Conditioning Greek root allomorphy without spans

Christos Christopoulos & Roberto Petrosino

University of Connecticut

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What is allomorphy?

- Alternations in the exponents of a morphosyntactic feature depending on the morpho-syntactic and/or (morpho)-phonological context in which the features occur.
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(1) a. $X \rightarrow \alpha$
    
    b. $X \rightarrow \beta / \_ \_ \_ Y$
What is allomorphy?

- Alternations in the exponents of a morphosyntactic feature depending on the morpho-syntactic and/or (morpho)-phonological context in which the features occur.

(1)  
  a. $X \rightarrow \alpha$
  b. $X \rightarrow \beta / \underline{Y}$

In (1):
- $\alpha$ and $\beta$ are *allomorphs* of each other
- $Y$ *conditions/triggers* allomorphy on $X$
Syntax only manipulates abstract morpho-syntactic features (Halle and Marantz, 1993).
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**ALLOMORPHY** may occur at and/or after *Vocabulary Insertion*, where phonological material is added to the derivation.
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**Allomorphy** may occur at and/or after *Vocabulary Insertion*, where phonological material is added to the derivation.

Theoretical question:

What are grammatical restrictions imposed on the conditioning of allomorphy?
Node Adjacency Hypothesis

Structural Adjacency Hypothesis (a.o. Bobaljik, 2012)
Features on node Y can condition allomorphy on a node X iff Y is structurally adjacent to X.

(2) a. $[X]Y$ (Y can condition allomorphy on X)

b. $[[X]Z]Y$ (Y cannot condition allomorphy on X)

Linear Adjacency Hypothesis (Embick, 2010)
Features on node Y can condition allomorphy on a node X iff Y is linearly adjacent to X.

(3) a. $X > Y$ (Y can condition allomorphy on X)

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\[
\begin{align*}
\text{(2) a. } & \quad [X]Y \\
\text{ (Y can condition allomorphy on } X) \\
\hline
\text{b. } & \quad [Y]Z \\
\text{ (Y cannot condition allomorphy on } X)
\end{align*}
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Features on node Y can condition allomorphy on a node X iff Y is linearly adjacent to X.

(3) a. \(X \sim Y\) (Y can condition allomorphy on X)
   b. \(X \sim Z \sim Y\) (Y cannot condition allomorphy on X)

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Node Adjacency Hypothesis

Pruning

- An operation of **PRUNING** has been assumed to delete nodes with ∅-exponence (Embick, 2010).
- Given this amendment, structurally/linearly non-adjacent nodes can also interact.
An operation of **pruning** has been assumed to delete nodes with $\emptyset$-exponence (Embick, 2010).

Given this amendment, structurally/linearly non-adjacent nodes can also interact.

A node $Y$ can interact with node $X$ iff all intervening nodes $Z$ have $\emptyset$-exponence.
In this talk

**PART I**

1. Greek verbal root allomorphy: a challenge for the Node Adjacency Hypothesis?

   Merchant (2015)’s Span Adjacency Hypothesis.

2. A contradiction in the Span Adjacency Hypothesis.

   Merchant (2015)’s conclusion contradicts his assumptions, thus leading to abandon any form of adjacency.

3. Adjacency matters.

   If adjacency is not at play in restricting allomorphy, a mystery arises with regards to the correlation between overtness of verbalizers and root-allomorphy.

**PART II**


   We offer a way of looking at the Greek data in line with the Node Adjacency Hypothesis, which also allows us to capture the correlation between overtness of verbalizers and root-allomorphy.

5. Conclusions and future directions
In this talk

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Part I
Greek verbal root allomorphy

a challenge for the Node Adjacency Hypotheses?

(4)

\[
\begin{array}{c}
\text{TNS, Agr} \\
\text{Asp} \\
\text{Vce} \\
\sqrt{\text{Root}} \\
\sqrt{\text{Root}}
\end{array}
\]

(Rivero, 1990)
Greek verbal root allomorphy
a challenge for the Node Adjacency Hypothesis?

