Chapter 6

WORD STRESS

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6.1 Introduction: word stress

This chapter is about stress assignment in words, i.e. about the location of stress(es) in words when they occur in isolation (what happens to these stresses when words are combined into sentences is discussed in Chapter 7).

Stress is a suprasegmental feature. Unlike the features discussed in Chapter 3, it is not realised on a single segment, but it extends over more than one segment: it is associated with a syllable.

Stress is not an absolute property: it is the relative prominence of syllables. In contrast to features like [voice] or [coronal], whose value is determinable independently of the environment of the segment, it is not possible to tell whether a particular syllable is stressed or unstressed without comparing it to other (neighbouring) syllables.

Notation: primary stress is indicated by an acute accent on top of a vowel letter in spelling, e.g. átom, and the phonetic symbol /\ before the first segment of a syllable in transcription, e.g. /\ætəm/; secondary stress is indicated by a grave accent on top of a vowel letter in spelling, e.g. the first syllable of àtomístic, and the phonetic symbol /\ before the first segment of a syllable in transcription, e.g. the first syllable of /\ætə'mɪstrɪk/.

Metrification means determining where the stresses are in a word. For example, the word cigarette is metrified as cigarétté /\sɪgə'ret/.

6.1.1 Weight sensitivity

In some languages metrification is influenced by the weight of the syllables that make up a word. These languages are weight-sensitive: they distinguish heavy (H) and light (L) syllables (see 4.5.1). In these languages heavy syllables tend to attract stress. English is a weight-sensitive language. Hungarian is weight-insensitive because in Hungarian, a word-initial syllable of any weight is stressed regardless of the weight of any other syllable of the word.

6.1.2 The domain of metrification

In English, certain parts of the word are systematically excluded when the stresses are determined. These portions of the word (a) do not get stress and (b) do not count for the
placement of stress. This means that metrification is restricted to a domain which is smaller than
the word. Thus, the domain of metrification is the portion of the word within which stress(es) can
occur and which may influence the placement of stress.

Some parts of the word may be outside the domain of metrification for morphological
reasons. English strong boundary affixes belong here (see 6.3.1.4.1); e.g. the suffix -ing is never
stressed and never changes the place of the stresses of the stem to which it is added (compare
excommunicate with excommunicating). Notation: strong boundary affixes are separated from
the stem by a number sign # in spelling and transcription, e.g. #excommunicat#ing# (the same
symbol # also appears at the beginning and the end of a word).

Some parts of the word may be outside the domain of metrification for phonological
reasons. These may be segments or syllables at the edges of words. Such phonological material
is called extrametrical (for extrametricality in English see 6.3.1.1). Extrametrical parts of the
word do not get stress and do not count for the placement of stress. Notation: extrametrical
material appears in angled brackets < > in spelling and transcription, e.g. ani<mal>.

In what follows we discuss the stress patterns of English words, focussing on two issues:
the degrees of stress and the predictability of stress(es). In the discussion we often have to refer
to specific syllables of a word. We will call

(i) the last syllable of the word (the ultimate syllable) the ult,
(ii) the second-last syllable (the penultimate syllable) the penult and
(iii) the third-last syllable (the antepenultimate syllable) the antepenult.

We will use the terms ult, penult and antepenult to refer to the actual syllables occurring in the
phonetic form of a word, i.e. regardless whether the final syllable is analysed as extrametrical or
not. For example, the underlined syllables of the words melon /me'lən/ and balloon /bo'lu:n/ are
the ultimate syllables of these words although the last syllable is extrametrical in the former, but
not in the latter me<lon> vs. balloon (see 6.3.1.1 and 6.3.1.2).
6.2 Degrees of English stress: how many?

As opposed to Hungarian, where there is only one stress in every word, a long(er) English word may have more than one prominent syllable, e.g. *CIgaRETTE, ExcoMUniCATE, CIRcumNAviGAtion*, etc. However, these relatively more prominent syllables are not necessarily felt equally prominent. We can illustrate this with columns of stars (where the numbers of stars correspond to levels of relative prominence within the word):

\[
\begin{align*}
\text{CIgaRETTE} & \quad \star \star \star \star \\
\text{ExcoMUniCATE} & \quad \star \star \star \star \star \\
\text{CIRcumNAviGAtion} & \quad \star \star \star \star \star \star \star \\
\end{align*}
\]

Most analyses would agree that the last syllable of *excommunicate* is more stressed than the second and the fourth syllables, but less stressed than the first, and the first is less stressed than the third, which is the strongest stress in the word.\(^1\) Given this, the question is how many degrees of stress must be distinguished in English phonologically?

The traditional answer is that four degrees of stress are needed to describe the stress patterns in words and these degrees are distinguished by a combination of factors: (i) the loudness of the syllable, (ii) the pitch change occurring on the syllable, and (iii) the vowel quality of its nucleus. This is shown in (2):

\[
\begin{align*}
\text{(2) Stress degrees} & \quad \begin{array}{cccc}
1 & 2 & 3 & 0 \\
pitch \text{ change} & + & - & - \\
\text{loudness} & + & + & - \\
\text{full vowel} & + & + & - \\
\end{array}
\end{align*}
\]

---

\(^1\)Note that in this form, the star notation does not allow comparison of relative prominence across words. The third syllable of *cigarette* is not less prominent (less stressed) than the third syllable of *excommunicate.*
Cigarrette /ˈsɪɡərɛt/ and circumnavigaton /ˈsɜːkənˈnævəlɪɡəʃən/ have the stress patterns 201 and 202010, respectively, and the word excommunicate /ˌɛksəˈmuːnɪkət/ 20103, exemplifies all four degrees of stress: primary (1ry), secondary (2ry), tertiary (3ry) and zero (0).

As can be seen in (2), 1ry stress (the ‘main’ stress of the word) is distinguished from 2ry stress(es) by pitch change: when we say the word in isolation, a 1ry stressed syllable (also called the ‘tonic’ syllable) is associated with a change in pitch (of any direction) while a 2ry stressed syllable is not. 1ry stress and 2ry stress, called the major stresses (which I will abbreviate as ‘M’), are distinguished from 3ry stress and zero stress, called the minor stresses (which I will abbreviate as ‘m’), by loudness (i.e. rhythmic prominence): the former are relatively loud compared to the latter. 0 stress is distinguished from all the others by vowel quality: only reduced vowels can occur in a zero stressed syllable. In English (as opposed to Hungarian) only a restricted set of vowels (ə, i, u, ɪ, ɜ) can occur in a zero stressed syllable — otherwise the syllable must have a full vowel (this is called the rule of Vowel Reduction).

