VOWEL-TO-VOWEL INTERVALS IN THE QUANTITATIVE METERS OF A. GREEK AND LATIN

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TOC
1. The puzzle
2. Introduction to intervals
3. Weight alternations
4. Testing predictions
5. Sample of evidence, part 1: Dactylics and  V̆CV vs. V̆C#V in Vergil
6. Summary
Appendices and refs in the handout

The puzzle
Certain V(C) word finals are avoided in some contexts in the quantitative meters of Greek and Latin.

Avoided word finals: under-attested or banned overall
(a)  V̆#CV
(b)  V̆#CCC#V
(c)  V̆C#CC#V

Avoided word finals: under-attested or banned overall
(d)  V̆C#V
(e)  V̆C#C#V
(f)  V̆C#C#V

Word finals that are not avoided:
(g)  V̆C#V
(h)  V̆C#C#V

Word finals that are not avoided:
(i)  V̆C#V
(j)  V̆C#C#V

The slides can be found, in compressed and uncompressed versions, here:
https://linguistics.mit.edu/user/steriade/
1. Introduction to intervals

- V-to-V intervals are units of rhythm.
- Proposed as substitutes for syllables
- Each interval is a nucleus (V, VV, C) plus an entire C₀ interlude, up to next nucleus, |V₀V₀V₀V₀V₀|, or up to pause, |V₀V₀|##.
- "|" interval boundary.
- Interval parsed |ɪnᴛəvəl| instead of |CV₀V₀V₀V₀V₀|.
- Syllable parsed |ɪntɪbəl| instead of |CV₀V₀|.

The basics (1)

- Intuitive word divisions, e.g. inter.vəl, *intɛr.vəl, are not interval-based.
- Claim: such divisions reflect a preference to preserve intact the CV transitions of undivided form, e.g. |ɪntɪbəl|, in the corresponding isolated fragments |m|, |pə|, |və|.
- Preference to preserve CV transitions is unrelated to the units of rhythm; and it’s enforced independently of these units.

The basics (2)

- The Greek grammarians’ statements on weight presuppose intervals: ‘a short vowel is heavy by position if followed by [at least] two Cs,’ not ‘…if followed by a C in its syllable’.

The basics (3)

- Latin grammarians: VCC₀ is unit of weight, distinct from syllable.
- Dionysius Thrax (2nd BC; Ulffig 1883: 1, 1, 18,4—19.1)
Intervals are like syllables, except

1. Intervals have no need for internal constituents.
   Syllables need Onset + Rime to compute weight.
2. All segments in an interval contribute to its weight (Ryan 2019, Steriade 2012).
   Syllables exclude Onsets.
3. An interval’s boundaries are invariably placed: |VC|V
   Syllables: VCCV is parsable as V.CCV, VC.CV.

Weight categories

* Weight is a continuum (Gordon 1999, Ryan 2012):
  V > VC > VCC > VV...
* Weight categories like Light/Heavy (L/H) are regions in it.

Weight categories

* Latin stress and meter refer to a L/H distinction.
  With syllables, we must draw the line at V vs. VC rimes:

\[ \begin{array}{cccccc}
\sigma & C_2V & C_2VC & C_2VCC & C_2VV & \ldots \\
\text{liberō} & \text{libērō} & \text{suffērō} & \text{libēērō} \\
\text{L} & \text{H} \\
\end{array} \]

\[ C = \text{long } V \]
\[ V \text{ or } V = \text{short } V \]

\[ \text{libērō ‘I liberate’; liberō ‘liber’-man-DatSg’; sufficeō ‘suffice’-man-DatSg’; libēērō ‘liberian’-man-DatSg’ } \]

* Latin stress and meter refer to a L/H distinction.
  With intervals, we must draw the line at VC vs. VCC:

\[ \begin{array}{cccccc}
\text{VC} & \text{VCC} & \text{VCCC} & \text{VVC} & \ldots \\
\text{libērō} & \text{libērtō} & \text{suffērētō} & \text{libērō} \\
\text{L} & \text{H} \\
\end{array} \]
2. Weight changes: isolation vs. phrase-medial

