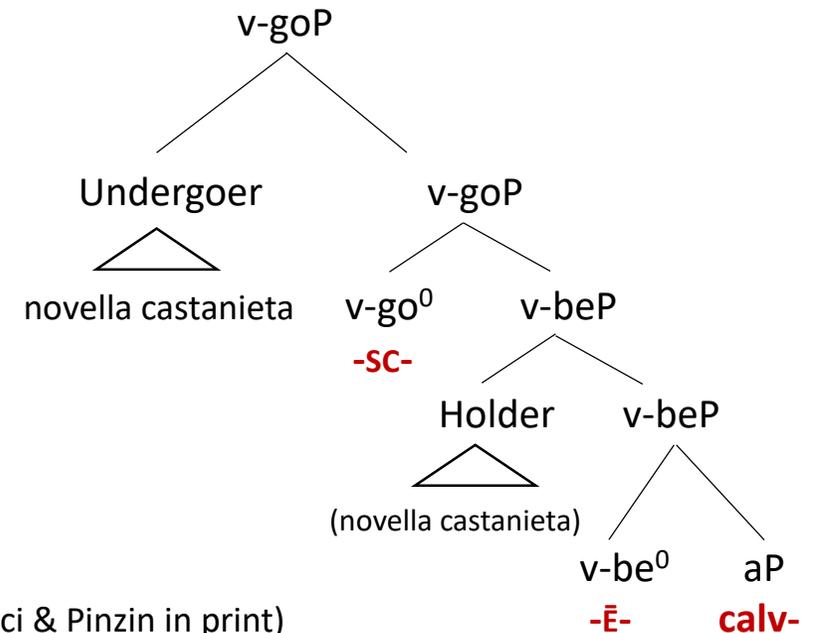
Blaylock (1975: 435)

- Related to *Aktionsart* of the verbal event (Schwarze 2009, Meul 2010, Bertocci & Pinzin in print)
- Adds dynamicity to a stative verbal derivation
- Aspect marker (Zamboni 1983, Haverling 2000)

Formal proposal (Mateu 2017, Bertocci & Pinzin in print):

- since inchoative derivations describe change of states, they involve two argumental phrases:
  - (i) a stative phrase v-beP
  - (ii) an uncontrolled dynamic phrase v-goP
- -sc- is the morphological output of v-goP

(2) NOVELLA CASTANIETA CALVESCUNT.  
new.NOM.PL chestnut.forest.NOM become.bald.3PL.PRS.ACT  
'The new chestnut forests become bald.'



(Bertocci & Pinzin in print)

## 2. Diachronic Overview

- The suffix appears only in Infectum tenses, i.e. in the verbal forms that are based on the Present stem (Aronoff 1994: 56).
- Not surprising w.r.t. its semantics: indicating that an event is ‘ongoing’ or at least unfinished or not completed is incompatible with implying that the event has been accomplished (= Perfectum tenses).
- Its presence does not depend on the grammatical categories Person and Number.
- Distribution of -sc- in the verbal paradigm (Da Tos 2013: 51):

	Indicative			Subjunctive		Imperative
	Present	Imperfect	Future	Present	Imperfect	
1sg	SENTĪSCO	SENTĪSCEBAM	SENTĪSCAM	SENTĪSCAM	SENTĪSCEREM	
2sg	SENTĪSCIS	SENTĪSCEBAS	SENTĪSCES	SENTĪSCAS	SENTĪSCERES	SENTĪSCE
3sg	SENTĪSCIT	SENTĪSCEBAT	SENTĪSCET	SENTĪSCAT	SENTĪSCERET	
1pl	SENTĪSCIMUS	SENTĪSCEBAMUS	SENTĪSCEMUS	SENTĪSCAMUS	SENTĪSCEREMUS	
2pl	SENTĪSCITIS	SENTĪSCEBATIS	SENTĪSCETIS	SENTĪSCATIS	SENTĪSCERETIS	SENTĪSCITE
3pl	SENTĪSCUNT	SENTĪSCEBANT	SENTĪSCENT	SENTĪSCANT	SENTĪSCERENT	

## 2. Diachronic Overview

### Developments from Classical Latin to Late Latin

- Semantic loss (e.g. PĀRĒRE and PARĒSCĒRE 'to appear', CĀRĒRE and CARĒSCĒRE 'to lack'; Da Tos 2013: 54)
- Parallel forms (MĀTŪRĀSCĒRE vs. MĀTŪRĒSCĒRE 'to become ripe' and GĒLĀSCĒRE vs. GĒLĒSCĒRE 'to freeze' (Da Tos 2013: 55)
- Suffix shifts to verbs in -ĪRE (predominantly made up of denominal causative verbs e.g. MOLLIS 'soft' > MOLLĪRE 'to make soft, soften') → semantic contiguity between 'to (begin to) become X' and 'to make (cause) X'
- Potential outcome of paradigm GRANDĒSCĒRE and GRANDĪRE 'to become large'(Da Tos 2013: 56)

	<b>Present Indicative</b>	<b>Present Subjunctive</b>	<b>Imperative</b>
1sg	GRANDĒSCO	GRANDĒSCAM	
2sg	GRANDĒSCIS	GRANDĒSCAS	GRANDĒSCE
3sg	GRANDĒSCIT	GRANDĒSCAT	
1pl	GRANDĪMUS	GRANDĪÁMUS	
2pl	GRANDĪTIS	GRANDĪÁTIS	GRANDĪTE
3pl	GRANDĒSCUNT	GRANDĒSCANT	

# 3. Synchronic Overview

## Developments from Latin to Italian

- Intra-paradigmatic restructuring, i.e. the augment *-isc-* appears only in the forms of the verbal paradigm that were originally rhizotonic: sg and 3pl of the present indicative and of the present subjunctive (and the 2sg of the imperative)
- Paradigmatically obligatory (e.g. *finisco* 'I finish' vs. \**fino*; with some exceptions → doublets, e.g. *mentire* 'to lie', *aborrere* 'to be disgusted', *applaudire* 'to applaud', *nutrire* 'to feed', *tossire* 'to cough' etc.)
- Loss of derivational function
- Semantic loss

What is the function of *-isc-*?

- maintaining "accentual stability" (Burzio & DiFabio 1993)
- stress alignment (Rohlf's 1966, Tekavčić 1972)
- "anti-allomorphic" (Anderson 2008)
- Semantic function is still active, e.g. 3sg pres. ind. *parte* 's/he leaves' & *partisce* 's/he divides' (*partire*) and *sorte* 's/he draws (a raffle)' & *sortisce* 's/he produces, brings about' (*sortire*) (Zamboni 1982)

	Present Indicative	Present Subjunctive	Imperative
1sg	fin[ísk]o	fin[ísk]a	
2sg	fin[íʃ]i	fin[ísk]a	fin[íʃ]i
3sg	fin[íʃ]e	fin[ísk]a	
1pl	finiámo	finiámo	
2pl	finíte	finiáte	finíte
3pl	fin[ísk]ono	fin[ísk]ano	

# 3. Synchronic Overview

What is the function of *-(i)sc-*?

Basic structure of the Italian verb (Maiden 1995, Da Tos 2013):

✓	Root	(Theme vowel)	(Formative)	Ending
	<i>fin</i>	<i>i</i>	<i>v</i>	<i>o</i>
	lexeme 'to finish'	III conjugation	Mood and Tense Imperfect indicative	Person and Number 1sg

e.g. *fin-i-ss-i* (passato remoto, 1sg), *fin-i-r-ò* (future, 1sg), *fin-i-t-o* (perfect participle) etc.

?	Root	(Theme vowel)	(Formative)	Ending
	<i>fin</i>	<i>i</i>	<i>sc</i>	<i>o</i>
	lexeme 'to finish'	III conjugation	?	Person and Number 1sg

# 3. Synchronic Overview

## Peculiarities:

- *-isc-* does not express a morphosyntactic category (e.g. Tense)
- In all other conjugations the (overt) verbal structure is: (stressed) Root + Ending, e.g. 1sg pres. ind. (*ám-o, tém-o, sént-o*)
- In this regard, *-isc-* verbs are, consequently, irregular (frequency!).

	<i>morire</i> 'to die'	<i>sedere</i> 'to sit'	<i>andare</i> 'to go'	<i>finire</i> 'to finish'
1sg	muóio	siédo	vádo	finísco
2sg	muóri	siédi	vái	finísci
3sg	muóre	siéde	vá	finísce
1pl	moriámo	sediámo	andiámo	finiámo
2pl	moríte	sedéte	andáte	finíte
3pl	muóiono	siédono	vánno	finíscono

Verbs displaying the *N-pattern* (Maiden 2018)

## What is the function of *-(i)sc-*?

- *-sc-* is the exponent of the morpheme *N-pattern* (Maiden 2003, 2005, 2018)
- Alternation such that present tense sg + 3pl, and 2sg imperative, share a root distinct from the rest of the paradigm. The source of the *N-pattern* is quality differentiation between stressed and unstressed vowels.
- The element *-isc-* is constituted of the TV *-i-* and *-sc-* which “is a signans whose signatum is not morphosyntactic (as in the case of the other Formatives), but rather *purely morphological*” (Da Tos 2013: 63).

# 3. Synchronic overview

(i) = not realized overtly

	Root	(Theme Vowel)	(Formative)	Ending
1sg	sent	(i)	∅	o
2sg	sent	(i)	∅	i
3sg	sent	(i)	∅	e
1pl	sent	ia	∅	mo
2pl	sent	i	∅	te
3pl	sent	(i)	∅	ono

Conjugation IIIb *sentire* 'to feel' (Da Tos 2013, Maiden 2018)

	Root	(Theme Vowel)	(Formative)	Ending
1sg	sent	(i)	∅	o
2sg	sent	(i)	∅	i
3sg	sent	e	∅	∅
1pl	sent	ia	∅	mo
2pl	sent	i	∅	te
3pl	sent	o	∅	no

Conjugation IIIb *sentire* 'to feel' (version assumed here; w.r.t. TV see Calabrese 2015, in print for at least 3pl, Pomino & Remberger in print)

	Root	(Theme Vowel)	(Formative)	Ending
1sg	fin	i	sc	o
2sg	fin	i	sc	i
3sg	fin	i	sc	e
1pl	fin	ia	∅	mo
2pl	fin	i	∅	te
3pl	fin	i	sc	ono

Conjugation IIIa *finire* 'to finish' (Da Tos 2013, Maiden 2018)

	Root	(Formative)	(Theme Vowel)	Ending
1sg	fin	isc	(i)	o
2sg	fin	isc	(i)	i
3sg	fin	isc	e	∅
1pl	fin	∅	ia	mo
2pl	fin	∅	i	te
3pl	fin	isc	o	no

Conjugation IIIb *sentire* 'to feel' (version assumed here; w.r.t. to TV see Calabrese 2015, in print for at least 3pl, Pomino & Remberger in print)

# 3. Synchronic Overview

## Main motivation

- Stress assignment
- Complementary distribution

- Alternative proposal: The element *-isc-* is an allomorph of the TV *-i-* (Meul 2010, 2013).
- Empirical evidence from various Italian dialects
- Major difference between standard Italian and Italian varieties: extension of *-isc-* to other Tenses
- Major difference between Italian dialects: level of extension as well as type of allomorph (/isk/ vs. /is/ or /ij/):
  - In some Tuscan dialects, /isk/ has been extended to 1/2pl of the present subjunctive (e.g. 1pl *fin[isk]iamo*, 2pl *fin[isk]iate*) (Rohlf 1968: 243).
  - In many dialects /isk/ is also used in the 2sg (e.g. in Senese and in Romanesco *cap[isk]i* 'you understand', *fin[isk]i* 'you finish') (Rohlf 1968: 243).
- However, in general, it seems as if /is/ and /ij/ are the preferred variants, e.g. in central Italian dialects /ij/ (/ijfi/) has entered the 1sg *fin[ij]o* 'I finish', *cap[ij]o* 'I understand' as well as the 3pl *fin[ij]ino* or *fin[ij]ine* 'they finish' (Rohlf 1968: 243).