<table>
<thead>
<tr>
<th>‘FOUND’</th>
<th>+ACT</th>
<th>−ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−PFV</td>
<td>+PFV</td>
</tr>
<tr>
<td>−PST</td>
<td>ἐδρι-ι</td>
<td>ἐδρι-ς-ι</td>
</tr>
<tr>
<td>+PST</td>
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</tr>
<tr>
<td>+PST</td>
<td>ἵ/slick</td>
<td>ἵ/slick-σ-ι</td>
</tr>
</tbody>
</table>

(5) Relevant Vocabulary Items

a. [−ACT] ↔ θ / ___ [+PFV]

b. [+PFV] ↔ ik / [−ACT] ___ [+PST]
Greek verbal root allomorphy

Merchant (2015)’s analysis


1. $\+PFV$ seems to condition allomorphy across an overt $-ACT$ exponent.

1. +PFV seems to condition allomorphy across an overt $-\text{ACT}$ exponent.

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<th>$-\text{ACT}$</th>
</tr>
</thead>
<tbody>
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<td>‘DRAG’</td>
<td>$-\text{PFV}$</td>
<td>$+\text{PFV}$</td>
</tr>
<tr>
<td>$-\text{PST}$</td>
<td>ser-n-i</td>
<td>sir-i</td>
</tr>
<tr>
<td>$+\text{PST}$</td>
<td>e-ser-n-e</td>
<td>e-sir-e</td>
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1. $+\text{PFV}$ seems to condition allomorphy across an overt $\neg\text{ACT}$ exponent.

<table>
<thead>
<tr>
<th>‘DRAG’</th>
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<th>$+\text{PFV}$</th>
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<tr>
<td>$\neg\text{PST}$</td>
<td><strong>ser-n-i</strong></td>
<td><strong>sir-i</strong></td>
<td><strong>ser-n-ete</strong></td>
<td><strong>sir-θ-i</strong></td>
</tr>
<tr>
<td>$+\text{PST}$</td>
<td>e-ser-n-e</td>
<td>e-sir-e</td>
<td>ser-n-otan</td>
<td><strong>sir-θ-ik-e</strong></td>
</tr>
</tbody>
</table>

(6) $\sqrt{\text{DRAG}} \quad \neg\text{ACT} \quad +\text{PFV} \quad +\text{PST}$ 3SG
‘s/he was dragged’

1. $+PFV$ seems to condition allomorphy across an overt $-ACT$ exponent.

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(6) \(\sqrt{DRAG} -ACT +PFV +PST.3SG\) ‘s/he was dragged’
Greek verbal allomorphy

Merchant (2015)'s analysis

(7)

\[
\begin{array}{c}
T,\text{Agr} \\
\text{Asp} & [+\text{PST,3SG}] \\
\text{VOICE} & [+\text{PFV}] \\
\nu & [-\text{ACT}] \\
\sqrt{\text{DRAG}} & \nu \\
sir & \theta \quad \text{ik} \quad \text{e}
\end{array}
\]
In Greek, **multiple nodes** can condition allomorphy at the same time.
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(8) ɖar- θ- ik- e
\[\sqrt{\text{BEAT} - \text{ACT} + \text{PFV} + \text{PST}.3SG}\]
‘s/he was beaten’
Greek verbal root allomorphy

Merchant (2015)'s analysis

(9)
Spanish verbal root allomorphy
Merchant (2015)’s analysis

- Based on the Greek data, Merchant makes the following proposal:

**Span adjacency hypothesis (Merchant, 2015, p. 294)**

Allomorphy is conditioned only by an adjacent span.
Greek verbal root allomorphy

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- Based on the Greek data, Merchant makes the following proposal:

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Greek verbal root allomorphy
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Greek verbal root allomorphy
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A node Y can interact with node X only if all intervening nodes Z also interact with X.

- This allows us to capture why:
  1. linear adjacency doesn’t seem to matter for the Greek cases
  2. multiple nodes can trigger allomorphy simultaneously on the same target
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Merchant (2015)’s analysis

- Based on the Greek data, Merchant makes the following proposal:

**Span adjacency hypothesis (Merchant, 2015, p. 294)**

*Allomorphy is conditioned only by an adjacent span.*

- A **SPAN** is a “complement sequence of heads [...] in a single extended projection” (Svenonius, 2012, p. 1).
  - only an ordered $n$-tuple of contiguous nodes can be a span.
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- This allows us to capture why:
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Greek verbal root allomorphy
A contradiction in Merchant (2015)

- In the structure (10), Asp is predicted to be unable to trigger allomorphy on the root by itself.
Greek verbal root allomorphy
A contradiction in Merchant (2015)