<table>
<thead>
<tr>
<th>Isolation</th>
<th>before #V</th>
<th>before #CV</th>
<th>before #CCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>V#</td>
<td>V#V</td>
<td>V#CV</td>
<td>V#CCV</td>
</tr>
<tr>
<td>Weight of π₁</td>
<td>Light</td>
<td>Light</td>
<td>Heavy</td>
</tr>
<tr>
<td>E.g. arma</td>
<td>arma et</td>
<td>arma virum</td>
<td>arma stant</td>
</tr>
</tbody>
</table>

arma 'weapons', et 'and', virum 'man-AccSg', stant 'are standing'
## Syllables

<table>
<thead>
<tr>
<th>Isolation</th>
<th>before #V</th>
<th>before #CV</th>
<th>before #CCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>V#</td>
<td>V#V</td>
<td>V#CV</td>
<td>V#CCV</td>
</tr>
<tr>
<td>Weight of $\pi_1$</td>
<td>Light</td>
<td>Light</td>
<td>Heavy</td>
</tr>
<tr>
<td>E.g. arma</td>
<td>arma et</td>
<td>arma virum</td>
<td>arma stant</td>
</tr>
<tr>
<td>VC#</td>
<td>VC#V</td>
<td>VC#CV</td>
<td>VC#CCV</td>
</tr>
<tr>
<td>Weight of $\pi_1$</td>
<td>Light</td>
<td>Heavy</td>
<td>Heavy</td>
</tr>
<tr>
<td>E.g. ater</td>
<td>ater et</td>
<td>ater canis</td>
<td>ater stat</td>
</tr>
</tbody>
</table>

Resyllabification, weight change: *tera* 'Mark', *ter* 'land', *can* 'dog-NomSg', *stat* 'is standing'

## Syllables

<table>
<thead>
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<td>Light</td>
</tr>
<tr>
<td>E.g. arma</td>
<td>arma et</td>
<td>arma vi.rum</td>
<td>ar.ma.tant</td>
</tr>
<tr>
<td>VC#</td>
<td>VC#V</td>
<td>VC#CV</td>
<td>VC#CCV</td>
</tr>
<tr>
<td>Weight of $\pi_1$</td>
<td>Heavy</td>
<td>Heavy</td>
<td>Heavy</td>
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<tr>
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<td>ater et</td>
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<td>ater stat</td>
</tr>
</tbody>
</table>

Resyllabification, weight change: *tera* 'Mark', *ter* 'land', *can* 'dog-NomSg', *stat* 'is standing'

All weight changes are caused by specific Markedness-Faithfulness rankings e.g. *S CONSETS* >> *Coda >> FAITH WEIGHT* (Steriade 2009).

## Intervals

<table>
<thead>
<tr>
<th>Isolation</th>
<th>before #V</th>
<th>before #CV</th>
<th>before #CCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>V#</td>
<td>V#V</td>
<td>V#CV</td>
<td>V#CCV</td>
</tr>
<tr>
<td>Weight of $\pi_1$</td>
<td>ExtraLight</td>
<td>ExtraLight</td>
<td>Light</td>
</tr>
<tr>
<td>E.g. arm</td>
<td>arm</td>
<td></td>
<td>arm</td>
</tr>
<tr>
<td>VC#</td>
<td>VC#V</td>
<td>VC#CV</td>
<td>VC#CCV</td>
</tr>
<tr>
<td>Weight of $\pi_1$</td>
<td>ExtraLight</td>
<td>ExtraLight</td>
<td>Light</td>
</tr>
<tr>
<td>E.g. ater</td>
<td>ater et</td>
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<td>ater stat</td>
</tr>
</tbody>
</table>

Resyllabification, weight change: *tera* 'Mark', *ter* 'land', *can* 'dog-NomSg', *stat* 'is standing'

Isolation ExtraLight (V) → Heavy (VCC) before CC.
28.04.2023

Intervals

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Isolation</th>
<th>before #V</th>
<th>before #CV</th>
<th>before #CCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC#</td>
<td>VC#V</td>
<td>VC#CV</td>
<td>VC#CCV</td>
<td></td>
</tr>
<tr>
<td>Weight of $\pi_1$ Light Light Heavy Heavy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.g. at</td>
<td>er</td>
<td>at</td>
<td>er</td>
<td>et</td>
</tr>
</tbody>
</table>

at er + can is → at erc an is: isolation Light (VC) becomes Heavy VCC
at er + is at → at erst at: isolation Light (VC) becomes Heavy VCCC

