COURSE TITLE: BASIC PHONETICS AND ENGLISH PHONOLOGY

TOPIC: THE SYLLABLE

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INTRODUCTION

- We have dealt with phonological **segments.**
- To be precise, the **phonemes** of English, which make up the underlying phonological representation of every word of the language.
- We have also dealt with **phonological processes** in terms of which these phonemes can be analyzed.
- Phonemes are the smallest successive units in phonology (and features are their simultaneously occurring components) .
- In this lesson, we shall see that there are indeed phonological units that are larger than individual phonemes and,
- that these units play an important part in phonological analysis.

MEANING OF A SYLLABLE

- The **syllable** is a unit difficult to define, though native speakers of a language generally
- have a good intuitive feeling for the concept, and are usually able to state how
- many syllables there are in a particular word (Collins &Mees (2013), Roach (2009); . Giegerich, H. (1992)
- If native speakers of English are asked how many syllables there are in the word *potato* they usually have little doubt that there are three
- (even if for certain words, e.g. *extract*, they might find it difficult to say just where one syllable ends and another begins).

- A syllable can be defined very loosely as *a unit larger than the phoneme but smaller than the word*.
- Phonemes can be regarded as the basic phonological elements.
- Above the phoneme, we can consider units larger in extent, namely the syllable and the word.
- *Tent* and *the* are single syllables;
- *little*, *pity* and *Peter* contain two syllables each,
- *syllable* and *determine* three,
- *phonology* four, *phonological* five, and so on.

- There are a few English words that may have variable pronunciations with different numbers of syllables:
- - *bottling* may be pronounced with two or three syllables
- *realistic* with three or four etc.
- and in some such cases the difference in the number of syllables may be a matter of what the listener perceives rather than one of the actual pronunciation.
- On the whole, it would seem that such problematic cases constitute a small minority only.
- But that does not mean that it is easy to say what a syllable actually is, in phonetic and phonological terms.

The nature o f the syllable

- The syllable may be defined both phonetically and phonologically.
- Phonetically (i.e. in relation to the way we produce them and the way they sound),
- syllables are usually described as consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud;
- before and after this centre (i.e. at the beginning and end of the syllable), there will be greater obstruction to airflow and/or less loud sound.
- What we will call a **minimum syllable** is a single vowel in isolation (e.g. the words 'are' a:, 'or' o:, 'err' **3:).**

- These are preceded and followed by silence.
- Isolated sounds such as m, which we sometimes produce to indicate agreement, or X, to ask for silence, must also be regarded as syllables.
- Some syllables have an **onset -** that is, instead of silence, they have one or more consonants preceding the centre of the syllable:
- ‘bar’ ba: ‘key’ ki: ‘more’ mo:
- Syllables may have no onset but have a **coda -** that is, they end with one or more consonants: ‘am’ aem ‘ought’ o:t ‘ease’ i:z
- Some syllables have both onset and coda: ‘ran’ raen ‘sat’ saet ‘fill’ fil