Even if we accept that all four degrees are distinguishable phonetically, it is not obvious that all of them are necessary phonologically. Indeed, there are analyses that only distinguish two degrees of word stress: stressed and unstressed.

6.2.1 1ry stress vs. 2ry stress

The difference between 1ry stress and 2ry stress can be shown to be a sentence/phrase level distinction rather than a word-level one. If we say a word in isolation, we say it as a sentence, with the appropriate tone on the tonic syllable of the sentence (e.g. falling if it is a statement). If the same word occurs in a sentence consisting of more than one word, it may occur in such a position that pitch change does not occur on any of its syllables, therefore the place of 1ry stress in a word is the place of potential pitch change:

---

2 Syllabic nasals and liquids can also occur as the nuclei of 0 stressed syllables, e.g. the second syllable of written [ˈrɪtn]. We ignore this here for the sake of simplicity.
This means that at the word level, phonologically, we only need to know the location of major stresses because the difference between the two kinds of major stresses, the actual place of pitch change (the 1ry stressed syllable) is determined at sentence/phrase level. The location of the 1ry stressed syllable is predictable: in a neutral sentence it is the rightmost major-stressed syllable (see Chapter 7 on sentence stress). Since we are looking at isolated words here, all we need to know is the location of major stresses – the rightmost one will be the potential bearer of pitch change in a sentence, i.e. the rightmost one is the 1ry stress. For ease of reference, we will continue to use the terms 1ry and 2ry stress as shorthand for rightmost and non-rightmost major stress in a word, respectively.

### 6.2.2 3ry stress vs. other stresses

If we want to find out whether 3ry stress is phonologically different from the other stresses (major stresses and zero stress), we have to find phonological regularities that treat them differently, i.e. we must demonstrate that 3ry stress patterns differently from the major stresses on the one hand, and zero stress on the other.

**Notation:** 3ry stress is unindicated in spelling and transcription by any special phonetic symbol. A 3ry stressed syllable is one that has a full vowel but bears no stress mark.

### 6.2.2.1 3ry stress vs. major stress(es)

In isolated words, 3ry stressed syllables can be found (i) immediately preceding major-stressed syllables,(ii) word-medially after a major stress and (iii) in word-final position.
In some positions 3ry stress is in complementary distribution with 2ry stress. (i) 3ry stress never occurs on the second syllable preceding a major stress (where major stresses do) and (ii) 3ry stress can occur after the last major stress in the word, i.e. the 1ry (where by definition a major stress cannot). This is exemplified in (5i, ii) and summarised in a table in (5iii).

<table>
<thead>
<tr>
<th>position</th>
<th>2 σ before 1ry stress</th>
<th>after 1ry stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>2ry (=major) stress</td>
<td>àcadémic</td>
<td>–</td>
</tr>
<tr>
<td>3ry stress</td>
<td>–</td>
<td>robot</td>
</tr>
</tbody>
</table>

A position in which a 3ry stress and a major stress seem to contrast is word-initial position preceding a major stress ( # _ M ) because they are treated differently by the Rhythm Rule. The Rhythm Rule\(^4\) (also called Rhythmic Stress Deletion/Shift or Iambic Reversal) is an optional postlexical\(^5\) rule that can downgrade a major stress for rhythmic reasons if in the sentence it occurs ‘too close’ to other major stresses. The downgraded syllable retains its full vowel. The word *èverlásting* (2010) has two major stresses, but the second one can be downgraded to 3ry stress by the Rhythm Rule in a sentence like *She shivered in the everlasting rain* because it

\(^3\)The third syllable of *circumnavigación* can lose its major stress but not its full vowel (*circumnavigación*) as a result of the Rhythm Rule, see below and Chapter 7.

\(^4\)See Chapter 7

\(^5\)See Chapter 8
occurs between two major stresses that are close.  

(6) 2 2 2 1 2 2 3 1

She shivered in the everlasting rain → She shivered in the everlasting rain

As a result, the prominence relations of *everlasting*, whose third syllable is more prominent than the first in isolation and in some sentences (*The rain is everlasting*), are reversed by the Rhythm Rule: *everlasting*, as in (6).

This cannot happen to a word like *October*, which looks very similar superficially, having a full-vowelled syllable followed by a more prominent full-vowelled syllable /ɒk'tʌbə/. If we put this word in a shifting context where the Rhythm Rule could apply, we find that the rule does not apply and the prominence relations do not change. The second syllable always remains more prominent that the first. We can explain this by claiming that this is due to a difference in stress: the first syllable of *everlasting* has 2ry stress, but the first syllable of *October* has 3ry stress. A major stress can be downgraded to 3ry stress by the Rhythm Rule, but a minor stress (like 3ry stress) cannot be upgraded to become a major stress for rhythmic reasons.

(7) 2 3 2 1 2 2 3 1

She shivered in the October rain → *She shivered in the October rain.

/ɒk'tʌbə/ */ɒk'tʌbə/

This means that there is a regularity that treats these two types of stresses differently, so they have to be distinguished: 3ry stress exists as a separate stress-degree.

A full-vowelled syllable that is two syllables before a major stress can always undergo the Rhythm Rule, i.e. behaves like a major stress (in accordance with (5iii) above), but a full-vowelled syllable that immediately precedes a major-stressed syllable can behave in two ways. Some words (8i) undergo the Rhythm Rule, others do not (8ii):

---

6Defining what counts as close enough is a complicated and interesting question we will not discuss here.
(8) i. sàrdíne ˌsaːˈdiːn → sàrdine sándwich ˌsaːdiːn ˈsænwidʒ

ii. Octóber ɒkˈtoubo → October ráin ɒk,toubo ˈreɪn

iii. position

<table>
<thead>
<tr>
<th></th>
<th>2 σ before 1ry stress</th>
<th>after 1ry stress</th>
<th>1 σ before 1ry stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>2ry (=major) stress</td>
<td>académic</td>
<td>–</td>
<td>sàrdíne</td>
</tr>
<tr>
<td>3ry stress</td>
<td>–</td>
<td>ñóbot</td>
<td>October</td>
</tr>
</tbody>
</table>

In this position then 3ry stress and a major stress appear in contrast: the first syllable of Octóber ( # 3 1 0) seems to have 3ry stress and the first syllable of sardíne ( # 2 1) seems to have major stress (8iii). However, even this position of potential contrast (# _ M ) disappears if we consider the larger environment within the word. All words in which there is a full-vowelled syllable (F) followed by a major stress and are bisyllabic ( # F M #) seem to behave like sardine and undergo the Rhythm Rule (9i); and all trisyllabic words in which a completely unstressed syllable follows the major stress ( # F M 0 #) seem to behave like October and fail to undergo the Rhythm Rule (9ii):

