A study on word-final vowel reduction in American English[1]

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Summary. In American English, word-final [ju:] and [oʊ] in penultimately-stressed words such as *value* and *follow* sometimes reduce, which is occasionally described in the literature. This paper discusses, based on the data retrieved from a database on a dictionary, under what conditions this phenomenon is likely to occur and reveals that the reduction most likely occurs when the preceding stresssed syllable is monomoraic and the onset of the syllable in question is a coronal, especially a coronal sonorant. This leads us to consider that monomoraic stressed syllables deprive the following syllable of its onset, which results in its reduction and that this resyllabification will more likely occur, the lighter is the relevant consonant.

1. Introduction

Wells (1990) admits the following five levels of stress in English.

(1) Stress levels (Wells 1990: 80−1)

1. Primary word stress
2. Pre-tonic secondary stress
3. Tertiary (post-tonic) stress
4. Unstressed but with full vowel
5. Weak (reduced) vowel

substitution product 2, 5, 1, 5, 3, 4

In transcribing the penult of *dictionary* in American pronunciation or the ultima of *magazine* when antepenultimately stressed, *Longman Pronunciation Dictionary* (Wells 2008; henceforth, *LPD*) puts no stress mark on the syllables, which means that Wells regards them as having level 4 stress, but *Webster's Ninth New Collegiate Dictionary* (Merriam-Webster 1983/1990; henceforth, *WNNCD*) puts a secondary stress mark on the relevant syllables. This

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makes a clear contrast to level 2 stress, which both dictionaries mark with a secondary stress sign.

(2) Level 3 or 4 stress (underlines added)

		WNNCD	*LPD*
a.	dictionary	\ˈdik-shə-ˌner-ē\	[ˈdɪk ʃə ner i]
b.	magazine	\ˈmag-ə-ˌzēn\	[ˈmæg ə ziːn]
	Cf.	\ˌmag-ə-ˈzēn\	[ˌmæg ə ˈziːn]

When we survey *WNNCD*'s stress notations, we notice two other characteristics not found in *LPD*. The first of them is its frequent use of parentheses enclosing a secondary stress sign.

(3) Level 3, 4, or 5 stress

		WNNCD	*LPD*
a.	synecdoche	\sə-ˈnek-də-(ˌ)kē\	[sɪ ˈnek də ki]
b.	nephew	\ˈnef-(ˌ)yü\	[ˈnef juː]
c.	volcano	\väl-ˈkā-(ˌ)nō\	[vɑːl ˈkeɪn oʊ]
d.	district	\ˈdis-(ˌ)trikt\	[ˈdɪs trɪkt]
e.	product	\ˈpräd-(ˌ)əkt\	[ˈprɑːd ʌkt, -əkt]
f.	subject	\ˈsəb-jikt, -(ˌ)jekt\	[ˈsʌb dʒekt, -dʒɪkt]

The use of parentheses helps distinguish strong and weak vowels, because *WNNCD* uses identical symbols for both members of the five strong–weak vowel pairs, three of which *LPD* distinguishes using vowel symbols.[2] However, transcriptions such as (3f) convince us that *WNNCD* admits two levels of stress for Wells's level 4.

(4) Strong and weak vowels

	WNNCD	*LPD*	
		Strong	Weak
a.	\ē\	[iː]	[i]
b.	\yü\	[juː]	[ju]
c.	\ə\	[ʌ]	[ə]

2) For stress environments each of the vowel phonemes in American English occurs in, see Hayes (1995: 12–16).

d.	\i\	[ɪ]	[ɪ]
e.	\ō\	[oʊ]	[oʊ]

The other characteristic of *WNNCD*'s stress transcription is that it sometimes shows possible reduction on word-final \yü\ and \ō\, i.e., [ju:] and [oʊ] in the IPA, respectively,[3] in penultimately-stressed words as exemplified in (5). Reduced forms never appear in the ultimas of antepenultimately-stressed words as in (6),[4] which is understandable in terms of the trochaic nature of English rhythm.