Intervals

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Isolation</th>
<th>before #V</th>
<th>before #CV</th>
<th>before #CCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>V#</td>
<td>V#V</td>
<td>V#CV</td>
<td>V#CCV</td>
<td></td>
</tr>
<tr>
<td>Weight of $\pi_1$ ExtraLight ExtraLight Light Heavy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.g. arm</td>
<td>a</td>
<td>arm</td>
<td>a</td>
<td>et</td>
</tr>
</tbody>
</table>

arm a+ ui → arm av ir um: isolation ExtraLight (V) becomes Light (VC)

Predictions summarized:
different weight changes with syllables vs. intervals

Tables showing weight changes for syllables and intervals in context.
4. Testing the predictions

Quantitative meters test these different predictions

- Some word final \( \bar{V}(C)\# \) sequences are avoided in some contexts.
  - (a), (b), (c): restricted or impossible in A. Greek and Latin poetry.
  - E.g. Vergil: (b) is impossible in all positions for \( s \)-stop clusters.
  - (a), (c) are very rare when a foot boundary coincides with \#.
- (d), (e), (f): unrestricted for all classical poets, in all metrical contexts, all periods.

Changes of interval weight relative to isolation weight

- Restricted finals (\( \bar{V}(C)\# \)): their weight can increase, \( L \) to \( L, L/L \) to \( H \).
- Unrestricted finals (\( \bar{V}CCC\#, \bar{V}CC\# \)) are already \( H \), their weight can’t increase.

Interval-based hypotheses about these \( \bar{V}(C)\# \) restrictions
Interval-based hypotheses about these \( \hat{V}(C)\# \) restrictions

|   | (a) \( \hat{V}#C|V \) | (b) \( \hat{V}#CC|V \) | (c) \( \hat{V}C#C|V \) | (d) \( \hat{V}C|\#V \) | (e) \( \hat{V}CC#|C_{0} \) | (f) \( \hat{V}C_0#|C_{0} \) |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| State | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) |

* Restricted finals \( \hat{V}(C)\# \): their weight can increase, \( L \) to \( L \), \( \hat{L} \) to \( H \)
* Unrestricted finals \( \hat{V}CC_0\#, \hat{V}C_0\# \) are already \( H \), their weight can’t increase
* Restricted contexts \( \#|C \): those that can change weight of preceding intervals.
* Unrestricted context \( \#|V \), as in (d): those that can’t add anything to an interval, so they can’t increase its weight category.

Syllable accounts don’t draw the right distinction

|   | (a) \( \hat{V}.C|V \) | (b) \( \hat{V}.C_0.C|V \) | (c) \( \hat{V}C.#C|V \) | (d) \( \hat{V}.C|\#V \) | (e) \( \hat{V}CC_0.|C_{0} \) | (f) \( \hat{V}.C_0.|C_{0} \) |
| State | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) |

Sequences (a) and (c) preserve isolation \( \sigma \)-weight category, but are avoided. (d) changes its \( \sigma \)-weight category, but is preferred to (a), which preserves \( \sigma \)-weight

Alignment of word to \( \sigma \)-boundaries? It doesn’t distinguish avoided from preferred: violated in (b), (d) and instances of (e-f). Satisfied in (a), (c) and other cases of (e-f).

An interval-based constraint class:
Penalize any increase in the weight of an interval relative to the weight of its counterpart in the isolation form.

|   | (a) \( \hat{V}#C|V \) | (b) \( \hat{V}#CC|V \) | (c) \( \hat{V}C#C|V \) | (d) \( \hat{V}C|\#V \) | (e) \( \hat{V}CC#|C_{0} \) | (f) \( \hat{V}C_0#|C_{0} \) |
| State | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) | \( L_\pi \) | \( H_\pi \) | \( H_\pi \) |

5. The evidence, part 1: \( \hat{V}CV \) strings across a boundary
\( \hat{V}C#V \) (e.g. dirig\textit{it} et) vs. \( \hat{V}#CV \) (e.g. dirig\textit{e} sed)
\textit{HLL} vs. \textit{HLL}
Changes of weight predicted by each theory