- In the structure (10), \( \text{ASP} \) is predicted to be unable to trigger allomorphy on the root by itself.

\[
(10) \quad \begin{array}{c}
\text{T, Agr} \\
\text{ASP} \quad [\pm \text{PST, } \phi] \\
\text{VOICE} \quad [\pm \text{PFV}] \\
\text{v} \quad [\pm \text{ACT}] \\
\sqrt{\text{ROOT}} \quad \text{v}
\end{array}
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Greek verbal allomorphy
A contradiction in Merchant (2015)

- **Problem:** Aspect seems to be able to condition allomorphy without the help of Voice.
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Taking this cases of allomorphy as conditioned by $VCE + ASP$ leads to the loss of any empirical power of SAH.
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Taking this cases of allomorphy as conditioned by \( VCE + Asp \) leads to the loss of any empirical power of SAH.

- We are then forced to **weaken** Merchant’s hypothesis:

Spans can condition allomorphy, but no adjacency is required (similarly to Moskal and Smith, 2016).
Multiple exponents have been identified as verbalizers in Greek (a.o., Spyropoulos, Revithiadou, and Panagiotidis, 2015; Efthymiou, 2015):

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Greek verbal allomorphy
Adjacency effects with verbalizers

- Multiple exponents have been identified as verbalizers in Greek (a.o., Spyropoulos, Revithiadou, and Panagiotidis, 2015; Efthymiou, 2015):

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Greek verbal allomorphy

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- **Root-allomorphy never co-occurs with an overt verbalizer** (Calabrese, 2015a; Calabrese, 2015b; Calabrese, in press).

- This has to be seen as an accident under an approach that takes adjacency to be irrelevant for the locality of allomorphy.
Part I – summary

- Merchant’s *Span Adjacency Hypothesis* is untenable based on his assumptions. Based on Merchant’s assumptions we can only conclude that:
  - adjacency plays no role in restricting allomorphy, and
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- Merchant’s *Span Adjacency Hypothesis* is untenable based on his assumptions. Based on Merchant’s assumptions we can only conclude that:
  - adjacency plays no role in restricting allomorphy, and
  - multiple nodes may condition allomorphy if they are contiguous.
Part I – summary

- Merchant’s *Span Adjacency Hypothesis* is untenable based on his assumptions. Based on Merchant's assumptions we can only conclude that:
  - adjacency plays no role in restricting allomorphy, and
  - multiple nodes may condition allomorphy if they are contiguous.

- However, the conclusion that adjacency plays no role in restricting allomorphy misses the correlation between the overtness of the verbalizer and the absence of root allomorphy.
Part I – summary

- Merchant’s *Span Adjacency Hypothesis* is untenable based on his assumptions. Based on Merchant's assumptions we can only conclude that:
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- However, the conclusion that adjacency plays no role in restricting allomorphy misses the correlation between the overtness of the verbalizer and the absence of root allomorphy.

- Coming up: Part II
Part II
Overview of Part II

1. The span \(<\text{VOICE, ASPECT}>\) is not just any span, but has a special status in Greek morphology as compared to other spans.

2. A tighter relation such as Fusion/re-bracketing between \text{VOICE} and \text{ASPECT} is required to capture its specialness.

3. The assumption of Fusion/re-bracketing between \text{ASPECT} and \text{VOICE} also allows us to interpret the root-allomorphy patterns in line with the Node-Adjacency Hypothesis.

4. The correlation between the overtness of verbalizers and the absence of root allomorphy falls right out.
Why can r-allomorphy be conditioned by \(<V_{CE}, Asp}\>?
Why can r-allomorphy be conditioned by $\langle VCE, Asp \rangle$?

- **H1:** $VCE$ and $Asp$ are a span.

- **H2:** $VCE$ and $Asp$ are fused.
Why can r-allomorphy be conditioned by \(<V_{CE}, A_{SP}>\)?

- **H1:** \(V_{CE} \text{ and } A_{SP}\) are a span.

  \[
  \begin{array}{c}
  \text{TNS} \\
  \bigg\arrowdown{A_{SP}} \bigg{[\pm PST]} \\
  \bigg\arrowdown{V_{CE}} \bigg{[\pm PFV]} \\
  \bigg\arrowdown{\sqrt{v}} \bigg{[\pm ACT]} \\
  \bigg\arrowdown{\sqrt{\text{ROOT}}} \bigg{v} \\
  \end{array}
  \]

  \(<V_{CE}, A_{SP}>\) has equal status to other spans.

