Javier Sanz, Trier Universität, ELC, 11 May 2016

Stress variation in English complex words

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Part 1 (Stress in monomorphemic words)

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- *Foot structure*
- *Syllabic weight*
- *Extrametricality*

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- *Foot structure*
- *Syllabic weight*
- *Extrametricality*

Part 2 (Stress variation in complex words)

- Across-type variation
- Within-type variation (case study: -*(at)ory*)

Part 1:
Stress in monomorphemic words

Lexical stress in English

- Please, take a look at the following words. Do you think English has a systematic way to assign stress to words in isolation?

Lexical stress in English

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consider	maintain	extreme	obey
corrupt	asterisk	consensus	promise (N)
vulgar	metropolis	breakfast	promise (V)
synopsis	sincere	handsome	torment (N)
adapt	common	contradict	torment (V)

English stress rules

What do we need to know to apply the stress rules of English?

- (1) The notion of **foot**

- (2) The notion of **syllabic weight**

- (3) The notion of **extrametricality**

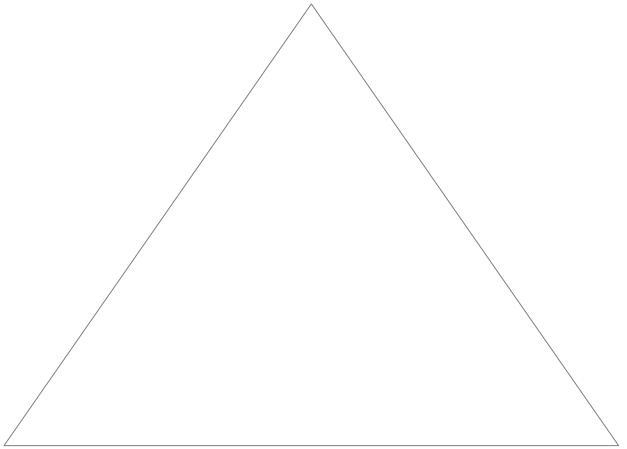
The prosodic hierarchy

- The **Prosodic Hierarchy** describes a series of increasingly smaller constituents of a prosodic utterance, each nested within the next highest constituent. (e.g. Selkirk 1984)

- According to the **culminative property**, each constituent can have no more than one head.

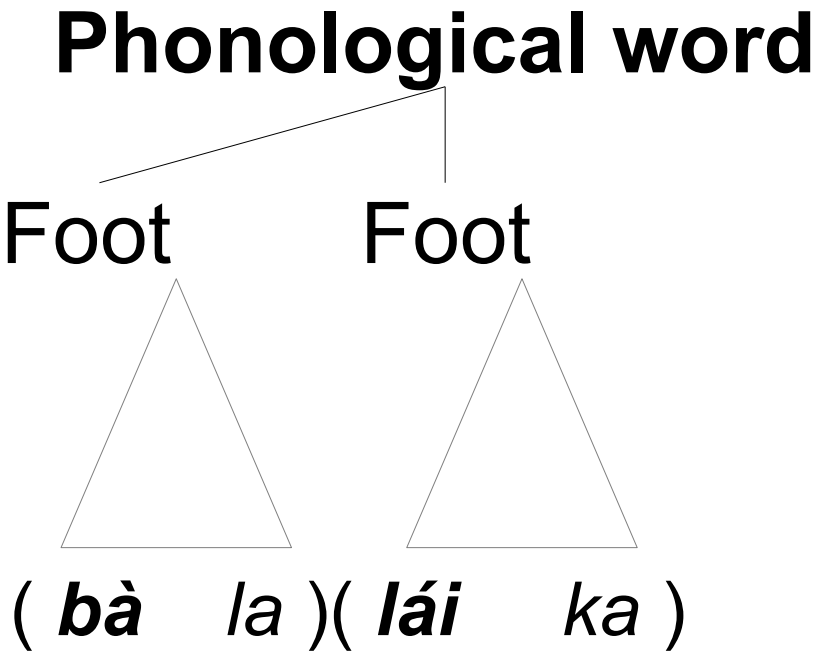
The prosodic hierarchy

Phonological word



(*ba* *la* ***lái*** *ka*)

The prosodic hierarchy



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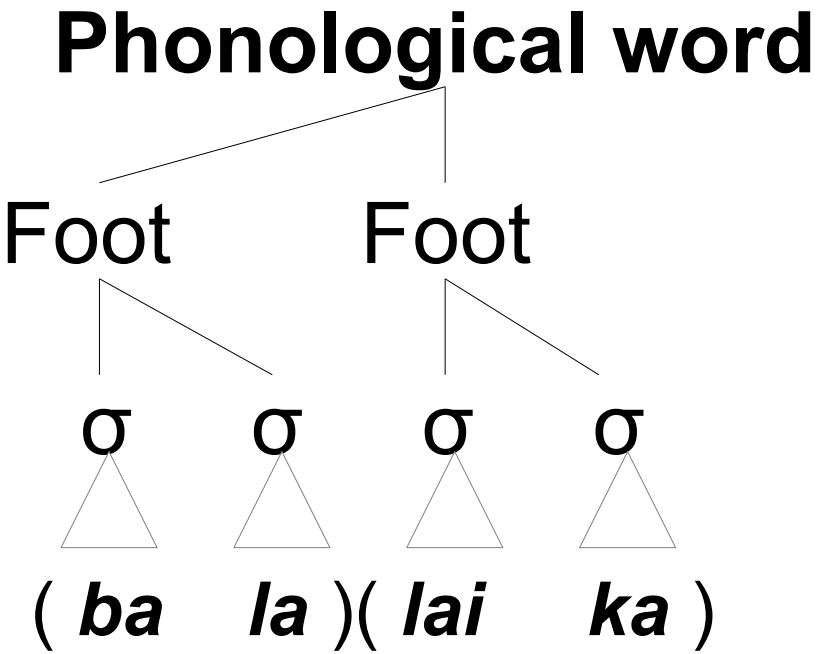

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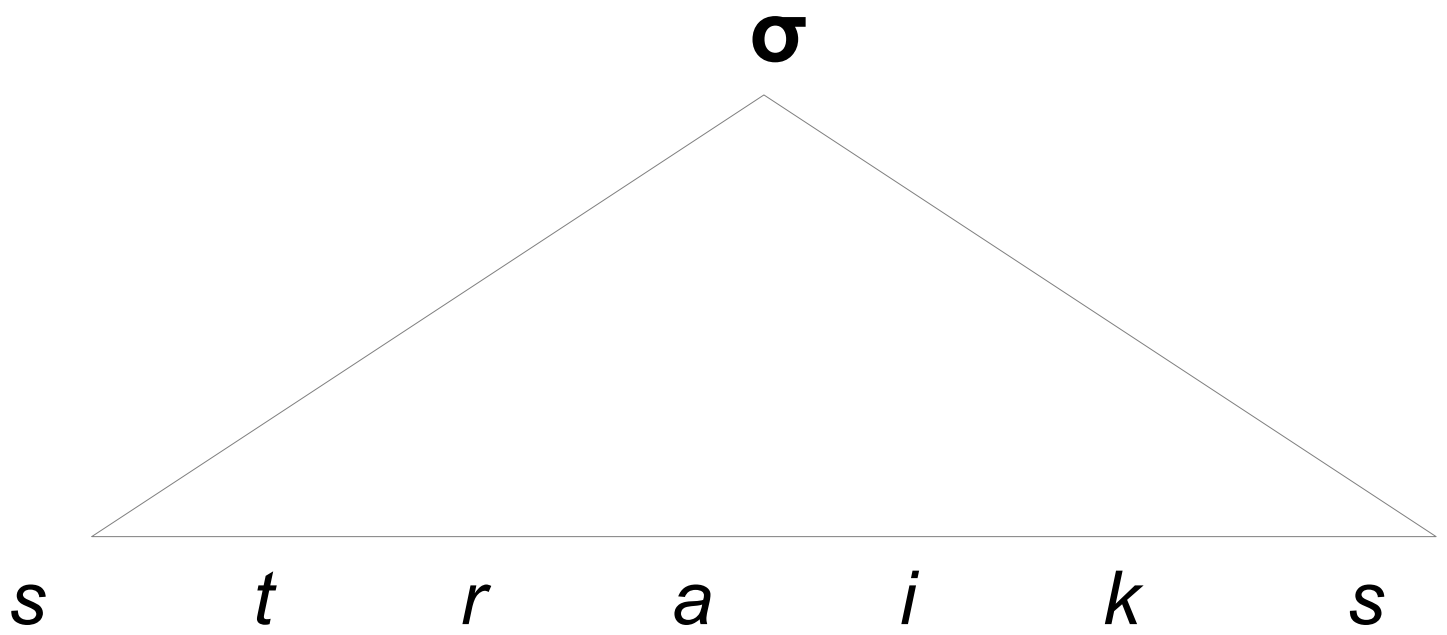

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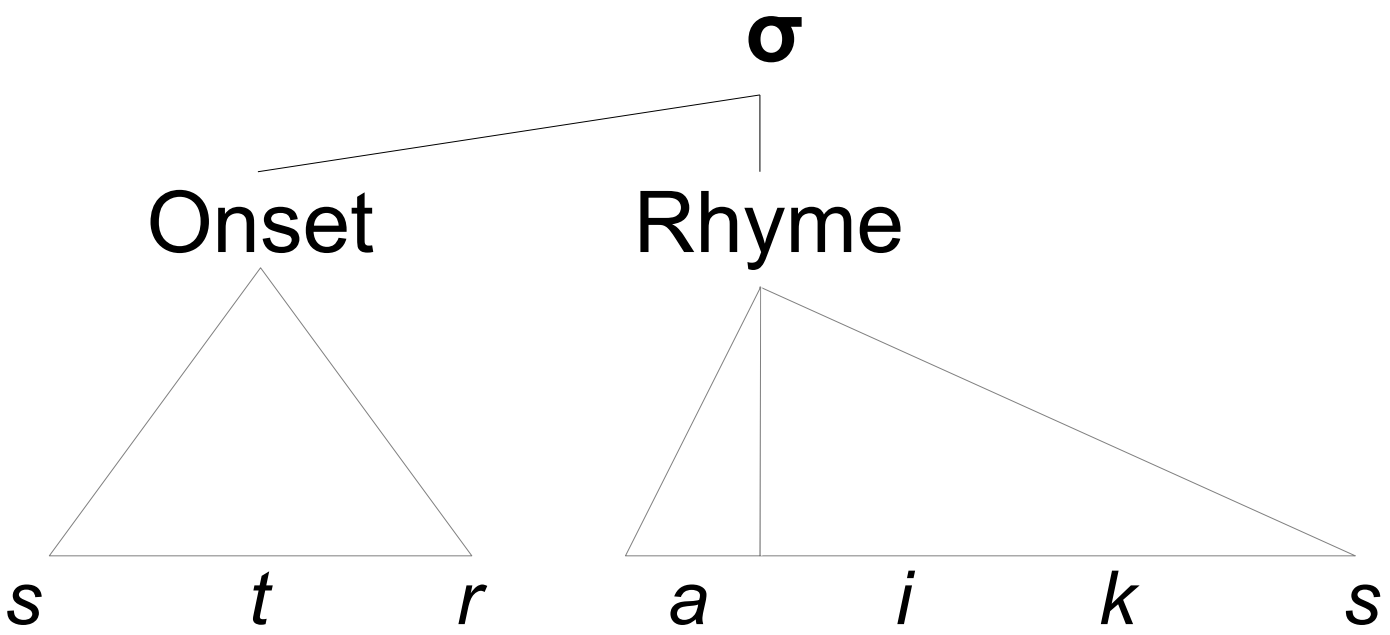

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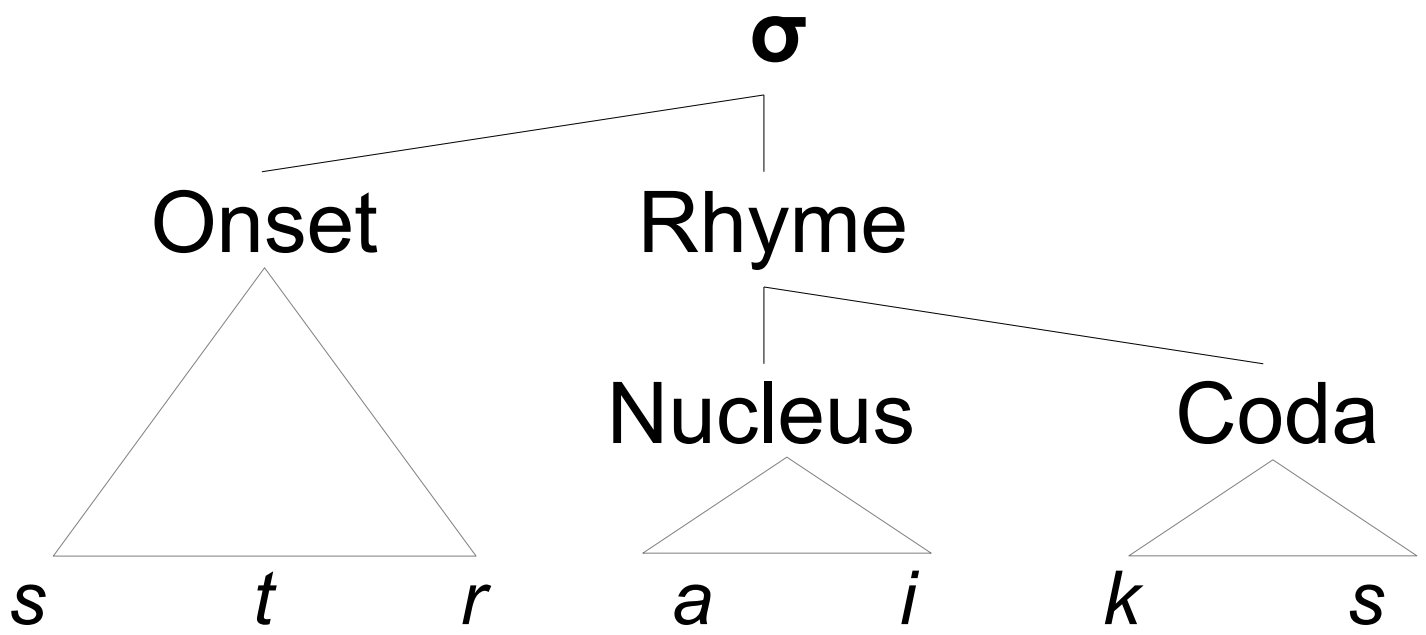

