The syllable and sonority: exercise

The SYLLABLE is the central unit in the sound system of English. More choices are involved in producing a syllable than in producing any other unit, viz. tone group, foot, or phoneme.

The syllable is also a natural phenomenon. Its production is a physiological event, and its reception a psycho-acoustic one.

Those last two paragraphs were about the syllable at the stratum of phonology within language, and the syllable at the stratum of material reality, outside language.

In between these two strata lies phonetics.

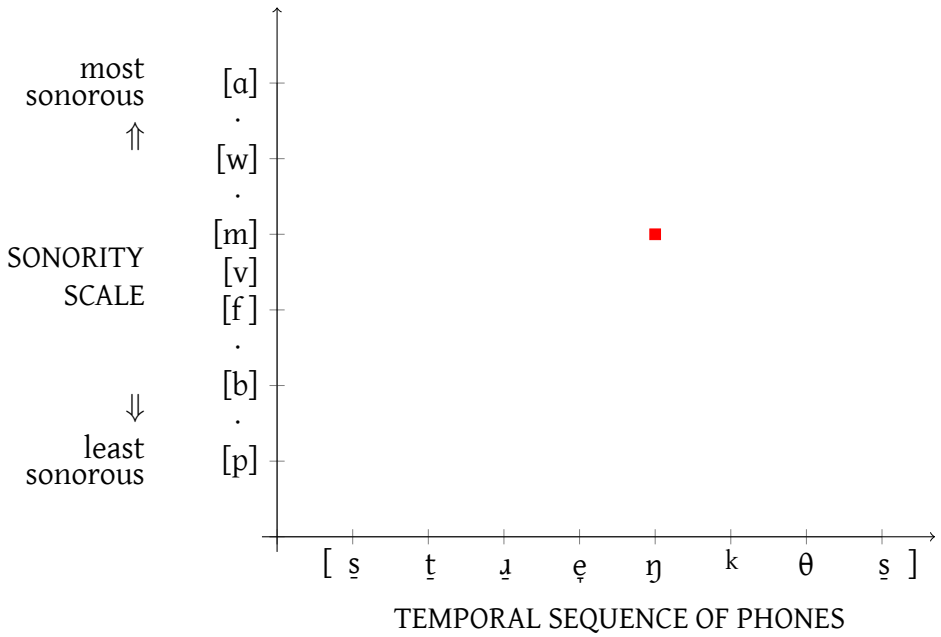
When we are listening to continuous speech, one of the main phonetic ways we identify where each syllable begins and ends is by perceiving the SONORITY of individual sounds (phones) while we are hearing them in sequence.

As you might be able to guess from the German terms *Selbstlaut* 'vowel' and *Mitlaut* 'consonant', a vowel is essentially a sound that can be pronounced 'on its own', whereas a consonant can typically only be pronounced 'together with' a vowel. Vowels have a higher degree of sonority than consonants – they 'sound' more; consonants sound less. This means that a vowel can occur at the 'peak' of a syllable, whereas consonants typically occur only at the edges of syllables.

The diagram below shows a SONORITY SCALE for English, with open vowels like [ɑ] at the top and stops like [p] at the bottom. Some intermediate degrees are also labelled.