# 3. Synchronic Overview

## Example I:

	Piemontese: <i>finí</i> 'to finish'		Upper-Engadinian: <i>finír</i> 'to finish'		Ligurian: <i>patí</i> 'to suffer'	
	Present indicative	Present subjunctive	Present indicative	Present subjunctive	Present indicative	Present indicative
1sg	fin-íss-o	fin-íss-e	fin-ésch	fin-ésch-a	pat-ísc-iu	pat-ísc-e
2sg	fin-íss-e	fin-íss-a	fin-ésch-ast	fin-ésch-ast	pat-ísc-i	pat-ísc-i
3sg	fin-ís	fin-íss-e	fin-ésch-a	fin-ésch-a	pat-ísc-e	pat-ísc-e
1pl	finióma	fin-íss-o	finíns	fin-ésch-ans	patímu	pat-ísc-imu
2pl	fin-íss-e	fin-íss-e	finís	fin-ésch-as	patì	pat-ísc-i
3pl	fin-íss-o	fin-íss-o	fin-ésch-an	fin-ésch-an	pat-ísc-e	pat-ísc-e

Distribution of the augment in various dialects (Brero & Bertodatti 1988: 102–105, Iliescu & Mourin 1991: 93–94, Azaretti 1977: 220)

- This pattern also occurs in Italian varieties such as Ticinese and other Lombard dialects (Forner 1997: 249, Meul 2010: 15).
- It can also be found in Corsican and in related dialects of northern Sardinian (Maiden 2003: 44).

# 3. Synchronic Overview

## Example II

- Extension to Future and Conditional
- This pattern occurs in Corsican, Friulan and Lombard varieties (Meul 2010: 24f).

### Conclusions (Meul 2010):

- Paradigmatic complementarity between /is/ and /i/ (except for the present participle)
- Syntagmatic incompatibility between /is/ and /i/ (e.g. 1sg fut. \**cap-iss-i-róo*)
- In the future and in the conditional /isa/ and /i/ are mutually interchangeable
- “As for its ‘status’, the infix can generally be qualified as an allomorph of the thematic vowel /i/ of the fourth conjugation” (Meul 2010: 35).

	Milanese: <i>capi</i> 'to understand'			
	Present indicative	Present subjunctive	Future	Conditional
1sg	cap-íss-i	cap-íss-a	cap-i-róo / cap-iss-a-róo	cap-i-ría / cap-iss-a-ría
2sg	cap-íss-et	cap-íss-et	cap-i-rée / cap-iss-a-rée	cap-i-ríet / cap-iss-a-ríet
3sg	cap-íss	cap-íss-a	cap-i-rá / cap-iss-a-rá	cap-i-ría / cap-iss-a-ría
1pl	cap-íss-om	cap-íss-om	cap-i-rémm / cap-iss-a-rémm	cap-i-ríom / cap-iss-a-ríom
2pl	cap-íi	cap-íss-ov	cap-i-ríi / cap-iss-a-ríi	cap-i-ríov / cap-iss-a-ríov
3pl	cap-íss-en	cap-íss-en	cap-i-ránn / cap-iss-a-ránn	cap-i-ríen / cap-iss-a-ríen

# 3. Synchronic Overview

## Example III

- Generalization to the whole paradigm of verbs in *-iri* (< lat. -ĒRE, -ĔRE, -ĪRE) in Calabrian dialects (Rohlf 1968: 243, Meul 2010: 27).

In the infinitive:

- *tradiscire* 'to betray'
- *guariscire* 'to cure, to heal'
- *spediscire* 'to send'
- *uniscire* 'to join'
- *temiscere* 'to fear' etc. (Rohlf 1968: 243)

In other forms:

- passato remoto 1sg *guarire* 'to heal, to cure' *guariscivi*
- imperfect subjunctive 1sg/2sg *unire* 'to join' *uniscissi*
- conditional 1sg *patire* 'to suffer' *patisciarria*
- participle perfect *spartire* 'to share' *spartiscutu*

(Rohlf 1968: 244, Savoia 1997: 83)

Same phenomenon also in some Neapolitan varieties, e.g. *capéscere* 'to understand', *addremésce* 'to fall asleep' (Tekavčić 1972: 329).

- The element /ij/ has been completely lexicalized as part of the root.

# 4. A DM-analysis of *-isc-*

(i) = not realized overtly

## Hypothesis I

- /ijfi/ is the underlying alternative phonological exponent of the TV, more precisely, of the *theme* position.

	Root	(Formative)	(Theme Vowel)	Ending
1sg	fin	isc	(i)	o
2sg	fin	isc	(i)	i
3sg	fin	isc	e	∅
1pl	fin	∅	ia	mo
2pl	fin	∅	i	te
3pl	fin	isc	o	no

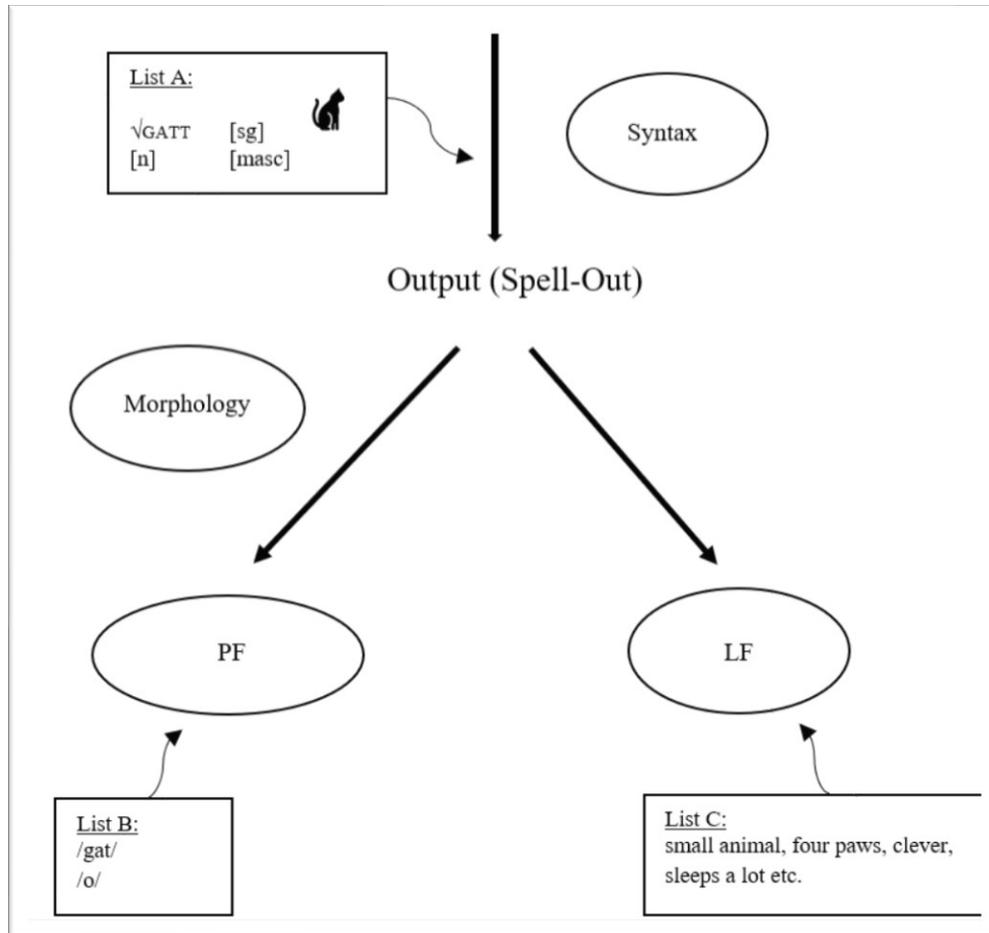
	Root	Theme	Tense	Agreement
1sg	fin	isc(i)	∅	o
2sg	fin	isc(i)	∅	i
3sg	fin	isce	∅	∅
1pl	fin	ia	∅	mo
2pl	fin	i	∅	te
3pl	fin	isco	∅	no

- 3sg /ijfe/ and 3pl /isko/ are the overt phonological realizations in specific phonological contexts, i.e. as in all other conjugations the usual theme element /i/ in the 3sg becomes /e/ (lowering rule) and the theme /i/ becomes /o/ in the 3pl.
- The velar /k/ is palatalized when it occurs before front vowels, therefore yielding the variant /isko/ in the 3pl.
- In the 1/2sg the ubiquitous Italian vowel cancellation rule makes sure that the unstressed /i/ is deleted when followed by another vowel.
- As for its function, the theme vowel (i.e. all elements that occupy the theme position) is taken to be a morphological requirement that serves to signal the category (N, V or A) created in the syntax (Oltra-Massuet 1999).



# 4. A DM-analysis of *-isc-*

## Distributed Morphology (DM)



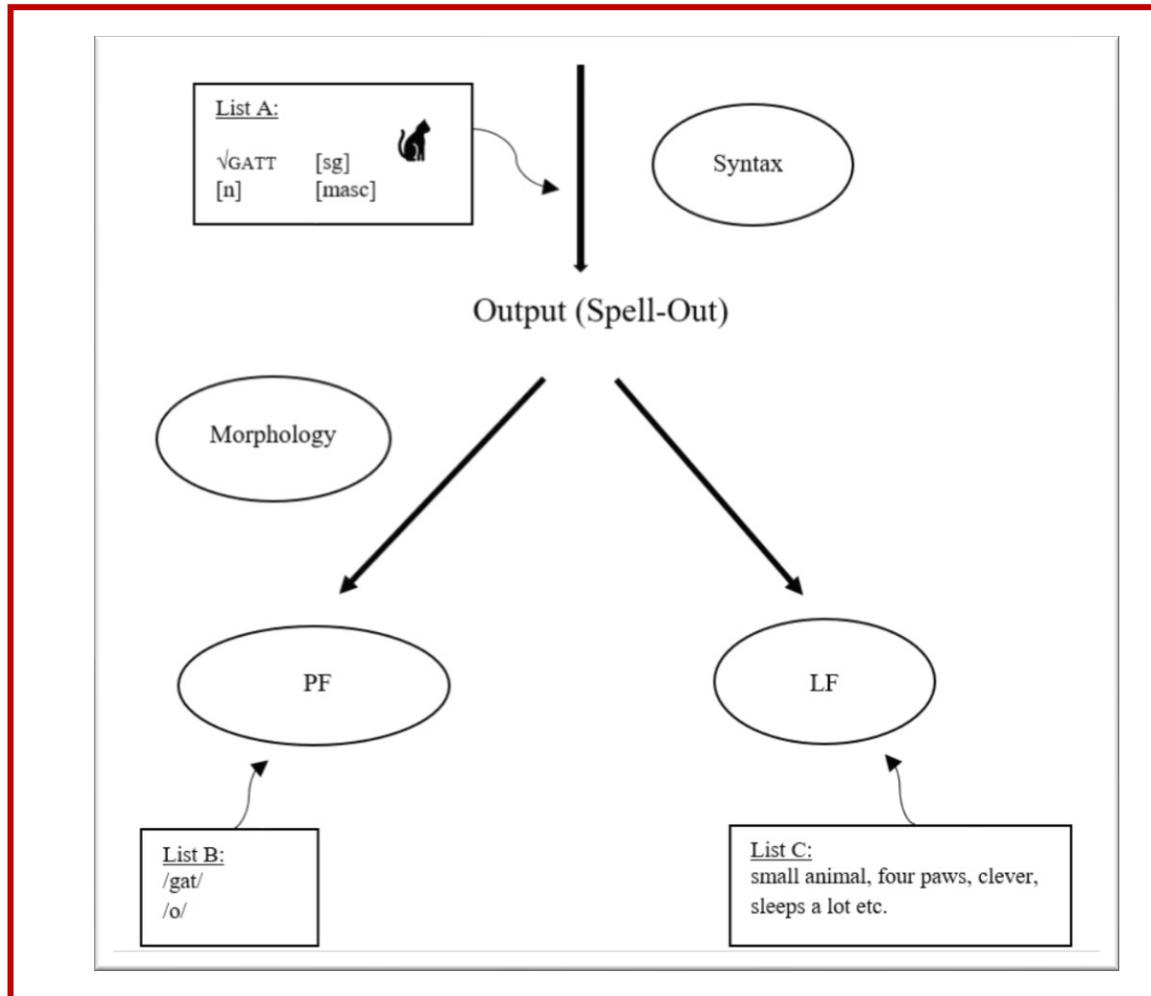
The structure of the grammar (Harley & Noyer 1999: 3)