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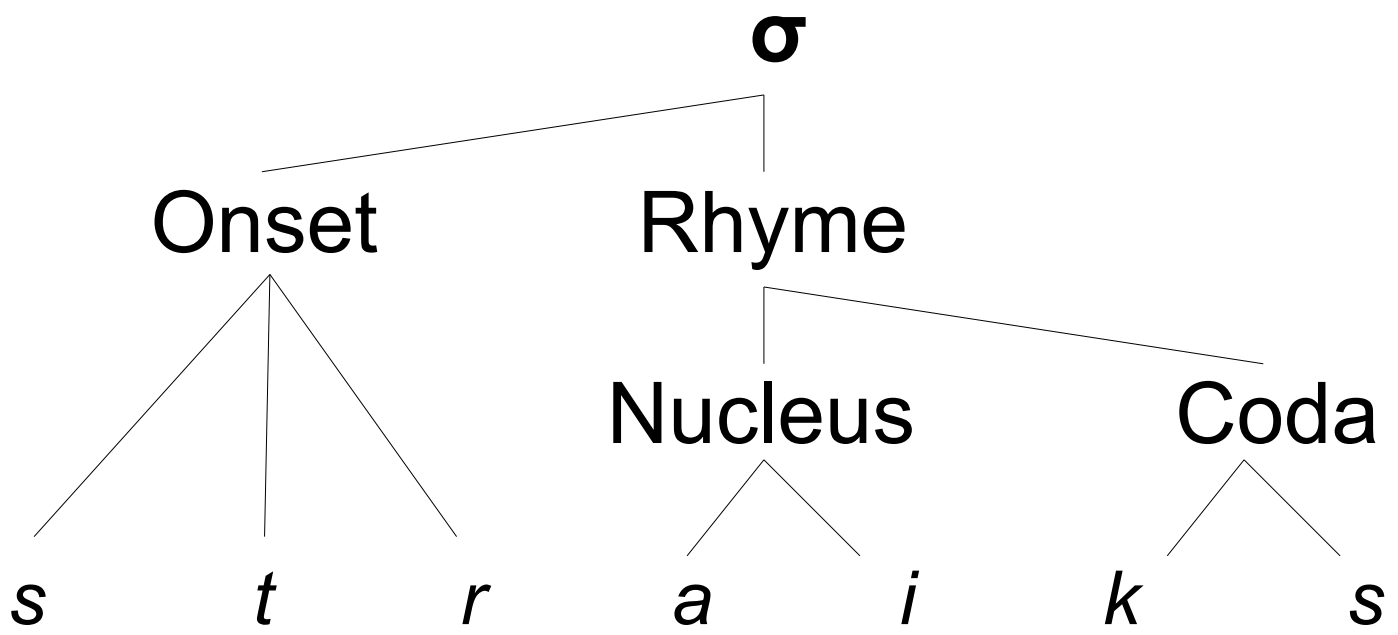
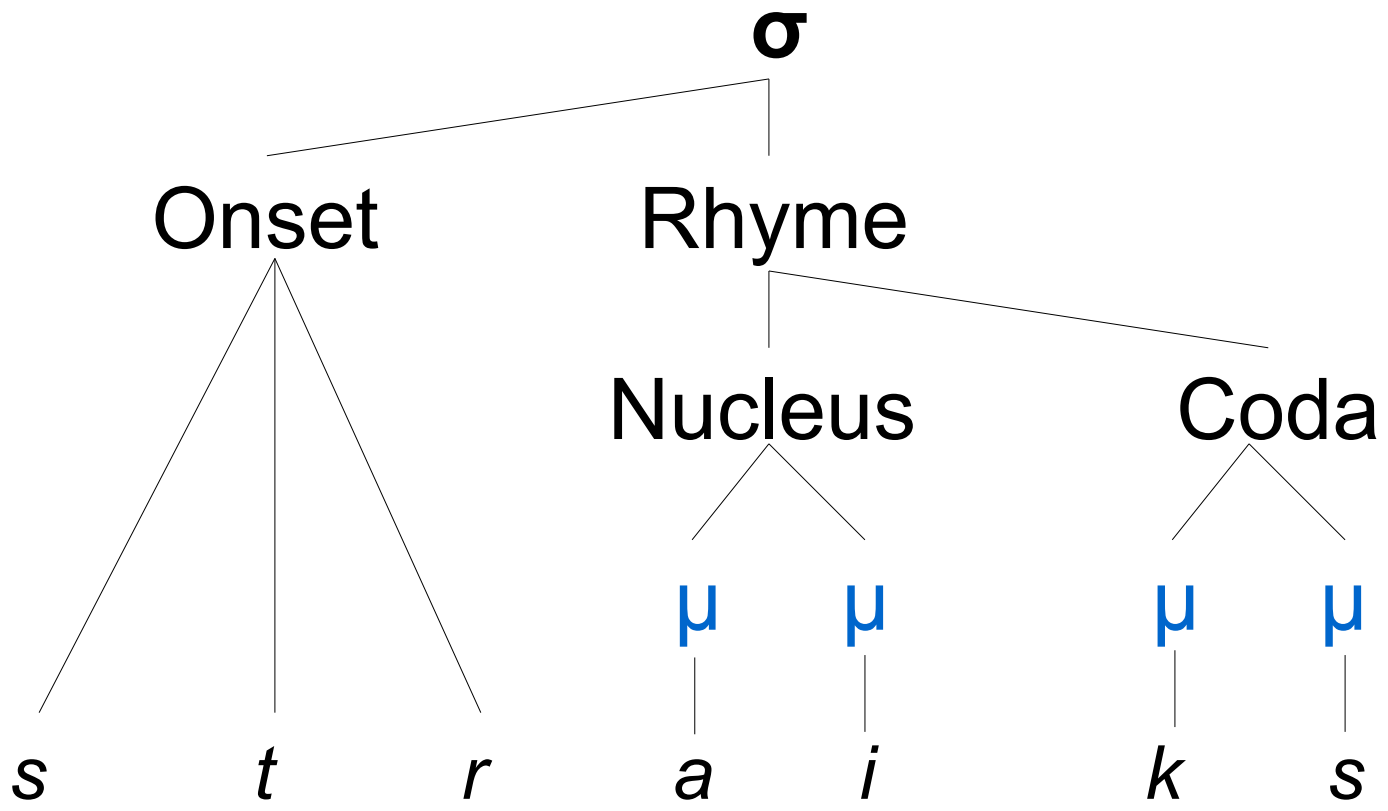


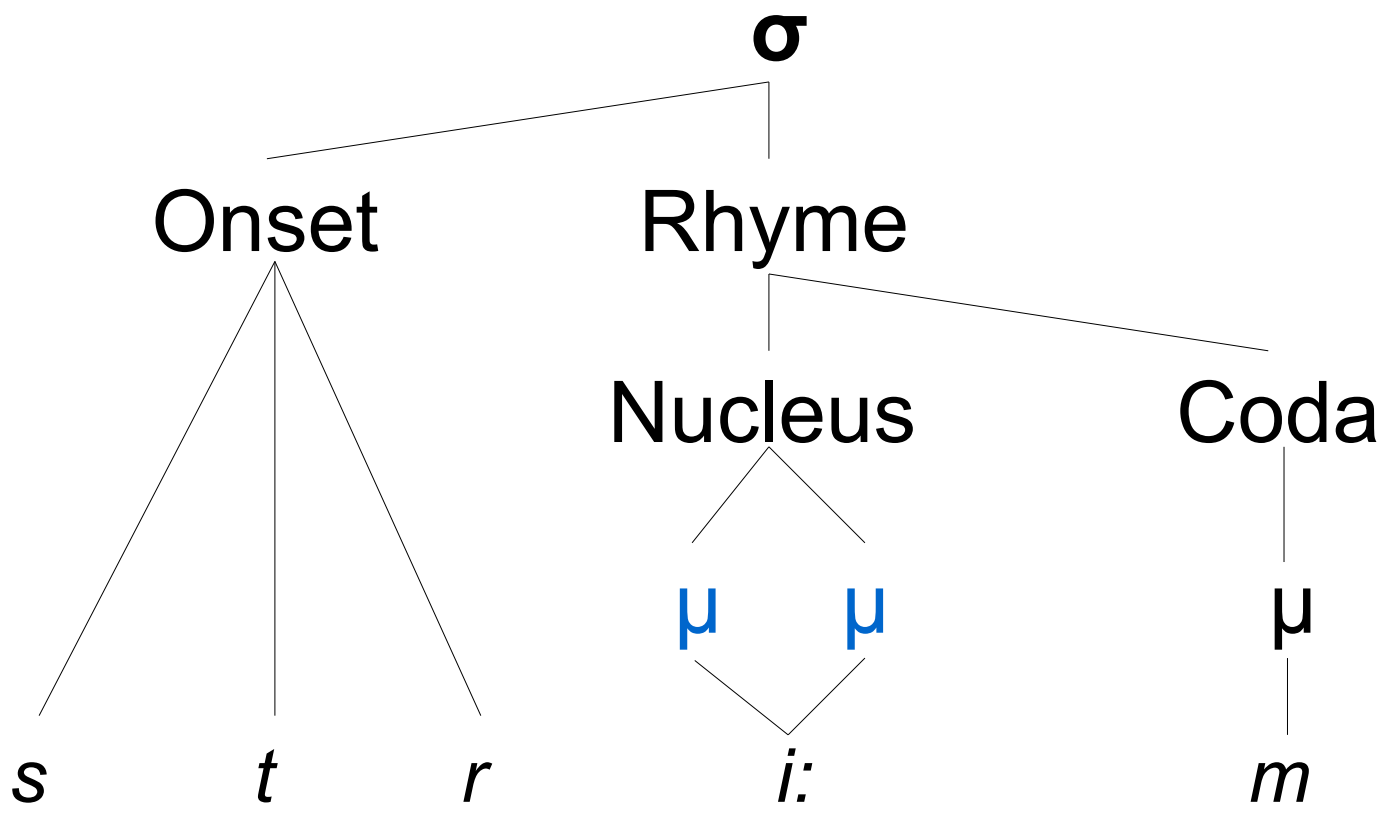
The prosodic hierarchy

- Every unit of weight in the rhyme is called a **mora** (μ).



The prosodic hierarchy

- **Long vowels** consist of two moras.



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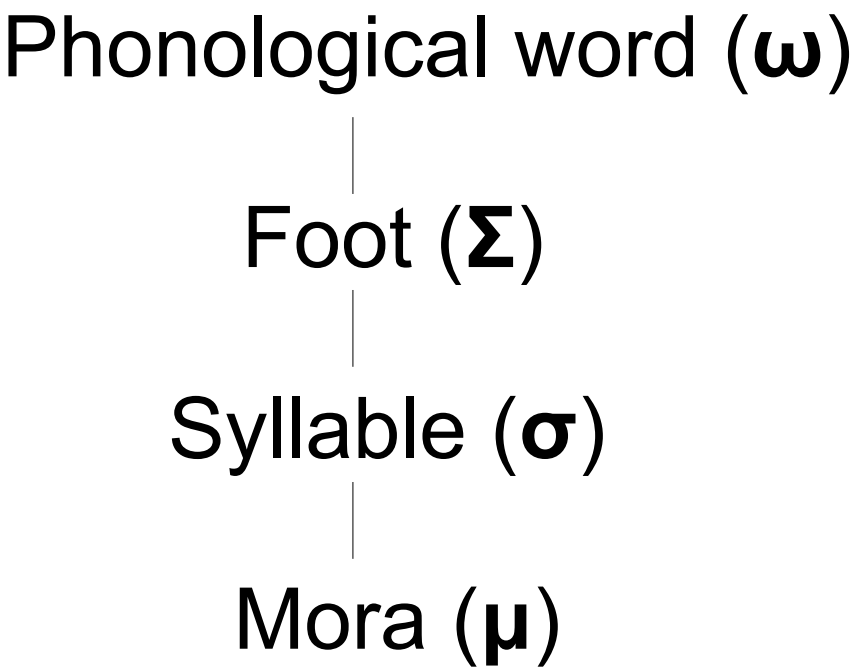

(1) Types of feet

A **foot** (Σ) consists of a stressed syllable together with any adjacent unstressed syllables (if there are any) either on the left, or on the right.

(1) Types of feet

- Left-headed binary foot (**trochee**)

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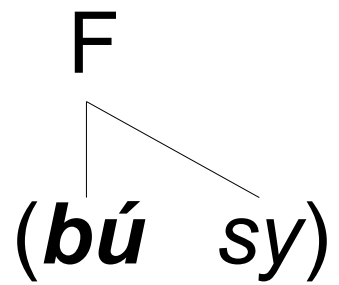
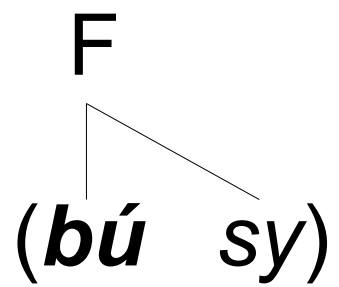


(1) Types of feet

- Left-headed binary foot (**trochee**)



- Right-headed binary foot (**iamb**)

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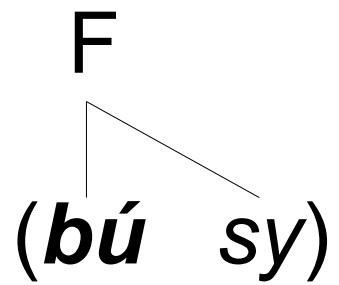

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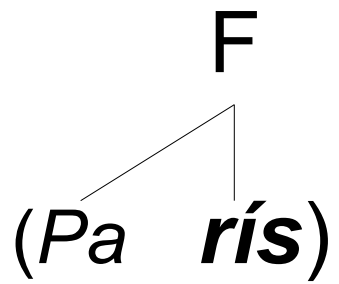
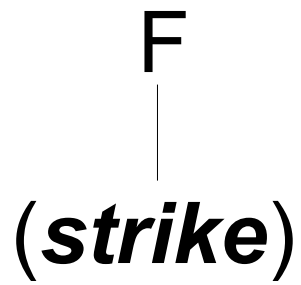


(1) Types of feet

- A foot without unstressed syllables may form a trochee or an iamb, provided that it consists of a **heavy syllable**.



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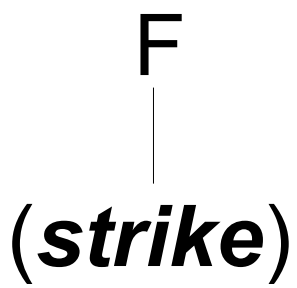

- Otherwise, a foot without unstressed syllables is left unparsed (**degenerate foot**).

(2) Syllabic weight

English distinguishes between two types of syllables, **light** and **heavy**.