(5) Level 3, 4, or 5 stress on the ultimas of penultimately-stressed words

		WNNCD	*LPD*
a.	value	\ˈval-(ˌ)yü, -yə(-w)\	[ˈvæl ju:, -ju]
b.	follow	\ˈfäl-(ˌ)ō, -ə(-w)\	[ˈfɑ:l oʊ]

(6) Level 3 or 4 stress on the ultimas of antepenultimately-stressed words

		WNNCD	*LPD*
a.	avenue	\ˈav-ə-ˌn(y)ü\	[ˈæv ə nu:, -nju:]
b.	radio	\ˈrād-ē-ˌō\	[ˈreɪ di oʊ]

WNNCD gives the following explanation to such transcriptions as in (5), indicating that the reduction depends on the individual word.

(7) *WNNCD* **(**p. 36**)**

> "In some words having final \(ˌ)ō\, as *follow*, \(ˌ)yü\, as *value*, or \(ˌ)ü\, as *statue*, an unstressed variant \ə\ or \yə\ may occur, especially before a consonant or a pause, as in \ˈfäl-əd\ or \ˈval-yəd\, and a variant \ə-w\ or \yə-w\ occurs before vowels, as in \ˈfäl-ə-wiŋ\ or \ˈval-yə-wiŋ\. These variants are transcribed \ə(-w) \ or \yə(-w)\ at the entry word."

This paper discusses under what conditions [ju:] and [oʊ] reduce by surveying *WNNCD*'s transcriptions of the words retrieved from a word database.

3) For the integrity of [ju:] as a vowel, see Davis & Hammond (1995).
4) This fact is evidenced by Hammond (1999: 257).

2. Descriptions in the literature

The reduction of [juː] and [oʊ] is occasionally described in the literature. Wells mentions the following for the southern variety of American English.

(8) Wells (1982: 552)

> "It is unusual to hear unstressed final-syllable /u ~ ɪu/ in southern speech, except in the form of a schwa [ə] or its rounded equivalent [ɵ]. Thus *volume* is [ˈvɑ(l)jəm], *continue* [kənˈtɪnjə]. Before a vowel, [w] is inserted, thus [kənˈtɪnjəwiŋ]. Final /oʊ/ can also be weakened in this way, as in *follow* [ˈfɑlɵ ~ ˈfɑlə], *following* [ˈfɑlɵwiŋ]; but in southern mountain speech there is also the (stigmatized) possibility of [ɚ], thus [ˈfɑlɚ ~ ˈfɑlɚɪn]."

Keyon and Knott give a phonetic description of the word-final vowel spelled *ow* in the following way.[5]

(9) Keyon and Knott (1944/1953: "-ow")

> "-ow *suffix* **-o, -ö, -ə.** *The ending -ow is seldom pronounced* (*except with artificial care*) *with a full* **o** *as in* elbow. *The commonest prons. are with an advanced* **ö**, *nearly like* **ʊ,** *and with* **ə**. **ö** *differs from* **ə** *chiefly in its lip-rounding. . . . When a vowel follows the* **-ə** (*as in* -ing, -er) *a* **w** *or* **r** *intervenes; as* follow **'fɑlə,** following **'fɑləwɪŋ** *or* **'fɑlərɪŋ.** *An* **ö** *sound, nearly* **ʊ,** *is also heard in medial syllables of such words as* whatsoever."[6]

Although the /r/ form, [ˈfɑlɚ ~ ˈfɑlɚɪn] in (8) and ['fɑlərɪŋ] in (9), can be regarded as restricted in southern speech, the [w] form seems to be prevalent outside the region. Furthermore, Kenyon and Knotts' description in (9) very likely applies to such words spelled otherwise as *mosquito* and *borough* listed in (18) below, whose ultimas *WNNCD* transcribes in the same way.