(9) i. Two-syllable words # F M #

sàrdíne ˌsaːˈdiːn sàrdine sándwich ˌsaːdiːn ˈsænwidʒ
diréct ˌdaiˈrekkt direct débit ˌdærɪkkt ˈdebrit
Bàhréin ˌbaːˈreɪn Báhréin Ísland ˌbaːreɪn ˈaɪslænd
cartón ˌkɑːˈtʊn càrtoon nétéwork ˌkɑːtuːn ˈnetwɜːk

ii. Three-syllable words # F M 0#

Octóber ɒkˈtoubo October ráin ɒk,toubo ˈreɪn
Titánic taiˈtænɪk Titànic’s bánd tæiˌtænɪks ˈbænd
salvátion sælˈveɪʃən Salvàtion Ármy sælˌveɪʃən ˈaːmi
Montána mɒnˈtænə Montàna béar mɒnˌtænə ˈbeə
Given this regularity, the Rhythm Rule provides no argument for distinguishing 3ry stress from major stress. There is no need to say that words like (9i) are different from those in (9ii) because their initial syllables have different stress (major in the former, minor in the latter) since we can distinguish them with reference to their syllabic structure (#F#M# vs. #F#M0#) and say that the Rhythm Rule does not apply in the latter because of the syllabic environment. Then, we could maintain that both groups have the same kind of stress, i.e. 2ry stress, in their first syllable.

There are other rules too that group 3ry stress together with major stresses in English. One of them is the phonotactic constraint that restricts [h] to word-initial position and to a position before a full vowel. As can be seen in (13), it makes no difference if this full vowel occurs in a major-stressed syllable or in a 3ry stressed one:

(10) The distribution of /h/

<table>
<thead>
<tr>
<th>/h/ pronounced</th>
<th>/h/ not allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>before a σ with _ stress</td>
<td>1ry</td>
</tr>
<tr>
<td>position</td>
<td>any</td>
</tr>
<tr>
<td>a_thead</td>
<td>appre_hensibility</td>
</tr>
<tr>
<td>s'hed</td>
<td>’souhou</td>
</tr>
</tbody>
</table>

These arguments suggest that the traditional distinction between 3ry stress and major stresses is phonologically questionable.

6.2.2.2 3ry stress vs. zero stress

The difference between a 3ry stressed syllable and a zero stressed syllable is that the former contains a full vowel while the latter contains a reduced one. This seems a neat distinction, but unfortunately, in addition to the vowels that only occur in unstressed syllables /a, i, u/, there are vowels that can occur in both unstressed syllables and under major stress /i, (j)u/, i.e. there is an overlap between full and reduced vowels:
In some cases (e.g. áttic) this makes it impossible to tell if a syllable has 3ry stress or zero stress – so there is no difference. These syllables are indeterminate between 3ry and zero stress, as there is no contrast between them, we can safely (and arbitrarily) consider them unstressed.

There seem to be no rules of English phonology that consistently group 3ry stress with 0 stress.

### 6.3 The predictability of stress in English words

As opposed to a language like Hungarian, which has fixed stress (always on the first syllable of a word), English stress is free in that stress can be on any syllable of the word.

There are two conflicting views about English stress. One view, the 'no-pattern view' maintains that there is no stress pattern in English, i.e. English stress is not predictable. According to the other view, the 'pattern-with-exceptions view', there is a very intricate pattern (with many rules and exceptions).

#### The ‘no-pattern view’

According to proponents of the no-pattern view no rules that are sufficiently general can be formulated about the place of word stress, therefore English word stress is lexical, it has to be memorised for every word by native speakers.

There are some regularities, e.g. 1ry stress has to fall on one of the last three syllables of an English word, i.e. within ‘the final three-syllable window’, but the place of stress is unpredictable within the limits of these regularities.

Take syllable weight as an example. English stress is often claimed to be weight-sensitive,
i.e. the weight of the syllables influences the place of 1ry stress. The proponents of the no-pattern view would argue that this is not true because it can be shown that within the final three-syllable window, a syllable of any weight in any position (ultimate: \( \sigma\sigma\# \), penultimate: \( \sigma\sigma\sigma\# \), antepenultimate: \( \sigma\#\# \)) may be 1ry-stressed. Consider (12) below (where \( \text{V} \) is a short vowel, \( \text{V}^* \) is a long vowel and 1ry stressed syllables are embo ldened). There are no word-final stressed light syllables in English (*\( \text{V}\# \), e.g. */pæ#/), this is why the cell in the top right corner is empty.

(12) A syllable of any weight may be stressed (within the final \( \sigma\sigma\# \) window)

<table>
<thead>
<tr>
<th>LIGHT</th>
<th>HEAVY</th>
</tr>
</thead>
<tbody>
<tr>
<td>antepenult stress ( \sigma\sigma# )</td>
<td>dignity 'dign.\text{\textperiodcentered}.ti</td>
</tr>
<tr>
<td>penult. stress ( \sigma\sigma# )</td>
<td>enigma ( \sigma\text{\textperiodcentered}'nig.m\text{\textperiodcentered} )</td>
</tr>
<tr>
<td>ult. stress ( \sigma\sigma# )</td>
<td>pictur's\text{\textperiodcentered}e ,\text{\textperiodcentered}tik.t\text{\textperiodcentered}\text{\textperiodcentered}f\text{\textperiodcentered}'.resk</td>
</tr>
</tbody>
</table>

Furthermore, not only is the location of 1ry stress independent of the weight of the 1ry stressed syllable itself, but the location of 1ry stress is also independent of the weight of any other syllable within the final three-syllable window.

(13) below shows that any syllable may have 1ry stress within the final three-syllable window independently of the weight of the ultimate syllable (1ry stressed syllables are emboldened and the ultimate syllables are underlined).