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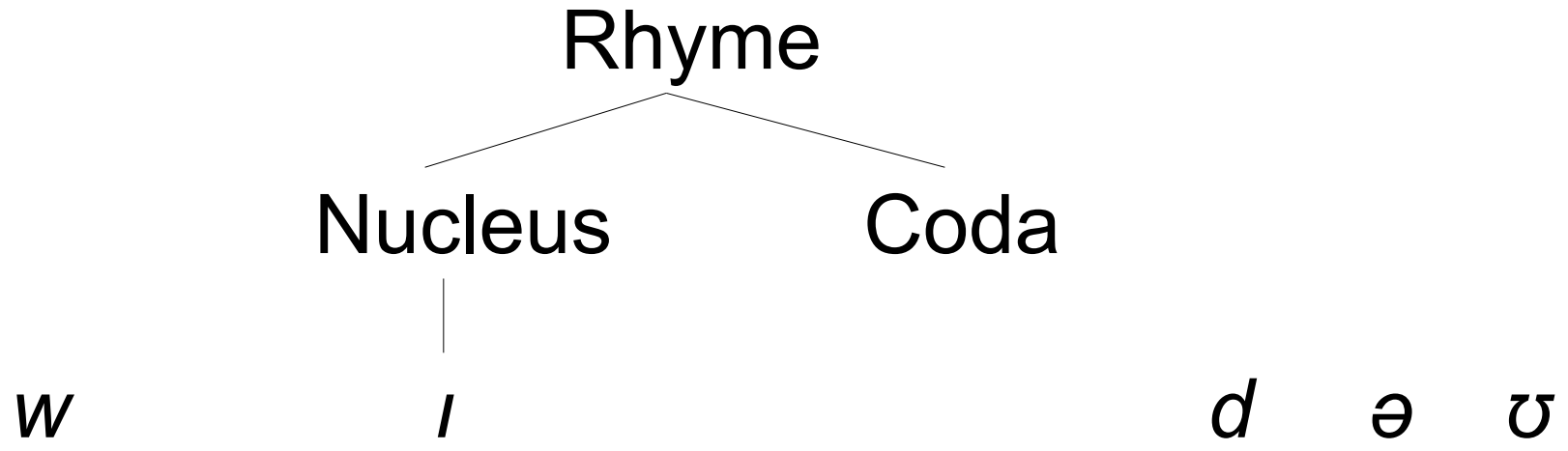
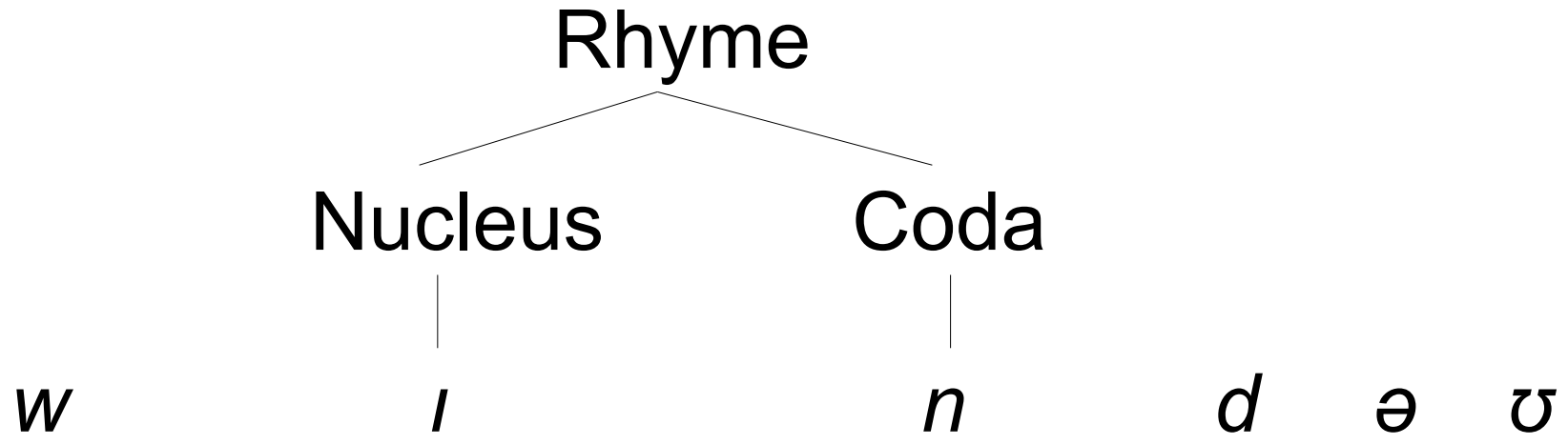
- **Light syllables** consist of a short vowel in the nucleus and no coda.



(2) Syllabic weight

English distinguishes between two types of syllables, **light** and **heavy**.

- **Heavy syllables** consist of a long vowel or diphthong in the nucleus or a coda.



(2) Syllabic weight

- Light syllables consist of a short vowel in the nucleus and no coda.

- Heavy syllables consist of a long vowel or diphthong in the nucleus or a coda.

(2) Syllabic weight

- Light syllables consist of a short vowel in the nucleus and no coda (i.e. **only one mora**).

- Heavy syllables consist of a long vowel or diphthong in the nucleus or a coda (i.e. **at least two moras**).

(2) Syllabic weight

- How many **moras** (or morae) do the syllables in the following words have?

May	busy
strength	widow
lion	window
I	umbrella

(2) Syllabic weight

- How many **moras** (or morae) do the syllables in the following words have?

meɪ	bɪ.zɪ
strɛŋθ	wɪ.dəʊ
laɪən	wɪn.dəʊ
aɪ	ʌm.brɛ.lə

(3) Extrametricality

- **Extrametrical** elements are systematically ignored with regards to stress assignment (Liberman 1975).

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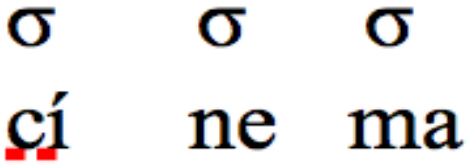
- **Extrametrical** elements are systematically ignored with regards to stress assignment. (Liberman 1975).

- An extrametrical element must be **peripheral** in its domain (i.e. it can only mark the left or rightmost element of a syllable, foot, word, etc).

(3) Extrametricality

- Final **syllable** extrametricality:



(3) Extrametricality

- Final **syllable** extrametricality:

σ	σ	<σ>
cí	ne	ma

(3) Extrametricality

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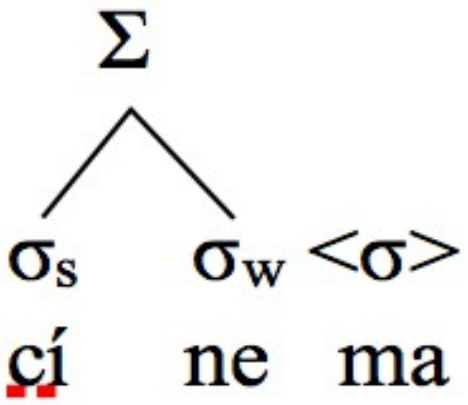

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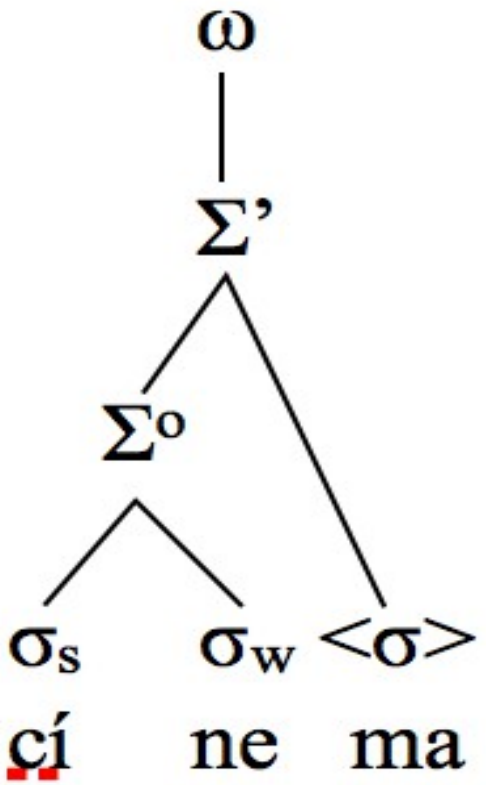

The English Stress Rule

(for **nouns**)

Based on Hayes (1982, 1995)

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- If the last syllable is **heavy**, align the head of the foot on that syllable.

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ə dʒɛn də

agenda

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ə dʒɛn <də>

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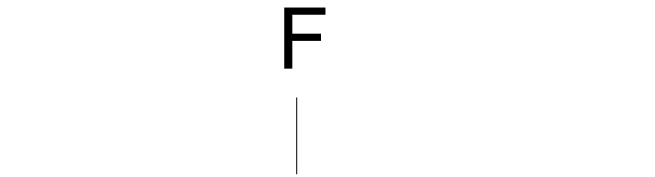

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bæ lə lai kə

balalaika

(1) Final syllables are extrametrical.

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bæ lə lai <kə>

balalaika

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bæ lə l**ai** <kə>

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F

bæ lə (l**ai**) <kə>

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ə me rɪ kə

America

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ə me rɪ <kə>

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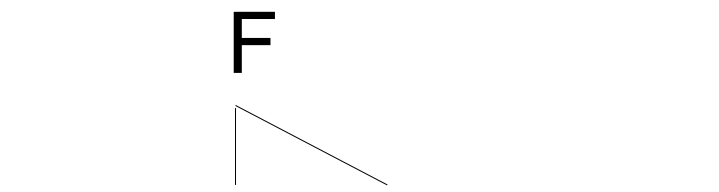

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sɪ nə mə

cinema

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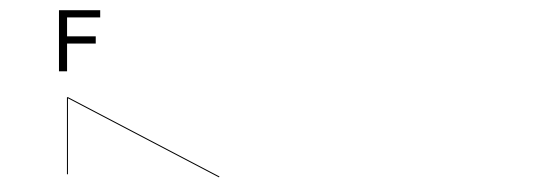

cinema

- What about **verbs**?

ə plai
apply

əb zɜːv
observe

ɛ dɪt
edit

ɪ mæ dʒɪn
observe

The English Stress Rule
(for **verbs** and **adjectives**)

Based on Hayes (1982, 1995)

(1) **Final consonants** are extrametrical.

(2) **Word structure**:
- Construct a left-headed binary foot over the right edge of the word.

(3) **Syllable structure**:
- If the last syllable is heavy, align the head of the foot on that syllable.

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- What about **verbs**?

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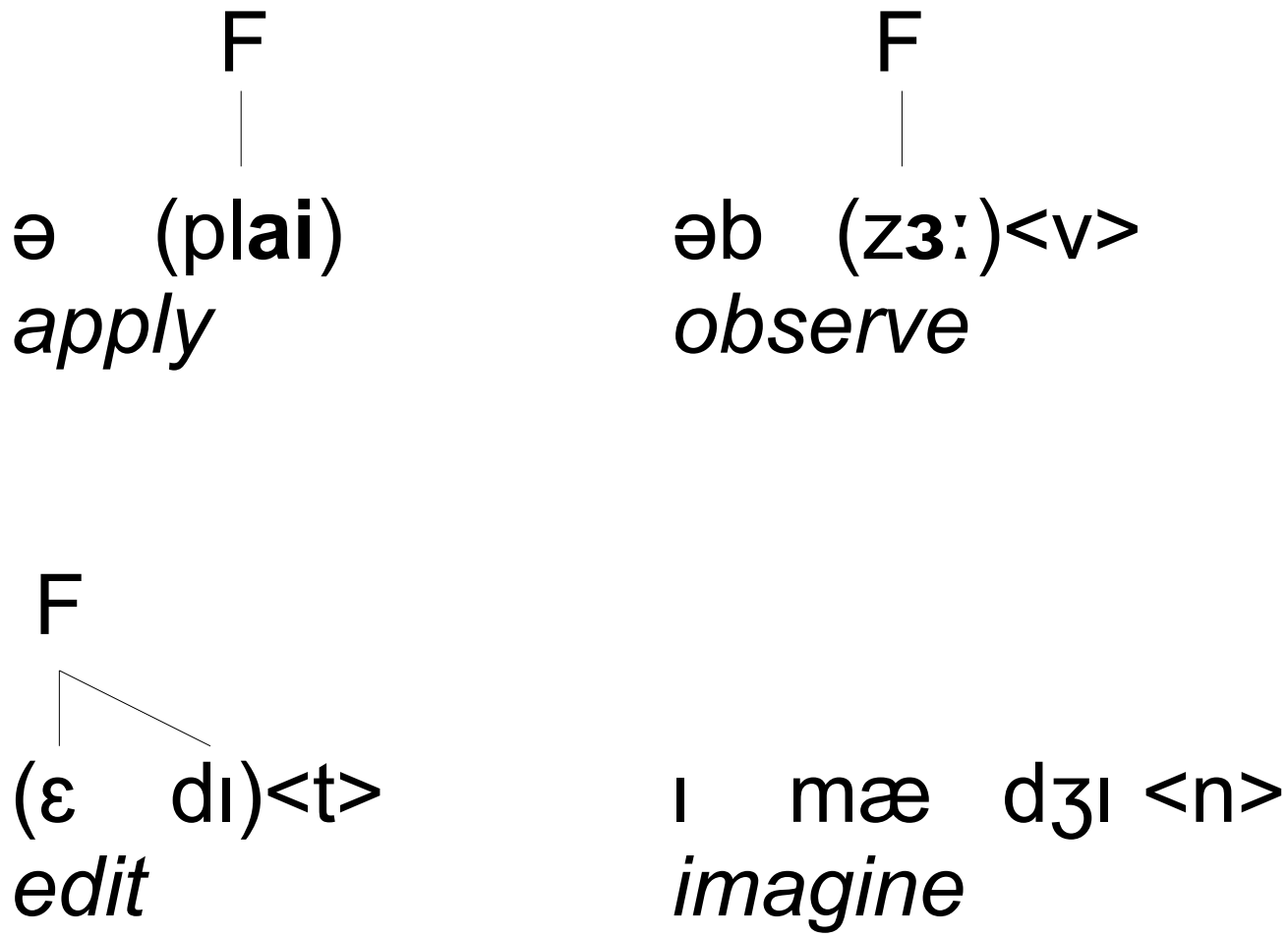

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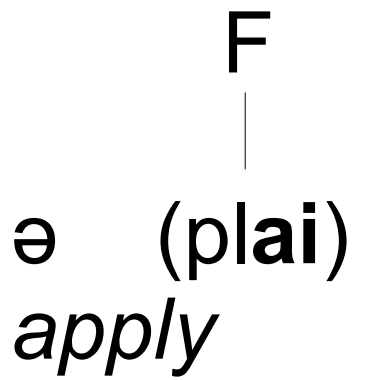

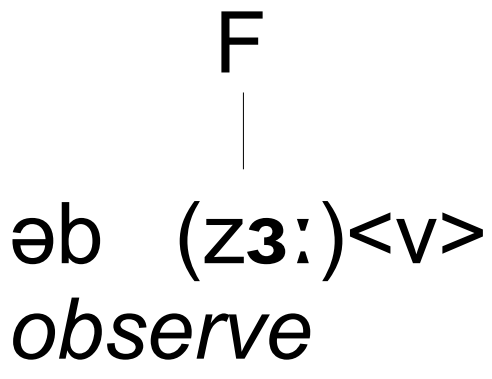

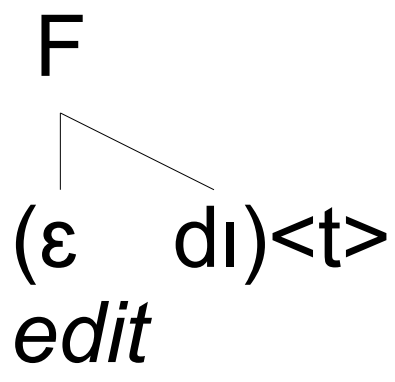

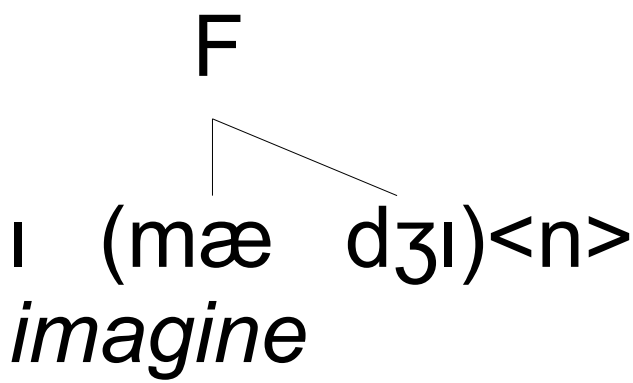

The English Stress Rule

(examples from Spencer 1996)

consider	maintain	extreme	obey
corrupt	asterisk	consensus	promise (N)
vulgar	metropolis	breakfast	promise (N)
synopsis	sincere	handsome	torment (N)
adapt	common	contradict	torment (V)

The English Stress Rule

kənsɪdə
kərʌpt
vʌlgə
sɪnɒpsɪs
ədæpt

The English Stress Rule

(1) Either final syllables (of nouns) or final consonants (of verbs and adjectives) are **extrametrical**.

kənsɪdə	(verb)
kərʌp<t>	(verb or adjective)
vʌlgə	(adjective)
sɪnɒp<sɪs>	(noun)
ədæp<t>	(verb)

The English Stress Rule

(1) Either final syllables (of nouns) or final consonants (of verbs and adjectives) are **extrametrical**.