PHONOTACTICS

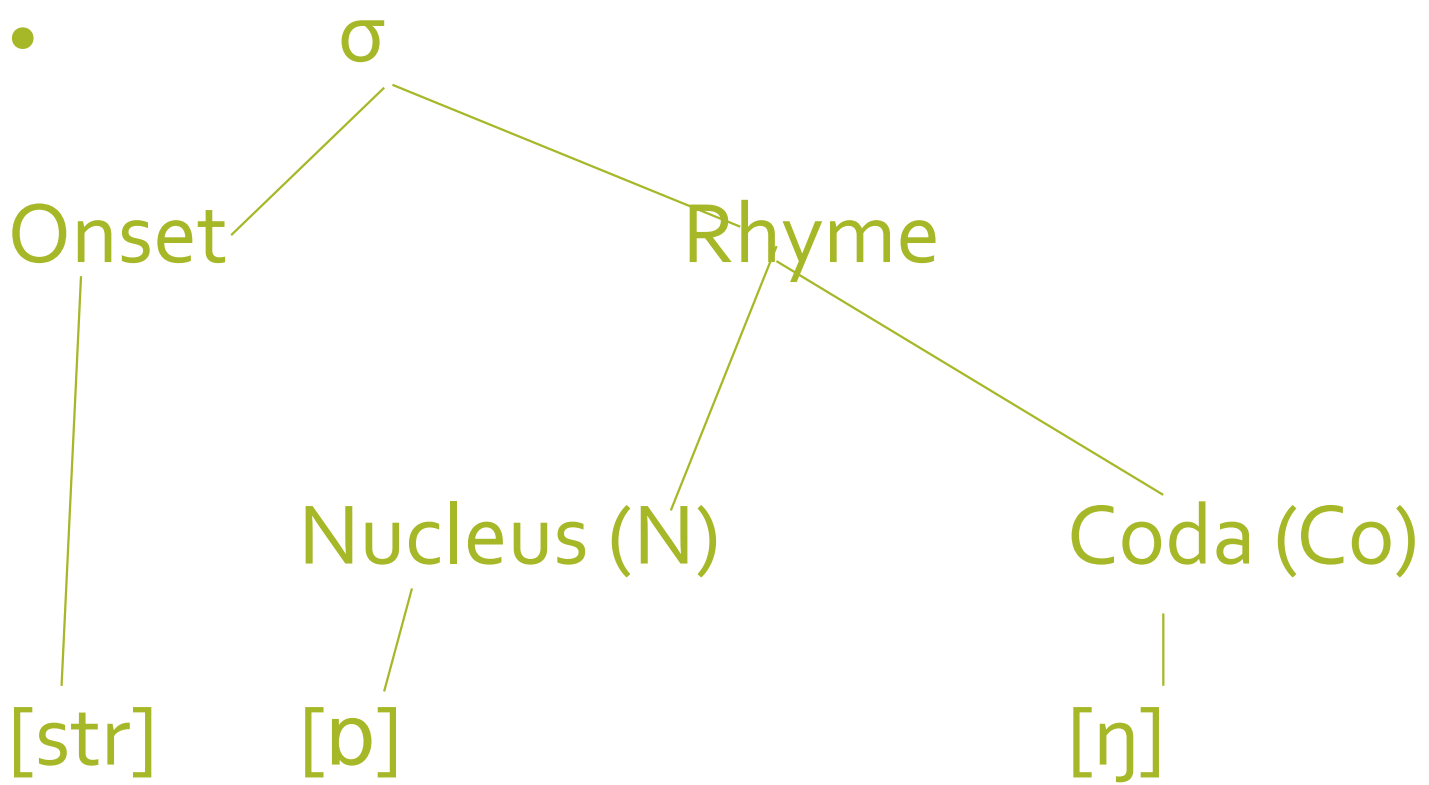
- English phonemes; the study of the possible phoneme combinations of a language is called **phonotactics.**
- It is simplest to start by looking at what can occur in initial position –in other words, what can occur at the beginning of the first word when we begin to speak after a pause.
- The word can begin with a vowel, or with one, two or three consonants.
- No word begins with more than three consonants.
- we can also look at how a word ends when it is the last word spoken before a pause;
- it can end with a vowel, or with one, two, three or (in a small number of cases) four consonants.