Bolinger (1986: 348) claims that the pair of words in (10a), admitting that not all speakers will agree, is distinguished only by the contrast between a reduced vowel and a similar-sounding full vowel, with the words in (10b) given as a near-minimal pair. He also makes a remark that "the Merriam dictionaries" (Bolinger 1986: 359) or "the *Collegiate Ninth*" (Bolinger 1998: 65), i.e., *WNNCD*, makes this distinction.

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5) See also Kenyon (1994: 192–3).

6) Although they give no such variant under "whatsoever," they give unstressed **sʊ, sə, sʊ** under "so."

(10) Bolinger (1986: 348)

	Reduced [ə]	Full [o]
a.	farr*ow*	Phara*oh*
b.	gall*ow*s	al*oe*s

3. Phonological environments

To reveal what causes the reduction of the two vowels, penultimately-stressed words ending with /ju:/ or /oʊ/ were retrieved from a database on Landau (2000), henceforth *CDAE*, and classified according to the stress level *WNNCD* gives to the relevant syllable. The results are summarized in (11) and (12).

(11) *CDAE* /(j)u:/

a.	Level 3 stress	\ˌ(y)ü\	4 entries
b.	Level 3 or 4 stress	\(ˌ)(y)ü\	6 entries
c.	Level 3, 4, or 5 stress	\(ˌ)(y)ü, (y)ə(-w)\	10 entries

(12) *CDAE* /oʊ/

a.	Level 3 stress	\ˌō\	8 entries
b.	Level 3 or 4 stress	\(ˌ)ō\	127 entries
c.	Level 3, 4, or 5 stress	\(ˌ)ō, ə(-w)\	37 entries

In what follows, we will survey the data and reveal that, although we will not obtain significant results concerning the reduction of /ju:/ probably because of the scarcity of pertinent entries, the reduction of /oʊ/ is affected by the weight of the preceding syllable and the onset of the syllable in question.

3.1 [ju:]

There are few entries in *CDAE* which have penultimate stress and end with /ju:/. Of these, *WNNCD* puts unparenthesized secondary stress marks on the final syllable of the following items.

(13) \ˌ(y)ü\ in *WNNCD*

a. Heavy penults (3 entries)
   debut, mildew, preview
b. Light penult (1 entry)
   venue

The ultima of *preview* consists of a free morpheme; that of *mildew* is etymologically a word, *dew*. *Debut* has an alternant with primary stress on the ultima, which is often the case with French borrowings. The penultimately-stressed variant in (13a) seems to have derived from a variant with final stress through rhythm reversal. Considering that the less prominent constituent word usually has a relatively strong stress in two-term compounds, it would be natural that a relatively strong stress is placed on the part of the word which corresponds to a free morpheme or which used to be, or is, by other speakers, primarily stressed.

There is only one entry, *venue*, classified into (13b). This word, if syllabified strictly on the basis of onset maximality, will have a light penult, thus categorized as such above. However, *WNNCD* only gives the form \ˈven-ˌyü\, with yod retained, which means that, as the dictionary indicates in the transcription, its penult has been made heavy through the resyllabification of the [n] to the preceding syllable. However, *menu*, which also has a yod-dropped variant not shown, has a secondary stress mark parenthesized as in (14b); *sinew* has possible reduction indicated in a yod-retained variant as *continue* as in (15b), but the word also has a yod-dropped variant \ˈsin-(ˌ)ü\ labeled "*also*" without reduction shown. It is likely that non-phonological factors such as frequency also affect the stress levels.

(14) \(ˌ)(y)ü\ in *WNNCD*

a. Heavy penults (3 entries)
curfew, impromptu, rescue

b. Light penults (3 entries)
cashew,[7] menu, nephew

(15) \(ˌ)(y)ü, (y)ə(-w)\ in *WNNCD*

a. Heavy penults (2 entries)
argue, virtue

b. Light penults (6 entries, with the 2 parenthesized items excluded)
continue, (discontinue), issue, (reissue), sinew, statue, tissue, value

Many of the entries with the indication of possible reduction have a light penult as in (15b). With *argue* excepted, all of the words in (15) have a coronal consonant before /j/, though /tj, sj/ have become palato-alveolars through Yod Coalescence.