(2) Construct a **left-headed binary foot** over the right edge of the word.

(3) If the last syllable is **heavy**, align the head of the foot on that syllable.

kən(ˈsɪ.də)	(light last syllable)
kə(ˈrʌp)<t>	(heavy last syllable)
(ˈvʌl.gə)	(light last syllable)
sɪ(ˈnɒp)<sɪs>	(heavy last syllable)
ə(ˈdæp)<t>	(heavy last syllable)

The English Stress Rule

meɪn(ˈteɪn)
(ˈæ.stə)<rɪsk>
mɪ(ˈtrɒ.pə)<lɪs>
sɪn(ˈsɪə)
(ˈkɒ.mə)<n>

ɪk(ˈstriː)<m>
kən(ˈsɛn)<səs>
(ˈbrɛk)<fəst>
(ˈhænd.sə)<m>
kɒn.trə(dɪk)<t>

ə(ˈbeɪ)
(ˈprɒ)<mɪs>
(ˈprɒ.mɪ)<s>
(ˈtɔː)<mɛnt>
tɔː(ˈmɛn)<t>

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Are there any English words whose stress cannot be generated by this algorithm?

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Are there any English words whose stress cannot be generated by this algorithm?

- Many lexical exceptions.

- Experiments with nonce words (e.g. Domah, Plag and Carroll 2014) suggest that English stress does not follow deterministic rules.

- Nevertheless, they show that the interaction of **syllabic weight** and **extrametricality** at the word level plays an important role in stress assignment.

Part 2:
Stress variation in complex words

Across-type variation

Some English words whose stress cannot be generated by the proposed stress rules:

original	engineer	interesting
medieval	racketeer	contrariwise
primitive	referee	
significant	employee	
reluctant	questionnaire	

Across-type variation

Some English words whose stress cannot be generated by the proposed stress rules:

origin**al**
medie**val**
primit**ive**
signific**ant**
reluct**ant**

engin**eer**
racket**eer**
refer**ee**
employ**ee**
questionn**aire**

interest**ing**
contrari**wise**

Across-type variation

- **Stress-bearing suffixes**:

engin**eer**
racket**eer**
refer**ee**
employ**ee**
questionn**aire**

Across-type variation

- **Stress-bearing suffixes**:

engi(n**éer**)
racke(t**éer**)
refe(r**ée**)
emplo(y**ée**)
question(n**áire**)

Across-type variation

- **Extrametrical suffixes**:

origin**al**
mediev**al**
primit**ive**
signific**ant**
reluct**ant**

Across-type variation

- **Extrametrical suffixes**:

origin<**al**>
academic<**al**>
primit<**ive**>
signific<**ant**>
reluct<**ant**>

Across-type variation

- **Extrametrical suffixes**:

o.ri.gi.n<**al**>
a.ca.de.mi.c<**al**>
pri.mi.t<**ive**>
sig.ni.fi.c<**ant**>
re.luc.t<**ant**>

Across-type variation

- **Extrametrical suffixes**:

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a.ca.de.mi.c<**al**>
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- **Extrametrical suffixes**:

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Across-type variation

- **Extrametrical suffixes**:

o(rí.gi)n<**al**>
a.ca(dé.mi)c<**al**>
(prí.mi)t<**ive** >
sig(ní.fi)c<**ant**>
re(lúc)t<**ant**>

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative**.**

- The stress rule applies to each successive morphological domain in a **cyclic** fashion. (Kiparsky 1982)

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

product

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

(pró)<duct>

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

(pró)<duct> → product**ive**

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

(pró)<duct> → pro(dúc)t<**ive**>

Across-type variation

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(pró)<duct> → pro(dúc)t<**ive**> → productiv**ity**

Across-type variation

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(pró)<duct> → pro(dúc)t<**ive**> → produc(tí.vi)<**ty**>

engine

Across-type variation

- **Stress-shifting suffixes** cause a change of the stress from one syllable in the base to a different one in the derivative.

(pró)<duct> → pro(dúc)t<**ive**> → produc(tí.vi)<**ty**>

(én)<gine>

Across-type variation

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(én)<gine> → engin**eer**

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Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

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- **Stress rules do *not* apply cyclically**.

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ɪntrɪst
interest

Across-type variation

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(ˈɪn)<trɪst>
interest

Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

- **Stress rules do *not* apply cyclically**.

(ˈɪn)<trɪst> → ɪntrɪst**ɪŋ**
interest *interesting*

Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

- **Stress rules do *not* apply cyclically**.

(ˈɪn)<trɪst> → *ɪn(ˈtrɪs.tɪ)<**ŋ**>
interest *interesting*

Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

- **Stress rules do *not* apply cyclically**.

(ˈɪn)<trɪst> → *ɪn(ˈtrɪs)t<**ɪŋ**>
interest *interesting*

Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

- **Stress rules do *not* apply cyclically**.

[(ˈɪn)<trɪst>]
interest

= cyclic domain

Across-type variation

- **Stress-preserving suffixes** keep the same stressed syllable in the base and in the derivative.

- **Stress rules do *not* apply cyclically.**

[[(ˈɪn)<trɪst>] **ɪŋ**]β
*interest**ing***

= cyclic domain
β = non-cyclic domain

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- **Stress rules do *not* apply**.

- Stress-preserving suffixes attach to **free bases**.

Across-type variation

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- **Stress rules do *not* apply**.

- Stress-preserving suffixes attach to **free bases**.

- More **productive** than stress-shifting suffixes.

Within-type variation

- Some suffixes seem to belong to both the categories of **stress-shifting** and **stress-preserving** suffixes.

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- Case study: ***-(at)ory***

Within-type variation

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- Case study: ***-(at)ory***

· Production experiment held in Cambridge.
· 31 University students.
· 25 sentences with -*(at)ory* derivatives.
· Part of the project PROS 1, directed by Pr. Dr. Sabine Arndt-Lappe (DFG Research Unit FOR 2373 *Spoken Morphology*).

Within-type variation

- Some suffixes seem to belong to both the categories of **stress-shifting** and **stress-preserving** suffixes.

- Most common variation patterns:

invéstig[ə]tory
congrátul[ ]tory
célebr[ə]tory
círcul[ə]tory

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congrátul[ ]tory	~congrátul[eɪ]tory	~congratul[éɪ]tory
célebr[ə]tory	~célebr[eɪ]tory	~celebr[éɪ]tory
círcul[ə]tory	~círcul[eɪ]tory	~circul[éɪ]tory

Within-type variation

- Some suffixes seem to belong to both the categories of **stress-shifting** and **stress-preserving** suffixes.

- Which is the **base word**?

invéstigate	→	invéstig[**ə**]tory~invéstig[**eɪ**]tory
congrátulate	→	congrátul[**ə**]tory~congrátul[**eɪ**]tory
célebrate	→	célebr[**ə**]tory~célebr[**eɪ**]tory
círculate	→	círcul[**ə**]tory~círcul[**eɪ**]tory

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- Which is the **base word**?

investig[éɪ]tion	→	investig[éɪ]tory
congratul[éɪ]tion	→	congratul[éɪ]tory
celebr[éɪ]tion	→	celebr[éɪ]tory
circul[éɪ]tion	→	circul[éɪ]tory

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-*ory* extrametricality?

investig[éɪ]t<ion>	→	investig[éɪ]tory
congratul[éɪ]t<ion>	→	congratul[éɪ]tory
celebr[éɪ]t<ion>	→	celebr[éɪ]tory
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investi(g[éɪ])t<ion>→ investig[éɪ]tory
congratu(l[éɪ])t<ion>→ congratul[éɪ]tory
cele(br[éɪ])t<ion> → celebr[éɪ]tory
circu(l[éɪ])t<ion> → circul[éɪ]tory

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congrátul<ate>	→	congratul[ə]tory
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círcul<ate>	→	circul[ə]tory

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con(grá.tu)l<ate>→ congratul[**ə**]tory
(cé.le)br<ate> → celebr[**ə**]tory
(cír.cu)l<ate> → circul[**ə**]tory

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con(grá.tu)l<ate>→ congratul[**ə**]t<**ory**>
(cé.le)br<ate> → celebr[**ə**]t<**ory**>
(cír.cu)l<ate> → circul[**ə**]t<**ory**>

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-*ory* extrametricality?

in(vés.ti)g<ate>→ *inves(tí.g[**ə**])t<**ory**>
con(grá.tu)l<ate>→ *congra(tú.l[**ə**])t<**ory**>
(cé.le)br<ate> → *ce(lé.br[**ə**])t<**ory**>
(cír.cu)l<ate> → *cir(cú.l[**ə**])t<**ory**>

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-*ory* extrametricality?

in(vés.ti)g<ate>→ investig[**eɪ**]t<**ory**>
con(grá.tu)l<ate>→ congratul[**eɪ**]t<**ory**>
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in(vés.ti)g<ate>→ investi(g[éɪ])t<**ory**>
con(grá.tu)l<ate>→ congratu(l[éɪ])t<**ory**>
(cé.le)br<ate> → cele(br[éɪ])t<**ory**>
(cír.cu)l<ate> → circu(l[éɪ])t<**ory**>

Within-type variation

-*ory* extrametricality?

· **Correct** prediction for '**N** → **Adj**' derivations:
(congratulát-ion → congratu(l[éɪ])t<**ory**>

Within-type variation

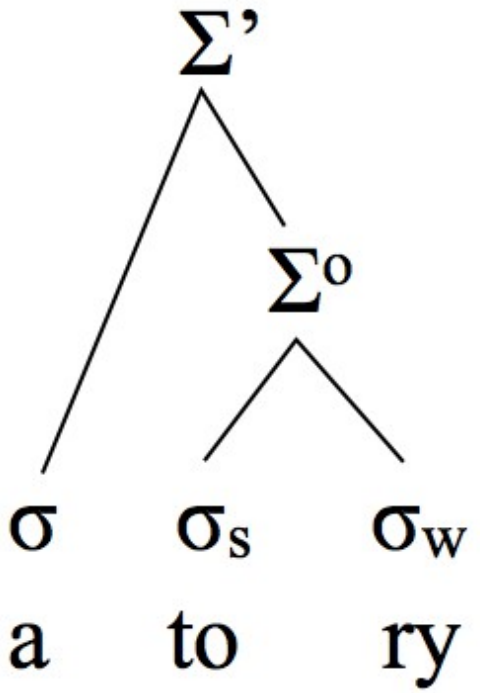
-*ory* extrametricality?

· **Correct** prediction for '**N** → **Adj**' derivations:
(congratulát-ion → congratu(l[éɪ])t<**ory**>

· **Wrong** prediction for '**V** → **Adj**' derivations:
(congrátul-ate → congratu(l[éɪ])t<**ory**>
(congrátul-ate → *congra(tú.l[ə])t<**ory**>

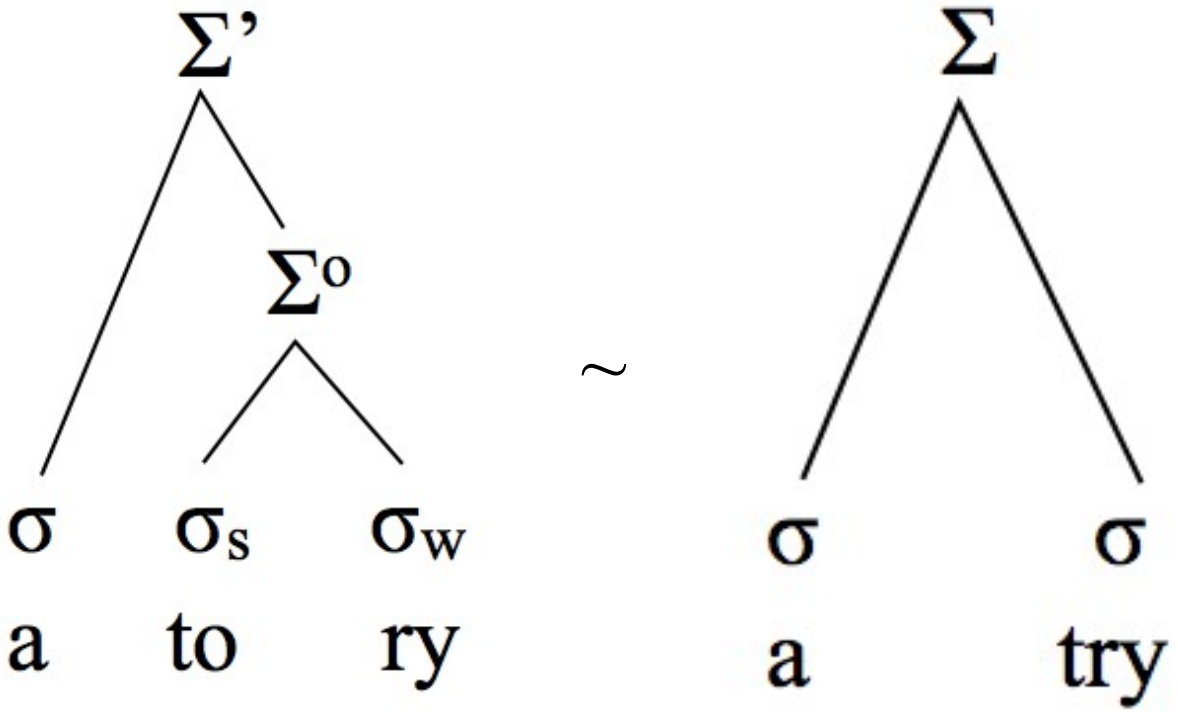
Within-type variation

Our proposal:
-*atory* suffixation + **foot extrametricality**



Within-type variation

Vowel deletion in the allomorph as a strategy to improve foot structure while preserving as much segmental material as possible.



Within-type variation

- Empirical evidence for ***-atory*** suffixation:

About 20 instances of **r-intrusion** by 10 different speakers.

Within-type variation

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About 20 instances of **r-intrusion** by 10 different speakers.

[30_21]	*retaliatory*	retal[ə]-r-[**ə**]**tory**
[28_10]	*regulatory*	regul[ə]-r-[**ə**]**try**
[12_15]	*conciliatory*	concili[ə]-r[**eɪ**]**try**
[5_12]	*participatory*	particip[ə]-r-**tory**
[9_13]	*participatory*	particip[ə]-r-**try**

Within-type variation

- Empirical evidence for ***-atory*** suffixation:

A few other production “errors”.