(13) The location of stress and the weight of the ULT

<table>
<thead>
<tr>
<th>LIGHT ULT</th>
<th>HEAVY ULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \sigma\sigma# ) cinema 'si.n\text{\textperiodcentered}o.m\text{\textperiodcentered} )</td>
<td>dynamite 'dai.n\text{\textperiodcentered}o.mait</td>
</tr>
<tr>
<td>( \sigma\sigma# ) enigma ( \sigma\text{\textperiodcentered}'nig.m\text{\textperiodcentered} )</td>
<td>pot\text{\textperiodcentered}to pot\text{\textperiodcentered}'tei.tou</td>
</tr>
<tr>
<td>( \sigma# ) -</td>
<td>Japon'''sh ( \text{\textperiodcentered}d\text{\textperiodcentered}3\text{\textperiodcentered}\text{\textperiodcentered}3\text{\textperiodcentered}p\text{\textperiodcentered}.\text{\textperiodcentered}'niiz</td>
</tr>
</tbody>
</table>

(14) shows that any syllable may have 1ry stress within the final three-syllable window independently of the weight of the penultimate syllable (1ry stressed syllables are emboldened and the penultimate syllables are underlined).
(14) The location of stress and the weight of the PENULT

<table>
<thead>
<tr>
<th>HEAVY PENULT</th>
<th>LIGHT PENULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>cárpentr ćka:pen.ćo</td>
<td>ānimal āe.ni.mol</td>
</tr>
<tr>
<td>enígma e'.nuq.mo</td>
<td>vanílla və'nj.ło</td>
</tr>
<tr>
<td>chimpanzée ,tjim.pen.'zi</td>
<td>cigaréttē ,st.qa.'re</td>
</tr>
</tbody>
</table>

(15) shows that any syllable may have 1ry stress within the final three-syllable window independently of the weight of the antepenultimate syllable (1ry stressed syllables are emboldened and the antepenultimate syllables are underlined).

(15) The location of stress and the weight of the ANTEPENULT

<table>
<thead>
<tr>
<th>HEAVY ANTEPENULT</th>
<th>LIGHT ANTEPENULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>scénery ˈsi:nə.ri</td>
<td>ānimal āe.ni.mol</td>
</tr>
<tr>
<td>Novémber noʊ'vem.bo</td>
<td>vanílla və'nj.ło</td>
</tr>
<tr>
<td>móninēer ,mju:.tnə</td>
<td>cigaréttē ,st.qa.'re</td>
</tr>
</tbody>
</table>

The ‘pattern-with-exceptions view’

According to the pattern-with-exceptions view, there is a stress pattern in English, stress is (mostly) predictable: it is the result of several factors (partly morphological and phonological) and there are exceptions (English stress is partly lexical).

The argument is that

(a) some of the stress patterns we have seen in (12, 13, 14, 15) above are rare or less frequent than others. The words ānimal and vanílla are very similar in terms of weight structure.\(^7\)

L L σ # and both of them are nouns, but ānimal has antepenultimate and vanílla has penultimate

\(^7\)Remember: H stands for a heavy syllable, S for a superheavy syllable, L for a light one and σ is a syllable of any weight. For the definitions of heavy, light and superheavy syllables, see 4.5.1 on syllable weight.
The stress pattern of the former is much more frequent than that of the latter, therefore *animal* can be seen as regular and *vanilla* as an exception;

(b) **word-class matters** in stress placement. The verb *objet* and the noun *objet* have different stress patterns both of which are regular and follow the stressing of verbs and nouns;

(c) **native speakers have intuitions** about the place of stress: if they are required to guess the place of stress in the nonsense noun *phalidon* they are much more likely to say */fælɪdən/ or */faˈlɪdən/ than */fæˈlɪdən/ or */fælɪˈdən/. This also shows that stress in English is sensitive to syllable weight (in this case the weight of the penultimate syllable which gets the stress if it is heavy (see the details later)).

(d) some **suffixes** determine the place of 1ry stress (e.g. *-ity* places 1ry stress on the immediately preceding syllable: *cīvil* but *cīvīlity*) and the way they do is related to their phonological shape. Compare *cīvil-ity* and *animal* – both are nouns, both have the weight structure\(^8\) L L σ # in the final three-syllable window (underlined above) and both have antepenultimate stress.

Therefore, in the rest of this chapter we follow the pattern-with-exceptions view and examine the regularities of stress placement in English words

### 6.3.1 Determining the place of primary stress within the word

#### 6.3.1.1 Primary stress in words with a short-vowelled ult

If we first examine underived words whose *last syllable does not have a long vowel*, we find the following two patterns:

\(^{8}\)For the definitions of heavy (H), light (L) and superheavy (S) syllables, see 4.5.1 on syllable weight.
(16) THE NOUN PATTERN
   i. 1ry stress falls on a H penult, if there is one
      examples: *agénda, appén*dis, *horíz*on
   ii. otherwise 1ry stress falls on the antepenult
        examples: *Amér*ica, *ást*erisk

(17) THE VERB PATTERN
   i. 1ry stress falls on a Superheavy ult, if there is one
      examples: *pré*vént, con*du*cit
   ii. otherwise 1ry stress falls on the penultimate σ
        examples: *ín*há*bit, imá*gin*e

Nouns (typically), suffixed adjectives (typically) and some unsuffixed adjectives follow the noun pattern and verbs (almost always) and some unsuffixed adjectives and adjectives ending in -ic follow the verb pattern.

(18) Examples
THE NOUN PATTERN
(a) Nouns
   i  agénda, veránda, synópsis, uténsil, horízon, aróm a, macaróni, Minnesóta
   ii  América, cínema, vértebra, ánimal, vénison, président

(b) Adjectives (suffixed)
   i  dialéctal, moméntous, triúmphant, contíngent, mediéval, inhérent, anecdótal
   ii  pé*rsonal, dán*gerous, má*ximal, víg*ilant, dífferent

(c) Adjectives (unsuffixed)
   i  pé*rfect, é*arnest, á*dlut (BrE), é*xpert, á*wkward, bást*ard
   ii  mó*ribund, dér*lict, dífficult, má*nifest, tá*ci*urn
THE VERB PATTERN

(a) Verbs

i. prevént, collápse, tormént, éléct, adópt, reláx

ii. imágine, astónish, embárrass, prómise, detérmine

(b) Adjectives (unsuffixed)

corrúpt, ovért, diréct, defúnct, absúrd, adúlt (AmE)

(c) Adjectives in -ic

atómic, cosmético, económic, fanátic, sadístico, terrífic

The two basic patterns, the noun pattern and the verb pattern are phonologically the same. The only difference between them is the domain of metrification. Specifically, extrametricality (see 6.1.2) is different for noun pattern items and verb pattern items. In noun pattern items it is the last syllable of the word that is extrametrical, while in verb pattern items it is only the last consonant (if there is one).

