UNIVERSITY OF GUELMA **2nd YEAR**

DEPARTMENT OF ENGLISH LITERATURE & LANGUAGE

PHONETICS **ALL GROUPS**

1.1. Syllable

All phonologists agree on the fact that the syllable is a very important component in any phonological system. Even though some people fail to define it, there is somehow approximately an agreement on the number of syllables a certain word contains; yet, the disagreement on their exact number can be justified by many reasons that we will discuss below.

1.1.1. The Nature of Syllable

According to the **Prominence Theory**[1], sounds are supposed to become more sonorous or prominent than other sounds; in other words, these sounds are felt to stand out from their other neighbouring sounds by the listeners hence they represent syllables, however, Gimson believes that this theory

> which is based mainly on auditory judgments, does not determine to which syllable the weak sound, constituting the boundary between two syllables, is to be attributed. Moreover, difficulties are encountered in the case of languages such as English which permits consonant clusters.
>
> (1970: 51)

According to the **Pulse Theory**[2], any utterance is composed of a number of chest pulses characterized by an increased air pressure that determines the number of syllables uttered, but Gimson argues that

> such a theory suggests that the syllable rather than the sound is the basic unit of speech […] such a unit on the speech level may prove to be irrelevant or misleading on the linguistic level. Particularly when it is a question of the juxtaposition of two vowel sounds, the sound being weakly stressed as in the case of *seeing*/siːɪŋ/, it is doubtful whether a double chest pulse will be evident, although it is clear that the word is to be divided linguistically into two units.
>
> (1970: 52)

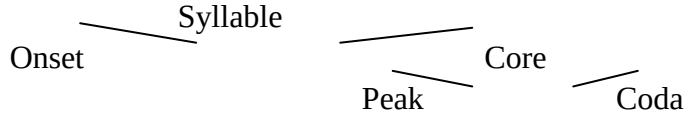
The previous two theories belong to the same phonetic approach that focuses on the articulation which is challenged by the linguistic approach that defines syllables with reference to the structure of one particular language rather than in general or phonetic terms with universal application. Hence phonologists believe that just like vowels and consonants, syllables can be defined both phonetically and phonologically: phonetically, syllables are composed of a centre which has little or no obstruction of the airflow, and before and after this centre, the obstruction to airflow is less loud; and phonologically, a syllable can be made of a single vowel in isolation preceded and followed by silence such as 'are' [ɑː] which is called **Minimum Syllable**; some syllables can be made of a consonant as well such as /m, ʃ/ to show agreement or hushing: this kind of sound that stands as the centre of any syllable is called **Nucleus** or **Peak;** some possess an **Onset** (some obstruction before the centre) as in: far [fɑː]; others have **Coda** (obstruction after the centre) like 'ought' [ɔːt] and other types have a centre, onset and coda like 'have' [hæv]. Monique Léon et. al believe that sounds tend to group themselves around an audible minimal obligatory nucleus which is the vowel and add that sometimes consonants such as laterals, rhotics, fricatives may be used as nuclei like in some interjections by affirming that

> Les phones ont tendance à se grouper en unités rythmiques pulsionnelles, autour d'un noyau de grande audibilité,...la voyelle est toujours ce noyau audible, minimal, obligatoire….

[1] Gimson (1975: 51)
[2] Gimson (1975: 52)

> D'autres langues utilisent parfois une consonne très audibles, une liquide, telle l ou R, comme noyau syllabique; ainsi *vlk* en russe, *Brn* en tchèque, *l'ttle*, en anglais new-yorkais. On peut ainsi avoir...d'autres consonnes fricatives comme noyau syllabique, dans certaines interjections telles que *chtt* ! *pstt* !
>
> **(**1997: 131)

Moreover, referring to the same idea, Hyman believes that

> The syllable consists of three phonetic parts: (1) the onset, (2) the peak or nucleus, and (3) the coda […] This analysis of the syllable […] as represented below:
>
> 
>
>
> divides a CVC syllable into C-VC rather than C-V-C-. In so doing, we are able to capture the important distinction between open and closed syllable as well as between heavy and light syllables […] An open syllable ends in a vowel, while a closed syllable is "checked " or arrested by a consonant. A CV syllable thus has a core with a zero coda, while a CVC syllable has a core with a V peak and a C coda. The initial consonant onset is irrelevant in determining the phonological properties of a syllable.
>
> (1975:188-189)