[25_17]	*accusatory*	accusat-[**ə**]**tory**
[5_19]	*contributory*	contribute-[**ə**]**tory**

Within-type variation

- **Default stress** or stress **preservation**?

hall**ú**cinate → hall**ú**cinatory
part**í**cipate → part**í**cipatory

Within-type variation

- **Default stress** or stress **preservation**?

hall**ú**cinate → hall**ú**cinatory
part**í**cipate → part**í**cipatory

rev**éa**l → **é**velatory
resp**í**re → **é**spiratory

Within-type variation

- **Default stress** or stress **preservation**?

hallúcinate → hall**ú**cinatory
partícipate → part**í**cipatory

revéal → r**é**velatory
respíre → r**é**spiratory

ámbulatory
labóratory~l**á**boratory

Within-type variation

- **Default stress** or stress **preservation**?

hallúcinate → hal.l**ú**.ci.na.to.ry
partícipate → par.t**í**.ci.pa.to.ry

revéal → r**é**.ve.la.to.ry
respíre → r**é**s.pi.ra.to.ry

ám.bu.la.to.ry
labóratory~l**á**.bo.ra.to.ry

Within-type variation

- **Default stress** or stress **preservation**?

hallúcinate → hal.l**ú**.ci.n<**a.to.ry**>
partícipate → par.t**í**.ci.p<**a.to.ry**>

revéal → r**é**.ve.l<**a.to.ry**>
respíre → r**é**s.pi.r<**a.to.ry**>

ám.bu.l<**a.to.ry**>
labóratory~l**á**.bo.r<**a.to.ry**>

Within-type variation

- **Default stress** or stress **preservation**?

hallúcinate → hal(l**ú**.ci)n<**a.to.ry**>
partícipate → par(t**í**.ci)p<**a.to.ry**>

revéal → (r**é**.ve)l<**a.to.ry**>
respíre → (r**é**s.pi)r<**a.to.ry**>

(**á**m.bu)l<**a.to.ry**>
labóratory~(l**á**.bo)r<**a.to.ry**>

Within-type variation

(in)(vés.ti)g<**a.to.ry**>
(con)(grá.tu)l<**a.to.ry**>
(cír.cu)l<**a.to.ry**>
(cé.le)br<**a.to.ry**>
(ré.gu)l<**a.to.ry**>
(par)(tí.ci)p<**a.to.ry**>
(ar)(tí.cu)l<**a.to.ry**>
(dis)(crí.mi)n<**a.to.ry**>

(cás.ti)g<**a.to.ry**>
(ós.ci)l<**a.to.ry**>
(lí.ti)g<**a.to.ry**>
ha(lú.ci)n<**a.to.ry**>
(an)(tí.ci)p<**a.to.ry**>
(rés.pi)r<**a.to.ry**>
(ré.ve)l<**a.to.ry**>
(com)(pén)s<**a.to.ry**>

Within-type variation

- **Exceptions** to the default pattern:

infl**á**matory

Within-type variation

- **Exceptions** to the default pattern:

infl**á**matory (unstressable suffix?)

Within-type variation

- **Exceptions** to the default pattern:

infl**á**matory (unstressable suffix?)

obl**í**gatory

Within-type variation

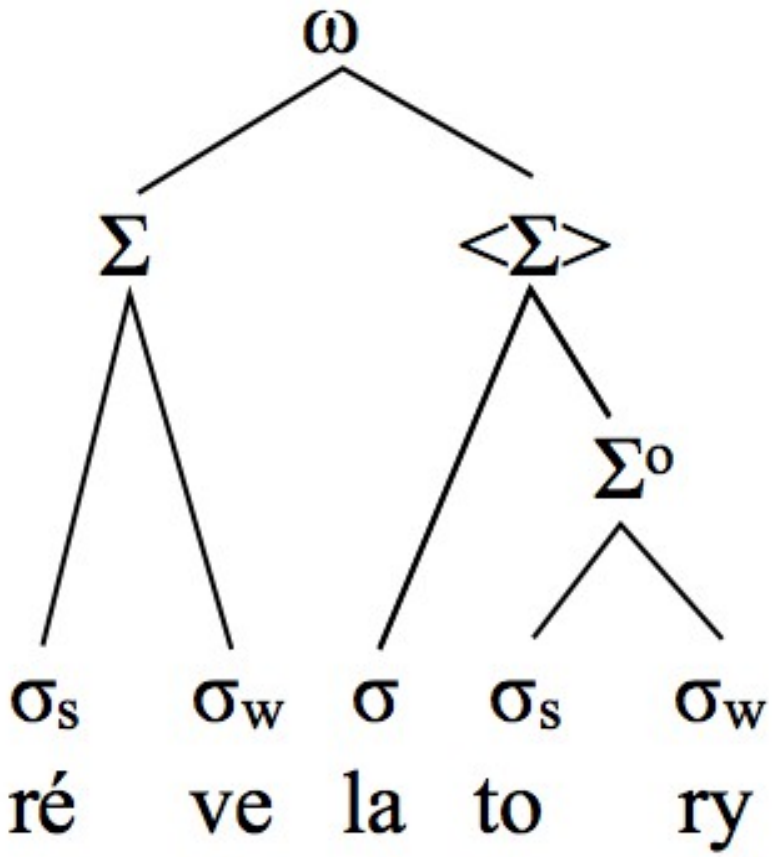
- **Exceptions** to the default pattern:

infl**á**matory (unstressable suffix?)

obl**í**gatory (high frequency word?)

Within-type variation

- Proposal for ***-atory*** suffixation:



Within-type variation

- **Psycholinguistic evidence**:

Flapping/glottalization supports the existence of recursive feet like **(a(to.ry))**.

Within-type variation

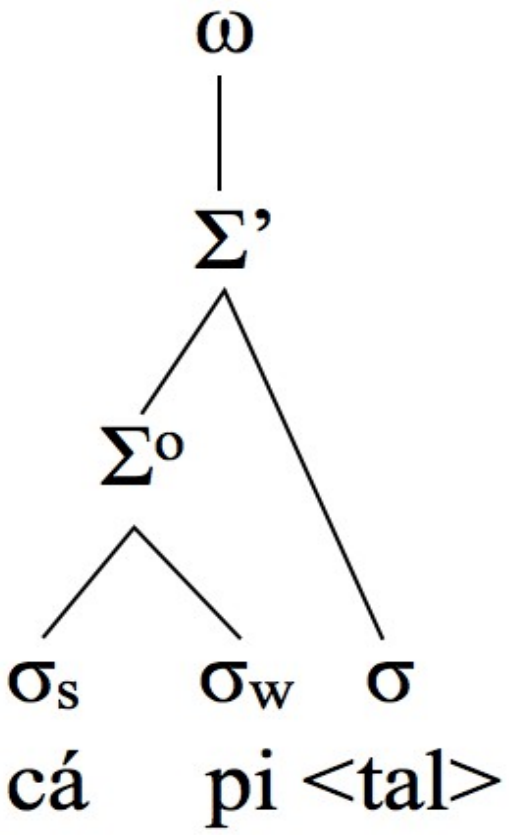
- **Psycholinguistic evidence**:

Flapping/glottalization supports the existence of recursive feet like **(a(to.ry))**.

- Flapping/glottalization can only happen in non-prominent positions within the foot (Withgott 1982, Davis 2004).

Within-type variation

- T-flapping is **allowed in non-prominent** positions:



Within-type variation

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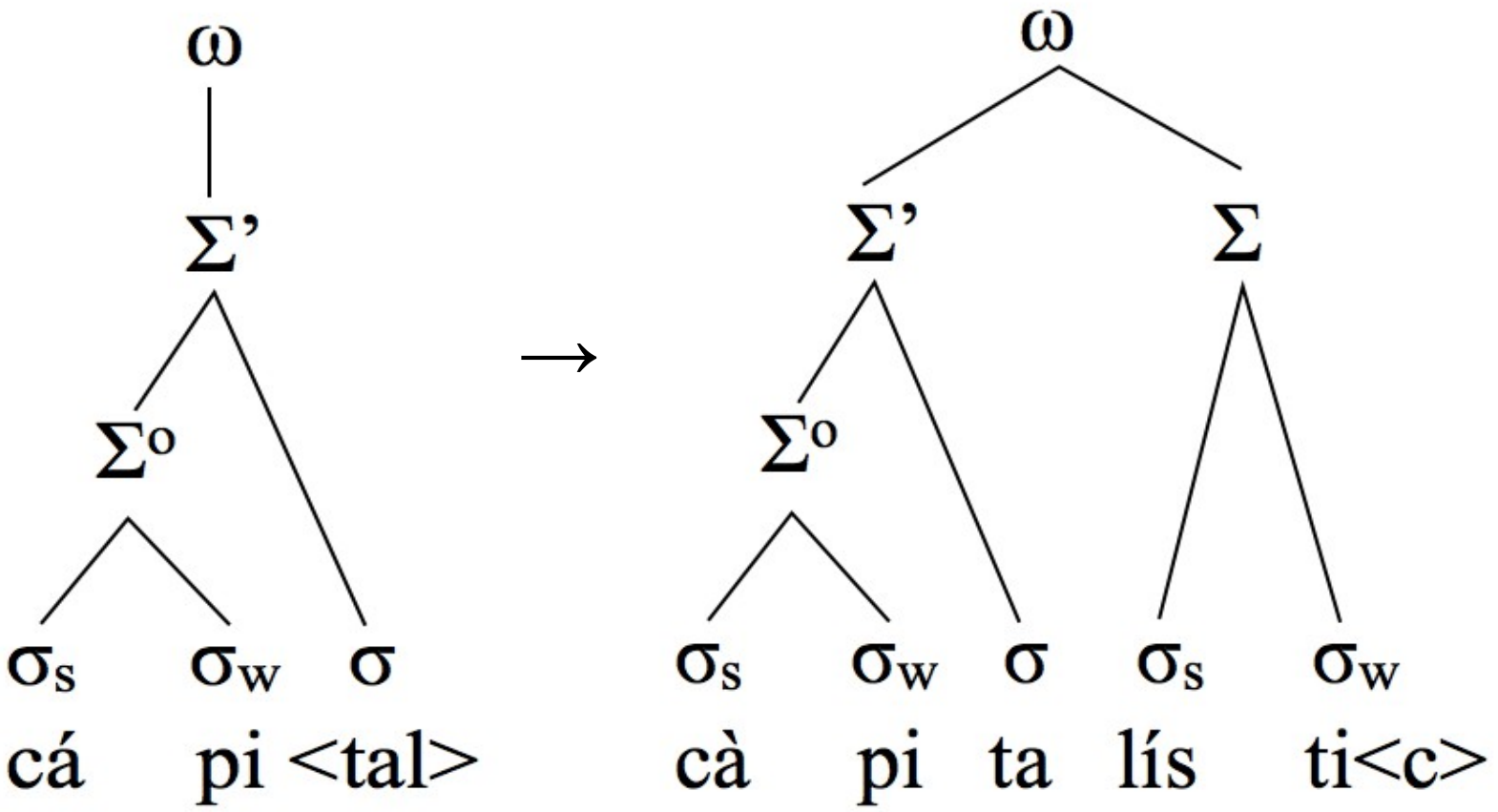
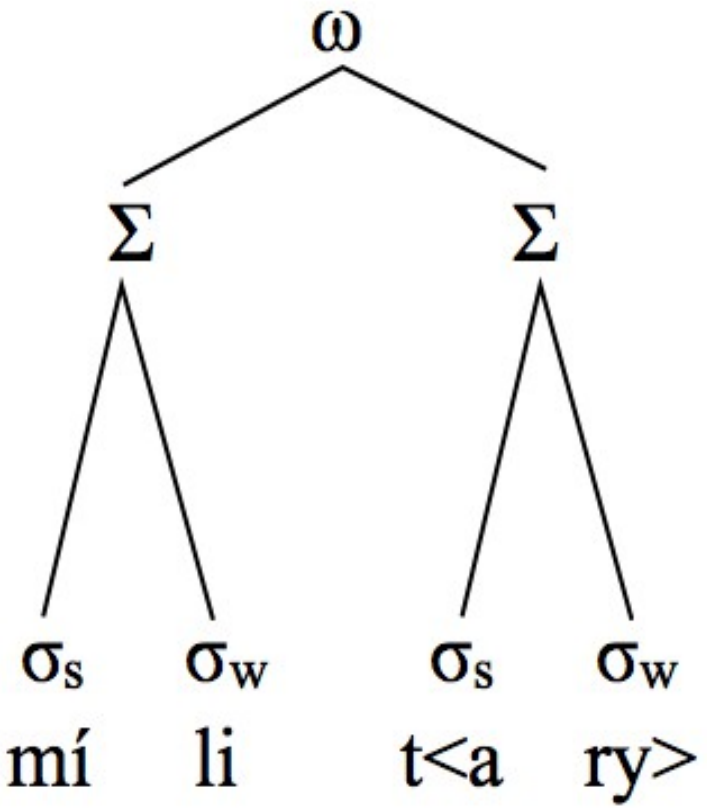


Within-type variation

- T-flapping is ***not*** **allowed in prominent positions**:



Within-type variation

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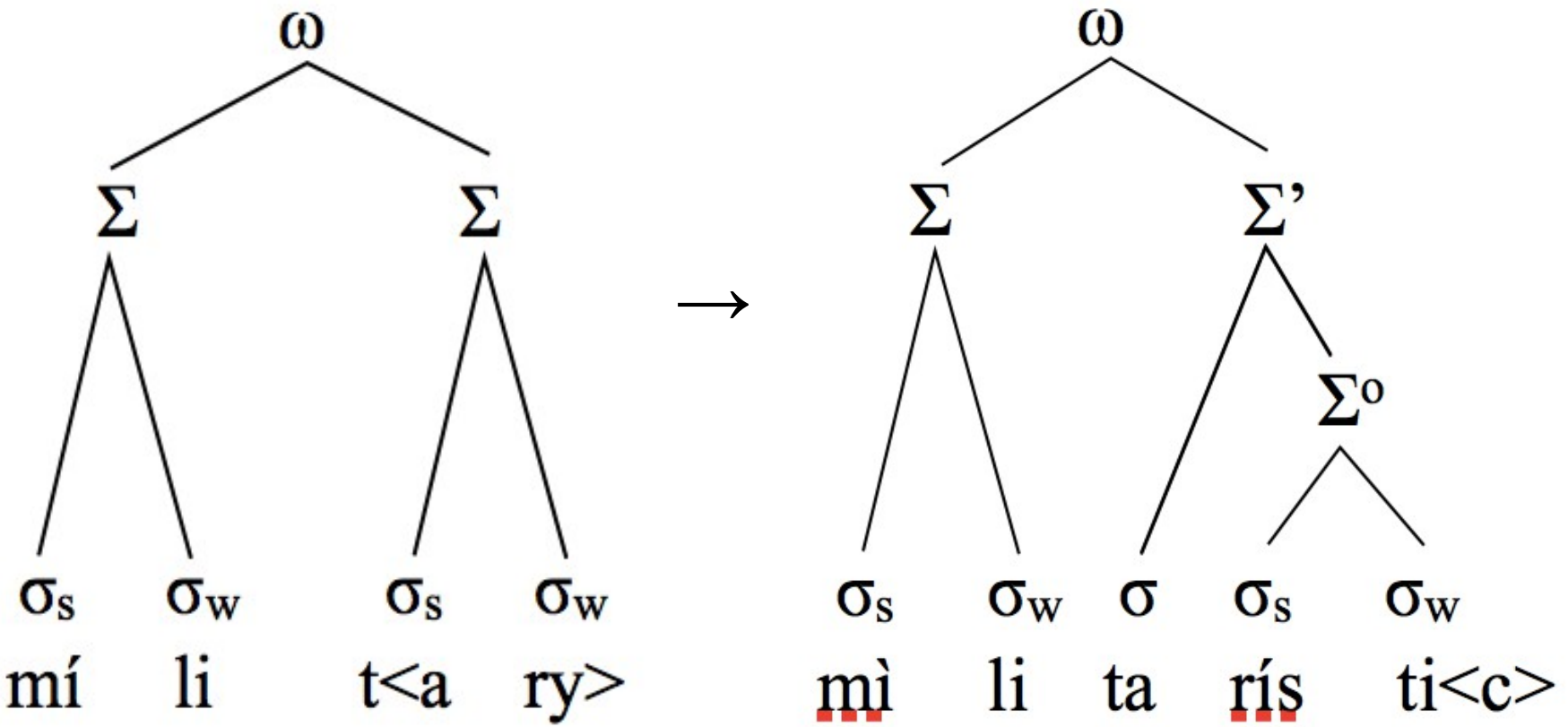