### Basic notions (Bobaljik 2017)

- *Late insertion* refers to the hypothesis that the pieces manipulated by the syntax are abstract, lacking phonological content. The pairing of phonological features with the terminals of the syntax (*exponence, vocabulary insertion*) happens post-syntactically, in the mapping from syntax to phonological form (PF).
- *Underspecification* of Vocabulary Items (VI) means that phonological expressions need not be fully specified for the syntactic positions where they can be inserted. Vocabulary Items are in many instances default signals, inserted where no more specific form is available.
- *Syntactic structure all the way down* entails that the terminal nodes into which VI are inserted are organized into hierarchical structures determined by the principles and operations of the syntax.

# 4. A DM-analysis of *-isc-*

## Distributed Morphology (DM)



The structure of the grammar (Harley & Noyer 1999: 3)

In DM, allomorphy can be explained by

- Vocabulary Insertion
- and/or readjustment rules

Vocabulary Insertion proceeds from left to right



X°	Y°	Z°
{F1}	{F3}	{F5}
{F2}	{F4}	{F6}
/abc/		



### *Inward Sensitivity*

Vocabulary Insertion 'sees' only the phonological features of the previous element (the morphosyntactic features are no longer available since Vocabulary Insertion has already taken place).

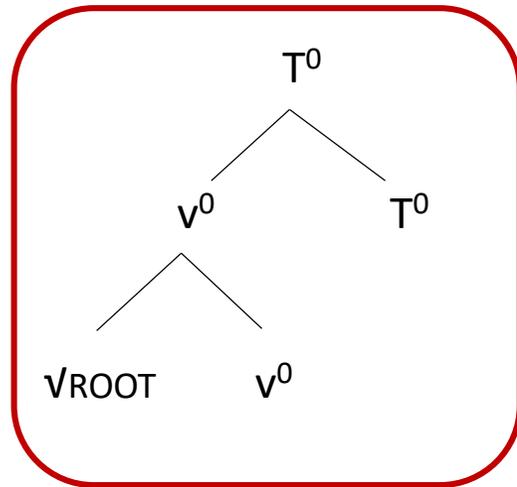
### *Outward Sensitivity*

Vocabulary Insertion 'sees' only the morpho-syntactic features of the following element (phonological features are not available since Vocabulary Insertion has not yet taken place for this element).

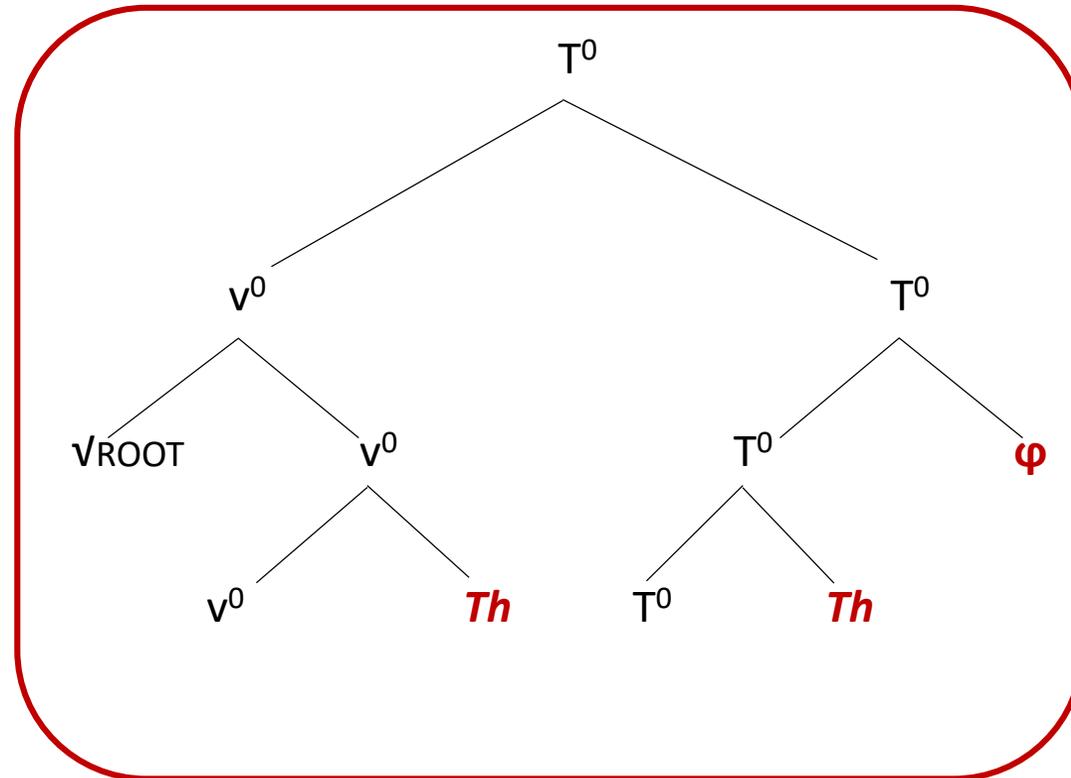
Inward and outward sensitivity (Bobaljik 2000; Pomino & Remberger in print)

# 4. A DM-analysis of *-isc-*

Italian verb structure (Calabrese 2015, in print; Pomino & Remberger in print)



**Input to Morphology**



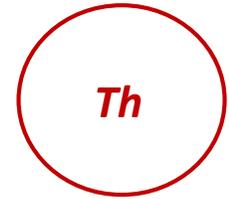
**Morphology: after well-formedness condition**

- $\varphi$  is not a syntactic head (added post-syntactically!)
- *Th* is a morphological requirement on syntactic functional heads

originally proposed for Catalan (Oltra-Massuet 1999) and Spanish (Arregi 2000, Oltra-Massuet & Arregi 2005, Pomino 2008)

# 4. A DM-analysis of *-isc-*

- Conjugational information is encoded in terms of primitive binary features.
- Roots have a *Th* feature in their entry; they are minimally specified for these features.

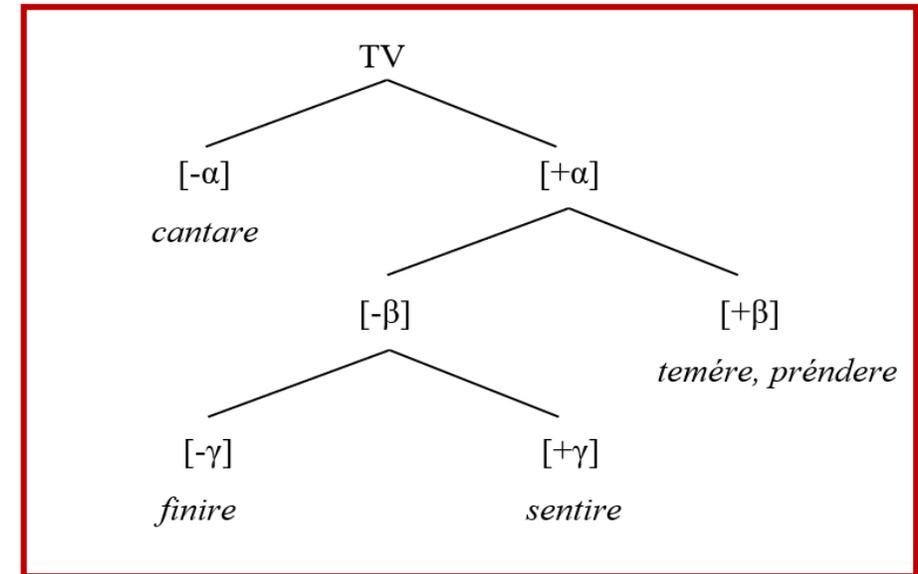


## (3) Theme Vowel Markedness

- Conjugation II (e.g. *temere, prendere*):  $[+\alpha, +\beta]$
- Conjugation IIIb (e.g. *sentire*):  $[+\alpha, -\beta, +\gamma]$
- Conjugation IIIa (e.g. *finire*):  $[+\alpha, -\beta, -\gamma]$
- Conjugation I (e.g. *cantare*):  $[-\alpha]$

## (4) Redundancy Rules

- $v \rightarrow v_{[-\alpha]}$  e.g.  $v/kant/$
- $v_{[+\beta]} \rightarrow v_{[+\alpha, +\beta]}$  e.g.  $v/tem/[+\beta], v/prend/[+\beta]$
- $v_{[+\alpha]} \rightarrow v_{[-\beta, -\gamma]}$  e.g.  $v/fin/[+\alpha]$
- $v_{[+\gamma]} \rightarrow v_{[-\beta, +\gamma]}$  e.g.  $v/sent/[+\gamma]$

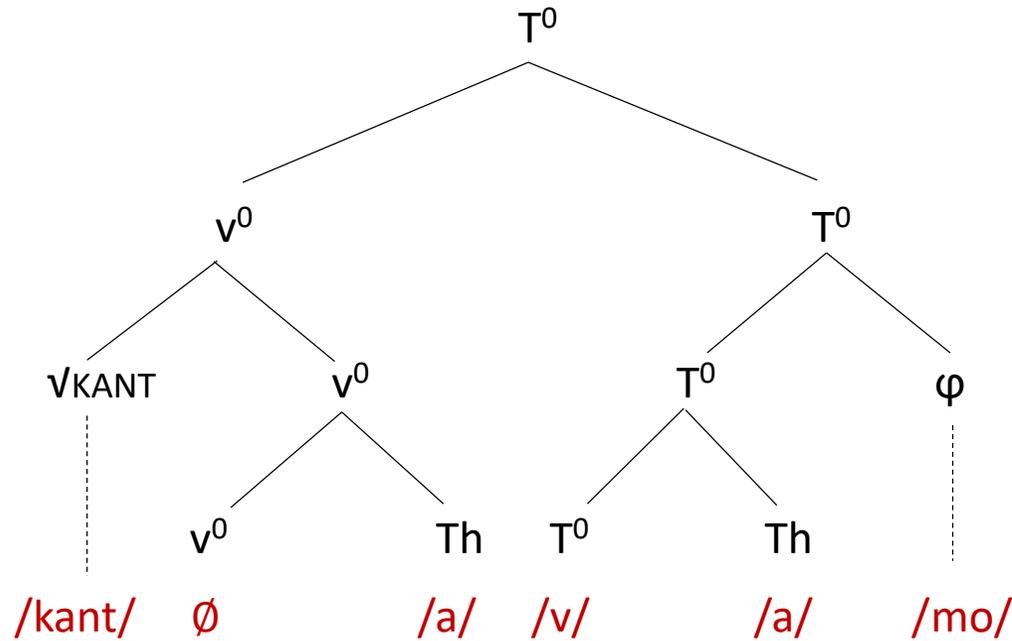


Theme Vowel Markedness Hierarchy (Oltra-Massuet 1999)