In addition, Radford et. al point out in favour to Hyman's that

> We can divide a syllable therefore into two halves: the **Rhyme** (or **Rime**) and the **Onset**. We have referred (p.46) to the vowel in the middle of the syllable as the **Nucleus** (or **Peak**). The consonant or consonant cluster after the nucleus will be called the Coda.
>
> (1999: 88)

1.1.2. Representation of Syllable Structure

Many phonologists such as Pike, Steriade and Harris (in Katamba 1989: 153) made a hierarchical representation of words **(see figure 45).**

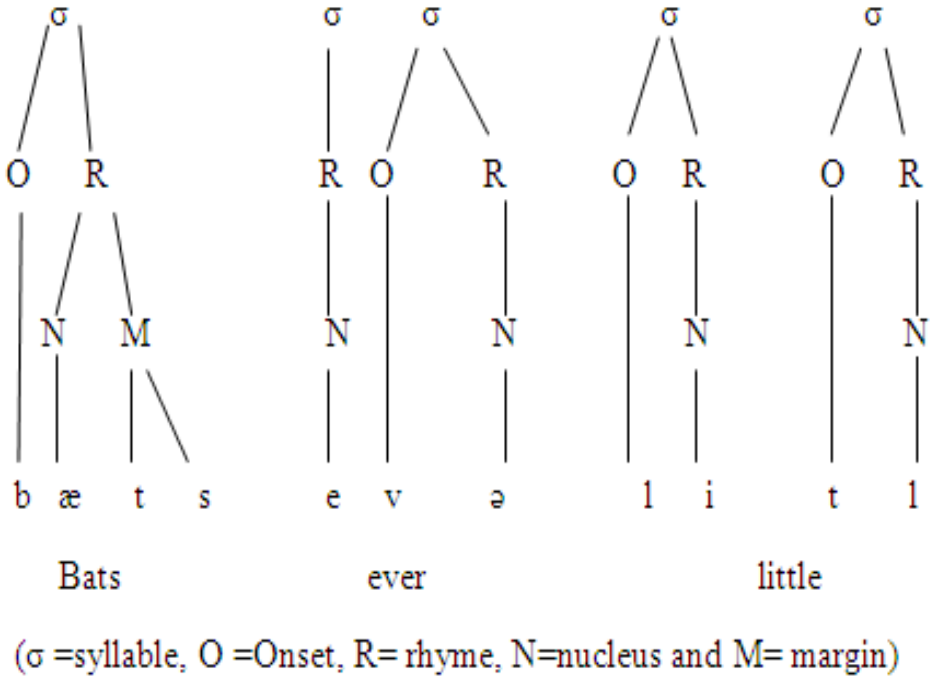


Figure 45: Syllabic Structure of the Words 'bats', 'ever' and 'little'

(adapted from Katamba 1989: 154)

Whereas, many modern phonologists envisaged several visual representations for the syllable; for instance, Clement and Keyser (1983, in Katamba, 1989: 156) used a CV-model to deal with syllable structure which must perform three tasks

1) State universal principle governing syllable structure;
2) State syllable structure typology, i.e., define the range within which syllable structure may vary from language to language;
3) State language-specific rules governing syllable structure.

The first task requires the model to have a three-tiered structure composed of a syllable node, a CV-tier or CV-level that contains consonants and vowels and a segmental tier or level which contains the distinctive features of consonants and vowels. **(see figure 46)**