(19) Noun pattern extrametricality: the last syllable is extrametrical

\[ \sigma \# \rightarrow <\sigma> \# \]

(20) Verb pattern extrametricality: the last consonant is extrametrical

\[ C \# \rightarrow <C> \# \]

Thus the main stress rule that accounts for the basic patterns can be given as follows:

(21) Main Stress Rule (MSR)

Within the domain of metrification

i. the rightmost syllable gets 1ry stress if it is heavy

ii. otherwise: the syllable preceding the rightmost syllable gets 1ry stress if the rightmost syllable is light
This gives us the following metrifications for the patterns examined (and correctly predicts the place of primary stress).

(22) N-pattern

i. Heavy penult \[ ^1H<\sigma>\# \text{agén<da>} \quad \text{ə′dʒendə} \]

ii. Antepenult \[ ^1\sigma\text{L}<\sigma>\# \text{Améri<ca>} \quad \text{ə′merikə} \]

V-pattern

i. Superheavy ult \[ ^1H<\text{C}>\# \text{prevén<i>}} \quad \text{pri′vent} \]

ii. Penult \[ ^1\sigma\text{L}<\text{C}>\# \text{inhábi<i>}} \quad \text{in′hæbɪt} \]

Note that the weight of the rightmost syllable is determined only within the domain of metrification, i.e. disregarding the extrametrical material. For example, the superheavy ult of *prevent* counts as heavy for metrification and the heavy ult of *inhabit* counts as light because the last consonant in both is extrametrical and only *ven* and *bi* are considered by the Main Stress Rule.

### 6.3.1.2 Primary stress in words with a long-vowelled ult

Underived words that have a long vowel in their ult behave in the following way:

(i) long vowels in final syllables are regularly stressed in bisyllabic words (even in nouns), and
(ii) a word regularly has antepenultimate stress if it is longer than two syllables and has a long vowel in its final syllable (even if it is a verb):

(23) \[ 2 \quad 2+ \quad \begin{aligned} \text{brocáde}_N & /\text{bro′keid}/, \text{canóe}_N & /\text{ka′nuː}/, \text{sedáte}_V & /\text{so′dɛt}/, \text{obéy}_V & /\text{ə′beɪ}/ \\
\text{dýnamite}_N & /\text{dænəmæt}/, \text{pédigree}_N & /\text{ˈpedɪgrɪ}/, \text{óperate}_V & /\text{ˈɒpərɛt}/, \text{pétrify}_V & /\text{ˈpɛtrɪfɪ}/ \\
\end{aligned} \]

Note that this stress pattern is independent of morphological class membership: in words of this type there is no difference between the stressing of nouns and verbs.

This pattern is handled by two rules: Long Vowel Stressing (LVS) and the Alternating
Stress Rule (ASR):

(24) Long Vowel Stressing (LVS)

Stress long vowels in final syllables

LVS overrides extrametricality and prevents it from applying: *broćade brəˈkeɪd, not broćade.

(25) The Alternating Stress Rule (ASR)

\[
\sigma \sigma ' \sigma \# \rightarrow \sigma \sigma \sigma \#
\]

(if a word-final syllable has been stressed by some rule and it is preceded by two or more syllables, move the stress to the antepenultimate syllable)

ASR applies to the output of LVS, e.g. *dynamite → dynāmite /ˈdainəmait/. ASR only applies to final stressed syllables and it applies to all final stressed syllables, not only to those stressed by LVS but also to those stressed by the general Main Stress Rule (MSR): genufléct → génuflect. Sample derivations are shown in (26), and table (27) summarises the working of LVS and ASR.9

---

9Word-final /uː/ does not seem count as a long vowel. vé<to> not *vetó; potá<to> not *pótato.
(26) Long Vowel Stressing and/or the Alternating Stress Rule in derivations

<table>
<thead>
<tr>
<th></th>
<th>Verb</th>
<th>Noun</th>
<th>Verb</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR</td>
<td>#sedate#</td>
<td>#caraway#</td>
<td>#operate#</td>
<td>#genuflect#</td>
</tr>
<tr>
<td>LVS</td>
<td>#sedáte#</td>
<td>#carawáy#</td>
<td>#operáte#</td>
<td>–</td>
</tr>
<tr>
<td>Extr</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>#genufléc&lt;ı&gt;/#</td>
</tr>
<tr>
<td>MSR</td>
<td>#sedáte#</td>
<td>#carawáy#</td>
<td>#operáte#</td>
<td>#genufléc&lt;ı&gt;/#</td>
</tr>
<tr>
<td>ASR</td>
<td>–</td>
<td>#cáraway#</td>
<td>#óperate#</td>
<td>#génufléc&lt;ı&gt;/#</td>
</tr>
<tr>
<td>SR</td>
<td>[səldɛt]</td>
<td>[ˈkærəwei]</td>
<td>[ˈopəreɪt]</td>
<td>[ˈdʒenjuflɛkt]</td>
</tr>
</tbody>
</table>

(27) Summary of Long Vowel Stressing and the Alternating Stress Rule

i. Words with a long-vowelled ult

<table>
<thead>
<tr>
<th></th>
<th>2+ σ</th>
<th>2σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nouns</td>
<td>áncdote</td>
<td>ballón</td>
</tr>
<tr>
<td></td>
<td>LVS + ASR</td>
<td>LVS</td>
</tr>
<tr>
<td>Verbs</td>
<td>décorate</td>
<td>debáte</td>
</tr>
<tr>
<td></td>
<td>LVS + ASR</td>
<td>LVS</td>
</tr>
</tbody>
</table>

ii. Words with a short-vowelled ult

<table>
<thead>
<tr>
<th></th>
<th>2+ σ</th>
<th>2σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nouns</td>
<td>not relevant¹⁰</td>
<td>not relevant</td>
</tr>
<tr>
<td>Verbs</td>
<td>génuflect</td>
<td>éléct</td>
</tr>
<tr>
<td></td>
<td>MSR + ASR</td>
<td>MSR</td>
</tr>
</tbody>
</table>

¹⁰Not relevant because the short-vowelled ult of nouns is extrametrical and cannot get stress.
6.3.1.3 Some complications

6.3.1.3.1 Word-medial /s/ plus consonant clusters (sC)

In some words a medial sC cluster appears to syllabify as an onset (V.sC), in others as a coda+onset sequence (Vs.C). If the vowel preceding the sC cluster is short, then its syllable should count as light under the former syllabification, but as heavy under the latter one (because a closed syllable is heavy even if its vowel is short). Compare the nouns *minister* /ˈmɪnɪsta/ and *asbestos* /ˈæsəbɛstəs/. The correct stress pattern is predicted if they are analysed like this:

(28) Syllabification of sC clusters and stress

<table>
<thead>
<tr>
<th>i. /s/ in onset</th>
<th></th>
<th>ii. /s/ in coda</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.ister</td>
<td>→</td>
<td>míni&lt;ster&gt;</td>
</tr>
<tr>
<td>an.ce.stor</td>
<td>→</td>
<td>ánce&lt;stor&gt;</td>
</tr>
<tr>
<td>or.che.stra</td>
<td>→</td>
<td>órche&lt;stra&gt;</td>
</tr>
<tr>
<td>in.du.stry</td>
<td>→</td>
<td>índu&lt;stry&gt;</td>
</tr>
<tr>
<td>Pro.te.stant</td>
<td>→</td>
<td>Próte&lt;stant&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>as.bes.tos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A.las.ka</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fran.cis.can</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a.spt.dis.tra</td>
</tr>
<tr>
<td></td>
<td></td>
<td>con.tes.tant</td>
</tr>
</tbody>
</table>

This is a problem for syllabification, because the same sequence of segments must be syllabified in two different ways and it is unpredictable which sC words syllabify in which way.

6.3.1.3.2 Some ‘prefixes’ of Latin origin in verbs

(e.g. *o=*, *ex=*, *im=*, *con=*, *re=*, *inter=*, *contra=*, *intro=*, *re=*11, etc.)

These are not proper prefixes12 in the sense that in English they do not have an identifiable meaning and the bases that they precede do not have an identifiable meaning either (e.g. *omit*,

11not the prefix *re-* ‘again’

12This is indicated here by the special boundary symbol “=”, see 8.1.2
explain, confess, intervene, etc.). However, they may interfere with the stress rules (MSR, ASR) discussed. Typically, they fall outside the domain of 1ry stress placement, may not receive 1ry stress (although they receive 2ry stress regularly) and only the base is visible to the stress rules discussed above. E.g. the verb omit should be *ómit according to the MSR (*ómi<t>, compare édi<t>), but it must be analysed as o=mit to get the actual stressing /oˈmit/; the verb intervene should be *intervene according to LVS and ASR (*intervene, compare óperate), but it must be analysed as inter=véne to get the actual stressing /ˌɪntəˈviːn/. The problem is that, as there is no real morphological motivation for analysing these word-initial sequences as prefixes, the analysis is circular: the ‘prefix’ analysis is only motivated by the anomalous stressing it is designed to explain. According to this ‘explanation’ omit has final stress because has a ‘=’ boundary in the middle; and it must have a ‘=’ boundary in the middle because it has final stress!

6.3.1.3.3 Conversion and stress

In English, verbs can be freely derived from nouns by conversion (zero derivation) without any change in pronunciation (including stress). Take, for instance, the nouns platypus (Ornithorhynchus anatinus, ‘kacsacsőrű emlős’) and chihuáhua (‘a Mexican breed of dog ’), both of which follow the noun pattern: pláty<pus> /ˈplætəpəs/ and chihuá<hua> /tʃɪˈwaːwə/. In the pair of sentences below the word for the same animal is a noun in one sentence and a verb in the other – nevertheless the stressing do not change, it remains chihuáhua /tʃɪˈwaːwə/ and platypus /ˈplætəpəs/:

(29) Don’t you chihuáhua, my platypus,!
     Don’t you platypus, my chihuáhua,!
     (‘Don’t call my platypus a chihuahua!’)     (‘Don’t call my chihuahua a platypus!’)

The problem is that in this way there is a great number of verbs that actually follow the noun stress pattern. A possible analysis is to say that conversion applies after the stress rules:13

13Note that it is sometimes not possible to tell when conversion happens and when it does not: deceptively similar pairs of words may be related by conversion in one instance and have different (noun or verb) stress patterns in the other: e.g. có<mment>(Converted) vs. ré<cord> (noun and verb patterns respectively).
6.3.1.4 Primary stress in derived words: suffixes

Phonologically, there are two kinds of suffixes: (i) stress-placing suffixes determine the place of primary stress in the word, they may ‘overwrite’, i.e. not preserve, the stress of the base, (ii) stress-neutral suffixes leave the original stress of the base intact.\textsuperscript{14}

6.3.1.4.1 Stress-neutral suffixes\textsuperscript{15}

The following are some common stress-neutral suffixes: -able, -ly, -ing, -ed, -es, -er, -ist, -ism, -ful, -less, -ness, -hood, -ish\textsubscript{adj}, -ment, -wise.

Stress-neutral suffixes are outside the domain of metrification (see 6.2.1), i.e. neutral suffixes are disregarded when primary stress placement is determined and the rest of the word is metrified without the suffix:

(31) $\texttt{#electr+ic+ity#wise#}$ → $\texttt{#electr<ti>y#wise#}$ (by MSR: N-pattern)

\textsuperscript{14}See BEP 12.15-33 for examples.

\textsuperscript{15}These suffixes are also called ‘strong-boundary’, ‘#-boundary’, ‘Level 2’
6.3.1.4.2 Stress-placing suffixes

Words (only) containing stress-placing suffixes are metrified in the same way as underived words, i.e. (i) the reason why stress-placing suffixes influence the placement of stress is that they are metrified together with the base they are added to and (ii) (ideally) the way a particular stress/placing suffix influences the placement of primary stress derives (a) from the phonological shape of the suffix and (b) its morphological properties (i.e. whether it derives nouns, verbs, etc.).

For example the suffix -ity places the stress on the syllable preceding the suffix because it derives a noun, so its final syllable will be extrametrical according to (19) and its initial syllable is light, -ity is -Lσ, so it has to be the rightmost syllable of a bisyllabic left headed foot according to the MSR: (σL)<σ>. Therefore, the syllable preceding it will be stressed:

(32)  electr+ic+ity → electríci<ty> (by MSR: N-pattern)

6.3.1.4.3 Types of stress-placing suffixes

A. Pre-stressed

1ry stress falls on the syllable preceding the suffix. There are two subclasses according to suffix shape:

---

16These suffixes are also called ‘restressing’, ‘non-neutral’, ‘weak-boundary’, ‘+boundary’, ‘level 1’, ‘stress-fixing’

17Some of these ‘suffixes’ are ‘endings’ rather than suffixes proper, i.e. (i.e. they do not have any meaning).
SHAPE

(i) +Lσ -uble, -ity, -ety, -erie, -ion\(^{18}\), -ular, -logy, -meter, -graphy, -poly, -tomy, -pathy, -thesis, -gamy

These suffixes consist of a light syllable followed by another syllable. They follow the noun pattern and stress placement follows from their shape: abilit\(\text{-}ty\), confórm\(\text{-}ty\).