- Phonotactics are considered as constraints (i.e. permitted arrangements of sounds) in a language
- They are part of every speaker's phonological knowledge.
- Because these constraints operate on a unit that is larger than the single segment or phoneme.
- The most common type of syllable in language also has a consonant (C) before the vowel (V) and is typically represented as CV.
- There are other occurrences like V, VC, CVC

- A dot is used to mark the boundary between two syllables.
- Exampes
- /ə.plɑd/ *applaud*
- /di.klajn/ *decline*
- /ɛk.sɪt/ *exit*
- /ɪm.prə.vajz/ *improvise*

THE STRUCTURE OF THE ENGLISH SYLLABLE

- At the most basic level, the typical syllable is made up of a vowel segment preceded, and/or followed by zero or more consonantal segments:
- ‘a’, ‘bee’, ‘up’ ‘zero’
- The vowel is known as the nucleus or peak of the syllable,
- Any consonants preceding the nucleus are said to be in the syllable **onset** and those following the **nucleus** make up the syllable **coda**.
- Together, the nucleus and the coda for a constituent called the **rhyme**.
- So, in the English word ‘strong’ [strɒŋ], the onset is [str], the nucleus is [ɒ] and the coda is [ŋ]
- The syllable is represented by the Greek letter sigma σ


σ
Onset
Rhyme
Nucleus (N)
Coda (Co)
[str]
[ɒ]
[ŋ]

- Note:
- The grouping together of nucleus and coda to form the rhyme is not an arbitrary combination;
- The rhyme forms a unit distinct from the onset in a number of ways:
- For two words to rhyme, they must in fact share the same syllabic rhyme (nucleus and coda), whereas the nature of the onset (or even its presence is irrelevant)
- So, ‘gold’ rhymes with ‘old’ and strolled’

- On the other hand, in alliteration, that is decisive, with the composition of the rhyme being unimportant;
- ‘gold’ alliterates with ‘game’ and with ‘girl’
- In a type of slip of the tongue known as spoonerism, as in ‘hog’s dead’ for ‘dog’s head’.
- Further, a number of phonological processes crucially refer to such constituents, providing evidence for their existence.
- Of all the three lowest constituents, the onset, nucleus and coda, only the nucleus is obligatory.
- Both the onset and the coda are optional.

- Consider the following English words:
- ‘ape’ – [eɪp] –no onset
- ‘flea’- [fliː]- no coda
- ‘eye’ [aɪ] – no onset, no coda.
- Note also, that it is not always the case that the nucleus must be a vowel, English allows liquids and nasals as syllabic nuclei:
- ‘mutton’ ‘spittle’

- Syllables like me, to or no have an onset and a nucleus, but no coda.
- They are known as open syllables.
- When a coda is present, as in the syllables up, cup, at or hat, they are called closed syllables.
- The basic structure of the kind of syllable found in English words like green (CCVC), eggs (VCC), and (VCC), ham (CVC), I (V), do (CV), not (CVC), like (CVC), them (CVC), Sam (CVC), I (V), am (VC) .
- Can you draw a syllable structure for each of these?

SONORITY AND SYLLABLES

- The nature of the syllabic nucleus, and the order of segments within the syllable as a whole, are in part governed by the notion of **sonority**.
- Every speech sound has a degree of sonority, determined by factors such like:
- its loudness in relation to other sounds;
- The extent to which it can be prolonged;
- The degree of stricture in the vocal tract.
- The more sonorant a sound, the louder, more sustainable and more open it is.

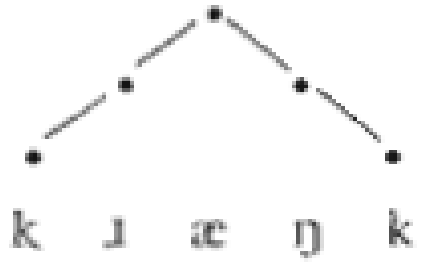
- Voicing is also relevant in that voiced sounds are more sonorant than voiceless ones.
- In acoustic terms, the more the sonorant a sound is, the clearer, more distinct its formant structure.
- Based on these definitions, the most sonorant [ɑ];
- The least sonorant class is the voiceless stops [t]
- Speech sounds can be arranged on a scale of relative sonority
- (i.e sonority hierarchy)

- Least sonorant voiceless stops
  - voiced stops
  - voiceless fricatives
  - voiced fricatives
  - nasals
  - liquids
  - glides
  - high vowels