<table>
<thead>
<tr>
<th>syllables</th>
<th>intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>L V V CV</td>
<td>L V V CV</td>
</tr>
<tr>
<td>H V V H CV</td>
<td>H V V H CV</td>
</tr>
<tr>
<td>H V V CV</td>
<td>H V V H CV</td>
</tr>
</tbody>
</table>

Soubiran’s Law (Soubiran 1955)
- Words placed at the end of a dactyl tend to end in V C#
  - Preferred especially at major phrasal break
  - Dispreferred especially at major break

Vergilian examples
- Common between dactyl and next foot: V C#V
     [H L L]_1 [H L L]_1 [H L L]_1 [H π]_6
    - Preferred, esp. at major phrasal break
  2. Perge modo et, quae te dicit via, dirigite gressum. (Aen.1, 401)
     [H L L]_1 [H L L]_1 [H π]_5
    - Dispreferred, esp. at major break

In Greek, this law holds strongly for Theocritus, Callimachus; mildly for Homer.
In Latin, it begins to hold with Vergil, to a significant extent.

Soubiran’s Law confirms the predictions of the interval analysis.
Soubiran’s Law in Vergil’s Aeneid
Counts from Soubiran 1955, songs IV-VI (2476 lines)

<table>
<thead>
<tr>
<th>Foot 4</th>
<th>Foot 5</th>
<th>Major phrasal break</th>
<th>Word boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>...VC#V...</td>
<td>113</td>
<td>119</td>
</tr>
<tr>
<td>b.</td>
<td>...V#CV...</td>
<td>31</td>
<td>141</td>
</tr>
</tbody>
</table>

Rate of VC#V at end of all dactyls in ft 4, where Soubiran looked:
78% 46%

Some Aeneid 1 lines with C#V between ft 4 and 5

Counts in Aeneid song 1 (751 lines)

<table>
<thead>
<tr>
<th>Foot 4</th>
<th>Foot 5</th>
<th>Punctuation break</th>
<th>Word boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>...VC#V...</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>b.</td>
<td>...V#CV...</td>
<td>1</td>
<td>34</td>
</tr>
</tbody>
</table>

Rates of VC#V at end of all dactyls between ft 4 and ft 5:
94% 60%

Punctuation break: when a punctuation mark {.;,:""} intervenes between the last V in foot 4 and the first V in foot 5.

Aeneid 1 lines with C#V punctuation after foot 4

Last word in foot 4 highlighted
* = foot boundary at interval boundary

<h> marks a voiceless V, not a C: <jacet> Hector> = j|ak|et|or

| Aeneid 1 lines with C#V after foot 4
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Foot 4]</td>
<td>[Foot 4]</td>
</tr>
</tbody>
</table>
| quae seques ad me venit, celebre Aeneum arcum
| unusque in lanceae versus, solea argentea flexuosa, 
| Unumque pollo, albis apud altas ignem,
| venas ubi Aeneidae spoilo jactet Hector, ibi angenas
| temo toto lucibus spectat, fortis ansus heroum, 
| impetu agunt clamores, atque invenit versus sequaces, 
| Despectom Aeneum, sterc vitale sequaces. classas,
| dementum non in scopulac brevis, ipse (uncincti;
| turnque facient arma volant—tutore arum, mino stent,
| officinis pedes lacerat, volucris atque albo,
| despecto horumque atrum numine immiti, umbro,
| alla temora, meroque salligant aerona rerum,
| ant Cypaeus, atque elix in propegellis armis Caeli; 
| “O victor,” sequae meroque arROUP: alaque multa nemorum
| De pace et polum, dea! Deo, quoque multa,
| Ef in love ean, cum frappaeu: arbarum, numero

Foot | 4 end foot | 4 punctuation |
|-----|-----------|---------------|
| quae seques ad me venit, celebre Aeneum arcum | D | ORV: comma
| unusque in lanceae versus, solea argentea flexuosa, | D | ORV: comma
| Unumque pollo, albis apud altas ignem, | D | ORV: comma
| temo toto lucibus spectat, fortis ansus heroum, | D | ORV: comma
| impetu agunt clamores, atque invenit versus sequaces, | D | ORV: comma
| Despectom Aeneum, sterc vitale sequaces. classas, | D | ORV: comma
| dementum non in scopulac brevis, ipse (uncincti, | D | ORV: comma
| turnque facient arma volant—tutore arum, mino stent, | D | ORV: comma
| officinis pedes lacerat, volucris atque albo, | D | ORV: comma
| despecto horumque atrum numine immiti, umbro, | D | ORV: comma
| alla temora, meroque salligant aerona rerum, | D | ORV: comma
| ant Cypaeus, atque elix in propegellis armis Caeli, | D | ORV: comma
| “O victor,” sequae meroque arROUP: alaque multa nemorum, | D | ORV: comma
| De pace et polum, dea! Deo, quoque multa, | D | ORV: comma
| Ef in love ean, cum frappaeu: arbarum, numero | D | ORV: comma