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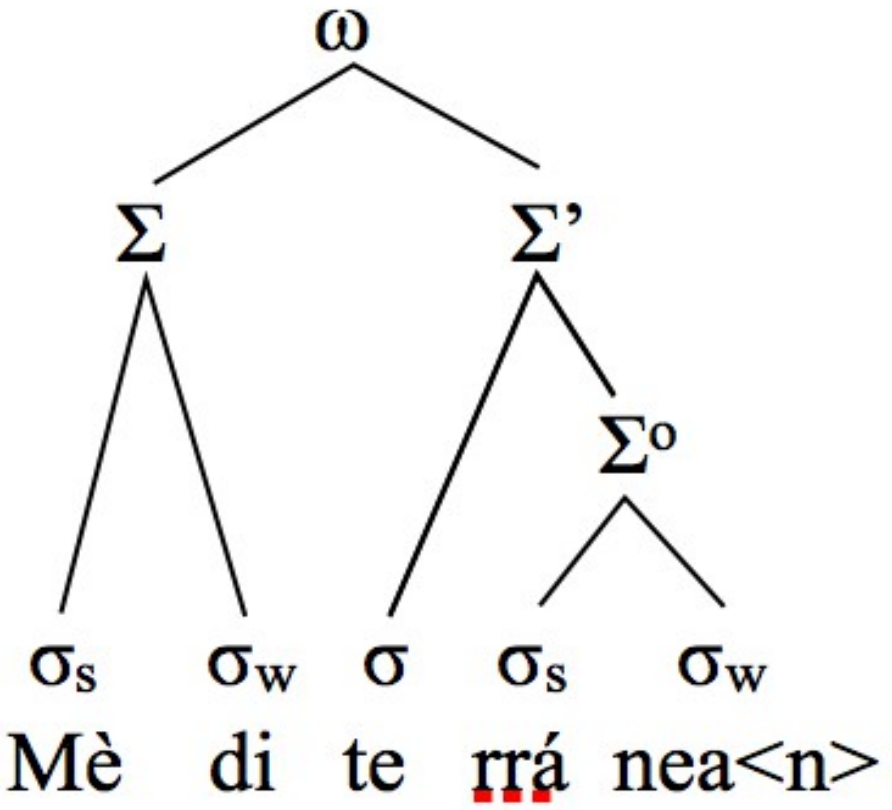

Within-type variation

- If verb forms ending in *-ate* were the bases for *-(at)ory* words, then ***-at-*** and ***-ory*** could not be part of the same foot.

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- Therefore, final foot extrametricality would only affect ***-ory***.

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- If verb forms ending in *-ate* were the bases for *-(at)ory* words, then ***-at-*** and ***-ory*** could not be part of the same foot.

- Therefore, final foot extrametricality would only affect ***-ory***.

((cá.pi)t<al>) → ((cà.pi)ta)**(lís.ti<c>)**

((cé.le)br<[eɪt]>) → ((cé.le)br[ə])<**(to.ry)**>
→ ((cé.le))br[eɪ])<**(to.ry)**>

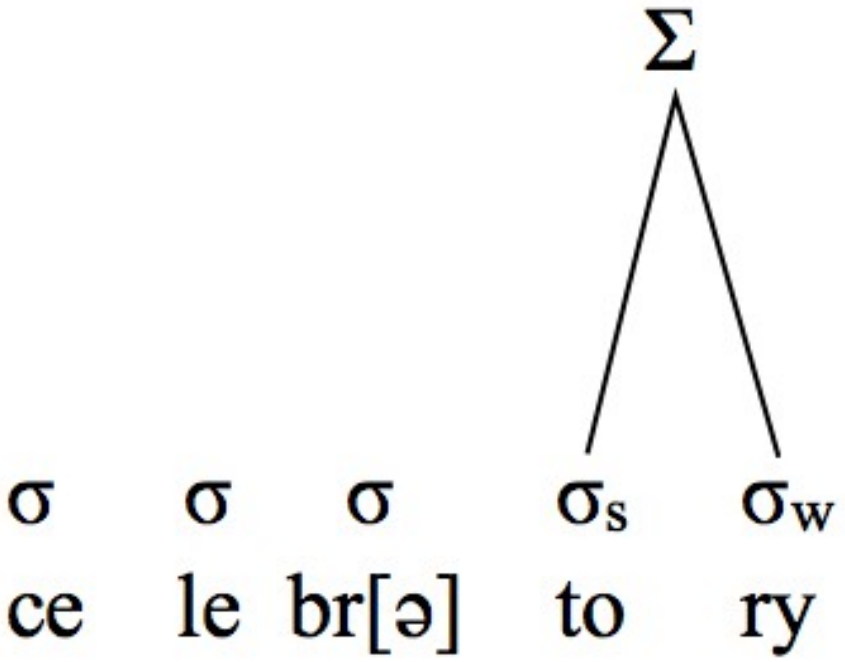
Within-type variation

- The algorithm could not assign the attested patterns:

σ	σ	σ	σ	σ
ce	le	br[ə]	to	ry

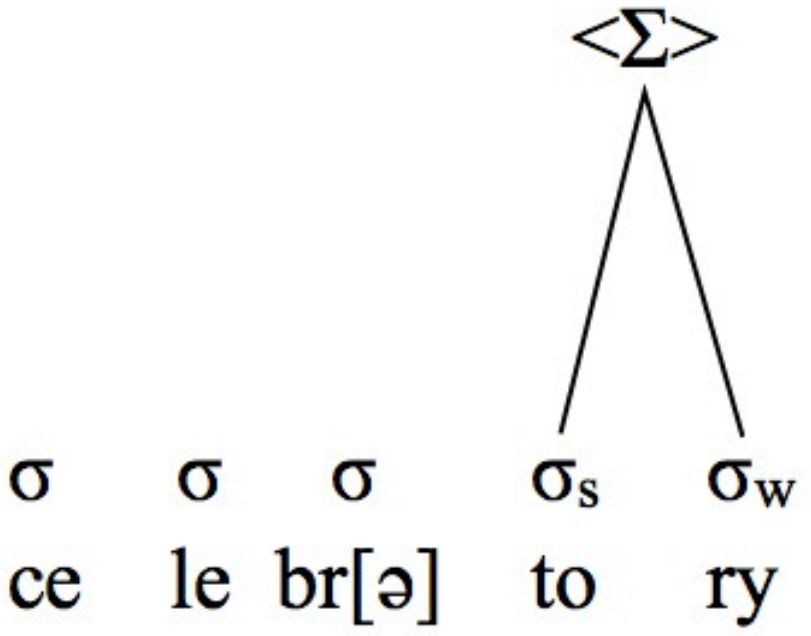
Within-type variation

- The algorithm could not assign the attested patterns:



Within-type variation

- The algorithm could not assign the attested patterns:



Within-type variation

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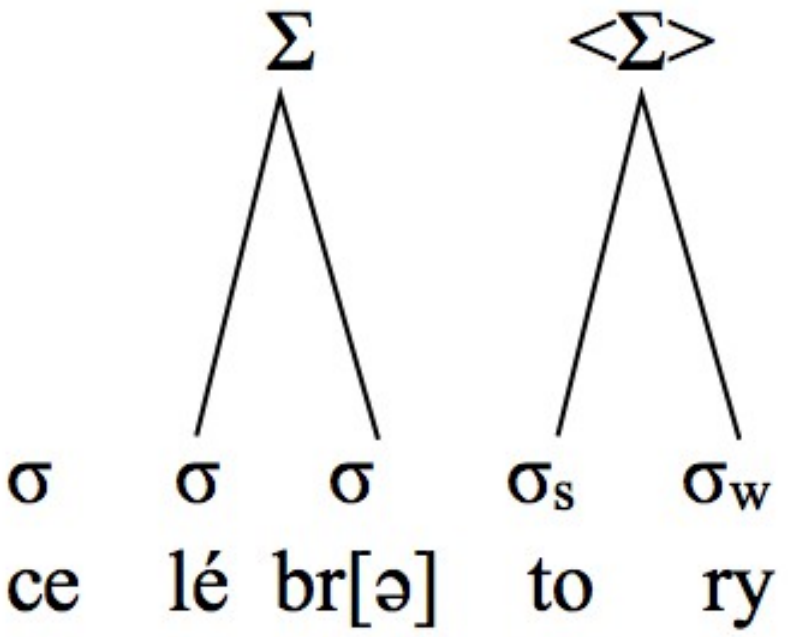

Within-type variation

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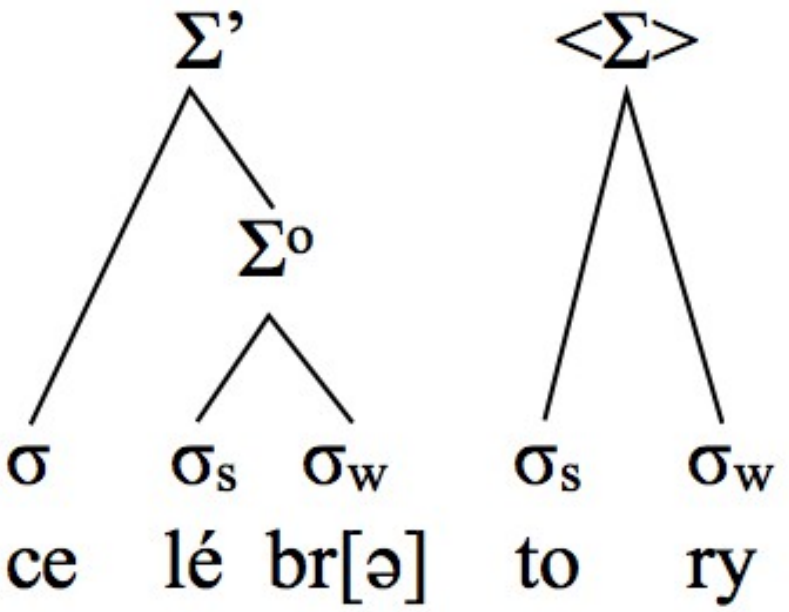
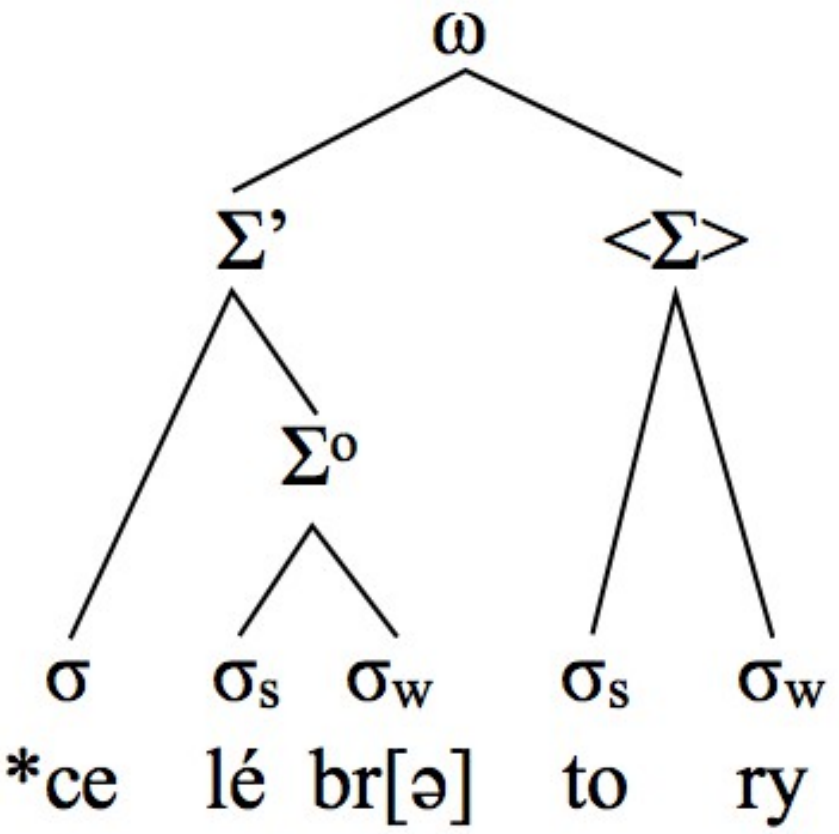


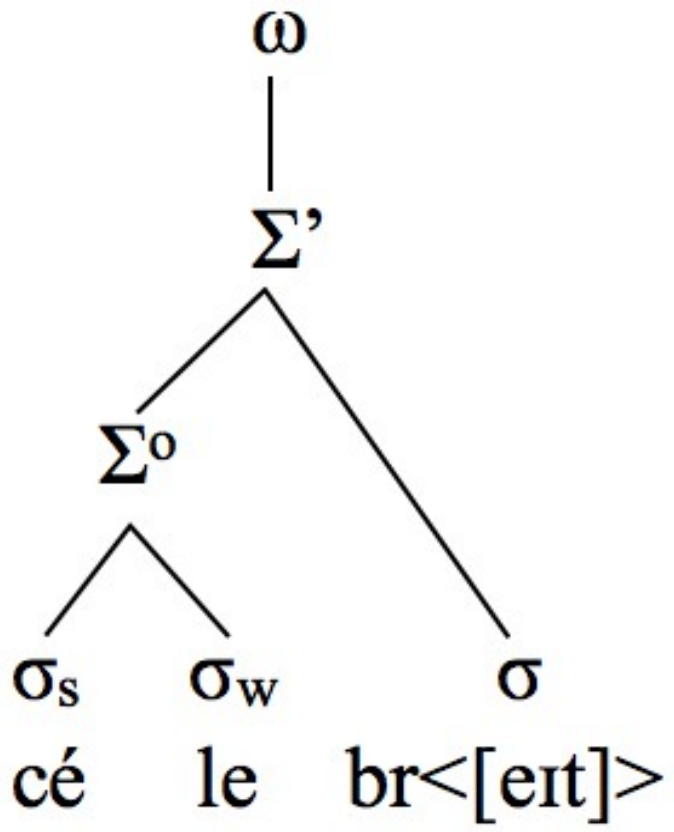
Within-type variation

- The algorithm could not assign the attested patterns:



Within-type variation

- The 'V → Adj' derivation is possible only if -ory attaches to the base in a **non-cyclic** fashion.



