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A REANALYSIS OF THE STRESS PATTERN IN *-ARY/-ORY* WORDS

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Introduction

In contemporary English the nominal and adjectival terminations *-ary/-ory* (henceforth *-Vry*) are phonologically troublesome for a number of reasons. Firstly, depending on the morphological status of the stems with which they occur, they seem to be either stress-neutral or stress-retracting (*Pre-stressed 1/2*), i.e. with a free stem, the stress of the stem is preserved (*budgetary*, *imaginary*), whereas with a bound stem the primary stress is located one or two syllables away from the suffix (*binary*, *allegory*) (Fudge 1984: 59; 94)[1]. This formulation might suggest that purely phonological generalizations are not available, unless *via* morphology.

Secondly, both the stress-neutral and the *Pre-stressed 2* words often have an 'exceptional' pre-antepenultimate stress[2] (cf. *ˈnecessary* vs. **ˈAmerica*), which is regularly accompanied by the vowel syncope in the pre-final rhyme.

Thirdly, there are important systematic discrepancies in the pronunciation of the *-Vry* words between British (BrE) and American English (AmE). While in

1 This statement, however, is imprecise as the suffixes in question may be stress-shifting even with free stems, e.g. *ˈelement – ˌeleˈmentary*, *saˈliva – ˈsalivary*, *ˈstipend – stiˈpendiary*, *ˈdiscipline – ˌdisciˈplinary*, etc. Its morphological conditioning is also illusory since with free stems the stress falls one or two syllables away from the suffix as well and its actual position depends on the type of the rhyme (branching vs. non-branching) rather than the type of the stem.

2 For Kingdon (1958), however, it is the antepenultimate stress that is 'exceptional'. His statement of 'exceptionality' is certainly based on sheer numbers: the pattern (ˈXXXX) does statistically outnumber the x(ˈXXX) pattern in quadrisyllabic *-Vry* words.

BrE the vowel in the pre-final rhyme is reduced or syncopated: [-(ə)ri], in AmE the vowel is usually full and receives secondary stress: [-ˌɔːri] / [-ˌeri]. Like in BrE, however, the vowel is depleted (a) when the preceding rhyme is heavy (branching), (b) in tri-syllabic words and (c) in simple phonological domains, e.g. *Hilary*, *Calgary*. Then, the terminations are *Pre-stressed I* and the main stress immediately precedes.

Finally, the phonological motivation for the alternative antepenultimate stress pattern in BrE (and its absence in AmE), e.g. *inventory*: [ˈɪnvəntr̩i] vs. [ɪnˈvent$^{\circ}$ri] must be accounted for.

1. Metrical government

As far as the understanding of stress phenomena is concerned, phonology has made great advances over the last 30 years. The traditional linear approach was first challenged by Liberman and Prince (1977) who suggested that stress is rather a reflex of the grouping of segments into feet. Later contributions, e.g. Hayes (1985), have developed this hypothesis into a consistent theoretical proposal, referred to as Metrical Stress Theory, whose original transformational rule component was gradually replaced by principles and parameters (Halle and Vergnaud 1987, Hayes 1995).

Independently, in the '90s the theory of Government Phonology was proposed by Kaye and Vergnaud (1990) and Charette (1991). This non-derivational approach expresses phonological facts by the inherent complexity of segments and a network of directional government relations operating between phonological positions which are adjacent on appropriate levels of projection. Within a phonological domain all positions, except the head of the domain, must be licensed in order to be phonetically interpretatable (Harris 1994: 156).

Unfortunately, despite using compatible terminology which stems from compatible assumptions regarding phonological representations, no joint effort has been made to propose a consistent government-based metrical analysis of stress phenomena. As regards accentual systems, the two theories agree that the prosodic structure is built on a separate level of prosodic projection, on which rhymal positions are adjacent and may contract directional governing relations within feet. For English, the following metrical-government implications may be derived:

(1) **a.** The presence of stress equals the presence of a foot.
b. The stressed rhyme is always foot-initial.
c. Within a foot, the head may not be less complex that its complements, e.g. a short vowel nucleus cannot govern a long vowel or a diphthong. Nuclear complexity within a foot must be decreasing.