Most sonorant -Low vowels

- The scale has an important role to play in determining the selection the selection of the nucleus of a syllable and the order of segments within the onset and coda.
- In general, the most sonorous sounds are selected as syllabic nuclei;
- With sonority increasing within the onset;
- And decreasing within the coda.
- Hence, the nucleus forms a high point of sonority (that's where the term 'peak' comes from).
- The margins (onset and coda) as slopes of sonority falling away on either side

- The word ‘crank’ [kræŋk] can be represented physically as:



From Davenport, M & Hannahs ,S.J. (2010). *Introducing phonetics and phonology. London*: Routledge.

Basic syllables

- In languages that allow more than one consonant to appear in onsets and codas, two general principles apply.
- The first principle makes reference to sonority (i.e, a sound's degree of resonance).
- *The Sonority Requirement*
- In basic syllables, sonority rises before the nucleus and declines after the nucleus.
- Consider the sonority scale is provided; with the numbers from 0 to 4 indicating relative sonority levels.
- (Note that an obstruent is an oral stop, a fricative, or an affricate.)

Sonority scale

0	1	2	3	4
Obstruent	Nasal	Liquid	Glide	vowel

The sonority profile of basic syllables can be seen in a monosyllabic word like *grant* /grænt/.
There is rising sonority within the onset and falling sonority within the coda.

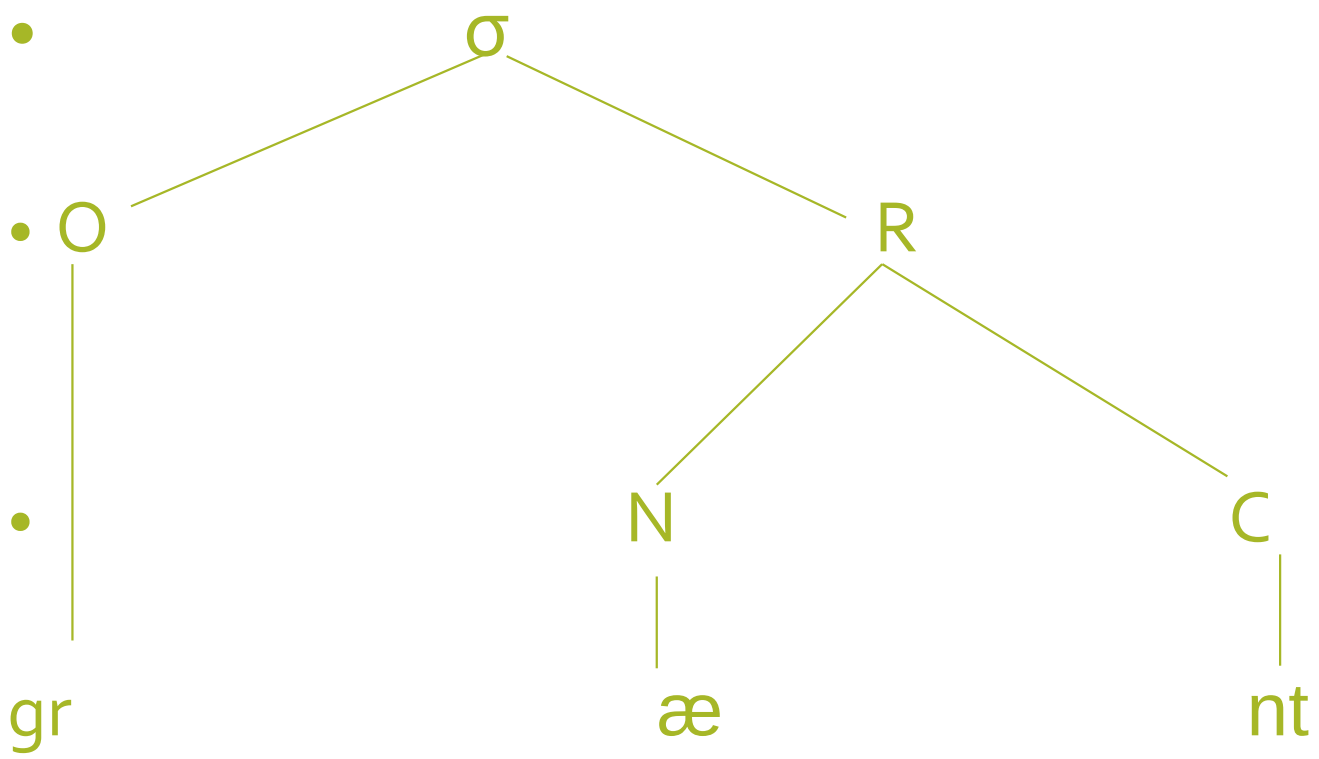
From O'Grady, W. & Archibald, J. (2000). *Contemporary linguistics: An introduction*. Toronto: Pearson.