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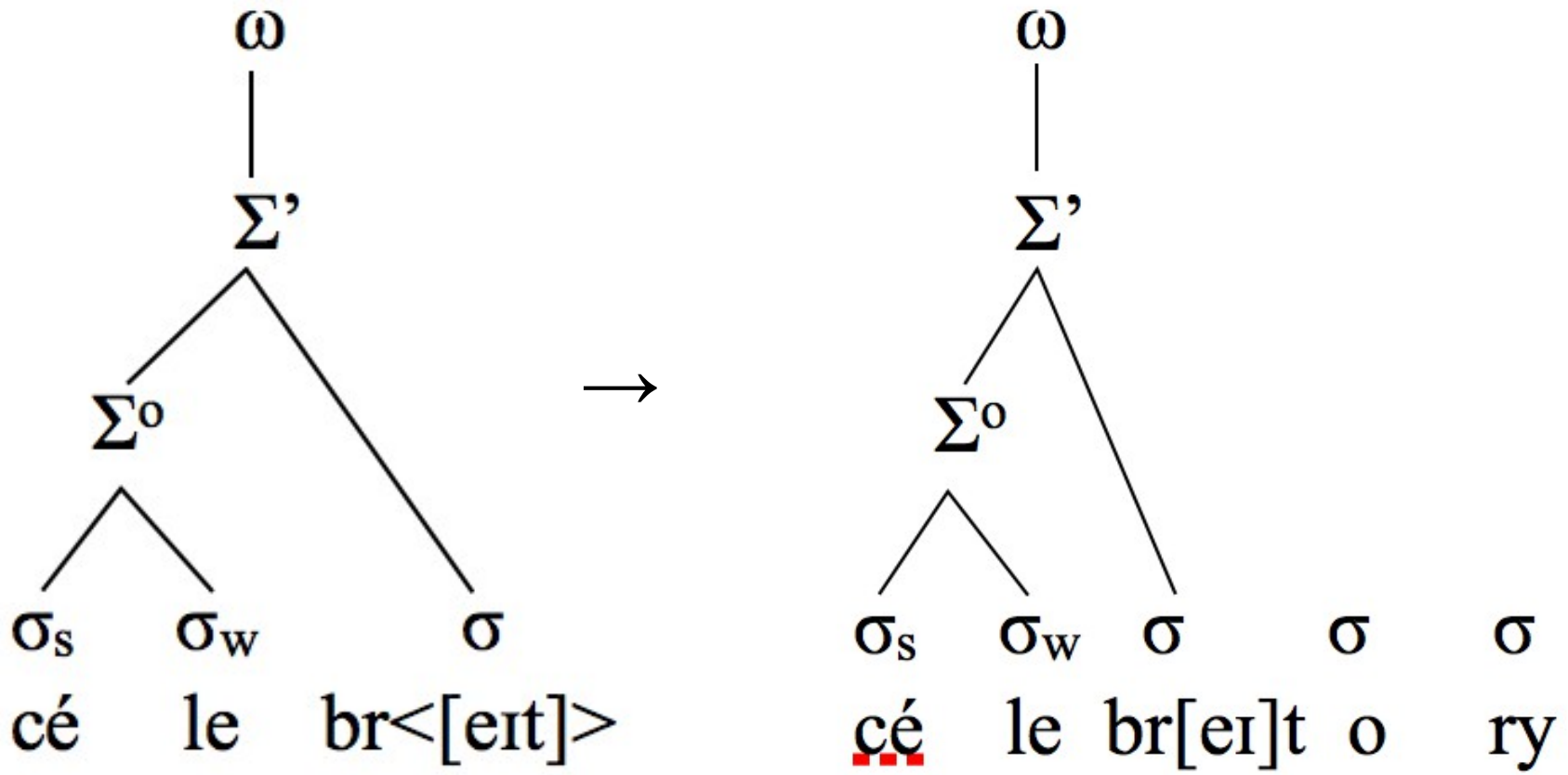

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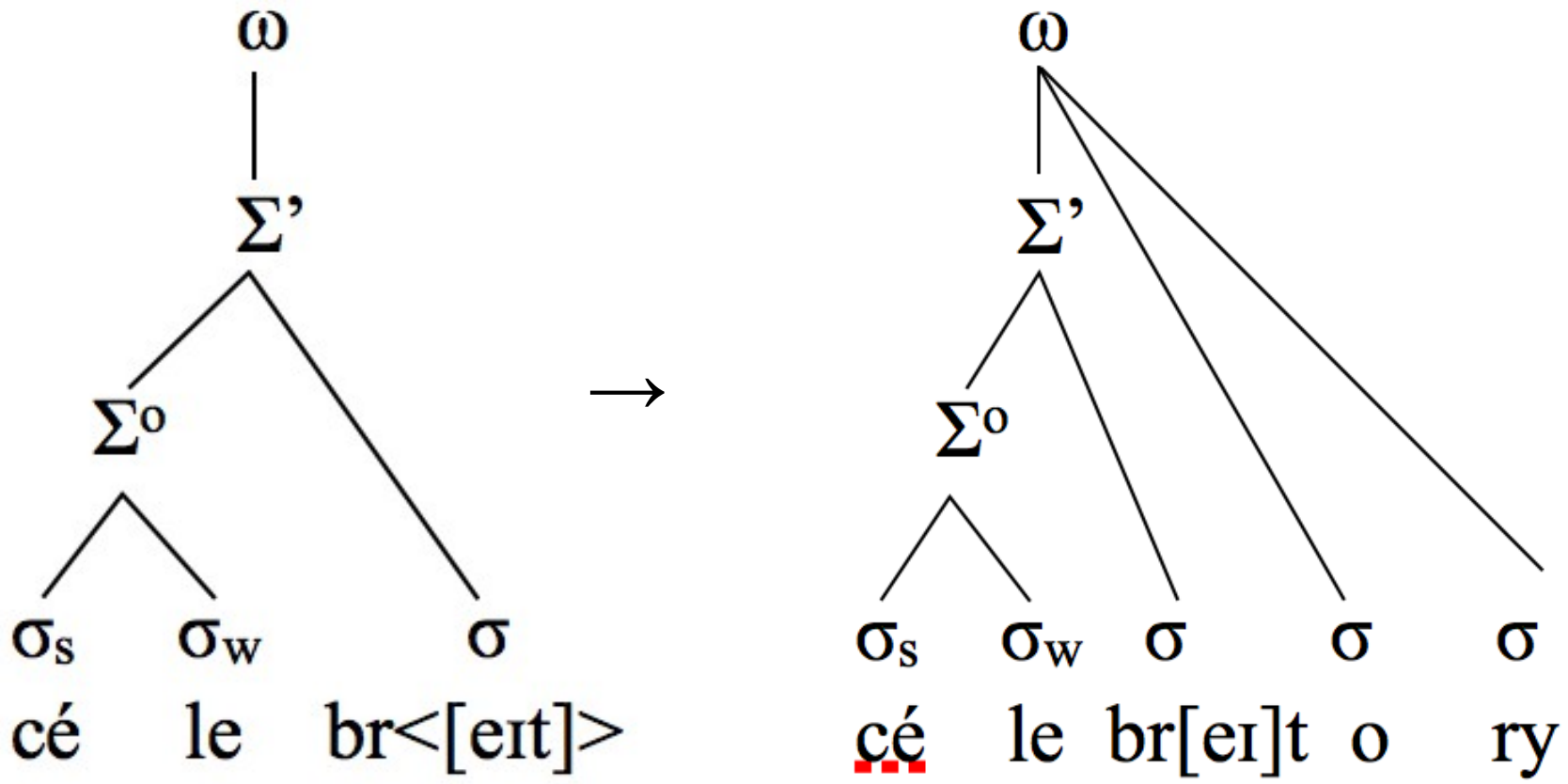
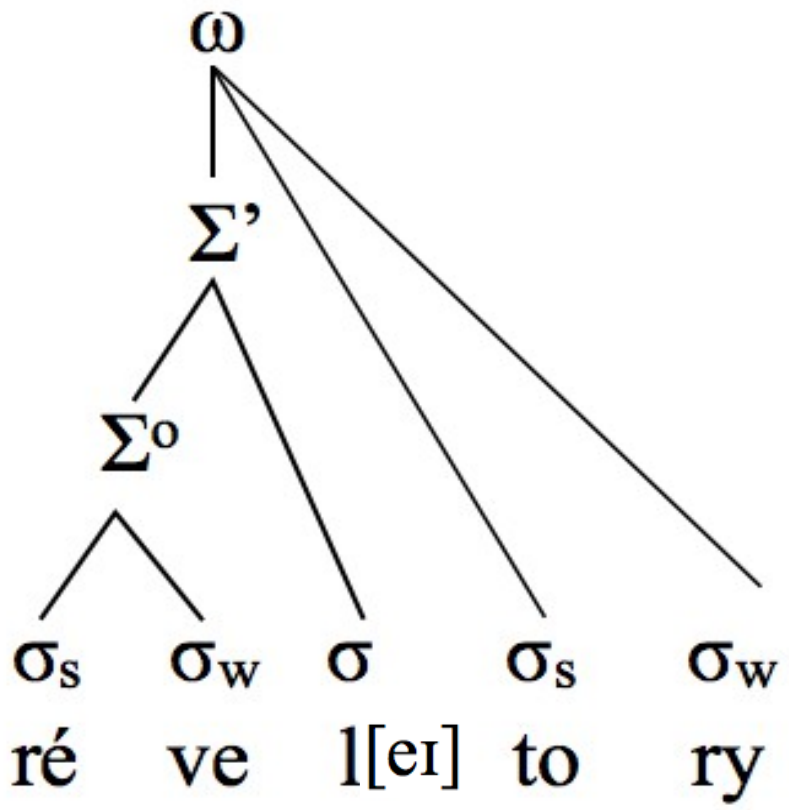


Within-type variation

- But what would then be the explanation for the stress pattern of derivatives that don't have a verb form ending in *-ate*?

???? →



Within-type variation

- The *c**é**lebratory* pattern is more likely explained as having the default foot structure:

(mè.di)(te(rrá.nea<n>) = (cé.le)<(br[ə](to.ry))>

Within-type variation

- The *c**é**lebratory* pattern is more likely explained as having the default foot structure:

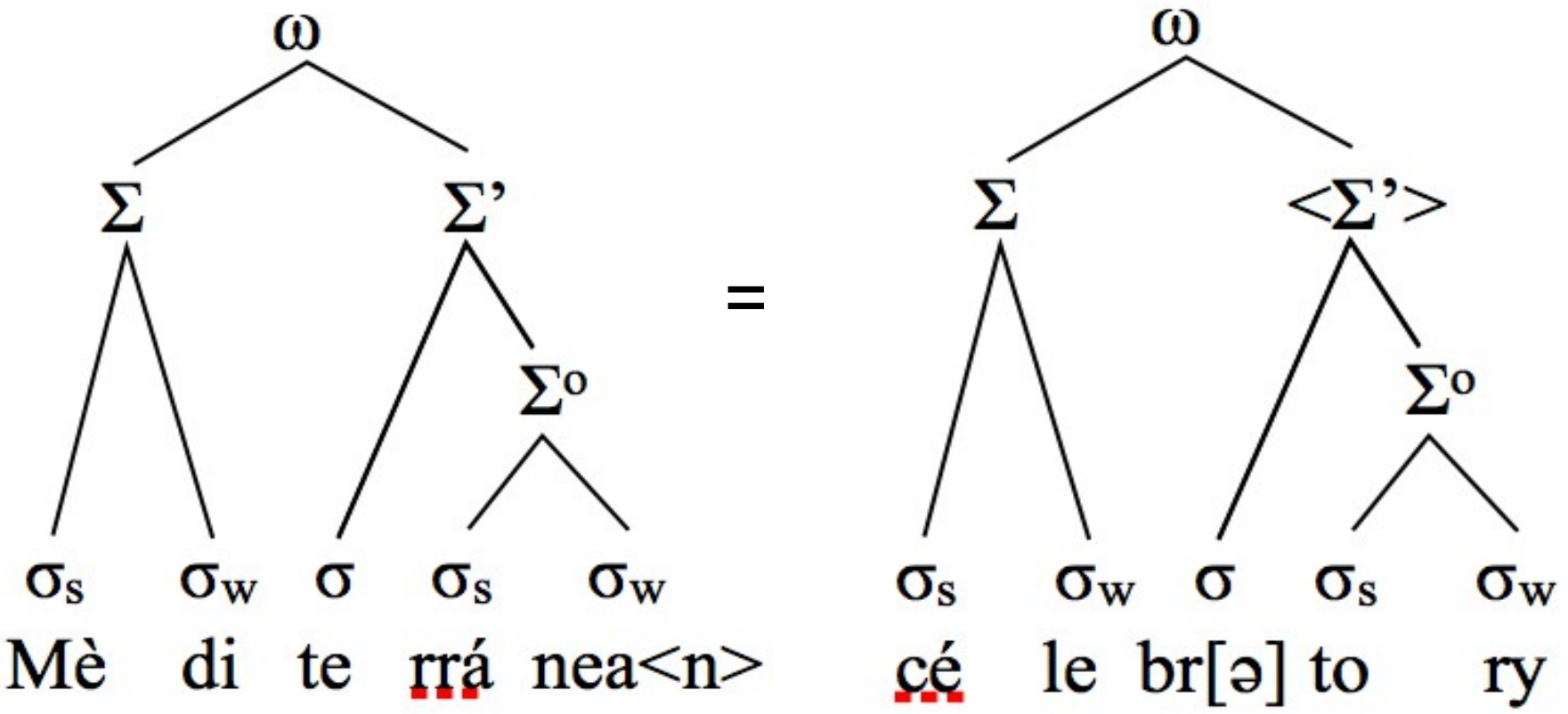
(mè.di)(te(rrá.nea<n>) = (cé.le)<(br[ə](to.ry))>

- The chances to obtain the **-**[ə]***tory*** or the **-**[eɪ]***tory*** form may depend on the **relative frequency** of the -*atory* adjective with respect to the -*(at)ion* noun.