- **Prediction:** \(<V_{CE}, A_{SP}>\) and \(<A_{SP}, TNS>\) can both be referred to by rules.

- **H2:** \(V_{CE}\) and \(A_{SP}\) are fused.

  \[
  \begin{array}{c}
  \bigg\arrowdown{TNS} \\
  \bigg\arrowdown{A_{SP}} \bigg{[\pm PST]} \\
  \bigg\arrowdown{V_{CE}} \bigg{[\pm PFV]} \\
  \bigg\arrowdown{\sqrt{v}} \bigg{[\pm ACT]} \\
  \bigg\arrowdown{\sqrt{\text{ROOT}}} \bigg{v} \\
  \end{array}
  \]

  \(<V_{CE}, A_{SP}>\) has a special morphosyntactic status.

  **Prediction:** \(<V_{CE}, A_{SP}>\) can be a target for rules, but not \(<A_{SP}, TNS>\).
Why can r-allomorphy be conditioned by \(<VCE, Asp>\)?

- **H1:** \(VCE\) and \(Asp\) are a span.

![Diagram]

- <\(VCE, Asp\)> has equal status to other spans.

- **Prediction:**
  - <\(VCE, Asp\)> and <\(Asp, Tns\)> can both be referred to by rules.
Why can r-allomorphy be conditioned by \(<VCE, Asp>\)?

- **H1:** \(VCE\) and \(Asp\) are a span.
  
  \[
  \begin{array}{c}
  \sqrt{\text{ROOT}} \\
  \downarrow \\
  v
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  VCE \\
  \downarrow \\
  [\pm ACT]
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  \sqrt{\text{ROOT}} \\
  \downarrow \\
  v
  \end{array}
  \begin{array}{c}
  \text{TNS}
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  \text{Asp}
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  [\pm PST]
  \end{array}
  \]

- **H2:** \(VCE\) and \(Asp\) are fused.
  
  \[
  \begin{array}{c}
  \sqrt{\text{ROOT}} \\
  \downarrow \\
  v
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  VCE, Asp
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  \text{TNS}
  \end{array}
  \]
  
  \[
  \begin{array}{c}
  [\pm ACT, \pm PFV]
  \end{array}
  \]

- \(<VCE, Asp>\) has equal status to other spans.

- **Prediction:**
  
  \(<VCE, Asp>\) and \(<Asp, TNS>\) can both be referred to by rules.
Why can r-allomorphy be conditioned by $<VCE, Asp>$?

- **H1:** $VCE$ and $Asp$ are a span.

  - $VCE$ [±PFV]
    - $v$ [±ACT]
      - $\sqrt{\text{ROOT}}$
  - $Asp$ [±PST]
    - $TNS$

  - $<VCE, Asp>$ has equal status to other spans.

  - **Prediction:** $<VCE, Asp>$ and $<Asp, Tns>$ can both be referred to by rules.

- **H2:** $VCE$ and $Asp$ are fused.

  - $VCE, Asp$ [±ACT, ±PFV]
    - $v$
      - $\sqrt{\text{ROOT}}$
  - $TNS$ [±PST]

  - $<VCE, Asp>$ has a special morphosyntactic status.
Why can r-allomorphy be conditioned by $<VCE, Asp>$?

- **H1:** $VCE$ and $Asp$ are a span.

  - $VCE$ has equal status to other spans.
  - **Prediction:** $<VCE, Asp>$ and $<Asp, Tns>$ can both be referred to by rules.

- **H2:** $VCE$ and $Asp$ are fused.

  - $<VCE, Asp>$ has a special morphosyntactic status.
  - **Prediction:** $<VCE, Asp>$ can be a target for rules, but not $<Asp, Tns>$. 
There are exponents that only appear in specific Voice-Aspect combinations.