7) *CDAE* and *WNNCD* also show an iambic variant.

3.2 [oʊ]

Let us turn to the other vowel, for which *CDAE* has many more entries than for /ju:/.

3.2.1 *WNNCD* \ˌō\

The number of the entries is relatively small with their ultimas given an unparenthesized secondary stress sign. These entries are divided into the following two groups.

(16) *WNNCD* \ˌō\

a. Compounds (5 entries)
cornrow, outflow, rainbow, scarecrow, tiptoe

b. Heavy penults (3 entries)
elbow, macho, pronto

The words in (16a) are clearly compounds, whose second members receive level 3 stress; those in (16b), of which *elbow* would be comparable to *mildew* in (13a), are not compounds, but their second syllables are given the same degree of stress.

What places a relatively heavy stress on the ultima of the words in (16b)? We can attribute it to the syllable structure as the label shows above, whose effect was not sufficiently clear in the cases of /ju:/.

3.2.2 *WNNCD* \(ˌ)ō\

Many of the entries with word-final ¥ō¥ have a parenthesized secondary stress sign.

(17) \(ˌ)ō\

a. Compound (1 entry)
say-so

b. Heavy penults (103 entries)
albino, also, alto, Anglo, auto, avocado, banjo, bimbo, bingo, bongo, bozo, bravado, bravo, bronco, bureau, burrito, calypso, cappuccino, cargo, casino, Chicano, cocoa, combo, commando, concerto, condo, contralto, credo, crescendo, de facto, depot, disco, duo, ego, embargo, euro, expo, fiasco, flamingo, furlough, gazebo, gazpacho, gizmo, gringo, gumbo, gusto, halo, hero, hobo, info, innuendo, intro, ipso facto, judo, jumbo, kilo, Latino, Leo, limbo, limo, lingo, logo, machismo, maestro, mango, manifesto, memento, mumbo jumbo, Negro, oboe, pesto, photo, placebo, Pluto, polo, poncho, porno, psycho, pueblo, rhino, salvo, schizo, silo, solo, soprano,

staccato, taco, tango, tempo, tornado, torso, trio, tuxedo, typo, Velcro, veto, Virgo, virtuoso, volcano, weirdo, wino, yo-yo, zero

c. Light penults (23 entries)
ammo, armadillo, cello, ditto, demo, echo, espresso, falsetto, ghetto, grotto, hippo, Jell-O/jello, lasso,[8] libretto, memo, metro, mono, motto, piano, sombrero, stucco, tarot, wacko

Most of the entries in (17) are spelled with a final *o* and have Romance or Latin origin or are abbreviations, with *furlough* being a rare exception. The vowel in question is regarded as a suffix in some of the cases.

As for syllable structure, most of them have a heavy penult as in (17b), and the number of those with a light penult is relatively small as in (17c). The latter group includes *grotto, mono,* and *motto*, whose first vowel, [ɑ:], was originally the monomoraic LOT vowel, as classified here, but is now the bimoraic PALM vowel.[9] Note that the trisyllables *armadillo, falsetto, libretto, espresso, sombrero,* and *piano* do not follow the Latin Stress Rule. This may indicate that they have geminate consonants, which make their penults heavy.

3.2.3 *WNNCD* \(ˌ)ō, ə(-w)\

WNNCD indicates possible reduction for the following entries.