(mì.li)(tá.ry) → (mì.li)(ta(rís.ti<c>)
(cè.le)(br[eɪ]<tion>) → (cé.le)<(br[eɪ](to.ry))>

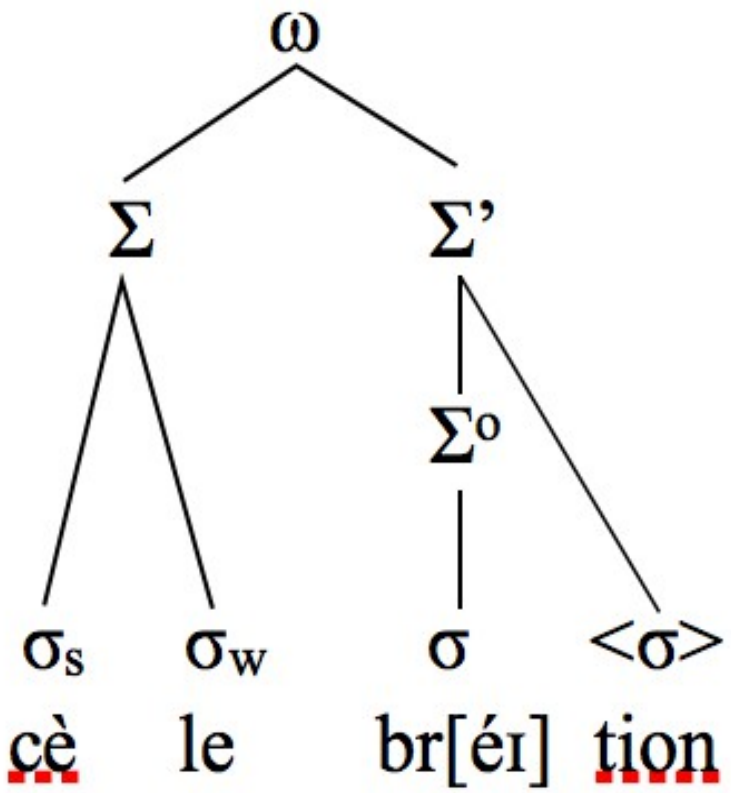
Within-type variation

- Default foot structure:



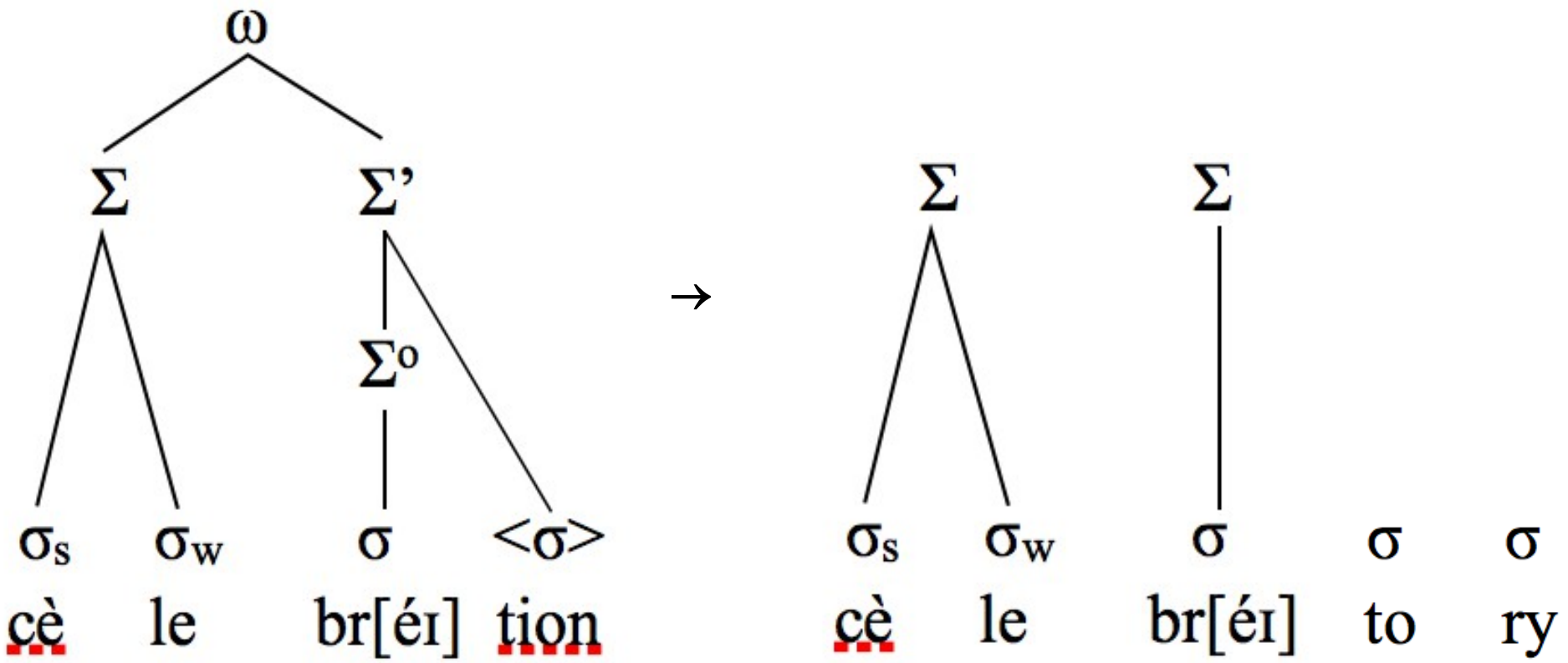
Within-type variation

-*(at)ion* derivation:



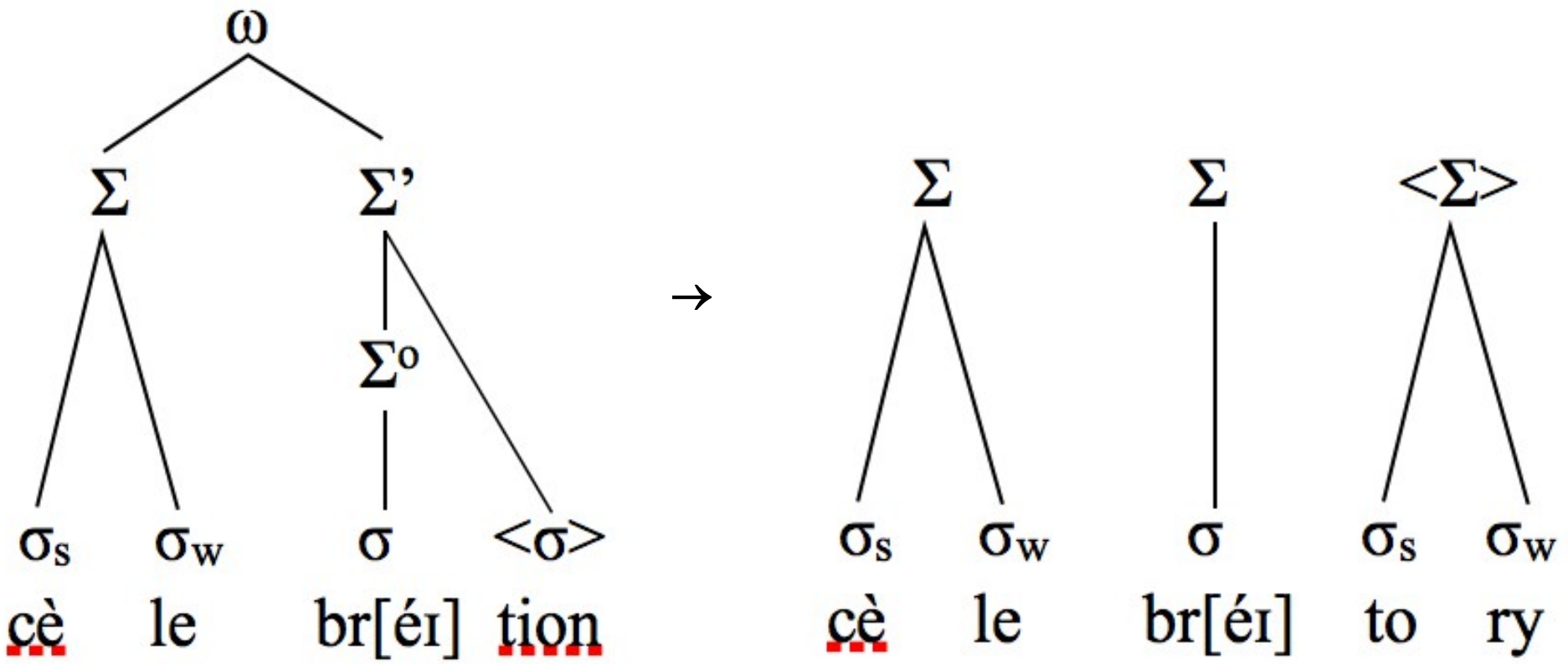
Within-type variation

-*(at)ion* derivation:



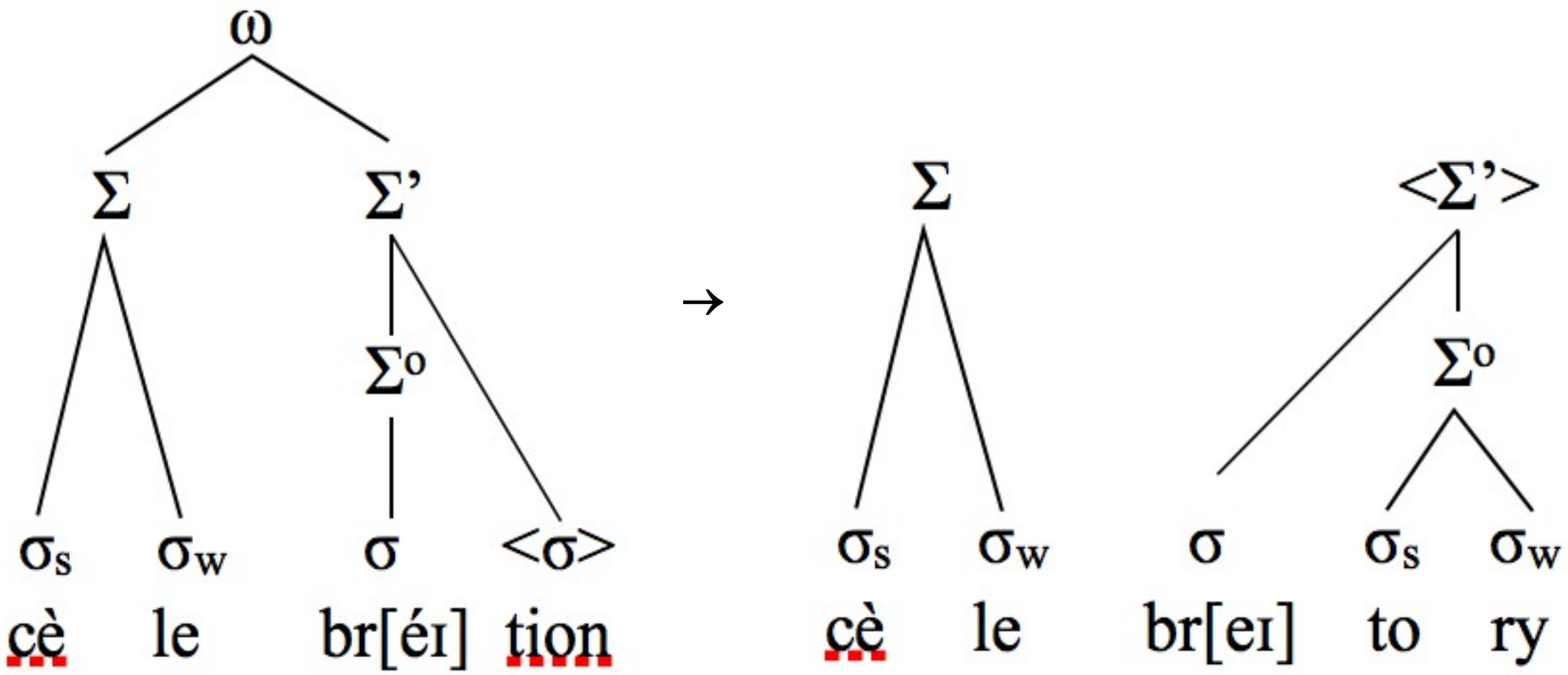
Within-type variation

-*(at)ion* derivation:



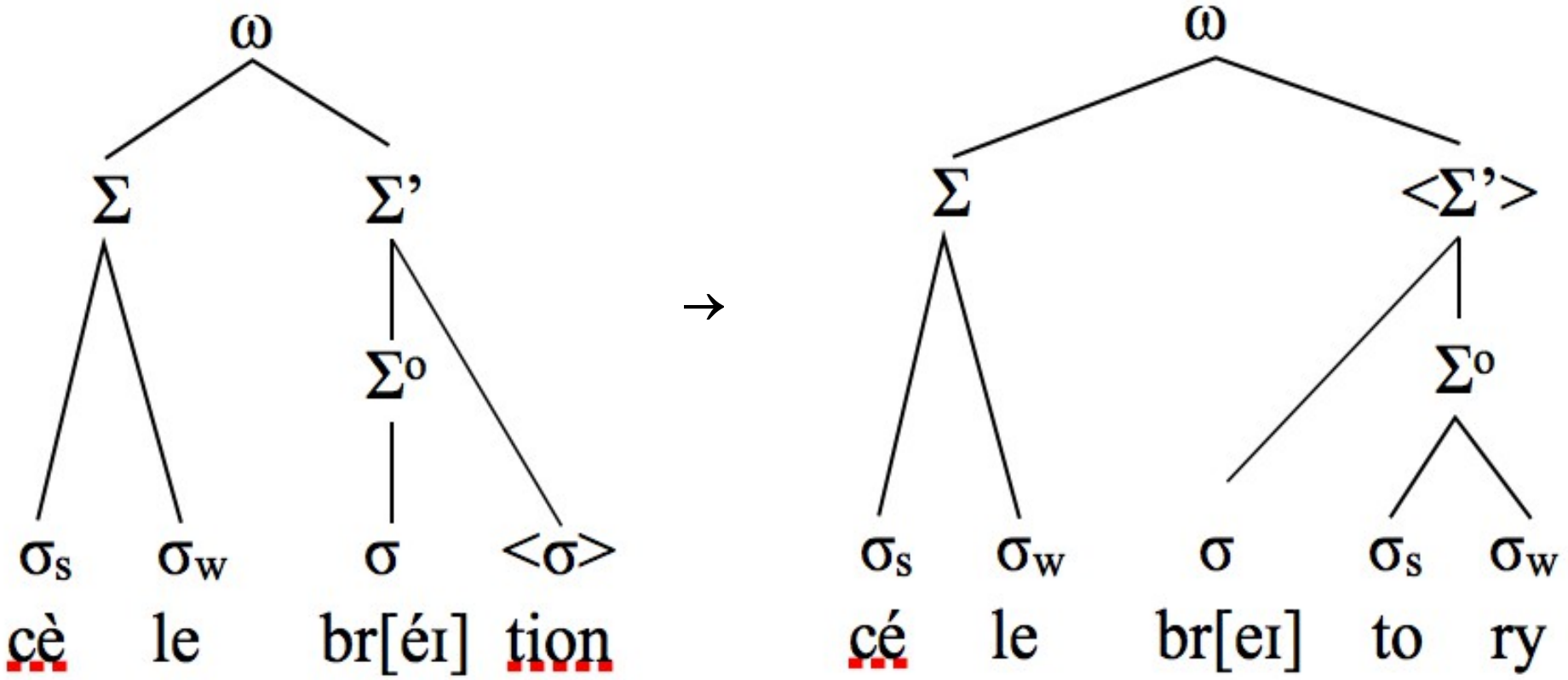
Within-type variation

-*(at)ion* derivation:



Within-type variation

-*(at)ion* derivation:



Within-type variation

- The possibility to obtain either the form with default stress and diphthong preservation or the form with stress in the suffix may depend on the interaction of **extrametricality** with **syllabic weight**.

(c**é**.le)<(br[**eɪ**](to.ry))> ~ (cè.le)((br[**éɪ**])<to.ry>)

The typology of stress in -*atory* derivatives

(1) Monomorphemic: *c**é**lebr[**ə**]tory*

(2) -*ation*-derived:

(a) Extrametricality >
> Syllabic weight: *c**é**lebr[**eɪ**]tory*

(b) Syllabic weight >
Extrametricality: *cèlebr[**éɪ**]tory*

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