<table>
<thead>
<tr>
<th></th>
<th>−PFV, +ACT</th>
<th>+PFV, +ACT</th>
<th>−PFV, −ACT</th>
<th>+PFV, −ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>−PST</td>
<td>iðri-o</td>
<td>iðri-s-o</td>
<td>iðri-ome</td>
<td>iðri-θ-o</td>
</tr>
<tr>
<td></td>
<td>iðri-is</td>
<td>iðri-s-is</td>
<td>iðri-ese</td>
<td>iðri-θ-is</td>
</tr>
<tr>
<td></td>
<td>iðri-i</td>
<td>iðri-s-i</td>
<td>iðri-ete</td>
<td>iðri-θ-i</td>
</tr>
<tr>
<td></td>
<td>iðri-ume</td>
<td>iðri-s-ume</td>
<td>iðri-omaste</td>
<td>iðri-θ-ume</td>
</tr>
<tr>
<td></td>
<td>iðri-ete</td>
<td>iðri-s-ete</td>
<td>iðri-osaste</td>
<td>iðri-θ-ite</td>
</tr>
<tr>
<td></td>
<td>iðri-un</td>
<td>iðri-s-un</td>
<td>iðri-onde</td>
<td>iðri-θ-un</td>
</tr>
<tr>
<td>+PST</td>
<td>iðri-a</td>
<td>iðri-s-a</td>
<td>iðri-omun</td>
<td>iðri-θ-ik-a</td>
</tr>
<tr>
<td></td>
<td>iðri-es</td>
<td>iðri-s-es</td>
<td>iðri-osun</td>
<td>iðri-θ-ik-es</td>
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<td>iðri-θ-ik-e</td>
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<td></td>
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<td>iðri-s-ame</td>
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<tr>
<td></td>
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<td>iðri-s-ate</td>
<td>iðri-osastan</td>
<td>iðri-θ-ik-ate</td>
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<tr>
<td></td>
<td>iðri-an</td>
<td>iðri-s-an</td>
<td>iðri-ondan</td>
<td>iðri-θ-ik-an</td>
</tr>
</tbody>
</table>
In the imperative forms of a subclass of second conjugation verbs we see optionality in the form of a specific **VOICE-ASPECT** combination.

<table>
<thead>
<tr>
<th>Verb</th>
<th>$-\text{PFV},+\text{ACT}$</th>
<th>$+\text{PFV},+\text{ACT}$</th>
<th>$-\text{PFV},-\text{ACT}$</th>
<th>$+\text{PFV},-\text{ACT}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘pull’</td>
<td>trav-a</td>
<td>trav-a</td>
<td>trav-ik-s-e</td>
<td>trav-ik-s-u</td>
</tr>
<tr>
<td>‘look’</td>
<td>kit-a</td>
<td>kit-a</td>
<td>kit-ak-s-e</td>
<td>kit-ak-s-u</td>
</tr>
<tr>
<td>‘sing’</td>
<td>trαυυδ-a</td>
<td>trαυυδ-a</td>
<td>trαυυδ-ι-s-e</td>
<td>trαυυδ-ι-s-u</td>
</tr>
<tr>
<td>‘hang’</td>
<td>krem-a</td>
<td>krem-a</td>
<td>krem-a-s-e</td>
<td>krem-a-s-u</td>
</tr>
<tr>
<td>‘forget’</td>
<td>ksex-n-a</td>
<td>ksex-n-a</td>
<td>ksex-a-s-e</td>
<td>ksex-a-s-u</td>
</tr>
<tr>
<td>‘wear’</td>
<td>for-a</td>
<td>for-a</td>
<td>for-e-s-e</td>
<td>for-e-s-u</td>
</tr>
</tbody>
</table>
Rules that refer to $\langle \text{Asp}, \text{Tns} \rangle$?
Rules that refer to \(<\text{Asp}, \text{Tns}>\)?

- Greek morphology does not care about \(<\text{Asp}, \text{Tns}>\).