Some onsets in English that comply with the Sonority Require

Labial + sonorant		Alveolar + sonorant		Velar + sonorant	
/pl/	please	/tr/	trade	/kl/	clean
/pr/	proud	/tw/	twin	/kr/	cream
/pj/	pure	/sr/	Sri Lanka	/kw/	queen
/br/	bring	/sl/	slow	/kj/	cute
/bl/	blight	/dr/	dry	/gr/	grow
/fr/	free			/gl/	glow

From O'Grady, W. & Archibald, J. (2000). *Contemporary linguistics: An introduction*. Toronto: Pearson.

- The second major principle with which basic syllables must comply can be stated as follows.
- *The Binarity Requirement*
- Within basic syllables, each constituent can be at most binary (i.e., branching into two).
- This means that an onset or coda can't contain more than two consonants.
- Thus, a word such as *grant* , with two consonants in its onset and two in its coda, represents the most complex basic syllable permitted in English.


σ
O
R
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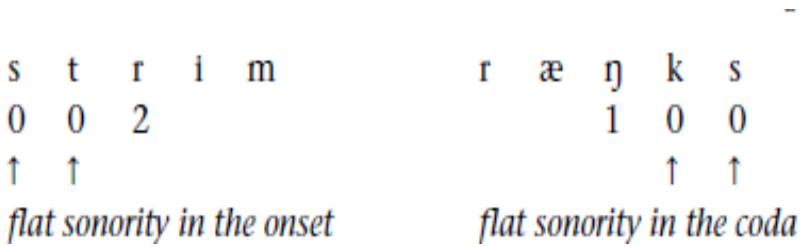
Syllables with a more complex structure

- English permits syllables whose structure is more complex than that of *grant* —
- for example, *stream* has three consonants in its onset, and *ranks* has three in its coda.
- Not only do these syllables have too many consonants in their onsets and codas (remember the Binarity Requirement),
- but they also violate the Sonority Requirement.
- In *stream* , the initial /st/ has a flat rather than rising sonority profile—both segments are voiceless obstruents.
- And in *ranks* , the final /ks/ is also flat, rather than falling.



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- Interestingly, such complex syllables are rare in the world's language and are subject to special restrictions in languages in which they occur.
- 'Extra' consonants tend to occur at word edges—either at the beginning or the end, as in the case of the /s/ in *stream* and *ranks* .
- In English, only /s/ can serve as an 'extra' consonant in onsets, which is why all CCC onsets begin with /s/ (*stream* , *split* , *scream* , etc.).
- In coda position, the 'extra' consonant is always voiceless and made with the tip of the tongue, such as the /s/ in *rank s* /ræŋks/, the /t/ in *clamped* /klæmp t /, and the /θ/ in *twelfth* /twɛlf θ /.
- It's also worth noting that the extra coda consonant in these and many other cases is not an inherent part of the word—it's added as a grammatical ending (suffix) to mark past tense, plurality, or some other contrast