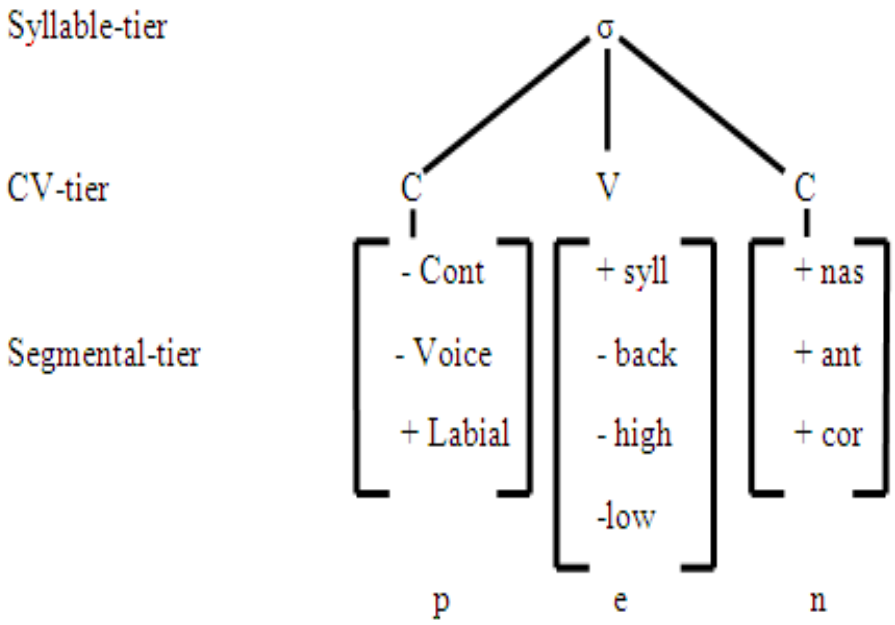


Figure 46: The CV-Tier Representation of the Word 'pen'

(adapted from Katamba 1989: 169)

1.1.3. Syllabification

Breaking polysyllabic word into syllables is not an easy task; in order to do so and simplify the task, phonologists needed to look at the different structures found in the languages of the world. Many discovered that numerous languages all over the world prohibit the use of codas such **Hawaiian**; in others, all syllables must have an onset such as **German**, **Czech** and **Arabic**; others allow only onsets and forbid the use of codas; and this highlights the fact that onsets have priority over codas cross-linguistically. As a result, many scientists believe that whenever there is indeterminacy in detecting the boundary between components of two or more syllables, undetermined consonants need to be placed in an onset rather than in a coda. Radford et. al. concerning this issue say that "*This simply states that when there is a choice as to where to place a consonant, we put it into the onset rather than the coda.*" (1996: 92)

1.1.4. Preferred Syllable Structure

According to Jakobson, the most unmarked type of syllables (i.e., the commonest type found in all languages) is CV. This type is also the first type of syllables acquired by small children. Moreover, CVC is also unnatural even though it is found in many languages and VCCC is very unnatural since it is found in few languages. All of this has been proved through many surveys which showed that languages tend to favour a particular structure, such as the one carried out by Kim (1972: 162, in Hyman 1975: 162) on **Korean** language: he found that Korean does not allow syllables to end with a sequence of two consonants and consonants must be dropped in order to prevent VCC structure.

1.1.5. Function of Syllable

Syllables are very important for both justifying (im-)permissible distributions of phonemes and standing as the basis for stress and tone analyses. Accordingly, Fudge believes the function of syllables is

> (a) To provide a basis for distinctive prosodic features […]. Even where tone – or stress – elements are not directly attributable to syllables, their domains (mora, etc) will be related to the syllable […]
> (b) To account for constraints on possible phoneme sequences […] Some of these constraints are accounted for setting up syllable structure [...] and their postulating different systems at different places in the structure [...]; in other cases, the choice of a particular element at one place affects the range of choice at another place
>
> (1969, in Goldsmith 1999: 371)

Hence, analyses of syllables are very crucial in the study of any phonological systems, since other phenomena such as tone and stress cannot be disassociated from syllable and that possible sequences of phonemes and constraints on phonemes' distributions will be easily dealt with thanks to the concept of syllable.