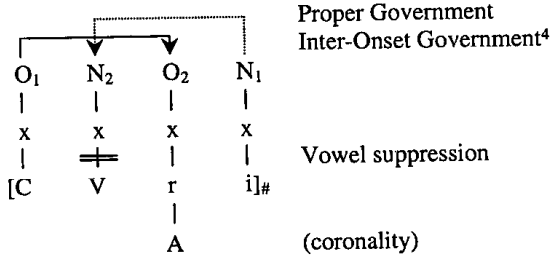
d. Within a word, the final foot carries the main stress if it is more complex ('heavier') than the recessive feet.
e. All non-empty nuclei are projected on the prosodic projection level and participate in foot construction.
f. For any two adjacent rhymes at least one must belong to a foot.
g. In a configuration $R_1\underline{R}_2$, where R_2 is more complex that R_1, R_1 may not be the head of the foot. Thus, $R_1\underline{R}_2$ are separated by a metrical constituent boundary.

These theoretical assumptions will underlie the following discussion of the observationally irregular stress behaviour of the *-Vry* words.

2. The government relations within the *-Vry* configuration

Regardless of their putative morphological status, the word-final *-Vry* configurations have uniform segmental composition which defines the non-arbitrary government relations within the string.

(2) **a. -CVry** (where C stands for any consonant, except [r][3])



We observe that the nucleus N_2 is 'entangled' in two independent government relations: (a) it is properly governed by the unlicensed nucleus N_1 and (b) it is 'trapped' within the inter-onset government between O_1 and O_2, since due to its low complexity the segment [r] is a typical governee. In metrical terms, N_2 occupies a prosodically weak position as it is in the centre a strong-weak-weak

3 The government is excluded between segments of identical melody due to Obligatory Contour Principle (OCP), as proposed by McCarthy (1986). Thus, in the configuration V_1[r]V_2ry, it is rather V_1 that is subject to vowel syncope, e.g. *honorary* [ˈɒn$^{\circ}$rəri].
4 For details, see Gussmann and Kaye (1993).

configuration (Harris 1994: 222)[5] or, in other words, the middle of the so-called 'super-foot'. Under such government and metrical circumstances, the penultimate vowel in (2) may be phonetically suppressed.

3. The prosodic structure of *-Vry* class

While proper government merely induces the reduction of the vowel, it is the inter-onset relation in which the properly governed vowel is 'sandwiched' that seems to sanction the syncope. Thus, despite the proper government, the penultimate nuclei are not suppressed in the following examples.

(3)				
	sanity	editor	critical	lagoon
	priority	galloping	fidgeting	retain

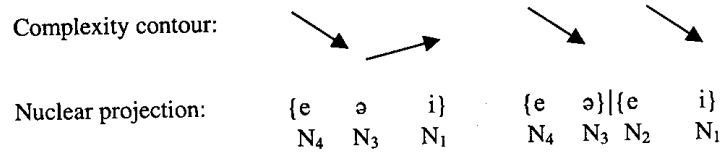
Moreover, in words ending in *-ity,* regardless of their morphological structure, the stress is always antepenultimate and the stressed vowel is (almost) always short, while in the words ending in *-Vry* the stress in quadrisyllbles is usually pre-antepenultimate, if the preceding vowel is short, and may be antepenultimate, if the preceding rhyme branches, e.g. *'necessary* vs. *ad'versary* (Fudge 1984: 59). This suggests that one nucleus (N_2) is 'missing' from the prosodic structure of the *-Vry* termination, as it seems to be 'skipped' by foot construction. Otherwise, the morphologically simple forms, like *'necessary,* would be stressed on the antepenult. Furthermore, the pedification in (4a) appears to be ill-formed since it distorts the well-formed complexity contour within a foot (cf. 1c).