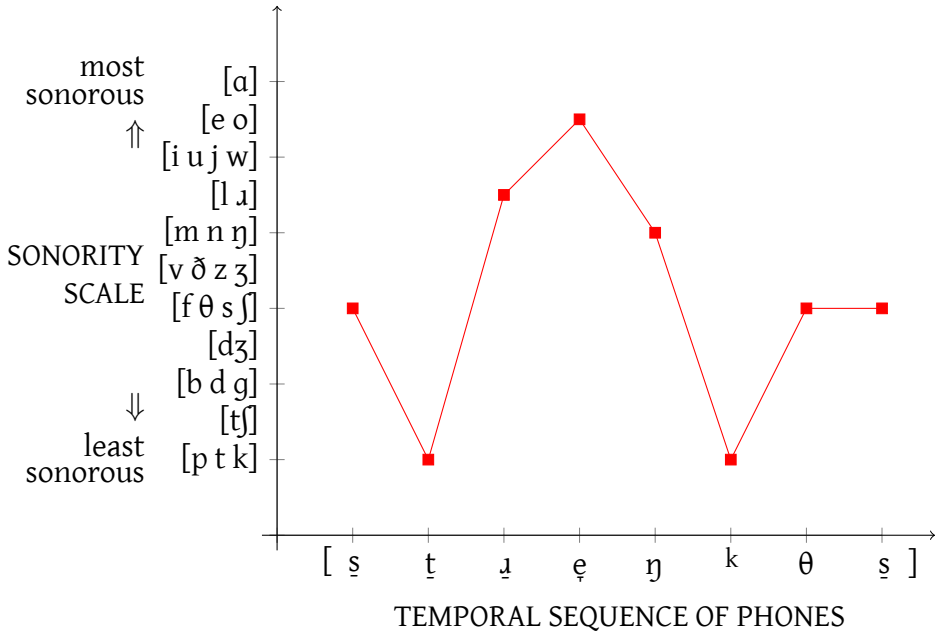
I have chosen the word ⟨strengths⟩, pronounced here as [s̪t̪ɹ̪ẹ̪ŋᵏθs̪]; it often has an optionally inserted [k] (shown here raised above the baseline), to make the transition from [ŋ] to [θ] 'easier to pronounce'.

Your task: Plot the sonority of each individual sound in [s̪t̪ɹ̪ẹ̪ŋᵏθs̪] on the chart below. The sound [ŋ] has been done for you. A key will be provided afterwards.



The syllable and sonority: key

Here is my first attempt at plotting the degrees of sonority perceivable in the individual phones of [s̪t̪ɹ̪ẹ̪ŋᵏθs̪] as they whizz by (and slightly flow into each other).



The example shown here — ⟨strengths⟩, /streŋθs/, [s̪t̪ɹ̪ẹ̪ŋᵏθs̪] — is is the longest type of syllable possible in English, and as you can see from the different degrees of sonority as the individual sounds flow past one by one, it looks almost as though the initial [s̪] and the final [θs̪] are, in an acoustic sense, 'outside' the syllable.

There are simpler syllables than this in English: for example the syllable [ɑː] — as in:
[ˈɑː | ðəˈl̪ẹ̪t.əˌbiˈfɔ̪ːɹ̪ˈẹ̪s]
⟨R, the letter before S.⟩
[ˈɑːˌðeɪ̯ˈgʊdˈfr̪ẹ̪nz.əvˌjɔ̪ːz]
⟨Are they good friends of yours?⟩
[ðeɪ̯ˈɑː | ɑːˈb̪ẹ̪sˌfr̪ẹ̪nz.ɪnˌfækt]
⟨They are. Our best friends, in fact.⟩

All you need in order to have a syllable, is something reasonably sonorous. To have a syllable, there must be a 'peak' (if you're trying to link phonetics to acoustics), or 'Nucleus' (if you're trying to link phonetics to phonology); the bits on the edge (in the 'valley', at the 'margins', in Initial (Onset) and Final (Coda) positions) are optional. Often they are present, but sometimes they are not.

If a syllable is rhythmically 'weak', because it is unstressed, then its vowel can be weakened, becoming [ə], or even disappearing all together, and a reasonably sonorous consonant from the end of the syllable can come to function as the peak instead, as in

(BrE phonetic:)	[ˈbɒt.m̩], [ˈbɒʔ.m̩],	[ˈbɐt.n̩], [ˈbɐʔ.n̩],	[ˈbɒt.l̩], [ˈbɒʔ.l̩] ([ˈbɒʔ.ʊ]),
(AmE phonetic:)	[ˈbɑ(ː)ɾ.m̩],	[ˈbɜ˞ɾ.n̩],	[ˈbɑ(ː)ɾ.l̩];
('diaphonemic':)	/ˈbɒt.əm/,	/ˈbʌt.ən/,	/ˈbɒt.əl/;
(orthographic:)	⟨bottom⟩,	⟨button⟩,	⟨bottle⟩.