1.1.6. Phonotactics

Phonemes are not always free to exist in all positions or parts of the syllable; in other words, some phonemes can be used as nuclei, others can occur in all parts of the syllable and some occur only in onsets or codas, etc. The part of phonology that studies phonemic distribution and rules which allow and prohibit them is called **Phonotactics**. So far, we have seen that not all languages possess the same syllabic structure and that all of them tend to favour a particular type; in order to accomplish this, their sounds need to be organized in a way that is consistent with their specific syllabic structure. Consequently, phonologists found out that some languages can possess identical set of sounds, yet they can differ greatly in organizing, distributing and managing them in initial, medial and final positions as well as in clusters[3]. The reason behind studying phonotactics is clearly explained by Hyman who believes that

> a knowledge of the tolerated word initial and final sequences will actually give a guide to the point of phonological syllable boundary where onset of accent or other phonetic features do not supply the solution. Thus, in the pronunciation /ˈnætʃrəlɪ/ (*naturally*), it is reasonable to assume that the syllable boundary falls between /tʃ/ and /r/, since /-ætʃ/ and /rə-/ are possible word final and initial sequences, whereas word final /-æ/ and initial /tʃrə-/ do not occur.
>
> (1975: 239)

[3] Consonant sequences.

1. Syllable

The English syllable can consist minimally of one vowel and maximally of up to three (3) initial consonants (onset) and a vowel (nucleus) followed by up to four (4) consonants (coda). The minimal syllable structure is one vowel; for example, are /ɑː/; and the maximal syllable structure is **(CCC)V(CCCC)** such as: twelfths /twelfθs/

1.1. Most Used Types of Syllable

Gougenheim and Delattre[4] proved that in the majority of monosyllabic words, English uses closed syllables more than open ones and more specifically a CVC syllable structure type.

1.2. Phonotactics

English vowels can occur in all positions except for [e, æ, ʌ] which cannot occur in final positions (in open syllables), [ʊə] cannot occur in initial position (without an onset) and [ʊ] cannot occur in both initial and final positions (without an onset or in open syllables).

As far as English consonants are concerned, they can occur in all positions except for [w, j, h, ɹ] which cannot occur finally and [ŋ, ʒ] which cannot occur initially. For /ɹ/, in RP it does not occur also before consonants, in other words, it occurs only when it is followed a vowel.

1.3. Syllabification

[4] In P. R. Léon (2007: 133)

The syllabic division carried out in English is highly problematic, since there is no rule where such division is applied as in the case of some languages. In order to set the boundaries between English syllables of a certain word, all possible compositions of onsets and codas must be thoroughly identified in advance; for instance, the word 'extractions' is divided into /ɪk.'stɹæk.ʃən/ or /ɪks.'tɹæk.ʃən/ (/ɪkst.'ɹæk.ʃən/ is also possible but rarely used) but not /ɪkstɹ.'æk.ʃən/, /ɪ.'kstɹæk.ʃən/, /ɪks.'tɹækʃ.ən/ or /ɪk.'stɹæ.kʃən/ since /kstɹ/ and /kʃ/ can never be found in onsets or codas and /æ/ cannot be found in open syllables. Hence, in any syllabic division of English words, phonotactics and possible compositions of onsets, nuclei and codas need to be done beforehand.

1.4. The Structure of Syllable

1.4.1. Onset

The onset of English syllable does not need to contain consonants and cannot contain more than three consonants. All English onsets may contain all consonants except /ŋ/ and /ʒ/[5] as in: [p] page, [b] but, [t] tell, [d] did, [k] call, [g] give, [w] one, [j] yes, [ɹ] right, [l] little, [m] mean, [n] news, [f] fell, [v] very, [θ] third, [ð] that, [s] send, [z] zip, [ʃ] shake, [h] hair, [tʃ] chief, [dʒ] jumps.

2.5.1.1. Initial Two Consonants Clusters

If the onset contains initial two consonants, clusters can be of three sorts in English:

- The first set is composed of a consonant followed by/ l, ɹ, w, j/
- /l/ as in: /pl/ play, /kl/ clay, /bl/ black, /gl/ glad, /fl/ flight, /sl/sleep.
- /r/ such as: /pɹ/ pray, /tɹ/ try, /kɹ/ cry, /bɹ/ bring, /dɹ/ drink, /gɹ/green, /fɹ/ French, /θɹ/ throw, /ʃɹ/ shrink
- /w/ like in: /tw/ twice, /kw/ quick, /dw/ dwell, /θw/ thwarted, /sw/ sweet.
- /j/ as in: /pj/ pure, /tj/ tumult, /kj/ curious, /bj/beauty, /dj/due, /gj/ Gules, /fj/ few, /sj/ suit, /hj/ human, /vj/ views, /mj/ music, /nj/ new, /lj/ lieu
- The second set is composed of /s/ followed by another consonant such as: /sp/ spin, /st/ still, /sk/ skill, /sf/ sphere, /sm/ small, /sn/ snug.
- The third set concerns the rarest[6] initial two consonants clusters which are: /sr/ syringe, /gw/ Gwen, /θj/ thew (archaic word), /ʃw/ Schwa.