<table>
<thead>
<tr>
<th></th>
<th>$-\text{PFV}, -\text{PST}$</th>
<th>$+\text{PFV}, -\text{PST}$</th>
<th>$-\text{PFV}, +\text{PST}$</th>
<th>$+\text{PFV}, -\text{PST}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$+\text{ACT}$</td>
<td>iěri-o</td>
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<td>iěri-s-a</td>
</tr>
<tr>
<td></td>
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<td>iěri-s-is</td>
<td>iěri-es</td>
<td>iěri-s-es</td>
</tr>
<tr>
<td></td>
<td>iěri-i</td>
<td>iěri-s-i</td>
<td>iěri-e</td>
<td>iěri-s-e</td>
</tr>
<tr>
<td></td>
<td>iěri-ume</td>
<td>iěri-s-ume</td>
<td>iěri-ame</td>
<td>iěri-s-ame</td>
</tr>
<tr>
<td></td>
<td>iěri-ete</td>
<td>iěri-s-ete</td>
<td>iěri-ate</td>
<td>iěri-s-ate</td>
</tr>
<tr>
<td></td>
<td>iěri-un</td>
<td>iěri-s-un</td>
<td>iěri-an</td>
<td>iěri-s-an</td>
</tr>
<tr>
<td>$-\text{ACT}$</td>
<td>iěri-ome</td>
<td>iěri-θ-o</td>
<td>iěri-omun</td>
<td>iěri-θ-ik-a</td>
</tr>
<tr>
<td></td>
<td>iěri-ese</td>
<td>iěri-θ-is</td>
<td>iěri-osun</td>
<td>iěri-θ-ik-es</td>
</tr>
<tr>
<td></td>
<td>iěri-ete</td>
<td>iěri-θ-i</td>
<td>iěri-otan</td>
<td>iěri-θ-ik-e</td>
</tr>
<tr>
<td></td>
<td>iěri-omaste</td>
<td>iěri-θ-ume</td>
<td>iěri-omastan</td>
<td>iěri-θ-ik-ame</td>
</tr>
<tr>
<td></td>
<td>iěri-osaste</td>
<td>iěri-θ-ite</td>
<td>iěri-osastan</td>
<td>iěri-θ-ik-ate</td>
</tr>
<tr>
<td></td>
<td>iěri-onde</td>
<td>iěri-θ-un</td>
<td>iěri-ondan</td>
<td>iěri-θ-ik-an</td>
</tr>
</tbody>
</table>
Assumptions

1. Fusion/re-bracketing (e.g. Radkevich, 2010) of Voice and Aspect:

   (11) \[\text{Aspect} \ [\text{Voice} [\ldots]]] \rightarrow [[[\text{Aspect} \ \text{Voice}] [\ldots]]]

2. The following Vocabulary Items

   (12)
   
   a. \([-\text{PFV}, +\text{ACT}] \leftrightarrow \emptyset\]
   b. \([-\text{PFV}, -\text{ACT}] \leftrightarrow \emptyset\]
   c. \([+\text{PFV}, +\text{ACT}] \leftrightarrow s\]
   d. \([+\text{PFV}, -\text{ACT}] \leftrightarrow \emptyset\]
   e. (i) \([3\text{SG}, -\text{PST}] \leftrightarrow \text{ete} / [-\text{PFV}, -\text{ACT}] \_\]
      (ii) \([3\text{SG}, +\text{PST}] \leftrightarrow \text{otan} / / [-\text{PFV}, -\text{ACT}] \_\]
   f. \([+\text{PST}] \rightarrow \text{ik} / [+\text{PFV}, -\text{ACT}] \_\]

3. Node adjacency is required for the conditioning of allomorphy.

4. The operation of Pruning eliminates nodes with \(\emptyset\)-exponence cyclically, from inside out.
### Accounting for the root-allomorphy patterns

<table>
<thead>
<tr>
<th>Patterns</th>
<th>+ACT</th>
<th>−ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>−PFV</td>
<td>+PFV</td>
<td>−PFV</td>
</tr>
<tr>
<td>−PST</td>
<td>ser-n-i</td>
<td>sir-i</td>
</tr>
<tr>
<td>+PST</td>
<td>e-ser-n-e</td>
<td>e-sir-e</td>
</tr>
<tr>
<td>−PST</td>
<td>ḍer-n-i</td>
<td>ḍir-i</td>
</tr>
<tr>
<td>+PST</td>
<td>e-ḍer-n-e</td>
<td>e-ḍir-e</td>
</tr>
<tr>
<td>−PST</td>
<td>para-tin-i</td>
<td>para-tin-i</td>
</tr>
<tr>
<td>+PST</td>
<td>par-e-tin-e</td>
<td>par-e-tin-e</td>
</tr>
<tr>
<td>−PST</td>
<td>apo-fevγ-i</td>
<td>apo-fij-i</td>
</tr>
<tr>
<td>+PST</td>
<td>ap-e-fevj-e</td>
<td>ap-e-fij-e</td>
</tr>
</tbody>
</table>