Foot | 4 end foot | 4 punctuation |
|-----|-----------|---------------|
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma
| D | ORV: comma

40
Extension: *all* dactyls followed by *any* punctuation mark

<table>
<thead>
<tr>
<th>mark</th>
<th>C#V</th>
<th>V#C</th>
<th>V#V</th>
<th>totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>???</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>semi-colon</td>
<td>12</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>colon</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>period</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>comma ft 1</td>
<td>22</td>
<td>8</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>comma ft 3</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>comma ft 5</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>% from total</td>
<td>71%</td>
<td>16%</td>
<td>13%</td>
<td>100%</td>
</tr>
</tbody>
</table>

VC#V preferred to VC#CV at all post-dactyl punctuation breaks. Also: there is no context where VC#CV is preferred to VC#V.

---

Aeneid 1’s lines with semicolon after a dactyl, in any foot

<table>
<thead>
<tr>
<th>Foot</th>
<th>Punctuation</th>
<th>VC#V</th>
<th>V#C</th>
<th>V#V</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G 1</td>
<td>12/15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>G 1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>G 1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>G 1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>G 1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weights Correspondence: Isolation-to-Metrical Line, foot-final

(WEIGHTCORR I-M, [n])

If an interval is final in a phonological phrase (e.g. before punctuation) and final in a foot (e.g. at the end of a dactyl), then its isolation weight is identical to its line-medial weight.

---

An interval interpretation of Soubiran’s law

Weight Correspondence: Isolation-to-Metrical Line, foot-final

(WEIGHTCORR I-M, [n])

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Structures permitted by WEIGHT CORR

  - Permitted by WEIGHTCORR:
  - *locus* is LL in isolation
  - also LL before this end of colon/phrase
  - End of foot (& meter, colon)
  - End of phrase
  - End of interval
- Si* Venus*; et Veneris contra sic filius orsus (Aen 1.325)
  - Permitted by WEIGHTCORR:
  - *Venus* is LL in isolation
  - also LL before this end of foot/phrase

---

Significance: Soubiran’s Law is not about foot 4, but about any post-dactyl breaks.
Structures penalized by WEIGHT CORR

- *Perge modo et, qua te ducit via, dirigere gressum* (Aen.1. 387)
  
  End of word/phrase  End of interval and foot

- *via* ends in Ĺ in isolation, but becomes L when placed before dirigere.
- *dirigere* ends in Ĺ in isolation, but becomes L when placed before gressum.

Could the VČ#V preference in Soubiran’s Law be due to a hypothetical preponderance of #V-initial words? Not likely, but there is data.

Lexical/text frequencies of #C-initial and #V-initial words vs. #V-initial words after a word-final dactyl

- Prose text frequencies estimated from Caesar’s *De Bello Gallico*
- Lexical frequencies estimated from Perseus.tufts.edu counts

<table>
<thead>
<tr>
<th></th>
<th>V-initial</th>
<th>C-initial</th>
<th>Total</th>
<th>% V-initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prose text freq</td>
<td>2620</td>
<td>5191</td>
<td>7811</td>
<td>34%</td>
</tr>
<tr>
<td>Dictionary freq</td>
<td>14,386</td>
<td>37,526</td>
<td>52,112</td>
<td>28%</td>
</tr>
<tr>
<td>After 4th foot dactyl</td>
<td>(Soubiran’s Vergil IV-VI data)</td>
<td>78%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After any dactyl + punctuation</td>
<td>(my Vergil I counts)</td>
<td>82%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Over-represented #V-initials after dactyls can’t be attributed to the frequency of V-initial words in Latin; in either dictionary, or non-poetic speech. Rather, Vergil is using #V-initials to satisfy a text-to-meter constraint, Weight-Corr.