(ii) +H -ic, -id, -ish\(_v\)

These suffixes consist of a single heavy syllable. They follow the verb pattern and stress placement follows from their shape: anatóm\(\text{-}c\), militaríst\(\text{-}c\).

B. Pre-stressed 1/2

1st stress falls on the syllable preceding the suffix if it is H, but on the second syllable preceding the suffix if the syllable preceding the suffix is L. There are two subclasses according to suffix shape:

**Suffix shape**

(i) +\(\sigma\) -age, -al, -ous, -ive, -ure, -ant, -ance, -ent, -ence

These suffixes consist of a single vowel-initial syllable. They follow the noun pattern and stress placement follows from their shape: medici\(\text{-}nal\), parén\(\text{-}tal\).

(ii) +\(\sigma\sigma\) -ative, -ature, -ible, -ary, -ory

1st stress placement does not follow from the shape of these suffixes.

C. Pre-stressed 2

1st stress falls on the 2nd syllable preceding the suffix

**Suffix shape**

\(+\text{(C)}\text{V:}(\text{C})\) -ate\(_v\), -ize, -ite, -ene, -ine, -cide, -oir, -ose, -tude, -(i)fy

\(^{18}\) Note that -ion counts as two syllables for stress purposes, e.g. definit\(\text{-}ti\text{<on}>\)
As all these suffixes consist of a single, long-vowelled syllable, they regularly get 1ry stress by Long Vowel Stressing and the Alternating Stress Rule. (Of course, if there is only one syllable before the suffix, only LVS can apply and the suffix gets the stress). Thus, stress placement follows from their shape: *rádiate, sedáte*

### D. Auto-stressed

1ry stress falls on the suffix itself. Auto-stressed verbal endings that consist of a superheavy syllable are not special in bisyllabic words – they simply follow the basic verb pattern: *-ain, maintáin*. Otherwise, auto-stressed suffixes are exceptional and 1ry stress placement does not follow from their shape. There are three subclasses according to shape:

<table>
<thead>
<tr>
<th>Suffix shape</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) +(C)V:(C)</td>
<td>-ade, -ese, -ique /iːk/, -ee /iː/, e.g. lemonáde</td>
</tr>
<tr>
<td>(ii) +VCC</td>
<td>-esque /esk/; e.g. picturésque</td>
</tr>
<tr>
<td>(iii) +VC</td>
<td>-elle, -enne, -esse, -esce, -ette; e.g. novelétte</td>
</tr>
</tbody>
</table>

#### 6.3.1.5 Primary stress patterns unaccounted for by the analysis

There are some primary stress patterns in English which are not predicted by this analysis. We consider them irregular here, e.g. *cémént/*sə'ment/*, *vanílla/*va'nıľa/*, *tendency/*'tendənsi/*, *céremony/*'sɛrəmənɪ/*, *haráss/*/hɔ'ræs/*, *rábbi/*'ræbi/*, *kàngaróo/*'kæŋgə'ruː/*, *ellípsoid/*'ɛlɪpsɔɪd/*.

#### 6.3.1.6 Summary of primary stress patterns

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19 There are analyses which postulate additional rules to account for (some of) these patterns.

20 *Harass* has a regularly stressed pronunciation in traditional RP: /hæ'ræs/. According to Wells (2008), while there is a 68% to 32% preference for /hæ'ræs/ in RP, there is a 60% to 40% preference for /hɔ'ræs/ among ‘younger’ people.
1ry stress is

(i) calculated right-to-left from a strong (#) boundary,
(ii) weight-sensitive,
(iii) not stress preserving (1ry stress placement can change the 1ry stress of the base in words derived by + boundary suffixes) and
(iv) partially unpredictable (there are exceptional patterns).

6.3.2 Determining the place of stresses preceding the primary stress

If we distinguish between 2ry stress and 3ry stress, both of these stresses can precede 1ry stress, e.g. *condensation* /ˈkɒndɛnˌʃən/ (where the . 3ry stress is underlined). In this subsection we examine the predictability of these stresses.

6.3.2.1 Determining the place of 2ry stress within the word

The place of 2ry stress is predictable and is due to the interaction of constraints, i.e. restrictions on the occurrence of 2ry stress, some of which are violable. These constraints are not equally important, they are ranked, i.e. some are more important to obey than others. These constraints are:

(33) **No Stress Clash**

* #...MM...#

There should be no adjacent major stresses (2ry and 1ry)

(=*#...21...#; *#...22...#)

This constraint does not hold in bisyllabic words with a final major (i.e. 1ry) stress, e.g. *sårdîne, princéss, fôurtéen*, etc. see Section 6.2.2.1. So #MM# is permitted.²¹

(34) **Early Stress**

*#mm...*

²¹We will not analyse #MM# words here.
There must be a major stress on one of the two syllables at the beginning of a word

(= *#00; *#30; *#03)

This constraint seems to be inviolable, i.e. there are no exceptions.

(35) **STRESS PRESERVATION** A derived word has to preserve the placement of the major stress(es) of its base.

We have seen that 1ry stress (i.e. the rightmost major stress) is not stress-preserving, compare átom and atómic. In 2ry stress placement, however, there is a tendency to preserve the major stresses of the base if possible. The reason why there is a difference between the placement of 2ry stress in characteristic and originality is that their bases (character and original\(^{22}\)) have their 1ry stresses on different syllables, and the derived words both preserve the place of the 1ry stress of their bases. However, stress preservation is not always possible. STRESS PRESERVATION is a violable constraint: it applies as long as NO STRESS CLASH and EARLY STRESS are not violated. It is not possible to preserve the major stress of Japán in the derived form Japánese, because the hypothetical form that would preserve it (*Japànese) would violate NO STRESS CLASH. It is more important to obey NO STRESS CLASH and EARLY STRESS than STRESS PRESERVATION. This can be expressed as the ranking of these constraints:

(36)  **NO STRESS CLASH, EARLY STRESS >> STRESS PRESERVATION**

What happens in *underived* words in which 1ry stress falls later than the third syllable from the beginning of the word? In these words EARLY STRESS and NO STRESS CLASH permit 2ry stress placement either on the first or the second syllable of the word, but STRESS PRESERVATION cannot decide between these two candidates\(^{23}\) since there is no base whose major stress should be preserved. In this case the place of 2ry stress is unpredictable (and therefore lexical): compare Winnipesáukee /ˈwɪnəpəˈsaːki/ and Monòngahélá /mənəŋəˈhalə/.