### ‘DRAG’

<table>
<thead>
<tr>
<th>−PST</th>
<th>+PST</th>
<th>−PST</th>
<th>+PST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ser-n-i</td>
<td>e-ser-n-e</td>
<td>sir-i</td>
<td>e-sir-e</td>
</tr>
<tr>
<td>ser-n-ete</td>
<td>ser-n-otan</td>
<td>sir-θ-i</td>
<td>sir-θ-ik-e</td>
</tr>
</tbody>
</table>

### ‘BEAT’

<table>
<thead>
<tr>
<th>−PST</th>
<th>+PST</th>
<th>−PST</th>
<th>+PST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ḍer-n-i</td>
<td>e-ḍer-n-e</td>
<td>ḍir-i</td>
<td>e-ḍir-e</td>
</tr>
<tr>
<td>ḍer-n-ete</td>
<td>ḍer-n-otan</td>
<td>ḍar-θ-i</td>
<td>ḍar-θ-ik-e</td>
</tr>
</tbody>
</table>

### ‘PROLONG’

<table>
<thead>
<tr>
<th>−PST</th>
<th>+PST</th>
<th>−PST</th>
<th>+PST</th>
</tr>
</thead>
<tbody>
<tr>
<td>para-tin-i</td>
<td>par-e-tin-e</td>
<td>para-tin-ete</td>
<td>para-ta-θ-i</td>
</tr>
<tr>
<td>para-tin-otan</td>
<td>para-ta-θ-ik-e</td>
<td>para-tia-θ-i</td>
<td>para-ta-θ-ik-e</td>
</tr>
</tbody>
</table>

### ‘AVOID’

<table>
<thead>
<tr>
<th>−PST</th>
<th>+PST</th>
<th>−PST</th>
<th>+PST</th>
</tr>
</thead>
<tbody>
<tr>
<td>apo-fevγ-i</td>
<td>apo-fij-i</td>
<td>apo-fevγ-ete</td>
<td>apo-fefx-θ-i</td>
</tr>
<tr>
<td>apo-fevγ-otan</td>
<td>apo-fefx-θ-ik-e</td>
<td>apo-fevγ-otan</td>
<td>apo-fefx-θ-ik-e</td>
</tr>
</tbody>
</table>
Accounting for the root-allomorphy patterns

\[ \text{Agr} \]

\[ T \quad [3SG] \]

\[ VCE,Asp \quad [+PST] \quad e \]

\[ \sqrt{\text{DRAG}} \quad \nu \quad \theta \]

\[ \text{ser} \quad \emptyset \]

\[ \rightarrow \]

\[ \text{Agr} \]

\[ T \quad [3SG] \]

\[ VCE,Asp \quad [+PST] \quad e \]

\[ \sqrt{\text{DRAG}} \quad \nu \quad \theta \]

\[ \text{sir} \quad \emptyset \]
Accounting for the root-allomorphy patterns

\[
\begin{array}{c}
\text{Agr} \\
T [3SG] \\
\text{Vce,Asp} [+PST] e \\
\sqrt{\text{drag}} [-ACT,+PFV] \text{ik} \\
\sqrt{\text{root}}_i [-ACT,+PFV] \Theta \\
\text{ser} \emptyset
\end{array}
\]

Possible rules:

(13)  

a.  \( \sqrt{\text{drag}} \leftrightarrow \text{sir} / \_ [+PFV] \)

b.  \( e \rightarrow i / \_ \sqrt{\text{root}}_i [+ACT,+PFV] \)

\( \sqrt{\text{root}}_i = \{ \sqrt{\text{drag}}, \ldots \} \)
Accounting for the root-allomorphy patterns

\[
\begin{align*}
\text{VCE, Asp} &\quad [\text{+PST}] & e \\
\text{\(\sqrt{\text{BEAT}}\)} &\quad [\text{\(-ACT, +PFV\)}] & \text{ik} \\
\text{\(\text{\(\text{\(\vartheta\)}}\}} &\quad & \\
\text{\(\varsigma\text{er}\)} &\quad \emptyset \\
\end{align*}
\]

