

# On Syllable-Timed Rhythm and Stress-Timed Rhythm in World Englishes : Revisited

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## Abstract

This paper draws attention to the tendency for stress-timed rhythm to be replaced by syllable-timed rhythm in a large number of new varieties of English. After a brief introduction to these different types of rhythm, we investigate a number of varieties of English that have shifted in this respect: Standard Nigerian English, New Zealand English, South African Black English, Hong Kong English and other varieties. The main reason for the changes in these varieties seems to be the influence of neighbouring or coexisting languages, while the change is started or catalysed, we suspect, by the general unmarked status of syllable rhythm as compared to stress rhythm, as borne out by language acquisition. Our study shows that (i) prosodic features are susceptible to borrowing just like lexical items, segmental phonology, morphosyntactic constructions or semantic distinctions and (ii) it is possible and desirable to make distinctions with respect to markedness in the realm of prosody

**Key words :** Syllable-Timed Rhythm  
Stress-Timed Rhythm  
World Englishes

## 1 . Introduction

Traditionally, a division has often been made between stress-timed rhythm and syllable-timed rhythm (Abercrombie 1967). Although this distinction is by no means uncontroversial (see e.g. Vihman, Nakai and DePaolis 2006), it is often used to make a prosodic division between languages, which are then said to be (predominantly) syllable-timed, or (predominantly) stress-timed. In this paper we will first introduce and illustrate this distinction, and show that a number of other phonological properties, e.g. relating to syllable structure, vowel neutralization, and so forth, are related to the stress-syllable rhythm distinction (section 2). Then, in section 3, we observe that a number of new varieties of English (“New Englishes” or “World Englishes”) have shifted the traditional stress-timed rhythm to syllable rhythm. We will investigate World Englishes such as Indian English, Singapore English, Standard Nigerian English and compare them to “Standard” Englishes such as British English and American English. We will see that World Englishes gradually seem to acquire a syllable-timed rhythm all around the world. Often this can be related to the influence of neighbouring languages.

In this context, it is useful to make a distinction between “core features”, which all varieties of English seem to have in common, such as the maintenance of a contrast between long and short vowels, and characteristics

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that diverge among these varieties (“non-core features”), to use the terminology introduced by Jenkins (2003). Syllable-timed vs. stress-timed rhythm seems to belong to the latter group of features.

Related to this, Kachru (1988) has suggested that we think of the spread of English around the world as involving three concentric circles, representing different ways in which the language has been acquired and is currently being used (viz. (i) the inner circle, with varieties such as those spoken in Great Britain and the United States (ii) an outer or extended circle, with varieties like those spoken in India, Pakistan and the Philippines, and (iii) an expanding or extending circle, where countries like China, Indonesia and Japan belong) (see also Crystal 2006). In such a conception, the property of “syllable-rhythm” seems to be entering the conglomerate of English varieties from the outer circles inward.

In section 4 we will discuss the distinction between syllable-timing and stress-timing from a general perspective and take note of some recent psycholinguistics experiments, which, together, lead us to suggest that syllable-timing might be unmarked compared to stress-timing. This expresses the apparent tendency of languages to shift toward syllable timing, and not the other way around.

## 2. Rhythm

First of all, let us focus on the nature of rhythm. One of the important distinctions in phonetics is that between stress-timed and syllable-timed languages (Roach 1982). The distinction is originally due, as far as we have been able to ascertain, to Pike (1945). Abercrombie (1967) gives examples of languages which have either one or the other kind of rhythm (see further examples below):

- (1) “as far as is known, every language in the world is spoken with one kind of rhythm or with the other ... French, Telugu and Yoruba ... are syllable-timed languages, ... English, Russian and Arabic ... are stress-timed languages.” (Abercrombie (1967: 97))

A rather typical example of a syllable-timed language would be French or Japanese. Each syllable in an utterance bears an approximately equal rhythmic beat, and the amount of time taken for producing the utterance is proportional to the number of syllables. In stress-timed languages like German, Russian or Arabic, stressed syllables in the utterance occur at approximately the same intervals and the time taken for the utterance is proportional to the number of stressed syllables. We can illustrate this by way of the contrast in (2):

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|--|---|
| <p>(2) Japanese</p> <p>Nani o shite imasu ka (9)</p> <p>o o o o o o o o o</p> <p>‘What are you doing?’</p> | <p>English</p> <p>Whát are you dóing? (5/2)</p> <p>O o o O o</p> <p style="text-align: right;">(Togo 1999: 145)</p> |
|--|---|

In figure (2), the circles below each sentence indicate the relative stress placed on each syllable and the numbers in parentheses indicate the total number of syllables and the number of stressed syllables. Thus, in Japanese the stresses are relatively equal and every syllable takes up approximately the same amount of time (on the role of the mora in Japanese timing, see Hoequist 1983). In English, on the other hand, there are two groups of syllables, both involving one stresses syllable, and these groups of syllables are approximately equally long. If the number of syllables is larger, in the case of Japanese the utterance will take more time to complete.