(4) **a.** *ne(cessary)* **b.** *A(merica)*

The foot-internal complexity 'slump' in (8a) may be remedied in two ways, namely through the elimination of the problematic nucleus from foot construction (BrE) or by strengthening its licensing power (AmE).

5 The syncope is also possible in a weak-weak-weak configuration in BrE, e.g. *'territory, 'secretary,* etc.

(5) *necessary* **a.** BrE ['nesəsr̩i] **b.** AmE ['nesə,seri]



As far as AmE is concerned, the strengthening of the penultimate nucleus results in a well-formed bi-pedal structure: {nesə}{seri}. In BrE, however, the melodic elimination of N_2 does not seem to solve the problem of the distorted complexity contour since even then N_3 is less complex than N_1. One theoretical option is to postulate the construction of a 'super-foot' (Harris, 1994: 183), which involves a government relation between N_4 and N_1 within the same foot, thus bypassing the pedification of N_3. Our assumption (1g), however, will prevent the pedification of the final nucleus within the super-foot. The final nucleus, then, does not belong to the pedal structure of the form in (5a). Contrary to certain traditional metrical assumptions (e.g. Hayes 1985), though, in the present analysis its extrametrical status is not arbitrarily assumed but derived from the complexity values of the nuclei. Therefore, although in (5a) the final nucleus [i] remains outside the initial foot, it is nonetheless governed by the leftmost nucleus [e] in much the same way as the first [i] in the word *reality* is governed by the head nucleus [æ], for instance. An additional advantage of such an analysis lies in the fact that it correctly predicts the stress shift after the adverbial suffixation, i.e. *,nece'ssarily*, which confirms the assumption in (1d) and conforms to the prosodic Structure Preservation Principle (Harris 1994: 190).

(6) **a.** *'necessary* [{'nesə}sr̩i] **b.** *,nece'ssarily* [{,nesə}'{serɪ}li]

Therefore, no 're-pedification' is required and the final [i] in both forms is governed by the nucleus dominating [e] in <*ne*-> (6a) or <-*se*-> (6b). The 'super-foot' analysis does not guarantee the pedal structure stability since the final nucleus in (6a) would have to belong to the initial foot while in (6b) the same nucleus belongs to the final foot. In either proposal, however, the government between [e] and [i] does obtain. The result is the surface ternary rhythm word-finally.

In BrE yet another metrical solution is available. It consists in an alternative antepenultimate stress in forms like *pro'missory*, *in'ventory*. Such variants are not available in AmE, though. Given the choice between a uni-pedal and a bi-pedal structure, the *-Vry* words in AmE always choose the latter, which ensures an exhaustive parsing in quadrisyllablic words. The only situation in which AmE does allow the vowel syncope is when the penultimate nucleus is 'doubly' governed, i.e. by the final unlicensed vowel [i] and by the preceding unlicensed head of the foot.

(7) **a.** *salary* AmE/BrE ['sæl°ri]

æ ⟶ (ə) ⟵ i

b. *titulary* AmE ['tɪtʃə,leri]

ɪ ⟶ ə ⟋⟋ e ⟵ i

c. *titulary* BrE ['tɪtjəl°ri]

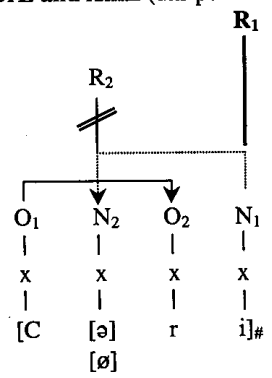
ɪ ⟶ ə ⟶ (ə) ⟵ i

It appears that in AmE the syncope is blocked if the antepenultimate rhyme is associated with a recessive prosodic position, i.e. it is a governee in the preceding foot. In BrE, on the other hand, the metrical status of the antepenultimate nucleus is irrelevant. This explains why BrE is far more vulnerable to the penultimate vowel syncope.