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\(^{22}\) Notice that it is the *immediate* base that counts: the base of originality is original not origin.

\(^{23}\) unlike in the case of derived words
6.3.2.1.1 Summary of secondary stress patterns

2ry stress is

(i) calculated from the location of 1ry stress,
(ii) weight insensitive,
(iii) iterative (there may be more than one 2ry stress in a word),
(iv) stress preserving (if possible) and
(v) partially unpredictable in underived words (when 1ry stress is later than the third syllable from the beginning of the word).

6.3.2.2 The location 3ry stress before the 1ry stress

A 3ry stressed syllable is a syllable with a full vowel not bearing 2ry or 1ry (i.e. major) stress. In other words, it is a non-major-stressed syllable in which Vowel Reduction has not applied. So the question is if we can predict when Vowel Reduction applies to a syllable without major stress. The answer is mostly negative. There are some tendencies, but 3ry stress is mainly lexical.

Immediately preceding the 1ry stress, 3ry stress can occur (i) word-initially, e.g. tornént /το'ment/ and (ii) word-mediallycondensátion /ˌkondən'seʃən/. In both positions there are some tendencies that predict the presence/absence of reduction, but they are not categorical.

*In word-initial closed syllables* immediately preceding the 1ry stress Vowel Reduction may be suspended (there is free variation between 3ry and zero stress), but in open syllables in the same position there is a strong tendency for it to apply. We call this the closed-syllable tendency for 3ry stress.

(37) i. initial open syllable

\[
\begin{align*}
A.mé\text{é}r\text{í}ca & \quad *æˈmɛrɪkə \quad əˈmɛrɪkə \\
a.tró\text{ç}i\text{u}ss & \quad *æˈtróʃəs \quad əˈtróʃəs \\
lamént & \quad *læˈment \quad ləˈment
\end{align*}
\]

ii. initial closed syllable

\[
\begin{align*}
\text{Mon.ána} & \quad mən'tænə \\
\text{Oc.tóber} & \quad əkˈtəubə
\end{align*}
\]

\[
\begin{align*}
\text{shmément} & \quad \text{segˈment} \\
\end{align*}
\]
However, the closed syllable tendency is only a tendency because we can find words with initial unreduced vowels in an open syllable e.g. *va.că.țion /vet'kejfn, vet'kejfn/24, and with compulsory vowel reduction in an initial closed syllable e.g. con.tră.st/*kon'træ:st, kôn'træ:st/.

Word-medial 3ry stress can be seen as the result of stress preservation, where the unreduced vowel immediately preceding the 1ry stress preserves the vowel quality of the base word in which the same syllable is major stressed, compare cōndēnsātion /kənden'seɪfn/ (because of condēnse /kən'dens/) and cōmpēnsātion /kəmpən'seɪfn/ (from cōmpensate; no related word has stress on -pen-). However, stress preservation here is also only a tendency since there are words which do not preserve the vowel quality of the major stress of their bases in this way. Compare the words in (a), which do, with the similar words in (b), which do not.

(38)  a. stress preservation: 3ry stress in the derived word
   augment  ox'ment  → augmentātion  ,əgmen'teɪfn
   impōrt  im'pɔ:rt  → importātion  ,ɪmpɔː'teɪfn
   condēm̩  kən'dem  → condemnātion  ,kəndem'nɛtʃn

   b. no stress preservation: zero stress in the derived word
   consūlt  kən'salt  → consultātion  ,konsɔlt'ɛtʃn
   infōrm  in'fɔ:m  → informātion  ,ɪnfɔrmeɪfn
   consérve  kən'sərv  → conservātion  ,konsə'verʃn

We have to conclude that 3ry stress is mainly lexical when it precedes 1ry stress.

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24 According to Wells (2008), there is a 91% to 8% preference for /vet'kejfn/ in AmE and there is a 61% to 39% preference for it even in BrE.
6.3.3 3ry stress after the primary stress

3ry stress is also unpredictable (lexical) when it is after the 1ry stress. We can find syllables with unreduced vowels (a) in a non-final syllable immediately following the 1ry stress (39i), (b) in a final syllable immediately following the 1ry stress (39ii) and (c) in a final syllable not immediately following the 1ry stress (39iii):

(39)

i. 1 3 0 órgasm ˈɔːɡæzm,  sárcasm ˈsɑːkæzm
ii. 1 3  róbót ˈrɔbɒt,  fórmat ˈfɔːmæt,  ellípsoid ˈɛlɪpsɔɪd
iii. 1 0 3 séparate, ˈsɛpərət,  cárvan ˈkærəvən,  rėcōgnize ˈrekəɡnaɪz

However, we can find syllables with reduced vowels in the same positions:

(40)

i. 1 0 0 vaniˈti,  elítism ˈelɪtɪzm,
ii. 1 0  clímate ˈklaɪmat,  ábbot ˈæbɒt
iii. 1 0  séparate,əd ˈsɛpərət,  Áŋlīcan ˈæŋglɪkən

Therefore, we conclude that 3ry stress following the 1ry stress is (also) essentially lexical.

25Rarely, (39i) and (39iii) can combine with the result of having two 3ry stresses after the 1ry stress, e.g. démarcate /ˈdiːmærkət/
6.4. Checklist

★ suprasegmental feature
★ metrification
★ weight sensitivity
★ weight-insensitive
★ extrametricality
★ degrees of English stress
★ pitch change
★ loudness
★ 1ry stress
★ 2ry stress
★ major stresses
★ 3ry stress
★ zero stress
★ minor stresses
★ reduced vowel
★ full vowel
★ Vowel Reduction
★ Rhythm Rule
★ Rhythmic Stress Deletion/Shift
★ Iambic Reversal
★ ‘no-pattern view’
★ ‘pattern-with-exceptions view,’
★ 1ry stress: the noun pattern
★ 1ry stress: the verb pattern
★ Noun pattern extrametricality
★ Verb pattern extrametricality
★ Main Stress Rule (MSR)
★ Long Vowel Stressing (LVS)
★ Alternating Stress Rule (ASR)
★ /s/ plus consonant clusters
★ ‘prefixes’ of Latin origin
★ conversion
★ stress-placing suffixes
★ stress-neutral suffixes
★ types of stress-placing suffixes
★ Pre-stressed 1 suffix
★ Pre-stressed 1/2 suffix
★ Pre-stressed 2 suffix
★ Auto-stressed suffix
★ NO STRESS CLASH
★ EARLY STRESS
★ STRESS PRESERVATION
★ ranking of constraints
★ closed-syllable tendency