(18) \(ˌ)ō, ə(-w)\

a. Heavy penults (5 entries)
mosquito, potato, tomato, torpedo, window

b. Light penults (29 entries, with the 2 parenthesized items excluded)
arrow, borough, borrow, bellow, billow, burrow, fellow, follow, (foreshadow), furrow, hollow, marrow, meadow, mellow, minnow, narrow, (overshadow), pillow, sallow, shadow, shallow, sorrow, sparrow, swallow, thorough, tobacco, tomorrow, wallow, widow, winnow, yellow

c. Heavy or light penult (1 entry)
mulatto

Many of the entries in (18) are of Germanic origin; however, more importantly, they have light penults. One entry, *mulatto*, allows [ɑ:] as its first vowel in addition to [æ]. The first

8) *CDAE* and *WNNCD* give other variants that do not pertain to this discussion.
9) LOT and PALM are Wells's standard lexical sets (1982: §§2.1, 2.2).

vowel of *borough, burrow, furrow,* and *thorough* is [ɚː] or [ʌ],[10] the first of which is regarded as containing an underlying /ʌ/. *Borrow, follow, hollow, sorrow, swallow, tomorrow,* and *wallow* originally had monomoraic LOT vowels.

Most of the onsets of the ultimas of the words in (18) are coronals, many of which are sonorants. The only exception is *tobacco*, in which the consonant in question is a dorsal obstruent.

4. Discussion

4.1 The Arab Rule

The effect of the weight of the preceding syllable on vowel reduction can be described by what is frequently referred to as the Arab Rule, which is named after the regularity found between the usual pronunciation of *Arab* and an allegedly possible pronunciation with [eɪ] as the first syllable. The rule, which is more exactly a tendency, says that a syllable following a stressed light syllable reduces, but that a syllable following a stressed heavy one does not. This regularity is pointed out by James L. Fidelholtz, who is quoted by, e.g., Chomsky & Halle (1968: 146, fn. 100), Ross (1972: 256−7), Hayes (1990: 121), and Burzio (1994: 91 and elsewhere).

(19) Ross (1972: 256)
Arab [^{1}æ^{0}rəb ~ ^{1}ēy^{3}ræb][11]

It is very likely that the stress variations we saw in the previous section reflect this tendency, as exemplified below by the entries classified into two extreme groups: those transcribed with an unparenthesized secondary stress sign and those transcribed with possible reduction indicated.

(20) Vowel reduction corresponding to the two variants of *Arab*

a. [ˈeɪˌɹæb]

\ˌ(y)ü\	debut, mildew, preview
\ˌō\	elbow, macho, pronto

b. [ˈæɹəb]

\(ˌ)(y)ü, (y)ə(-w)\	continue, issue, sinew, ...
\(ˌ)ō, ə(-w)\	arrow, borough, bellow, ...

10) *WNNCD* also gives *thorough* ¥ór¥, i.e., [ɔɚ] in the IPA, with the label "*sometimes*."
11) The numbers indicate stress levels, where 0 refers to unstressed.

4.2 Consonant weight

Another factor that affects the stress level, or reduction, is the onset of the relevant syllable. This is more readily attested in (18), where all the words except *tobacco* have an alveolar as the onset of the ultimas, and most of the alveolars are sonorants.

Ross (1972: 250−4) argues that nouns ending with "nondental" obstruents[12] [p, b, tʃ, k, g, f, v, ʃ, ʒ] have stress in their final syllable, but that those ending with other consonants may lose stress. In other words, ultimas closed by either a "dental" or a sonorant may reduce.

(21) Adapted from Ross (1972: 250−4)

a. Nouns ending with "nondental" obstruents

	Unreduced	/ Reduced		Unreduced	/ Reduced
[p]	handicap	/ —	[b]	shishkabob	/ —
[tʃ]	tsarevitch	/ —			
[k]	tomahawk	/ —	[g]	pollywog	/ —
[f]	fisticuff	/ —	[v]	cytoflav	/ —
[ʃ]	succotash	/ —	[ʒ]	camouflage	/ —

b. Nouns ending with other consonants

	Unreduced	/ Reduced		Unreduced	/ Reduced
[t]	baccarat	/ idiot	[d]	katydid	/ Iliad
			[dʒ]	—	/ pilgrimage
[θ]	opsimath	/ azimuth			
[s]	sassafrass	/ syllabus	[z]	alveloz	/ —
[m]	diadem	/ modicum	[n]	caravan	/ alien
[l]	alcohol	/ capitol	[ɹ]	samovar	/ integer