In the case of English, the amount of time used for uttering a larger number of syllables tends to remain the same, if the number of stressed syllables remains the same.

According to Schluter (2005), the distinction between different rhythmic types is based on the fact that all human speech is divided into temporal intervals that have a tendency to be of equal length, i.e. to be isochronous. Precisely what has to be considered as an isochronous interval varies from language to language (cf. also Fox 2000 for discussion).

Thus, English is generally considered as a fairly prototypical member of the stress-timed class of languages. Dauer (1983: 56) gives a number of examples of stress-timed and syllable-timed languages:

(3) a. Stress-timed languages:

English and other Germanic languages, Russian, Arabic, Thai, Brazilian Portuguese, Newari, Chepang, Gurung, Tamang

b. Syllable-timed languages:

French, Spanish, Yoruba, Telugu, Hindi, Tamil, Indonesian, Japanese, Italian

The list in (3) includes only languages for which there is some documented claim concerning rhythm type. Some languages appear hard to classify: Avery and Ehrlich (1992), for instance, suggest that Cantonese and Mandarin differ in rhythm type: Cantonese is said to be a syllable-timed language while Mandarin is said to be a stress-timed language. We will not go into this here.

The timing differences noted above usually coincide with other phonetic properties. That is, syllable rhythm is often facilitated by a number of other properties which make it easier for syllables to have approximately equal duration. Thus, Puppel (1986) argues that an adequate characterization of rhythm must be related to three other major structural areas: syllable structure, vowel reduction and stress. As to syllable structure, the following factors bear on the different perception of rhythm:

(4) a. variation in syllable length is determined by the occurrence of long vs. short syllable nuclei (e.g., in English)

b. variation in closed vs. open syllables often contributes to the perceptual impression of greater or lesser regularity of syllable occurrence (e.g., frequent repetitions of structurally similar open syllables in Spanish and French)

c. strong tendency for 'heavy' syllables to be stressed and 'light' syllables to be unstressed (e.g. in English) (Puppel 1986: 108)

Firstly, as to vowel reduction, unstressed vowel centralization is employed in stress-timed languages (e.g., in English and Swedish) to maximize the difference between stressed and unstressed syllables. On the other hand, syllable-timed languages do not regularly employ vowel reduction in the unstressed position (e.g., in Polish and Spanish), though unstressed syllables tend to have shorter durations in these languages. Thus, stress-timed languages also often have vowel centralization (or neutralization), while syllable-timed languages do not.

Secondly, in most stress-timed languages lexical (i.e., word level) stress is applied through a complex set of

changes in pitch, loudness, length and quality of vowels. These changes make stressed syllables more prominent than the unstressed ones. Moreover, in stress-timed languages stress is usually lexically free, whereas the majority of syllable-timed languages resort to lexically fixed stress. In addition to the above, main stress affects syllable duration to a greater or lesser degree (e.g., relatively strongly in English and relatively weakly in Spanish (cf. Delattre 1966)).

Dauer (1983) points out that, with respect to syllable structure, stress-timed languages tend to have complex consonant cluster, whereas syllable-timed languages tend to have prohibitions against consonant clusters. This contributes to the equal perception of syllables in syllable-timed languages.

Thus, a number of phonetic properties are correlated with general stress-timed rhythm. The following overview is from Whitely (2010):

(5)	syllable-timed languages	stress-timed languages
1) unstressed vowelless syllable(=syllabic C):	no	yes
2) shortening, reduction, contraction/loss of $\sigma$ :	no	yes
3) final CC:	no	yes
4) secondary stress:	no	yes

According to this overview, it is natural for languages classified as having syllable-timed rhythm also to have simpler syllable structure than languages classified as having stress-timed rhythm. We can also turn this argument around, and conclude that languages with simpler syllable structure tend to have syllable-timed rhythm. This will turn out to be an additional argument for establishing the rhythm type of particular languages.

### 3. Varieties of English

In this section we will discuss syllable-timed rhythm in World Englishes in detail. Mesthrie and Bhatt (2008) note that a number of New English varieties exhibit tendencies toward syllable timing, as shown in (6):

- (6) a. Syllable-timing: Indian South African English, Black South African English, East African English, Nigerian English, Ghanaian English, Indian English, Pakistani English, Singapore English, Malaysian English, Philippine English

- b. Stress-timing: UK English, American English, Canadian English, Australian English, New Zealand English

It should be noted (following Gunnel and Shaw 2003), that in (6), most “traditional” accents of English (i.e. in which it has been acquired as a first language for a relatively longer period of time, such as in Britain or America) are generally stress-timed, whereas Asian and African varieties are observed to be syllable-timed. This coincides exactly with the “Inner Circle” of varieties of English identified by Kachru (1988) above.