4. The role of proper government in prosodic structure

As we have seen, the proper government itself is not a sufficient condition for the penultimate vowel reduction in the *-Vry* class. In both dialects, the complete suppression of the vowel must always be sanctioned by the inter-onset relation in which the vowel is enclosed. In AmE an additional requirement is the presence of a prosodically strong nucleus to its left. The discrepancy between the two dialects, then, boils down to the function that penultimate nuclei may play in the prosodic structure. In AmE they may resist proper government (and subsequent reduction) through the increase in complexity, which results in the attraction of the secondary stress. In BrE, on the other hand, the penultimate nuclei are either depleted or suppressed, which apparently entails their elimination from the prosodic parsing. The government relations and their prosodic consequences for both dialects are illustrated in (8).

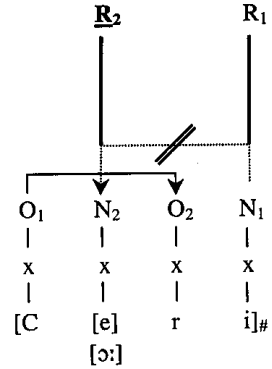
(8) **a.** **BrE and AmE** (uni-pedal words only)[6]



Prosodic Level (R = rhyme)

Proper Government
Inter-Onset Government

b. **AmE (bi-pedal words)**



Prosodic Level

Proper Government (n/a)
Inter-Onset Government

Thus, in BrE the properly governed nucleus N_2, flanked by the inter-onset governing relation $O_1 \rightarrow O_2$, is not projected onto the prosodic level, on which feet are constructed[7]. The actual melodic presence of the schwa (reduction) or its

6 In AmE the uni-pedal structure is possible only in trisyllabic words. This reflects a strong requirement for exhaustive parsing, hence the absence of forms [prə'mɪsəri], which are possible in BrE.

7 Note that the penultimate vowel syncope in impossible in *America* [*ə'merkə]. Despite proper government [ɪ] ← [ə], it is prevented by the impossibility of an inter-onset government between *[r] → [k]. Thus, in the same metrical configuration (strong-weak-weak) the final nucleus is pedified.

absence (syncope) is, therefore, irrelevant to the prosodic function of N_2. In either case, it is invisible to metrical parsing.

This provides a straightforward account for the apparently exceptional pre-antepenultimate pattern in words like *'promiss$^{(o)}$ry*. The diminishing popularity of variants like *pro'missory* implies that in present-day BrE the properly governed nuclei are being gradually disallowed to participate in the construction of prosodic constituents. Harris (1994: 183, 192) notes that the vowel syncope is not strictly enforced in English and it affects high-frequency words rather than rare ones. Presumably, this reflects a historical change in progress, which ever since the eighteenth century[8] has reinforced the role of proper government and consequently diminished the role that the properly governed penultimate nuclei play in English metrical structure.

Conclusion

The observationally inconsistent accentual pattern of the *-ary/-ory* words in present-day English, including the dialectal discrepancies, results from a particular melodic configuration which defines the government relations that disfavour the penultimate nucleus on the one hand and the inconsistent application of the vowel syncope in present-day English on the other.

What underlies the British-American differences is a slightly different metrical conditioning for the syncope. While in both dialects the properly governed nucleus may be suppressed if it is flanked by a left-headed inter-onset governing relation, in AmE there exists an additional metrical requirement, namely the syncopated position must be simultaneously governed by a prosodically strong nucleus to its left. This correctly predicts the syncope in *'salary* but not in *'terri$_{|}$tory*, which must contain a full vowel.

The 'exceptional' pre-antepenultimate stress in BrE, on the other hand, is a natural consequence of the fact that the penultimate vowel in *-Vry* is subject to syncope and the principle (1c), which prevents the pedification of empty nuclei. Since the syncope is still fairly optional in English, the prosodic availability of a potentially syncopated nucleus may also be to a certain degree idiosyncratic, hence the competing variants like *'promissory~pro'missory*. Therefore, a properly governed penultimate nucleus may be prosodically absent, even if it dominates a phonetically realized schwa.

8 As reported in Walker (1775), in the eighteenth century the *-Vry* terminations in BrE carried secondary stress and contained a full vowel, e.g. *'inven$_{|}$tory, 'legen$_{|}$dary*.

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