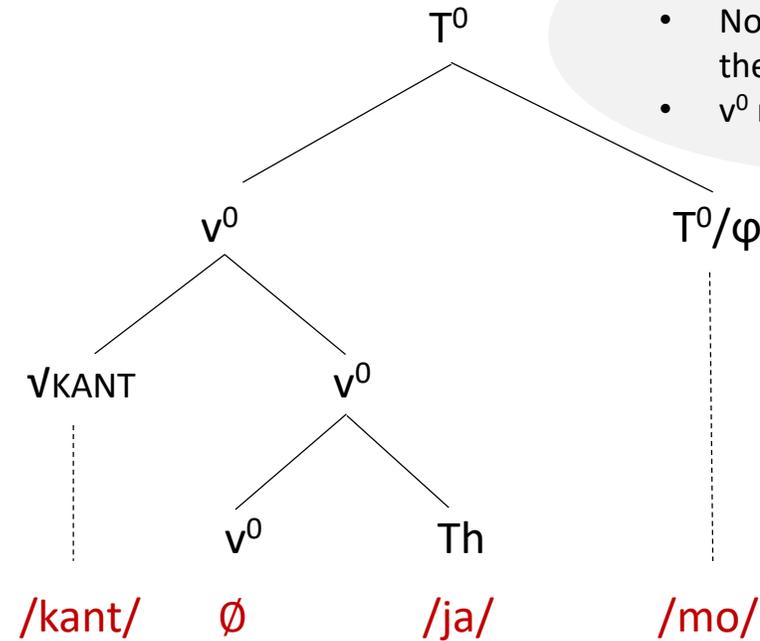
# 4. A DM-analysis of *-isc-*

T

T [+past, -perf] etc., e.g. *cantavamo* 'we sang'



T [-past], e.g. *cantiamo* 'we sing'



- Fusion T<sup>0</sup>/φ
- No exponent for T in the Present Tense
- v<sup>0</sup> more local to φ

- No Fusion T<sup>0</sup>/φ
- Exponent for T [-past, -perf] available (/v/)



**Fusion** combines two sister nodes into a single X<sup>0</sup>, with the features of both input nodes, but no internal structure. A fused node reduces the number of terminals, providing for but a single locus of vocabulary insertion (Bobaljik 2017).

**Tense Markedness** (Oltra-Massuet 1999)

T [-past]	'unmarked'
T [-past, +subj]	'marked'
T [+past, -subj]	'marked'
T [+past, +subj]	'doubly marked'

## 4. A DM-analysis of *-isc-*

(5) Vocabulary Items for T (only present tense is considered here)

- a.  $\emptyset \leftrightarrow T [-past]$
- b.  $/a/ \leftrightarrow T [-past, +subj] / [+α, +β, +γ]$
- c.  $/i/ \leftrightarrow T [-past, +subj] / [-α]$
- d.  $/ia/ \leftrightarrow T[-past, +subj] \varphi[1pl] \varphi[2pl]$

(7) Vocabulary Items for  $\varphi$  (without *passato remoto*)

- a.  $/mo/ \leftrightarrow [1pl]$
- b.  $/te/ \leftrightarrow [2pl]$
- c.  $/no/ \leftrightarrow [pl]$
- d.  $/o/ \leftrightarrow [1sg] / T [-past, -subj]$
- e.  $/i/ \leftrightarrow [2sg] / T [-past, -subj]$
- f. (There is no VI for 3sg = default)

(6) Vocabulary Items for  $v^0$

- $\emptyset \leftrightarrow v^0$

(8) Vocabulary Items for *Th*

- a.  $/e/ \leftrightarrow [+β]$
- b.  $/iffi/ \leftrightarrow [-γ] / T[-past]$
- c.  $/i/ \leftrightarrow [+α]$
- d.  $/a/ \leftrightarrow elsewhere$

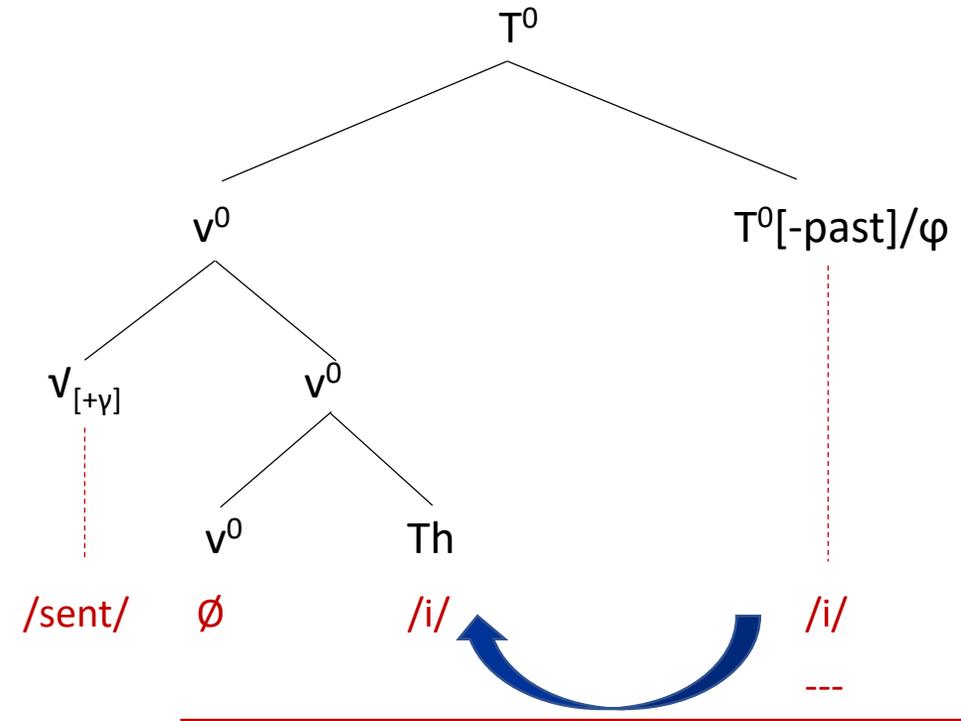
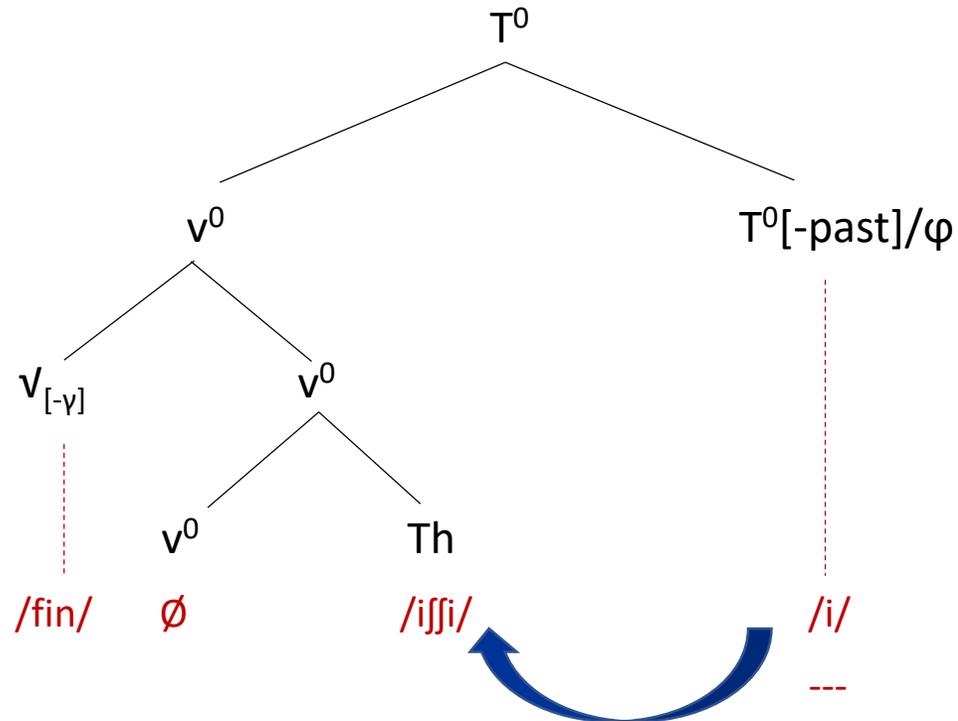


# 4. A DM-analysis of *-isc-*

Present indicative

*finire* 'to finish': 2sg *finisci*, 3sg *finisce*

*sentire* 'to feel': 2sg *sentii*, 3sg *sente*



VIs for *Th*

- /iffi/ ↔ [-γ] / T[-past]
- /i/ ↔ [+α]

\*/finiffii/    \*/sentii/ (2sg)  
 \*/finiffi/    \*/senti/ (3sg)



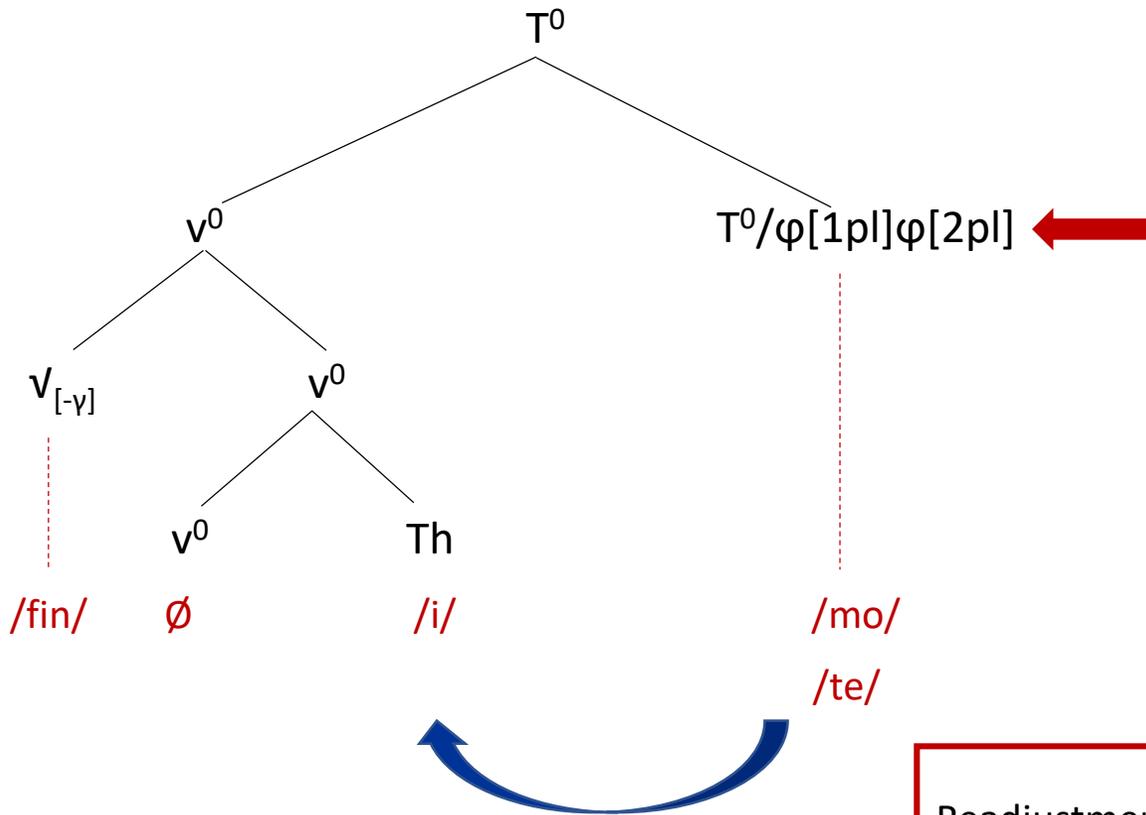
Readjustment Rule:

- $V_{[-stress]} \rightarrow \emptyset / Th[ \_ ] + [V (/senti/, /finiffi/)$
- $V \rightarrow /e/ / v_{[+\alpha]} Th[ \_ ] T[-past] \phi[3sg]$   
 (/sente/, /finiffje/)

# 4. A DM-analysis of *-isc-*

Present indicative

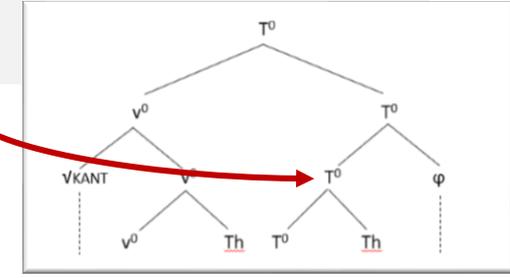
*finire* 'to finish': 1pl *finiamo*, 2pl *finite*



**1. Impoverishment:** deleting the entire T node is necessary w.r.t. the feature [+subj] since, if we only deleted the feature [-past], in the present subjunctive the feature [+subj] would still be present.

$T^0[-past] \rightarrow \emptyset / \_\_ \varphi[1pl, 2pl]$

**2. Fusion**



VIs for *Th*

- /iffi/ ↔ [-γ] / T[-past]
- ➔ /i/ ↔ [+α]

VI for φ

- /mo/ ↔ [1pl]
  - /te/ ↔ [2pl]
  - /no/ ↔ [pl]
  - /o/ ↔ [1sg] / T [-past, -subj]
  - /i/ ↔ [2sg] / T [-past, -subj]
- (There is no VI for 3sg = default)

**Readjustment Rule:**

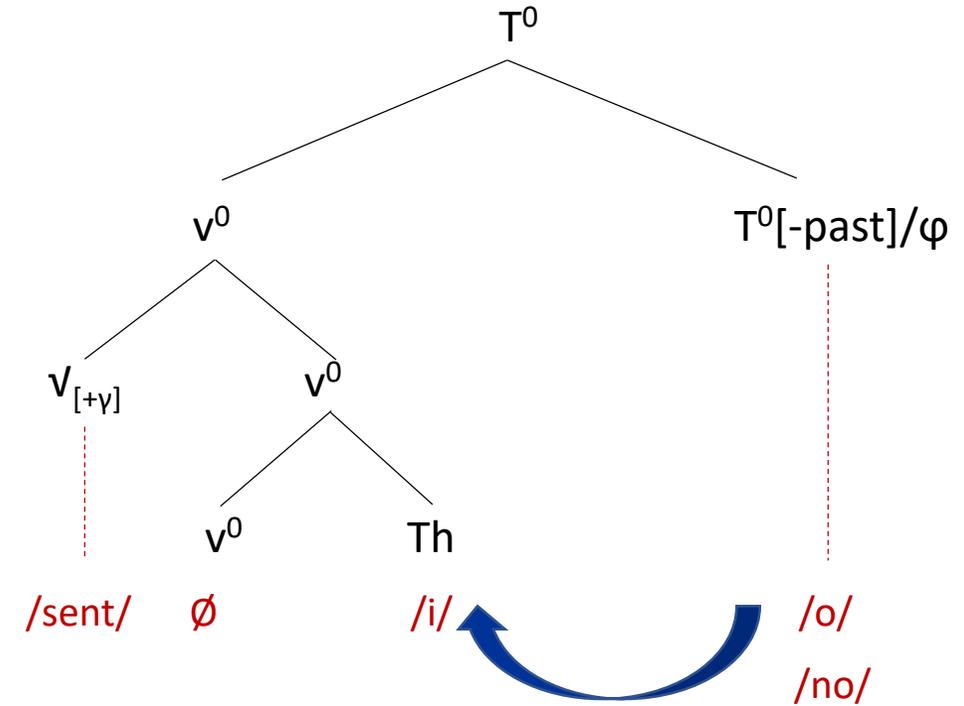
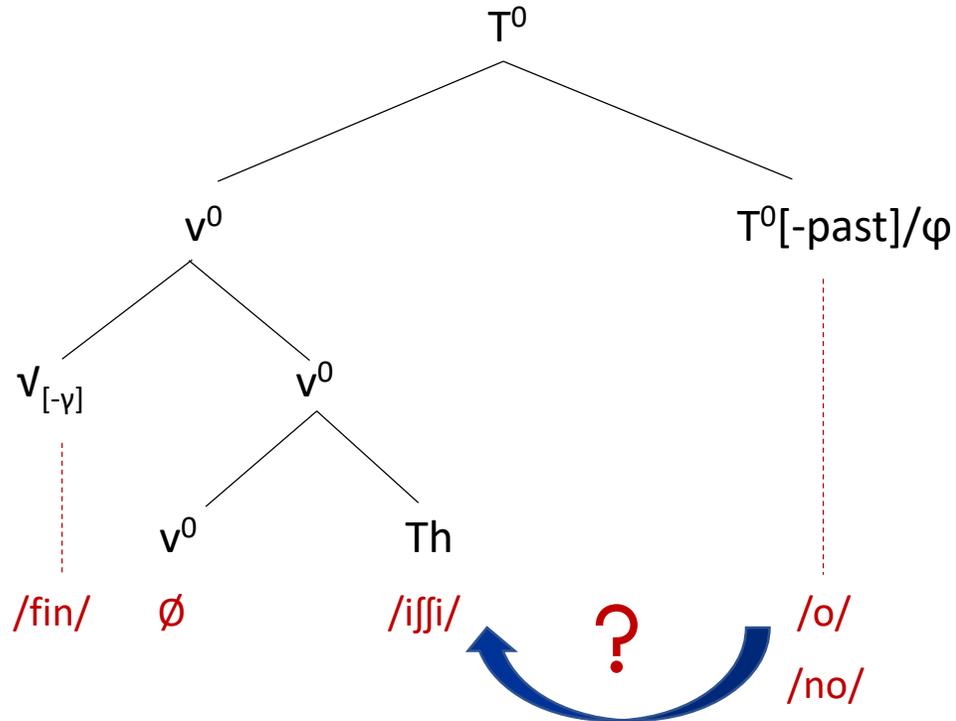
- $V \rightarrow /ja/ / V_{[+\alpha]} Th[ \_\_ ] \varphi[1pl]$

# 4. A DM-analysis of *-isc-*

Present indicative

*finire* 'to finish': 1sg *finisco*, 3pl *finiscono*

*sentire* 'to feel': 1sg *sentio*, 3pl *sentono*



VIs for *Th*

- /iffi/  $\leftrightarrow$  [- $\gamma$ ] / T[-past]
- /i/  $\leftrightarrow$  [+ $\alpha$ ] <elsewhere>

\*/finiffio/    \*/sentio/ (1sg)  
 \*/finiffino/    \*/sentino/ (3pl)

Readjustment Rules:

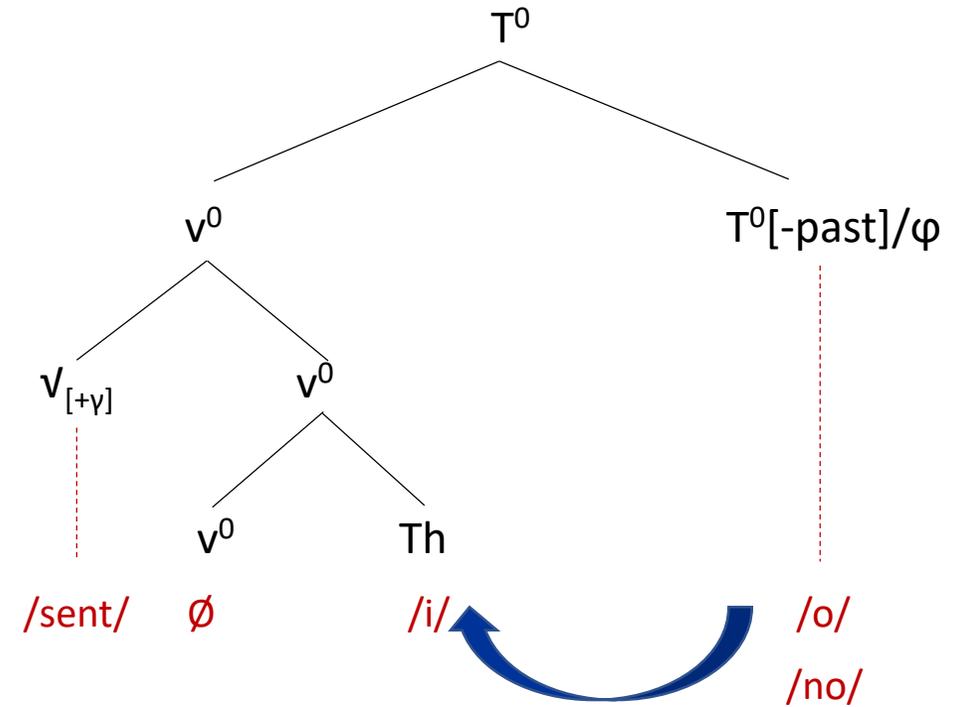
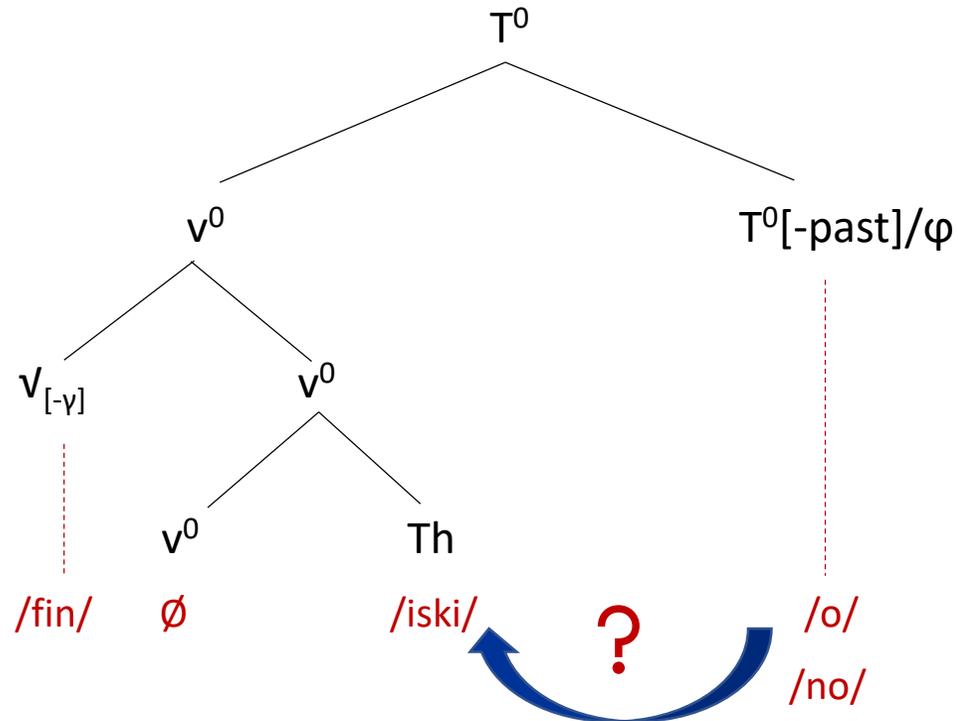
- $V_{[-stress]} \rightarrow \emptyset / Th[ \_ ] + [V (/sentio/)]$
- $V \rightarrow /o/ / v_{[+\alpha]} Th[ \_ ] T[-past] \varphi[3pl] (/sentono/)$
- **But depalatalization of /ij/ not attested in e.g. Italian.**