2.5.1.2. Initial Three Consonants Clusters

Three consonants clusters in English language are very small and they are always composed of /s/, followed by /p/, /t/ and /k/ and then /l/, /ɹ/, /w/, /j/ as in: /spl/ splendid /spɹ/ spring, /spj/ spew, /stɹ/ strike, /stj/ steward, /skl/ sclerosis, /skɹ/ screens, /skw/ squeamish, /skj/ skewer.

2.5.2. Coda

In English language, the coda can contain from zero to four consonants; and any consonant way be a final consonant except /h, w, j, ɹ[7]/ such as in: [p] stop, [b] rob, [t] feet, [d] wide, [k] awake, [g] beg, [l] cool, [m] calm, [n] train, [ŋ] sang, [f] half, [v] five, [θ] Bath, [ð] bathe, [s] less, [z] rose, [ʃ] blush, [ʒ] collage, [tʃ] which, [dʒ] range.

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[5] /ʒ/ occurs initially in foreign words such as *gigolo, gigue, Zhivago* in Gimson (1970: 242).

[6] According to Roach (1991: 70)

[7] /ɹ/ can be a final consonant in American Accent.

2.5.2.1. Final Two Consonants Clusters

There are three kinds of two final consonant clusters

- One where a final consonant is preceded by a pre-final consonant which are /m, n, ŋ, l, s, z/:

- /ŋ/: think /θɪŋk/
- /n/: /ntʃ/ branch, /ndʒ/ strange.
- /l/: /lp/ help, /lk/ milk, /ldʒ/ indulge, /lf/ herself, /lv/ twelve, /lʃ/ welsh; as well as /lb/, /lg/, /ltʃ/, /lm/, /ln/ according to Gimson (1970: 248)
- /m/: /mp/ stamp, /mf/ triumph.
- /s/: /sp/ grasp, /sk/ ask.
- /z/: /zm/ realism.

- Another where the final consonant is followed by a final consonant which are /s, z, t, d, θ/:

- /s/: /ts/ bets, /ts/ parts, /fs/ griefs, /ks/ likes, /ps/ lips.
- /z/: /bz/ describes, /gz/ pigs, /ðz/ clothes, /vz/ nerves.
- /θ/: /pθ/depth, /tθ/ eighth, /fθ/ fifth.
- /d/: /gd/ begged, /bd/ described, /dʒd/ urged, /vd/ loved, /ðd/ breathed, /ʒd/ camouflaged.
- /t/: /kt/ backed, /pt/ kept, /kt/ looked, /tʃt/ reached, /ft/ puffed, /ʃt/ wished,

- Another set where /m, n, ŋ, d, l, s/ are followed by /s, z, t, d, θ/: /nθ/ month, /ns/ chance, /ŋd/ longed, /ŋz/ things, /lt/ felt, /ld/ told, /lθ/ health, /ls/ else, /lz/ girls, /st/ must, /zd/ pleased, /θs/ youths, /nt/ want, /nd/ and, , /mz/ comes, /dz/ towards, /mθ/ warmth, /md/ seemed; as well as /θt/ according to Gimson (1970: 248).

