Resyllabification revisited: arguments for V-to-V intervals as units of rhythm

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Introduction: When words are combined in connected speech, changes occur in the timing of articulatory gestures and in the feature composition of segments near junctures [1, 2], as when consonant-final words precede vowel-initial ones. Thus *an aim* becomes similar to *a name*. Such changes are standardly attributed to resyllabification [3, 4], the reassignment of consonants from the coda of one syllable to the onset of the next, $V_1C.\#V_2 \rightarrow V_1.C\#V_2$. The phonetic study of resyllabification in several languages (e.g. [5], [6], [7], [8]) shows that differences remain between 'resyllabified' $V_1.C\#V_2$ and basic $V_1.\#CV_2$. This fact is consistent with an alternative hypothesis, entertained in [5] and elsewhere: segmental changes of $V_1C\#V_2$ in connected speech, relative to $V_1C\#$ in isolation, are unrelated to the *prosodic structure* of $V_1C\#$ finals.

The present study takes up this question by reconsidering cross-juncture sequences from the different angle of metrical weight. Resyllabification ($V_1C.\#V_2 \rightarrow V_1.C\#V_2$) should turn $V_1C\#$, considered a heavy syllable, into light V_1. This change is detectable in quantitative meters, based on periodic alternations of heavy and light units. With this in mind, I consider the quantitative meters of A.Greek and Latin, having re-examined metrically parsed samples of the Iliad (first 3 songs) and the Aeneid (first 2 songs). Two results emerged that bear on resyllabification. First, the weight of $V_1C\#V_2$ is identical to that of $V_1\#CV_2$, as if resyllabification has indeed applied. But, second, the metrical texts reveal striking gaps in the distribution of V(C)# sequences in lines of verse, gaps that turn out to be governed by general laws: [9], [10], [11], [12]. A unified interpretation of all this data is possible, if the units of rhythm counted in stress and meter are not syllables, but *Vowel-to-Vowel (V-to-V) intervals* ([13], [14], [15], [16], [17] [18]).

Intervals: A V-to-V interval (abbrev. *interval*) is a unit of rhythm containing, like a syllable, one nucleus. Unlike a syllable, it begins at the left edge of its nucleus (or at the P-Center, [14]) and ends right before the next nucleus, or at the end of the domain. All segments in the interval contribute to its weight. Interval boundaries are invariably defined by nucleus boundaries, so a VCV string is always parsed |VC|V|, where '|' = interval boundary. An interval changes its contents if one or more Cs are added to its right, as in V#CV parsed as |V#C|V|. This reparse in connected speech differs from resyllabification: it's automatic, not the outcome of a specific constraint ranking, and it yields different weight results from resyllabification, as seen below.

Intervals and Weight: Weight distinctions are defined for intervals in (1). The illustrative forms in (1) are from Latin, where heavy penults attract stress. Words are divided into syllables in (a), into intervals in (b). Consistent with the definition of intervals, initial Cs don't belong to any interval at all. Note that VC intervals must be light, unlike C_0VC syllables. This is supported by the common occurrence of stress systems with light final VC. For *extra-light* intervals, see [17].

(1)	Extra light	Light	Heavy
(a) syllables		$C_0\breve{V}$ (***ci*** in *fă.**ci**.lis*)	$C_0\breve{V}CC_0$, $C_0\bar{V}C_0$ (***cul*** in *fa.**cúl**.tās*)
(b) intervals	$\breve{V}$ (***i*** in *m|úl|**i**|er|*)	$\breve{V}C$ (***il*** in *f|ác|**il**|is|*)	$\breve{V}CCC_0$, $\bar{V}C_0$ (***ult*** in *f|ac|**últ**|ās|*)

Weight-changes in phrasal contexts: The present study and earlier work in [9–12] documents restrictions on word-final $\breve{V}$(C)# sequences in A.Greek and Latin quantitative meters. These restrictions are outlined in (2). The top row in (2) identifies the weight of the first position in a $\breve{V}CC_0V$ string containing a word juncture; the middle row identifies several types of $\breve{V}CC_0V$ sequences containing a word boundary; the bottom row indicates which among these are under-attested or banned

in verse. Shaded cells highlight restricted, i.e. underattested or banned sequences. Clear cells correspond to favored or unrestricted sequences: e.g. V̆C#V is favored over V̆#CV, [11], and V̆CC#V is unrestricted, compared to restricted V̆C#CV, [10]. Unlike V̆C# and V̆# finals, finals like V̄C$_0$ # and V̆CC(C)# are never restricted, in any context [10].

(2)	First position is metrically light		First position is metrically heavy		
	(a) V̆C#V	(b) V̆#CV	(c) V̆#CCV, CC=sT	(d) V̆C#CV	(e) V̆CC#V
		restricted	prohibited/restricted	restricted	

Interval-based vs. syllable-based analyses: A unified, interval-based analysis of these restrictions is outlined below. The sequences in (2) are parsed into intervals in (3), and into syllables in (4). Shaded cells correspond, as in (2), to underattested or banned sequences:

(3)	(a) |V̆C|#V	(b) |V̆#C|V	(c) |V̆#CC|V	(d) |V̆C#C|V	(e) |V̆CC|#V
(4)	(a) V̆.C#V	(b) V̆.#CV	(c) V̆#C.CV	(d) V̆C.#CV	(e) V̆C.C#V

The interval parses in (3) reveal the reason for the restrictions observed: in all the restricted cells, and only there, the *weight of the word-final interval differs from its weight in isolation*. That's because the line medial context adds one or more Cs to it. By contrast, the word-final intervals of the unrestricted cases (a) and (e) maintain line-internally the same weight they have in isolation.

On an interval analysis, all patterns of underattestation outlined in (2-3) emerge as driven by a preference for *weight invariance between intervals in the word in isolation and their line-medial correspondents*. All changes of weight between isolation and the line-medial contexts are disfavored, and cause poets to avoid the relevant sequence. By contrast, syllable-based parses of the same sequences, in (4), are unable distinguish restricted sequences from unrestricted ones.

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