Significance of WEIGHT CORR

- Preference for VC#V vs. V#CV is predicted by interval representations plus the general preference to preserve any properties of the basic form, including weight.
  
  Interval weight is preserved.
Predicting aspects of WEIGHT CORR

• Why is the preference to preserve weight expressed foot finally?
  General preference to preserve rhythmic structures at the end of metrical constituents, more so than in other contexts (Kiparsky & Youmans 1989 passim, and below). But weight is preferably preserved elsewhere too.

Predicting aspects of WEIGHT CORR

• Why is the preference limited to end-of-dactyl positions?
  • It isn’t. WEIGHT CORR applies generally, but spondees end in a Heavy π so the junctures it prefers at end of spondees will be different.
  When \( \tilde{V} \) occurs in a spondee-final H interval, WEIGHT CORR predicts restrictions on \( VC\#C|V \) and \( \tilde{V}\#C|CC|V \). Confirmed (Appendix 2).

6. Summary

Sequences (a-c) are restricted in the meter. (d-f) are unrestricted.
Interval analysis: restricted sequences are intervals that change their weight.
Key to analysis: intervals includes entire C interlude, up to next V,
So, \( VC|V \)
Cross-linguistic weight patterns in $\tilde{V}C#V$

- $\tilde{V}C#V$ is consistently parsed as Light $\pi$
  - in all periods and styles of A. Greek/Latin meter,
  - in Sanskrit (Arnold 1905)
  - Berber (Dell and Elmedlaoui 2008)
  - in Hungarian, Lithuanian quantitative hexameters.
- no documented exception to this
- Intervals predict this: the only parse of $\tilde{V}C#V$ is $\tilde{V}C|V$, $|VC|=\text{Light}$
- Syllables don’t: if $\text{FAITH}>>\text{ONSET}/*\text{CODA}$, $VC#V$ parsed as $VC.V$
  - But a $C_0VC$ unit is a Heavy, in a syllabic analysis.

Varieties of \textsc{WeightCorr}

1. Generalized to all foot positions: foot-medial and foot-final
2. Generalized to all phrasal positions: phrase-medial and phrase-final
3. Generalized to all types of inputs: isolation forms or underlying forms
4. Limited to extreme mismatches of weight ($L \leftrightarrow H$ only)

All \textsc{WeightCorr} types have in common the preservation of an interval’s weight category from some input type to an output form in a metrical text. Vergil presents evidence for all 4 varieties.
Generalizations on Vergil + post Vergilian poetry: weight-by-position Hs can’t get their weight from across #

<table>
<thead>
<tr>
<th>Word 1</th>
<th>Word 2 in Latin</th>
</tr>
</thead>
<tbody>
<tr>
<td>longum [...)]</td>
<td>...# \ CCV... impossible in Vergil (Hoenigswald 1949)</td>
</tr>
<tr>
<td>biceps [...)]</td>
<td>...# \ CCV... impossible in Vergil (Hoenigswald 1949)</td>
</tr>
<tr>
<td>foot medial</td>
<td>possible but restricted in Vergil</td>
</tr>
<tr>
<td>foot final</td>
<td>highly restricted in Vergil</td>
</tr>
</tbody>
</table>

All 4 observations also correspond to Hilberg’s (1879) laws on restricted weight-by-position Hs in A Greek meter, dactylic or not.

Factors in these laws: an interval analysis

<table>
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</tr>
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<td>foot final</td>
<td>highly restricted in Vergil</td>
</tr>
</tbody>
</table>

i. weight increase in an interval, relative to isolation form, is penalized (cf. 1-4)
ii. especially at the end of metrical constituents (cf. 2 vs. 4); cf. WEIGHTCORR
iii. extreme weight increase \( L \rightarrow H \) more strongly penalized than others \( L \rightarrow H \); (cf. (1,3),\( \tilde{V}\#CC, absolutely banned in more contexts than \( \tilde{V}\#C(C) \))

Word classes exempt (Hilberg’s 1879 ‘free words’)

<table>
<thead>
<tr>
<th>Class</th>
<th>Why is this class exempt?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. proper names, esp. place names</td>
<td>no substitute for the word</td>
</tr>
<tr>
<td>2. all articles, some pronominal adverbials, all prepositions, conjunctions, complementizers*</td>
<td>no isolation form, no surface reference term to compare the increased weight to</td>
</tr>
</tbody>
</table>

*Common examples like et terrēs, begin with class 2 ‘free words’.