2.5.2.2. Final Three Consonants Clusters

Three final consonant clusters also can be of four sorts: ending with [s], [t], [d], [z] and [θ]:

- Ending with /s/: /kts/ facts, /mps/ jumps, /nts/ hints, /ŋks/ thanks, /lts/ faults, /fθs/ fifths, /sts/ guests, /sks/ frisks, /pts/ opts, /fts/ lifts ,/sps/ grasps, /lks/ milks, /lfs/ elfs, /lθs/, /mfs/ limphs, /lps/ helps; as well as /pθs/, /tθs/, /lθs/ according to Gimson (1970: 252).
- Ending with /t/: /pst/ eclipsed, /kst/ fixed, /dst/ amidst, /mpt/ jumped, /nst/ against, /ŋkt/ thanked, /lst/ whilst, /lpt/ helped, /skt/ asked, /lkt/ milked, /spt/ grasped; as well as /tst/, /ntʃt/, /ltʃt/ according to Gimson (1970: 252).
- Ending with final /z/: /ndz/ minds, /ldz/ colds, /lvz/ themselves, /zmz/ criticisms; as well as /lmz/, /lnz/, /lbz/ according to Gimson (1970: 252).
- Ending with /d/: /ndʒd/ changed, /ldʒd/ indulged, /lvd/ resolved, rinsed /nzd/, filmed /lmd/.
- Ending with /θ/: /ksθ/ sixth, /ŋkθ/ strength, /lfθ/ twelfth, as well as /ntθ/.

2.5.2.3. Final Four Consonants Clusters

All four consonant clusters end with the consonant /s/ preceded by /t/ or /θ/ as in: /lfθs/ twelfths, /mpts/ prompts, /ksθs/ sixths, /ksts/ texts.

2.5.3. Nucleus

In English, all vowels can occur as nucleus in polysyllabic and monosyllabic words except /ə/ which does not occur as a nucleus in monosyllabic words only in the case of weak forms of few words[8]. Moreover, there are special cases where consonants act as the centre of syllables such as /l, n, ŋ, m/.

2.5.3.1. Syllabic [ɬ]̩[9]

Syllablic [ɬ]̩[10] occurs when we have

- Alveolar consonant preceding it: little [lɪtɬ]̩; and with non-alveolar consonant preceding it: couple [kʰʌpɬ]̩.
- It is also found in words spelt with 'al' or 'el' at the end preceded by one or more consonants, for example: Colonel [kʰɜːnɬ]̩, principal ['pɹɪnsɪpɬ]̩.
- The syllabic [ɬ]̩ remains when 'ing' is added: settle-settling [setɬ]̩-[setɬɪŋ].

[8] See weak forms.

[9] The mark (vertical hyphen) which indicates that a consonant is syllabic, is conventionally put above the symbol if it is not written under the line, but when the symbol of the sound is written below the line, the mark is put above it such as n̩,

[10] It should be pointed out that syllable [ɬ]̩ is pronounced as the dark [ɬ] and that when it is preceded by an alveolar consonant the tongue sides (rims) which are raised in the articulation of the preceding alveolar consonant, become lowered in order to let the air escape from both sides rather than the centre of the tongue, however, the tip and blade of the tongue do not move until the release of syllable [ɬ]̩.

2.5.3.2. Syllabic /n̩/

This consonant is the most frequently used as nucleus and most important in all English syllabic consonants. Syllabic /n̩/ is generally more common than /ən/ after /f, v/ except in initial positions: seven /sevn̩/, often /ɒfn̩/; and after alveolar plosives and fricatives especially /t, d/ where the pronunciation of /tn̩/ or /dn̩/ is different[11] from /tn/ or /dn/. However, when /t, l, d, s/ are preceded by a nasal consonant, a syllabic /n̩/ is very unusual after them for instance: London /lʌndən/ and not /lʌndn̩/; contents /kʰɒntənts/ and not /kʰɒntn̩ts/.

Yet, /n̩/ is not found after /l, ʧ, ʤ/ as in: fallen /fɒlən/ and is not heard after non-alveolar consonants like in: elegant /'elɪgənt/, happen /'hæpən/.

2.5.3.3. Syllabic /m̩, ŋ̩/

Syllabic /m̩, ŋ̩/ occur only as a result of processes such as assimilation and elision; for instance as in: occasion could /əkʰeiʒŋ̩kʰʊd/, happen /hæpm̩/, yet /n̩/ or /ən/can substitute both of them[12].

[11] In /tn̩,dn̩/, the soft palate which is raised in order to pronounce /t/ or /d/ is lowered in order to allow the air escape through the nasal cavity without moving the tip and blade of the tongue.

[12] According to Roach (1991: 81)