Thus, a number of varieties of English have a different rhythm than the kind of English they have been derived from, in a contact situation. Let us investigate a number of language varieties, to see how the shift from stress rhythm to syllable rhythm may have come about. The following subsections deal with (i) Standard Nigerian English, (ii) New Zealand English, (iii) South African English (iv) Hong Kong English and (v) other varieties of Asian and African Englishes. In all cases we attempt to establish the source for the change in rhythm type.

### 3.1 Standard Nigerian English

This section deals with the rhythm type of Standard Nigerian English. Barber et al. (2009) suggest that in Nigerian English syllable-timing instead of stress-timing has become the norm, usually accompanied by a tendency to mark syllable-accent by pitch rather than stress (see also Kachru 1992 and Gut 2008). Crystal (2003) comments:

- (7) “Most Nigerian languages are “syllable-timed” languages ... However close a Nigerian speaker approximates to consonant and vowel qualities, if he uses “syllable-timing” when speaking English he may well be faced with total incomprehension on the part of any listener who is a native speaker of English.” (Crystal 2003: 169; from Dunstan 1969)

Note that Crystal explicitly identifies the source of syllable-timing in Nigerian English: this is a feature that has been borrowed from other languages spoken in Nigeria. Such languages include Hausa, Igbo and Yoruba: all of which are tone languages with relatively simple syllable structure. They are classified as syllable-timed rather than stress-timed languages, see e.g. Abercrombie (see (1) above) for Yoruba and Onukawa (1998) for Igbo. We tentatively conclude that this type of rhythm has been borrowed from neighbouring varieties, which are often spoken next to standard Nigerian English in a situation of bi- or multilingualism.

### 3.2 New Zealand English

Second, New Zealand English is noticeably less stress-timed than British English in spite of the fact that New Zealand English falls in Kachru's category of 'inner circle' Englishes (Kachru 1992; see above). One obvious way in which NZE is less stress-timed than other varieties of English is the way it uses more full vowels in unstressed syllables - an indication of (relatively) syllable-timed rhythm, as we argued above. At the most obvious level, the days of the week are normally pronounced with a full “day” in the second syllable [mʌndei] etc. rather than Monday [mʌndi] as in English English. Furthermore, Hay et al. (2008) also point out that unstressed grammatical words are sometimes pronounced with full vowels rather than reduce ones, so that words such as, “of”, “have” or “her” for example, can have a relatively full vowel quality rather than an unstressed schwa. These facts are listed below:

- (8) a. Monday [ mʌnd-i ] → [ mʌnd-ei ]  
 b. of [ əv, v ] → [ ɔv ] (stressed)  
 c. have [ həv, əv ] → [ hæv ] (stressed)  
 d. her [ ə: (r) ] → [ hæ: (r) ] (stressed)  
 e. Hurricanes [ hʌrikənz ] → [ hʌrikeinz ] (last syllable is stressed)

Bauer et al. (2007) suggest that, since full vowels are more likely to occur in unstressed syllables in NZE than in other varieties, which has been claimed to give NZE a more “syllable-timed” rhythm than other varieties. For example, Bauer (1994) indicates that the unstressed vowel in the happY lexical set is perceived as belonging to the same phonemes as the stressed vowel in the FLEECE lexical set.

Hay et al. (2008) propose that the Maori language (the native language of New Zealand) is syllable-timed and its rhythm may be extending to the rhythm of NZE. These authors note that speakers of Maori English use even more syllable timing than other speakers of New Zealand English (cf. Bauer 1995 and Maclagen 2010).

Maori has clear syllable-timed language characteristics: it has a five-vowel system and open syllable structure, similar for instance to Spanish, which is clearly a syllable-timed rhythm. Furthermore, Maori also has high vowel devoicing, just like Japanese which is also regarded as a syllable-timed language (cf. above). Thus, we can safely conclude that Maori has syllable-timed rhythm languages, and we propose that the increasing syllable-timedness of NZE is due to borrowing of this feature.

### 3.3 South African Black English

South African Black English is identified as a syllable-timed language especially for Black speakers (Lanham 1984, 1990). Crystal (2006) observes that South African English displays large numbers of words borrowed from Afrikaans, Zulu and other local languages. English is a stress-timed language, whereas Zulu is a syllable-timed language. The rhythm in South African English may thus be based on syllable-timed rhythm from Zulu.