The interval interpretation of \( \tilde{V}\#CV, \tilde{V}\#CCV \) restrictions

1. WEIGHTCORR
   If an interval is foot-final, its isolation weight category is identical to its line-medial weight category.
   A * mark for each such weight mismatch, *\( L \leftrightarrow L, *L \leftrightarrow H, *L \leftrightarrow H \).

2. X-WEIGHTCORR
   No interval differs in weight from its isolation form by more than one step on the weight scale \( L \leftrightarrow L-H \).
   A * mark for each extreme weight mismatch, *\( L \leftrightarrow H \).
Evidence in the Aeneid 1 on \( \tilde{V}C(#)C \)

- Song 1 scanned into feet & intervals, to check avoidance of \( \tilde{V}C#C \)
- All lines annotated for 6 varieties of heavies-by-position

<table>
<thead>
<tr>
<th>Word-final ( \tilde{V}C#C )</th>
<th>Foot-medial (spondee or dactyl)</th>
<th>Foot-final (spondee-final)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free word</td>
<td>234</td>
<td>303</td>
</tr>
<tr>
<td>Un-free word</td>
<td>161</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word-medial ( \tilde{V}CC )</th>
<th>Free word</th>
<th>Un-free word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1673</td>
<td>723</td>
<td></td>
</tr>
</tbody>
</table>

Free word = lacks an isolation form, so it’s freer to break WeightCorr, under the OO-WeightCorr interpretation: the word lacks an isolation form.

Interpretation

- H-by-position less common across \( \#(\tilde{V}C#C)C \) than word medial \( VCC|C \)
  - \( VCC|C \) = 30% of all foot medial \( VCC \) Hs (N=2410)
  - \( VCC\) = 21% of all foot final \( VCC \) Hs (N=910)

Why? No form of Weight Corr is violated by word medial H’s \( VCC \).

While generalized Weight Corr is violated by final \( VCC \)

- \( \tilde{V}C#C \) is less common in foot-final than in foot-medial position
  - \( VCC \) = 21% of all instances of \( VCC \) (N=938)

Why? Weight Corr is violated, in addition to general Weight Corr

- cf. Soubiran’s Law

Appendix 2:
Cluster compression effects
Cluster compression and $V^\#CC$: Latin

- Latin bans $V^\#CCV$ in all positions, iff CC = s-stop (Hoenigswald 1949)
- It allows $V^\#CCV$ in Lights (biceps of dactyls), iff CC = stop-liquid
- Word-internal $VCC$ is always parsed Hr if CC = s-stop and other CCs
- Word-internal $VCCV$ is variably parsed HTr ~ LTr if CC = stop liquid
- No variation for initial $V^\#CCV$, if CC = stop-liquid, and no avoidance.
- Suggestions for analysis (cf. Italian cluster duration data in McCrary 2005):
  1. stop-liquid clusters can be long (CC) or compressed, dur. equivalent to one C.
  2. s-stop clusters are incompressible.
- To avoid *Weight Change ($L \rightarrow H$) violations, compressible clusters are compressed in $V^\#CCV$. Incompressible clusters are beyond repair. The only way to satisfy *L \rightarrow H is to avoid $V^\#sTV$.

Cluster compression and $V^\#CC$: Greek (Steriade 2009)

- Homer parses most $V^\#CCCV$ sequences as Hr
- Whether CC = stop-sonorant, or s-stop, or others.
- He parses word-internal $VCCV$ nearly always as Hr, for all clusters
- Post-Homer: a gradual increase in the frequency of $V^\#CCV$ parsed LTr, just for voiceless stop-sonorant CCs.
- Corresponding medial $VCCV$ clusters lag behind in using the Lr parse.
- Suggestions for analysis:
  1. All clusters are generally uncompressed in Homer,
  2. Post-Homer, a marginal option of CC-compression, for some CCs, enters Greek. It is used to provide Lr parses for $V^\#CCV$, to avoid violations of *Weight Change ($L \rightarrow H$).

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