

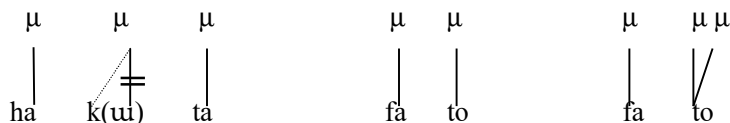
We need to find a way to characterize the syllable structure of words like *you*, *eat*, *fierce*, and *fiend*, as well as to account for the length difference (for those speakers who have one) between *ant* and *aunt* or *merry* and *Mary* (in my speech). We also need to deal with the question of how to represent the diphthongs of English.

Many phonologists believe that heavy syllables have branching rhymes. In English, all stressed monosyllables are heavy—if the nucleus is a ‘lax’ vowel, there must be a coda—so all English monosyllabic words that can receive stress must have branching rhymes.<sup>1</sup>

We also need to account for rhythmic matters in other languages, such as Japanese. A name like *Hakuta*, pronounced normally, sounds to English speakers like [ˈhakʰta]. But if you say that to a Japanese speaker, it sounds wrong: it’s too short, or has too few syllables or something. The /u/, getting devoiced, seems to be deleted entirely, but it leaves a ‘trace’ behind in the timing of the word.

The unit we use to describe these phenomena is the mora. Morae are arbitrary, abstract units of length, whose actual milliseconds vary from context to context and speaker to speaker. Morae appear only in rhymes; there appears to be nothing to be gained from considering onsets to have any length at all.<sup>2</sup> Thus English *mate* and *made* both have 3 morae, although the latter takes longer to say because of the voiced stop. Morae can also apply to consonants: Italian *fato* ‘fate’ differs from *fatto* ‘done’ in the number of morae assigned to the stop.

This can be represented as follows:



In *Hakuta*, the [u ] of the second syllable gets devoiced, since it is a high vowel between voiceless consonants, and virtually disappears, leaving behind only its timing unit, which shifts to the [k]. The long vowel, and the long [t] of *fatto*, get two morae each.

Sometimes it is useful to analyze words and syllables in terms of the morae that make them up, instead of or in addition to onsets, nuclei, and codas. Here’s how I think my own English vowel system works:

Vowel	as in	Morae	Possible UR	Diphthong	as in	Morae	Possible UR
[iː]	<i>beat</i>	2	biit				
[i]	<i>Billy</i>	1	bili	[ju]	<i>beauty</i>	2	bjuti
[ɪ]	<i>Bit</i>	1	bit	[ai]	<i>bite</i>	2	bait
[eɪ]	<i>bate</i>	2	beet	[au]	<i>about</i>	2	əbaut
[ɛ]	<i>merry</i>	1	mɛri	[oi]	<i>boil</i>	2	bɔjl
[ɛː]	<i>Mary</i>	2	mɛɛri (or meeri)				
[æ]	<i>bat</i>	1	bat				
[ʌ]	<i>but</i>	1	bʌt				
[uː]	<i>boot</i>	2	buut				
[u]	<i>boudoir</i>	1	budwaar				
[oː]	<i>boat</i>	2	boot				
[o]	<i>veto</i>	1	viito				
[ɔː]	<i>bought</i>	2	bɔɔt				
[ɒ]	<i>cot</i>	1	kɔt				
[ɑː]	<i>father</i>	2	faaðə <sup>3</sup>				

<sup>1</sup> This excludes articles /ðə/, /ə(n)/ which, if stressed, tend to get the spelling pronunciations /ði/, /ei/, /æn/. In most varieties of English, *the* is pronounced /ði/ before words beginning with vowels, but this seems to be changing in favor of /ðə/ among younger speakers.

<sup>2</sup> Though it may explain some interlanguage matters: *strike* in English seems to be 2 morae, but borrowed into Japanese it seems to be 5: [s-t-ra-i-ku].

<sup>3</sup> Now my secret is out: [æ] is a short vowel, and [ɑ] is its long counterpart (or two of it). That’s why, when I learned to substitute [æ] for [ɑ] in words like *bath*, *half*, etc., I shortened the vowel too, and to make it long enough for me to ‘pass’, I have to make a conscious effort to lengthen it, even after spending 63 years in America. I still make *rather* rhyme with *father*.