Ross (1972: 252−3) states that there are no ultimately-stressed polysyllables that end with [dʒ] and argues that [ʒ] and [dʒ] are different realizations of the same segment. However, all his examples, *mucilage, pilgrimage,* and *advantage*, are regarded as containing a nominalizing suffix *-age*, which may indicate that suffixes tend to be destressed irrespective of the weight of their codas. It is possible that the lack of subsidiarily-stressed ultimas ending with [dʒ] is an accidental gap similar to those ending with [z], concerning which Ross (1972: 251) says he could not find any antepenultimately-stressed nouns.

12) English [t, d, s, z] are normally alveolars, but the label "dental" is considered to be intended for the exclusion of palato-alveolars.

If we count [dʒ] as heavy, Ross's dichotomy can be straightforwardly related to sonorancy and major place features, i.e., labiality, coronality, and dorsality, as in the following. We assume that palato-alveolars have both [COR] and [DOR].

(22) Heavy codas and light codas

a. Heavy codas

[p, b, f, v] = [−son, LAB]

[k, g] = [−son, DOR]

[tʃ, ʃ, dʒ, ʒ] = [−son, COR, DOR]

b. Light codas

[t, d, θ, s, z] = [−son, COR]

[m] = [+son, LAB]

[n, l, ɹ] = [+son, COR]

The above classification of consonants produces the following three inequations of feature weight, which indicates that obstruency, labiality, and dorsality contribute more to syllable weight.

(23) Inequations of feature weight

a. [−son] > [+son]

b. [LAB] > [COR]

c. [DOR] > [COR]

Given the above inequations, we can roughly categorize coda consonants by weight into the following four groups.

(24) Consonants roughly classified by weight

a. [p, b, f, v] = [−son, LAB]

[k, g] = [−son, DOR]

[tʃ, dʒ, ʃ, ʒ] = [−son, COR, DOR]

b. [t, d, θ, s, z] = [−son, COR]

c. [m] = [+son, LAB]

d. [n, l, ɹ] = [+son, COR]

The consonants in (24a) are the heaviest, and those in (24d) are the lightest. It is not clear which of the remaining two groups, the coronal obstruents or the labial sonorant, is the

heavier.[13] Regardless, relatively light consonants in the onset, particularly coronal sonorants, are related to the reduction of the syllable.

4.3 Onset-sensitivity

Why do light onsets trigger reduction? It is widely accepted that the rhyme contributes to syllable weight, but not the onset. However, Gordon (2005: 598) lists the following thirteen languages including English as exceptions to this established view.

(25) Gordon (2005: 598)

Alyawarra	CV > (W)V
Arrernte	CV > V
Banawá	CV > V
Bislama	CCVC > CVC > CCV > CV
English	CVV, CVC > O(R)V > RV
Iowa-Oto	CV > V
Júma	CV > V
Lamalama	CV > V
Manam	(C)VC > CV > V
Mbabaram	(C)VC > CV > V
Nankina	CCV > (C)V
Pirahã	KVV > GVV > VV > KV > GV
Tümpisa Shoshone	CVV > KV > GV

K = voiceless consonant
G = voiced consonant
W = glide
R = sonorant
O = obstruent

Gordon's claim that English is "onset-sensitive" is based on Nanni (1977), who argues that the suffix *-ative* may lose its subsidiary stress when preceded by either a vowel or a sequence composed of a vowel plus a sonorant as in (26b) and that this is not observed when preceded by either a "nonsonorant" or a consonant cluster as in (26a). It is plausible,

13) However, it is interesting to note that no words containing intervocalic [m] are found in (18) above, (26b) below, or Wells's (1995) sonorant left capture examples to be discussed in §4.4.

therefore, that the reduction we are discussing also depends on the weight of the onset of the ultima.