# 4. A DM-analysis of *-isc-*

Present indicative

*finire* 'to finish': 1sg *finisco*, 3pl *finiscono*

*sentire* 'to feel': 1sg *sentio*, 3pl *sentono*



VIs for *Th*

- /iski/  $\leftrightarrow$  [- $\gamma$ ] /[-past]  $\varphi$ [1sg]  $\varphi$ [3pl]
- /ijfi/  $\leftrightarrow$  [- $\gamma$ ] / T[-past]
- /i/  $\leftrightarrow$  [+ $\alpha$ ] <elsewhere>

\*/finiskio/    \*/sentio/    (1sg)  
 \*/finiskino/    \*/sentino/    (3pl)

Readjustment Rules:

- $V_{[-stress]} \rightarrow \emptyset / Th[ \_ ] + [V (/finisko/, /sentio/)$
- $V \rightarrow /o/ / v_{[+\alpha]} Th[ \_ ] T[-past] \varphi[3pl] (/finiskono/ /sentono/)$

# 4. A DM-analysis of *-isc-*

(i) = not realized overtly

- Present indicative vs. present subjunctive

	Root	Theme	Tense	Agreement
1sg	fin	isc(i)	∅	o
2sg	fin	isc(i)	∅	i
3sg	fin	isce	∅	∅
1pl	fin	ia	∅	mo
2pl	fin	i	∅	te
3pl	fin	isco	∅	no

Present indicative of *finire* 'to finish'

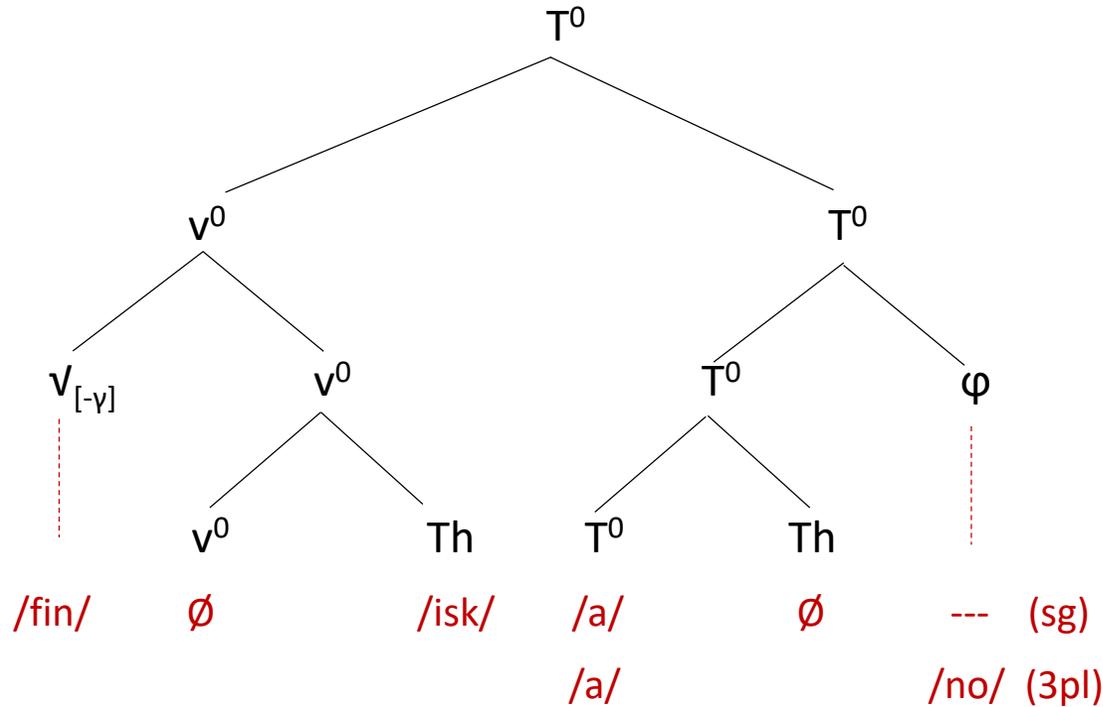
	Root	Theme	Tense	Agreement
1sg	fin	isc(i)	a	∅
2sg	fin	isc(i)	a	∅
3sg	fin	isc(i)	a	∅
1pl	fin	ia	∅	mo
2pl	fin	ia	∅	te
3pl	fin	isc(i)	a	no

Present subjunctive of *finire* 'to finish'

- Is /a/ really an exponent of Mood?
- Is /a/ part of the theme of T? If it is, how can we account for the cancellation of /i/ followed by /a/?
- In the present indicative, the change from /i/ to /ja/ in the 1pl was explained with the «Tuscan readjustment» rule. Is the /ja/ in the 1pl and in the 2pl of the present subjunctive really an exponent of the theme? Or is it an exponent of Mood?
- If another VI, i.e. /isk/, was introduced for the specific environment T[-past, +subj] (assuming Fusion causes non-augmented form in the 1/2pl), the problem could be solved. Yet, how to account for the cancellation of part of the theme element?

# 4. A DM-analysis of *-isc-*

Present subjunctive



Fusion is blocked in the marked environment  $T[-\text{past}, +\text{subj}]$  (see Oltra-Massuet 1999 for Catalan). The T-node is active and licences the insertion of a specific exponent while also triggering the neutralization of  $\varphi$  in the singular.

VI for  $T^0$

- $\emptyset \rightarrow T[-\text{past}]$
- $/a/ \rightarrow v_{[+\alpha]} T[-\text{past}, +\text{subj}]$

VI for  $\varphi$

- $/mo/ \leftrightarrow [1\text{pl}]$
  - $/te/ \leftrightarrow [2\text{pl}]$
  - $/no/ \leftrightarrow [\text{pl}]$
  - $/o/ \leftrightarrow [1\text{sg}] / T[-\text{past}, -\text{subj}]$
  - $/i/ \leftrightarrow [2\text{sg}] / T[-\text{past}, -\text{subj}]$
- (There is no VI for 3sg = default)

VIs for  $Th$

- $/isk/ \leftrightarrow [-\gamma] / T[-\text{past}, +\text{subj}] / \_ v[-\text{anterior}]$
- $/ijfi/ \leftrightarrow [-\gamma] / T[-\text{past}]$
- $/i/ \leftrightarrow [+α] <\text{elsewhere}>$

## 4. A DM-analysis of *-isc-*

### Problems

- *Th*-position is occupied by a disyllabic element (/iski/, /iffi/) because of 3sg *fin*[iff*e*] and 3pl *fin*[isk*o*]no → analysis could be facilitated if /e/ was interpreted as the  $\varphi$ [3sg] (see Calabrese in print) for all roots specified for [+ $\alpha$ , + $\beta$ , + $\gamma$ ]; in comparison with other DM-analyses a similar approach to 3pl /o/ would not work (Calabrese 2015, Pomino & Remberger in print; unless we assume fission of  $\varphi$ [3pl] in the present tense)
- Three VI for [- $\gamma$ ]-roots: /iski/, /iffi/ and /i/ → specification (e.g. /iski/ has to be specified both for T[-past, +subj]  $\varphi$ [sg]  $\varphi$ [3pl] as well as T[-past]  $\varphi$ [1sg]  $\varphi$ [3pl]); what if there was only one specified VI? (e.g. /iffi/, see distribution in dialects; but there are no phonological readjustment rules that could explain why /ij/ becomes /isk/ in some verbal forms)
- If [+subj] is taken to be a secondary feature of T<sup>0</sup>, it could be argued that the indicative and the subjunctive forms share the same structure (and that, thus, Fusion of T<sup>0</sup>/ $\varphi$  triggers the insertion of a more specified VI) (see Pomino 2008 for Spanish)
- But the [+subj] feature seems to have an impact on the neutralization of  $\varphi$ [sg] → why only there?

# 4. A DM-analysis of *-isc-*

## Syntactic approach to stress assignment in Italian

- The position of stress in Italian verbal forms is always predictable from the morphosyntactic composition of the string (Calabrese 2012, 2015, in print):
  1. If the TV is present, then it is stressed, i.e. either the TV preceding  $\varphi$ [1/2pl] (e.g. *finíte* ‘you finish’, *finiváte* ‘you finished’) or the TV preceding a marked Tense (e.g. *finívano* ‘they finished’).
  2. **Stress falls on the root when (i) the TV is absent and (ii) in the (unmarked) Present Tense indicative and subjunctive.**
- In Catalan and Spanish, stress falls on the vowel preceding Tense (i.e. the TV) (Oltra-Massuet 1999, Oltra-Massuet & Arregi 2005, Pomino 2008). In the Present indicative and subjunctive forms a stress is retracted from the final vowel onto the preceding vowel (e.g. Sp. *cánten* instead of *cantén*).
- Problems w.r.t. Italian:
  - (i) The TV preceding the 1/2pl-suffix always receives stress (Sp. *cantábamos*, *cantábais* vs. It. *cantavámo*, *cantaváte*).
  - (ii) The stress retraction rule applied in e.g. Spanish to account for root stress in the present tense indicative and subjunctive can not be used.

## 4. A DM-analysis of *-isc-*

- The TV before the Present Tense does not receive stress (except for 1/2pl). Stress is only assigned to the TV before marked tenses (Calabrese 2015, in print).
- If /ijfi/ were a theme element, it would not fit the stress pattern usually found in Italian.

	Root	Theme	Tense	Agreement
1sg	fin	<b>isk</b>	∅	o
2sg	fin	<b>ijj</b>	∅	i
3sg	fin	<b>ijje</b>	∅	∅
1pl	fin	<b>ja</b>	∅	mo
2pl	fin	<b>i</b>	∅	te
3pl	fin	<b>isko</b>	∅	no

- Special status because it is disyllabic?
- Is it somehow significant that stress only ever falls on the first vowel /i/?