\[
\begin{align*}
\text{VCE, Asp} &\quad [\text{+PST}] & e \\
\text{\(\sqrt{\text{BEAT}}\)} &\quad [\text{\(-ACT, +PFV\)}] & \text{ik} \\
\text{\(\vartheta\)} &\quad & \\
\text{\(\varsigma\text{ar}\)} &\quad \theta \\
\end{align*}
\]
Accounting for the root-allomorphy patterns

\[
\begin{align*}
\text{AGR} & \\
T & [3SG] \\
VCE,ASP & [ + PST ] e \\
\sqrt{\text{BEAT}} & [ - ACT, + PFV ] ik \\
\text{der} & \emptyset
\end{align*}
\]

\[
\begin{align*}
\text{AGR} & \\
T & [3SG] \\
VCE,ASP & [ + PST ] e \\
\sqrt{\text{BEAT}} & [ - ACT, + PFV ] ik \\
\text{dar} & \emptyset
\end{align*}
\]

(14) **Possible rules**

a. \( \sqrt{\text{BEAT}} \leftrightarrow \text{dar} / \_ \ [ - ACT, + PFV ] \)
b. \( \text{a} \rightarrow \text{a} / \_ \sqrt{\text{ROOT}_i} \ [ - ACT, + PFV ] \) \( \sqrt{\text{ROOT}_i} = \{ \sqrt{\text{BEAT}}, \ldots \} \)
An example of **Tense**-conditioned root-allomorphy

<table>
<thead>
<tr>
<th>‘TAKE’</th>
<th>+ACT</th>
<th>−ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SG</td>
<td>−PFV</td>
<td>+PFV</td>
</tr>
<tr>
<td>−PST</td>
<td>per-(n)-i</td>
<td>par-i</td>
</tr>
<tr>
<td>+PST</td>
<td>e-per-(n)-e</td>
<td>pir-e</td>
</tr>
</tbody>
</table>

- Notice that Tense-conditioned allomorphy can only target the root in the +PFV, +ACT.
- The rest of the +PST forms involve an overt intervener!
An example of \textsc{Tense}-conditioned root-allomorphy

Possible rules:

a. $\sqrt{\text{TAKE}} \leftrightarrow \text{pir} / \_ \ [+\text{PST}]$

b. $\epsilon \rightarrow i / \_ \sqrt{\text{Root}_{ii}} \ [+\text{PST}]$

$\sqrt{\text{Root}}_i = \{\sqrt{\text{TAKE}}, \ldots\}$
Why does the overtness of the verbalizer correlate with the absence of root-allomorphy?

- Overt verbalizers are not pruned. Therefore, higher functional heads can never be local to the root.
Why does the overtness of the verbalizer correlate with the absence of root-allomorphy?

- Overt verbalizers are not pruned. Therefore, higher functional heads can never be local to the root.
- Ø-verbalizers are pruned. Therefore, higher functional heads can be local to the root.
The span $\langle \text{Voice}, \text{Aspect} \rangle$ has a special status in Greek morphology and mere span-hood does not capture this fact. Fusion/re-bracketing can.

Once we assume re-bracketing of Voice and Aspect, a node-adjacency account of the root-allomorphy patterns becomes possible. Features can only trigger allomorphy if they are (linearly/structurally) adjacent to the target node. Features from multiple nodes may condition allomorphy together only if the relevant nodes are fused. The adjacency effects observed with regards to the verbalizers now fall right out of the account.
Conclusions

- The span \(<\text{Voice, Aspect}>\) has a special status in Greek morphology and mere span-hood does not capture this fact. Fusion/re-bracketing can.

- Once we assume re-bracketing of \(\text{Voice}\) and \(\text{Aspect}\), a node-adjacency account of the root-allomorphy patterns becomes possible.
  - features can only trigger allomorphy if they are (linearly/structurally) adjacent to the target node
Conclusions

- The span \(<\text{Voice, Aspect}>\) has a special status in Greek morphology and mere span-hood does not capture this fact. Fusion/re-bracketing can.

- Once we assume re-bracketing of \text{Voice} and \text{Aspect}, a node-adjacency account of the root-allomorphy patterns becomes possible.
  - features can only trigger allomorphy if they are (linearly/structurally) adjacent to the target node
  - features from multiple nodes may condition allomorphy together only if the relevant nodes are fused.

- The adjacency effects observed with regards to the verbalizers now fall right out of the account.
Open questions

- Can we find evidence in Greek for what kind of adjacency is at play? (linear vs structural)
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References II


References III