(26) The suffix *-ative* (Nanni 1977: 757; underlines added)

a. Non-reducible: [-ˌeɪtɪv]

innovative, qualitative, investigative, administrative, legislative, aggravative, irritative, interpretative, elucidative

b. Reducible: [-ˌeɪtɪv ~ -ətɪv]

nominative, imaginative, ejaculative, iterative, agglomerative, initiative, palliative, cumulative, agglutinative, generative, manipulative, terminative, operative, remunerative

4.4 Sonorant left capture and bimoraicity

We saw in the previous two subsections that syllable reduction is affected both by rhythm, specifically the Arab Rule, and by onset weight. However, whether these two factors are interrelated is unclear.

With regard to sonorants, Wells (1995: 408−9) proposes a process which he calls "sonorant left capture" to account for syllabic sonorant formation before a stressed syllable. In the following derivation, [l] is syllabified into the preceding unstressed syllable even though the following vowel is full, which does not conform to the syllabification principles Wells (1990) proposes.

(27) A derivation for *catalogue* (Wells 1995: 408)

underlying representation	ˈkætəlɒg
syllabification	ˈkæt.ə.lɒg
sonorant left capture	ˈkæt.əl.ɒg
syllabic consonant formation	ˈkæt.l̩.ɒg

Sonorant left capture is a resyllabification process, by which a sonorant onset is resyllabified into the coda of the preceding syllable. Interestingly, none of the examples Wells gives concerns [m],[14] which might mean that this sort of resyllabification is actually not restricted to sonorants in general but that light consonants tend to be resyllabified leftward. Note that resyllabification also accounts for Nanni's examples in (26).

14) Refer to the discussion in §4.2.

The reason that sonorant left capture occurs is unclear, though it is plausible that it is a kind of articulatory anticipation. However, as for the reduction we are discussing, there is no doubt that the bimoraicity constraint on stressed syllables plays an important role, which requires that stressed syllables be bimoraic.[15]

When the stressed syllable of a trochaic foot ends with a monomoraic vowel, the onset of the following syllable is resyllabified into the coda of the preceding to satisfy the bimoraicity of the preceding stressed syllable. This causes the following syllable to be onsetless, which reduces the weight of the syllable and results in its reduction.[16]

(28) The Arab Rule accounted for by bimoraicity and reduction
Arab [ˈæɹ.əb ~ ˈeɪ.ˌɹæb]

It is conceivable that how likely this resyllabification occurs is affected by the weight of the resyllabified consonant: the lighter the consonant, the more likely it will be resyllabified. This may account for the fact that most of the words classified into (18b) above have an intervocalic coronal sonorant. This is illustrated in the following, where [ju] and [o] represent the reduced forms of [ju:] and [oʊ], respectively.

(29) Bimoraicity and resultant reduction

a. Stressed bimoraic syllables

\ˌyü\	debut	[ˈdeɪ.ˌbju:]
\ˌō¥	elbow	[ˈɛl.ˌboʊ]

b. Stressed monomoraic syllables

\(ˌ)yü, yə(-w)\	continue	[kən.ˈtɪ.(ˌ)nju:]	→	[kən.ˈtɪn.ju]
\(ˌ)ō, ə(-w)\	arrow	[ˈæ.(ˌ)ɹoʊ]	→	[ˈæɹ.o]

5. Conclusion

We argued that word-final [ju:] and [oʊ] in penultimately-stressed words most likely reduce when the preceding stressed syllable is light, i.e., monomoraic, and the onset of the syllable in question is a light consonant, especially a coronal sonorant. We then argued that the reduction occurs as a result of a resyllabification process the preceding stressed monomoraic syllable requires, by which the following syllable loses its onset and reduces.

15) See Hammond (1999: 218 and elsewhere).
16) Burzio (1994: §5.5) argues in a different context that syllables without an onset are lighter than those with an onset.

We also claimed that the resyllabification will more likely occur, the lighter is the pertinent consonant.

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