## 4. A DM-analysis of *-isc-*

### Hypothesis II

- *-isc-* (i.e. /isk/ and /ij/, respectively) is **not** part of the exponent of the theme position.
- *-isc-* is part of the root (= root extension) → a case of suppletion and not TV allomorphy (Embick 2016, Calabrese in print)
- Non categorial suppletion because the suppletive pattern is caused by the syntactic context (e.g. Person and Number features) (see also the suppletive pattern of the verb GO in Italian, Pomino & Remberger in print)

	<i>andare</i> 'to go'	<i>finire</i> 'to finish'
1sg	vádo	finísco
2sg	vái	finísci
3sg	vá	finísce
1pl	andiámo	finiámo
2pl	andáte	finíte
3pl	vánno	finíscono

## 4. A DM-analysis of *-isc-*

Previous assumptions:

- Verbs with *-isc-* have one stem, the augment is deleted in specific environments (Vogel 1993)
- Verbs with *-isc-* have two stems, i.e. (/fin-/ and /finisk-/) (Dressler & Thornton 1991)
- Verbs with *-isc-* have three stems, i.e. (/fin-/, /finisk-/ and /finiff-/) (Pirrelli & Battista 2000)

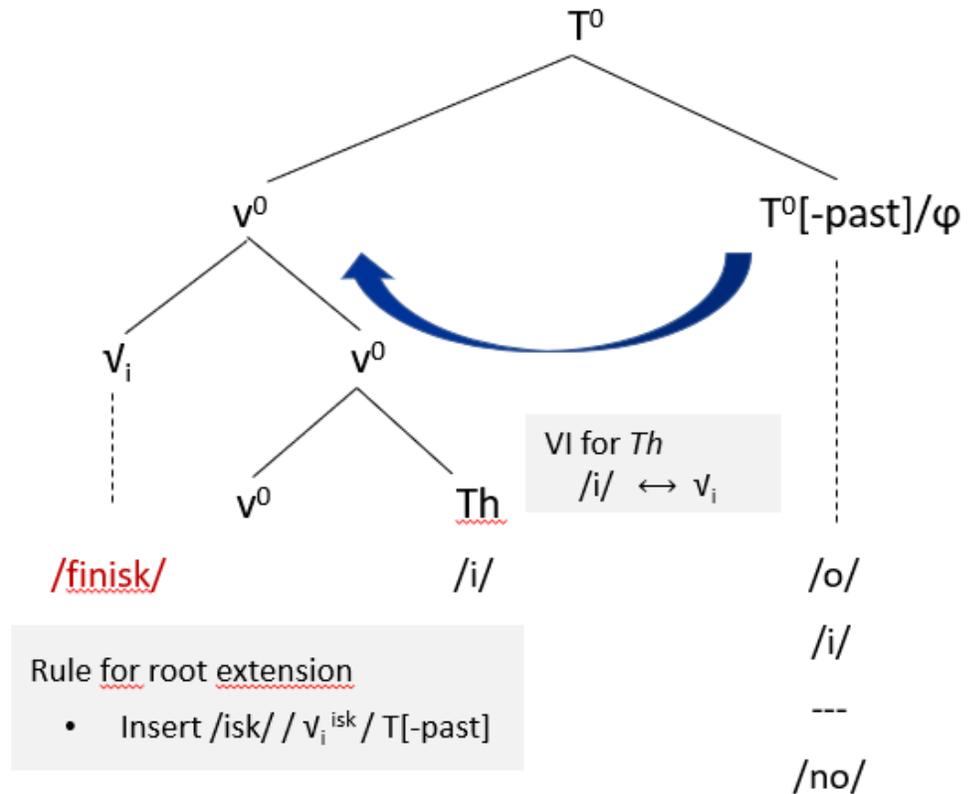
Present indicative: <i>finire</i> 'to finish'					
singular			plural		
1	2	3	1	2	3
fi'nisko	fi'niffi	fi'niffe	fin'jamo	fi'nite	fi'niskono
T2	T3	T3	T1	T1	T2

Stem distribution of *finire*-type verbs (Pirrelli & Battista 2000: 327))

- Consequences for the analysis: insertion of /isk/ when T displays the feature [-past]; Its absence in the environment of  $\varphi[1/2pl]$  could be due to Impoverishment.

# 4. A DM-analysis of *-isc-*

- The TV before the Present Tense does not receive stress. Stress is only assigned to the TV before marked tenses. This is the reason why roots carry stress in the Present Tense (Calabrese 2015, in print).
- If /isk/ and /i/ are not theme elements but part of the root, the fact that they are stressed would comply with the general stress pattern subject to the morphosyntactic structure of the verb.
- Since not all verbs in *-ire* present the augment, the root needs to be marked in some way (with a diacritic?).
- T<sup>0</sup>[-past] has no exponent → Fusion
- The realization of v<sub>i</sub> shows an outward-context sensitivity.



## Readjustment Rules:

- V<sub>[-stress]</sub> → ∅ / [ \_\_\_ ]Th + [V (e.g. /finisko/)
- /isk/ → /iʃ/ / [plosive, velar, -sonorant] + [V [-back, +high] (/finiʃfi/)
- V → /e/ / v<sub>i</sub> Th[ \_\_\_ ] T[-past] φ[3sg] (/finiʃe/)
- V → /o/ / v<sub>i</sub> Th[ \_\_\_ ] T[-past] φ[3pl] (/finiskono/)
- V → /ia/ / v<sub>i</sub> Th[ \_\_\_ ] φ[1pl]

/fin/

/i/

/mo/

Impoverishment

T<sup>0</sup>[-past] → ∅ / \_\_\_ [+Participant, Plural]

/te/

# 5. Conclusions

- In DM, it seems as if the *-isc-* augment in Italian is best analyzed as a root (extension) element.
- Its presence (or absence) depends on the information encoded in T and  $\varphi$ .
- While TAM-triggered allomorphy is explained via the specification of the Vocabulary Item in question, it was shown that through morphological processes like Fusion  $\varphi$ -features can also directly cause root allomorphy.
- The interpretation of *-isc-* as a root element is compatible with the proposal that, also in Italian, stress assignment may be predictable from the morphosyntactic structure of the verb.

## But

- Functional overlaps between augment and theme vowel
- Dialectal data that suggest either co-occurrence of the two elements or (overt) presence of only one element (augment or theme vowel)
- From a diachronic perspective, an indepth analysis of a possible link between an aspectual interpretation of Latin *-sc-* could explain its evolution from suffix to theme vowel in Italian:

$\sqrt{\text{V}} - \text{v}^0 - \text{Th} - \text{Asp} - \text{Th} - \varphi \rightarrow \text{SENT-}\bar{\text{I}}\text{-SC-}\check{\text{E}}\text{-RE}$

- Or exponent of  $\text{v}^0$  (see Fábregas 2017)  $\rightarrow$  theme vowels are light verbs and, thus, verbalizers
- Biggest challenge: determining Vocabulary Items that are compatible with phonological rules

*Ho finisciutu.*

Thank you for your attention!

# Appendix

## 4. A DM-analysis of *-isc-*

- **Stress algorithm** (Calabrese in print, see Oltra-Massuet 1999 for Catalan, Oltra-Massuet & Arregi 2005 for Spanish):
  - a. Project a line 0 mark for each syllable nucleus (3rd pl. suffix *-no* and enclitics do not project).
  - b. On line 0, insert a left parenthesis to the left of the mark projected by the stressable element preceding the highest functional node in  $X^0$ . If this node is  $T^0$ , it must contain morphologically marked features.
  - c. On line 0 insert a left parenthesis to the left of mark projected by the stressable element preceding [+part, +plur]AGR.
  - d. Place a right parenthesis to the left of the right-most element on line 0.
  - e. Insert a parenthesis every two elements starting from the right-most element.
  - f. Project the leftmost mark of each line 0 foot onto line 1.
  - g. Insert a right parenthesis to the right of the rightmost mark on line 1.
  - h. Project the rightmost mark of each line 1 foot onto line 2.

## 4. A DM-analysis of *-isc-*

(9) a. 3sg present indicative *finire*

Line 2		x	
Line 1		x )	
Line 0	x	(x ) x	
String	fin	isce	∅
	Root	Th	T <sup>0</sup> +φ

b. 3sg present indicative *cantare*

Line 2		x	
Line 1		x )	
Line 0	(x	) x	
String	cant	a	∅
	Root	Th	T <sup>0</sup> +φ

c. 3pl present indicative *finire*

Line 2		x	
Line 1		x)	
Line 0	x	(x )(x	
String	fin	isco	no
	Root	Th	T <sup>0</sup> +φ

d. 3pl present indicative *cantare*

Line 2		x	
Line 1		x)	
Line 0	(x	)(x	
String	cant	a	no
	Root	Th	T <sup>0</sup> +φ

## 4. A DM-analysis of *-isc-*

(10) a. 3pl present subjunctive *finire*

Line 2		x		
Line 1		x )		
Line 0	x	( ( x )	( x	
String	fin	isc	a	no
	Root	Th	T <sup>0</sup>	φ

b. 3sg present subjunctive *cantare*

Line 2	x			
Line 1	x )			
Line 0	(( x	) x		
String	cant	∅	i	∅
	Root	Th	T <sup>0</sup>	φ