### 3.4 Hong Kong English

Setter et al. (2010) suggest that Cantonese, the first language (L1) of speakers of Hong Kong English, is described as 'an example of a language with syllable-timed rhythm' (cf. above), in which, unlike English, each syllable receives similar emphasis.

Therefore, Setter et al. (2010) point out that Hong Kong English may be perceived as syllable-timed due to the maintenance of full vowels in non-prominent syllables in combination with the less marked differences in duration between stressed and unstressed syllables in comparison with varieties such as British English.

### 3.5 Asian and African Englishes as Syllable-timed languages

Mahboob and Huma Ahmar (2008) indicate that most South Asian languages, including Urdu, are syllable-timed and suggest that this pattern is adopted by Urdu speakers of English.

The same observation has been made for Hawai'i Creole English, Indian English, Pakistan English, and Malaysian English and others, as detailed in the short quotes below:

- (9) a. "The combination of full vowels rather than schwa and secondary stress in non-primary stressed syllables means that syllables in Hawai'i Creole tend to have more equal prominence in terms of loudness and duration than syllables in English... Therefore, Hawai'i Creole is usually classified as a syllable-timed language, rather than a stress-timed language such as English". (Sakoda and Siegel 2008: 229)
- b. "Indian English has its own syllable-timed rhythmic patterns. Here syllables are uttered with an almost equal prominence. This also means that often IndE does not use weak forms of vowels in unstressed positions". (Gargesh 2008: 241)
- c. "South Asian English, including Pakistani English, is described as a syllable-timed variety. Syllables in Pakistani English occur at regular intervals. This is different from RP which is stress-timed with variation in the length of syllables... The syllable-timed rhythm of Pakistani English goes hand-in-hand with a lack of reduction". (Mahboob and Huma Ahmar 2008: 256)
- d. "Rhythm in Malaysian English is more often one of a syllable-timed nature—where all syllables (stressed as well as unstressed) recur at equal intervals of time.... Even educated MalE speakers use a syllable-

timed rhythm in casual style". (Baskaran 2008: 288)

This concludes our survey - as we have seen, in many varieties of English the shift has been from stress-timed to syllable-timed rhythm, almost always demonstrably as a result of contact with syllable-timed languages. Let us discuss the consequences of these changes in the next section.

#### 4. Discussion and Conclusion

What have seen that there is a tendency in World Englishes to adopt syllable-timed rhythm. In almost all cases described above (Nigerian English, New Zealand English and varieties spoken in the Far East), this shift toward syllable-timed rhythm could be straightforwardly related to the influence of neighbouring languages. It is interesting that a prosodic feature can be borrowed from neighbouring languages. What is even more interesting, however, is that borrowing always seems to go into the direction of syllable-timed rhythm. We did not find a *single* instance of a language adopting stress-timed rhythm after having had syllable-timed rhythm first. Also there is not a single report of English stress-timed rhythm supplanting syllable-timed rhythm in a neighbouring variety. This suggests that borrowing into the syllable rhythm direction may be the unmarked case, or put differently, that syllable-timed rhythm is in itself unmarked, and therefore simpler to acquire, than stress-timed rhythm. This is an interesting observation, because phonological theory has not had in general much to say about differences in markedness for prosodic distinction. For instance, for stress, both iambic and trochaic systems are accepted on a par, without any difference between them in terms of markedness. Hence, we tentatively suggest to extend markedness theory to prosodic distinctions, in this case focused on rhythm. The general tendency noted above argues in favour of considering syllable-timed rhythm as unmarked.

There is recent psycholinguistics evidence to support this idea: Mazuka (2010) argues that the syllable units might be the articulatory units which infants perceive innately. It turns out that infants are able to count the number of syllables, in spite of the fact that they cannot distinguish between iambs and trochees, and the number of moras within syllables. It make sense that children acquire the notion of grouping, required for stress-based rhythm, later, in languages which make use of grouping and thus of stress-based rhythm.

We tentatively conclude that syllable-timed rhythm might be "unmarked" compared to stress-timed rhythm. This can also perhaps be related to the fact that languages with syllable rhythm show less variation than languages with stress rhythm (cf. Vihman, Nakai and DePaolis 2006: 360). This brings the concept of rhythm in line with other oppositions in phonology, where often a relatively "marked" (rarer, more difficult to acquire) and a relatively "unmarked" member of an opposition can be identified. For instance, short vowels are unmarked compared to long vowels, open syllables are unmarked vis-à-vis closed syllables. Whether these distinctions can be rooted in phonetics is a question that does not concern us here. What does matter is that on the syllable-stress timing continuum, the unmarked end seems to be at the syllable end of the scale.

**Notes :** This paper is a revised version of my presentation at International Conference on Phonology and Phonetics held in Shanghai International Studies University (May 28<sup>th</sup> 2010).



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