

An Analytical Study of English Syllabic Structure by EFL Learners

Muhammad Ali Shahid¹

Anser Mahmood²

Abstract

Learning English pronunciation without learning the sounds of the language is as impossible as accomplishing a herculean task (Ahmadi, 2011). Segmental study of words satiates the need of seeking the rubrics of syllables. A syllable is a basic unit of pronunciation (Lasi, 2020). The present study aimed at exploring English Syllable and syllabic Structure to have a predominant comprehension of English pronunciation. The analysis of the present study was conducted on twenty-six words in alphabetical order and was taken from Soanes' Compact Oxford Dictionary of Current English (2008). The study investigated words with ambiguous syllabic boundaries through the lens of conceptual theories of the Optimal Onset Principle and Phonotactic constraints. The process of syllabification provided evidence that set rules are, sometimes violated to split the words into appropriate constituents. The correct syllabification produces correct pronunciation. Otherwise, words might be been mispronounced, hence meaningless, and sometimes preposterous.

Keywords: English Syllable, Syllable structure, Maximal Onset Principle, Phonotactics

1. Introduction

Accurate, clear, and comprehensible pronunciation direly needs to overpower the English Language notwithstanding the language one has learned will be senseless and deficient all through productive substitution (Darcy, 2018). The better the manner of speaking is, the more appropriate the talking will be. Therefore, it would be better to learn fewer words with

¹ Lecturer, Department of English and Literature, University of Lahore Sargodha Campus, muhammadalishshahid05@gmail.com. <https://orcid.org/0000-0003-1068-9609>

² Associate Professor, Department of English Language and Literature, University of Lahore, Sargodha Campus anser.mahmood@ell.uol.edu.pk. <https://orcid.org/0000-0001-9570-8404>

correct pronunciation rather than to have multitudes of words with incorrect and ambiguous articulation (Liang-Chen Lin 2014). Such kind of un-English explanation will leave a waste impact on the keen listeners Not only does the syllable seem intuitively obvious to many observers; but there are also many lines of more quantifiable evidence that seem to support the view that speakers represent words and utterances in terms of their syllables. As a result, the syllable plays a preferential role in many models of the speech production process (Raimy & Cairns, 2014). A syllable cannot be described easily; however native speakers, by instinct, have a clear idea about it; they know well how many syllables are there in a word. For example, they can discern without trouble that there are three syllables in the word 'Potato' (Collins & Mees, 2013).

1.1 Need of the Study

The study was conducted from the perspective of learning correct pronunciation. As syllable is the basic unit of pronunciation, the focus of the study is English Syllables and Syllabic Structure (Ryu, 2002). The non-native English speaker must learn the rubrics syllable structure and the rules which are followed in the process of syllabification. The problem of correct syllabification was solved through the implementation of conceptual theories of the Onset Principle and Phonotactics.

1.2 Research Questions

1. What are the constituents of a Syllable in English Pronunciation?
2. What is the role of Phonotactic Constraints in Syllable Structure in English Pronunciation?

2. Literature Review

2.1 Syllable

Ingemann & Crystal (1998) in 'The Dictionary of Linguistics and Phonetics' state, "syllable is the unit of pronunciation typically larger than a single sound and smaller than a word. A word may be pronounced 'syllable at a time, as in never-the-less, and a well-recognized dictionary shows where these syllabic divisions occur in writing, thus providing information about

how a word may be hyphenated". (Gullickson, 1992) didn't define the syllable. Words were considered the strings of segments, and one may manage to describe phonological patterns without them. "A unit of speech for which there is no satisfactory definition. Syllables seem to be necessary units in the mental organization and production of utterances" (Johnson, 2006). Linguistically a syllable is defined as a unit of speech that is made up of a syllable nucleus (usually a vowel) and one or more optional phones. The syllable in the syllable structure is denoted by the Greek small Sigma 'σ'.