c. 1pl present indicative *finiamo*

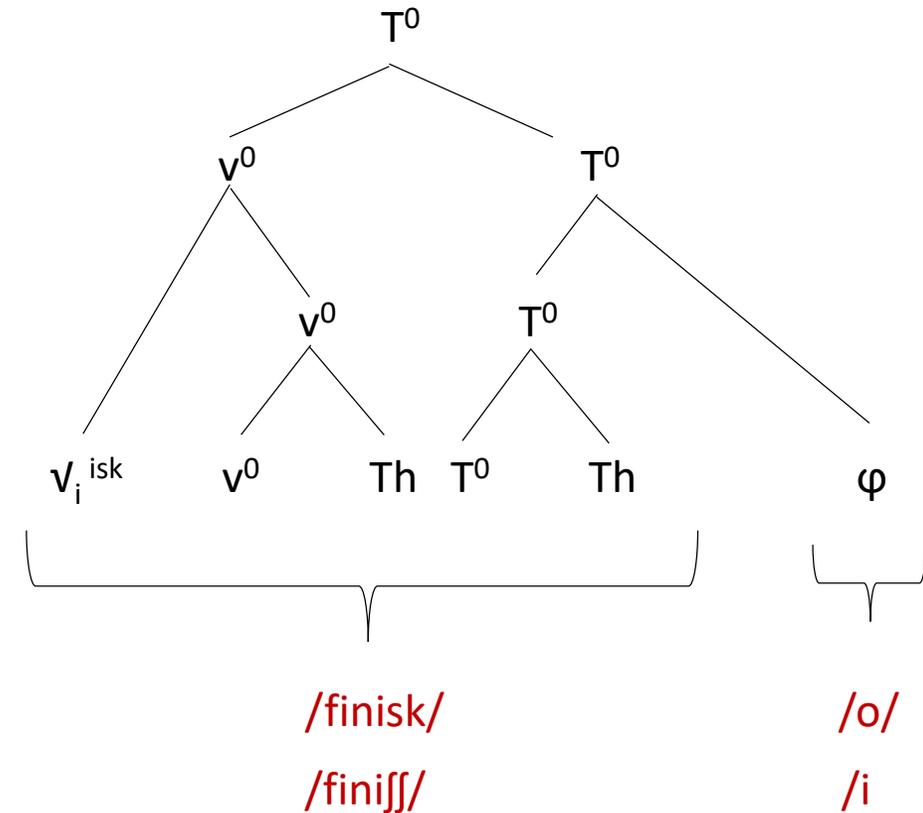
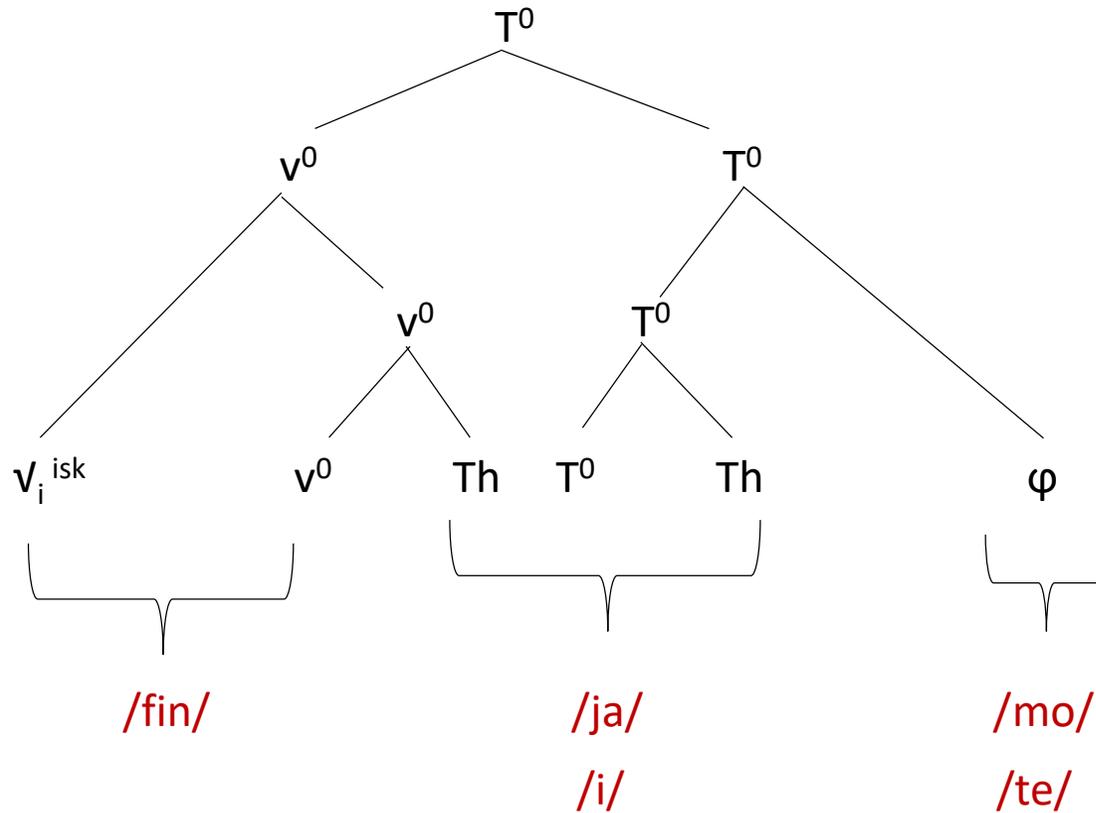
Line 2		x	
Line 1		x )	
Line 0	x	( x )	x
String	fin	ia	mo
	Root	Th	T <sup>0</sup> +φ

d. 2pl present subjunctive *finiate*

Line 2			x
Line 1			x )
Line 0	x	( x )	x
String	fin	∅	ia te
	Root	Th	T <sup>0</sup> φ

# 4. A DM-analysis of *-isc-*

Spanning



**Spanning** allows Vocabulary Insertion to insert not just one terminal node at a time; the locus for VI are spans of terminal nodes (that are in a complement relation with each other) (Williams 2003, Svenonius 2012, Merchant 2015).

**Span Adjacency Hypothesis:** Allomorphy is conditioned only by an adjacent span.

## Vocabulary Items

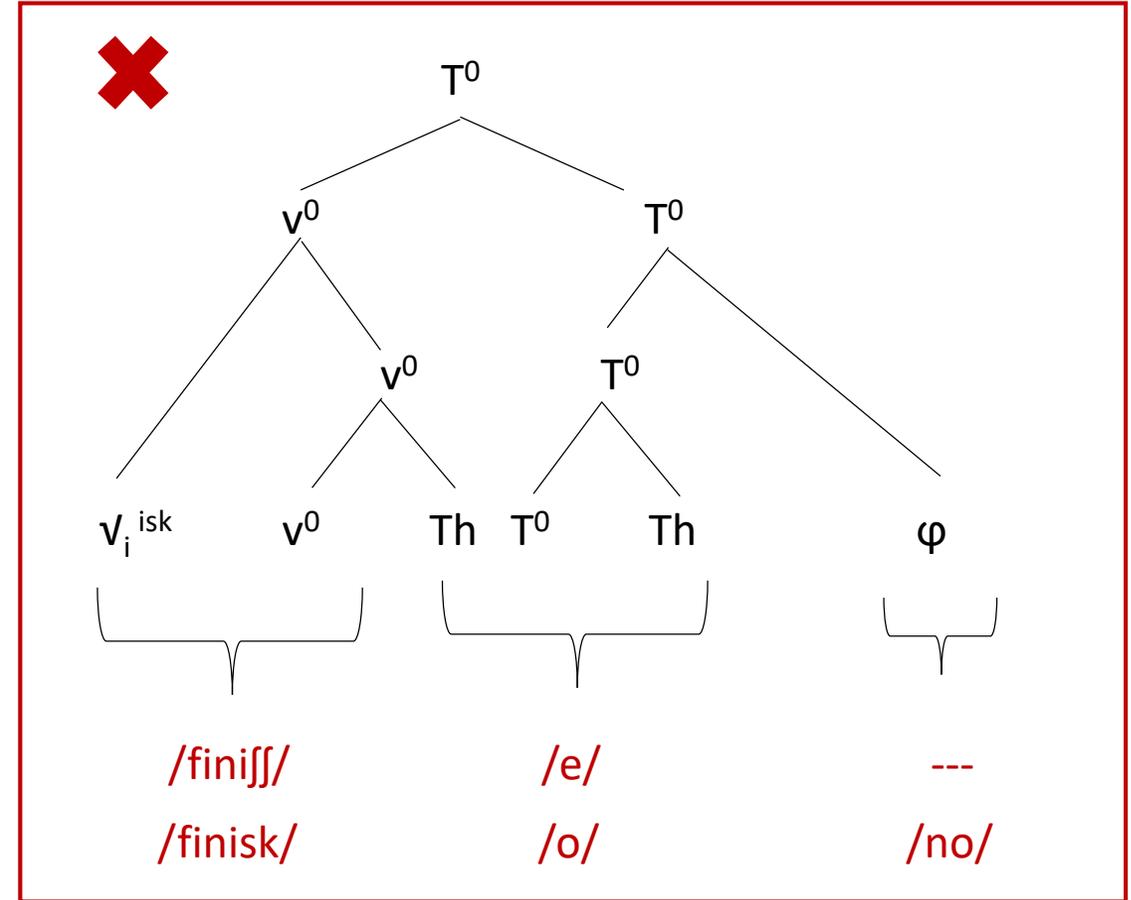
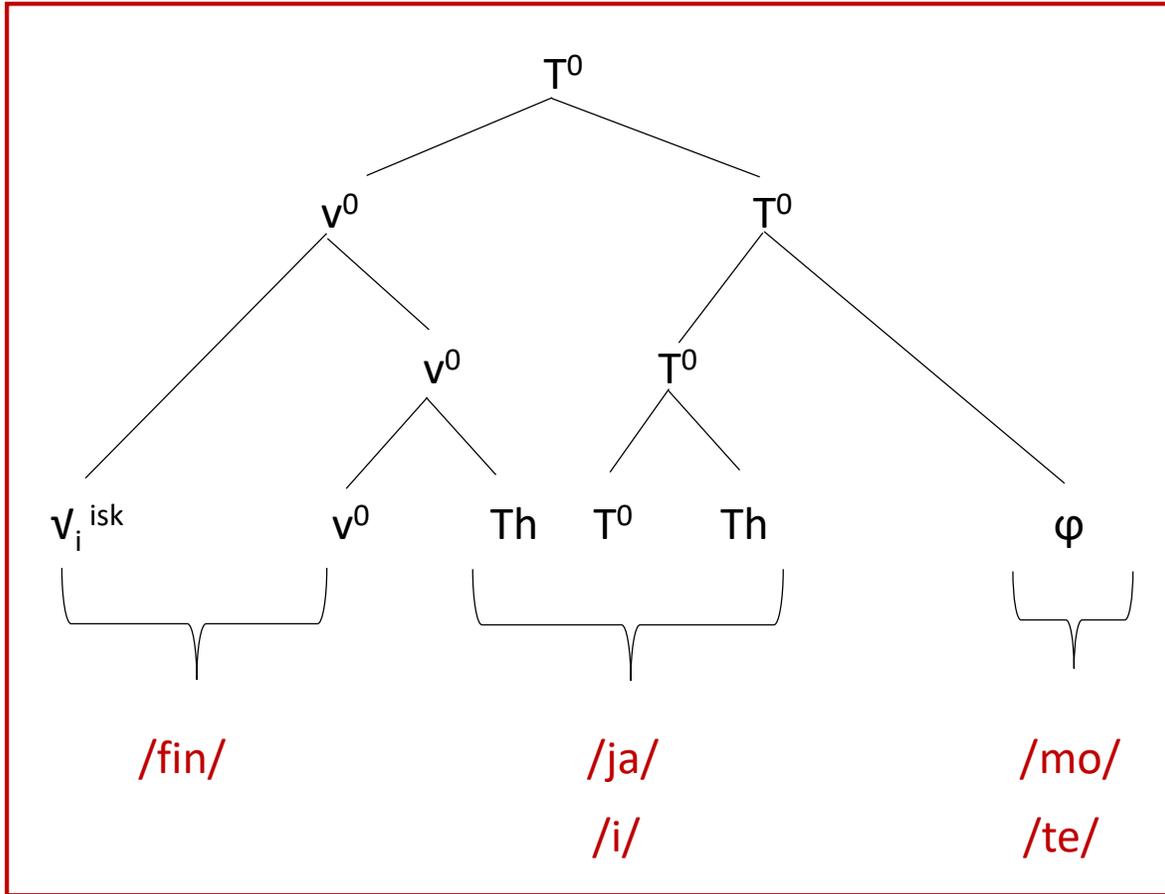
$\langle v_i, v, Th, T[-past], Th \rangle \leftrightarrow \sqrt{/isk/} / \_ V[-anterior]$  (e.g. /finisko/)

$\langle v_i, v, Th, T[-past], Th \rangle \leftrightarrow \sqrt{/if/} / \_ V[+anterior]$  (e.g. /finiffi/)

$\langle v_i, v \rangle \leftrightarrow \sqrt{\phantom{x}}$  (e.g. /finjamo/, /finite/)

# 4. A DM-analysis of *-isc-*

Spanning



**Spanning** allows Vocabulary Insertion to insert not just one terminal node at a time; the locus for VI are spans of terminal nodes (that are in a complement relation with each other) (Williams 2003, Svenonius 2012, Merchant 2015).

**Span Adjacency Hypothesis:** Allomorphy is conditioned only by an adjacent span.

Vocabulary Items

- $\langle v_i, v, Th, T[-past], Th \rangle \leftrightarrow \sqrt{/isk/} / \_ V[-anterior]$  (e.g. */finisko/*)
- $\langle v_i, v, Th, T[-past], Th \rangle \leftrightarrow \sqrt{/if/} / \_ V[+anterior]$  (e.g. */finiffi/*)
- $\langle v_i, v \rangle \leftrightarrow \sqrt{\phantom{x}}$  (e.g. */finjamo/*, */finite/*)