STRONG AND WEAK SYLLABLES

- In English pronunciation is that some of its syllables are **strong** while many others are **weak.**
- When we compare weak syllables with strong syllables, we find that:
- the vowel in a weak syllable tends to be shorter, of lower intensity (loudness) and different in quality.
- For example, in the word ‘data’ delta the second syllable, which is weak, is shorter than the first, is less loud and has a vowel that cannot occur in strong syllables.
- In a word like ‘bottle’ [bɒtl] the weak second syllable contains no vowel at all, but consists entirely of the consonant [l]
- This a **syllabic consonant.**

Stressed and unstressed syllables

- strong syllables are stressed and weak syllables unstressed)
- we may have a weak syllable ending with:
- a vowel (i.e. with no coda):
- i) the vowel ə (“schwa”);
- ii) a close front unrounded vowel in the general area of i:> ɪ, symbolised i;
- iii) a close back rounded vowel in the general area of u:, ʊ, symbolised u.

Stressed and unstressed syllables

- stressed syllables are **louder** than unstressed syllables; in other words, loudness is a component of prominence.
- The **length** of syllables has an important part to play in prominence. If one of the syllables in a word is made longer than the others, there is quite a strong tendency for that syllable to be heard as stressed.
- A syllable will tend to be prominent if it contains a vowel that is different in **quality** from neighbouring vowels.
- If pitch of one syllable is different from the others, then it is stressed.

SYLLABIC CONSONANTS

- We have looked at vowels in weak syllables.
- Now, we consider syllables in which no vowel is found.
- In this case, a consonant, either l, r or a nasal, stands as the peak of the syllable instead of the vowel,
- we count these as weak syllables like the vowels
- It is usual to indicate that a consonant is syllabic by means of a small vertical mark (,) beneath the symbol,
- For example, ‘cattle’ [kætl̩]

Syllabic l

- It occurs after another consonant, and the way it is produced depends to some extent on the nature of that consonant.
- If the preceding consonant is alveolar, as in ‘bottle [bɒt l̩], ‘muddle’ [mʌdl̩],
- ‘tunnel’ **[ˈtʌnl̩],** the articulatory movement from the preceding consonant to the syllabic l is quite simple.
- The sides of the tongue, which are raised for the preceding consonant, are lowered to allow air to escape over them (this is called **lateral release).**
- Other examples: ‘couple’ ‘trouble’ ‘struggle’ ‘knuckle’

Syllabic n

- Syllabic n is most common after alveolar plosives and fricatives;
- in the case of t, d, s, z followed by n the plosive is nasally released by lowering the soft palate, so that in the word ‘eaten’ i:tn, for example, the tongue does not move in the tn sequence;
- but the soft palate is lowered at the end of t so that compressed air escapes through the nose.
- We do not usually find n after l, tʃ, dʒ.
- Examples: button, happen, even

Syllabic r

- In many accents of the type called “rhotic” such as most American accents, syllabic r is very common.
- The word ‘particular’, for example, would probably be pronounced [pərˈtɪkjələr] in careful speech by most Americans,
- while BBC speakers would pronounce this word [pəˈtɪkjʊlə].
- Syllabic r is less common in BBC pronunciation: it is found in weak syllables such as the second syllable of ‘preference’ [pref(ə)r(ə)ns] .
- In most cases where it occurs there are acceptable alternative pronunciations without the syllabic consonant.
- ‘hungry’ [hʌŋgrɪ] ‘Hungary’ [hʌŋgr̩i]

Summary

- We have looked at the syllable.
- We noted that it is not an easy concept to define but native speakers of a language usually know how to demarcate stress.
- The syllable has two main parts: the onset and the rhyme (the rhyme is in turn divided into a nucleus and a coda.
- Sonority is a key feature in determining the peak of a consonant-low vowels are th most sonorous.
- There can be weak and strong syllables.
- The strong syllables are responsible for stress in language.

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