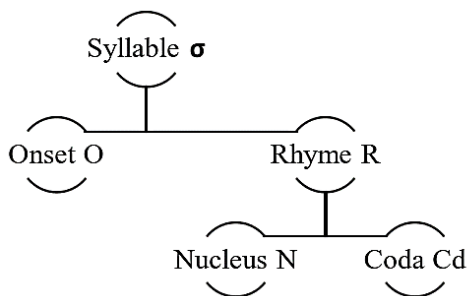
2.2 Syllabification

Syllabification is the process of framing words into parts; every part of the word is regarded as an isolated unit: the syllable. Every syllable must have a vowel sound as its nucleus with or without a preceding or proceeding consonant sound. It is due to the weak liaison between sounds and letters in the orthography of modern English, a syllable is based on phonetic principles rather than etymological or morphological. Hyphens (-) represent the sentential boundaries of syllables in a word (Ingemann & Crystal, 1998).

Syllabification is an analytical process of dividing a word into its minimal constituents (Bartlett et al., 2009). Any language's phonological system is primarily based on syllabification. According to Bartlett et al., (2009), the rules of syllabification differ between languages, and borrowed words are modified based on the phonological rules of the recipient language. Borrowed words in Urdu are altered following Urdu phonological rules. Urdu is heavily influenced by Persian, Arabic, Portuguese, English, and some Indian subcontinental languages. Many English borrowings have been absorbed into Urdu via re-syllabification. We need syllabification principles to help us recognise the boundaries of the syllables on which a word is syllabified during the syllabification process. These principles identify the location where the syllables are broken to make different segments of the word. Every language follows its principle of syllabification to syllabify the words (Hayes, 2009).

2.3 Syllabic Structure

As said by Peter Katamba (1992), syllable structure is language-specific.



2.3.1 Onset

Onset consists of consonant sounds and it is preceded by the nucleus. It is optional in the structure of the syllables.

2.3.2 Rhyme

Rhyme is the combination of the Nucleus and Coda.

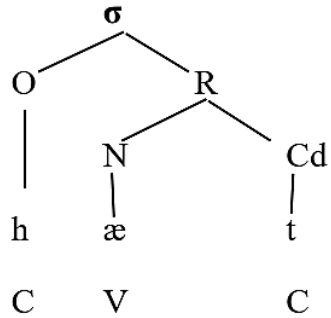
2.3.3 Nucleus

The nucleus of a syllable is always at its peak in keeping with the sonority principle. It is commonly a vowel sound: independent or in the middle of onset and coda, or before coda or after onset. It is obligatory in most languages of the world.

2.3.4 Coda

Coda also consists of consonant sounds; it is after the nucleus and is optional in some languages. Immediate constituents of a syllable are Onset and Rhymes; Rhyme can further be split into Nucleus and Coda. The syllable is marked by a small sigma “σ”, onset by O, rhyme by R, nucleus by N, and coda by Cd. Thus, the syllable structure is represented graphically utilizing a tree diagram as follows:

For example Hat /hæt/

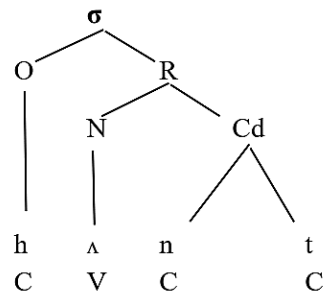


2.4 Syllable Typology

2.4.1 Closed and Open Vowels

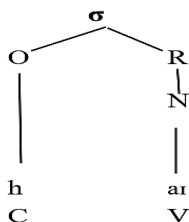
Syllables such as these “that have one or more *consonants* in the *coda* position are called – *closed syllables*”.

For example Hunt /hʌnt/



Syllables such as the following “that *do not have any consonants* in the *coda* position are called – *open syllables*”.

For example: hi /hai/



In terms of syllable structure, the coda is present in closed syllables while it is missing in open ones.

2.4.2 Heavy and Light Vowel

Modern theories divide syllables in terms of Heavy Syllables (HS) e.g. 'tea' and Light Syllables (LS) e.g. 'ten'. HS has the feature of a long vowel sound or diphthong and LS is featured a short vowel sound.

2.5 Syllabic Consonants

It is a well-acknowledged principle that every word must have a vowel sound as higher in the sonority principle. In the word 'big', the onset is /b/, the coda is /g/, and /i/ is the vowel in which the peak of the one-syllable word is big. In the English language, normally nasal sounds /m/, /n/, and /l/ are regarded as syllables when they are at the end of a word. For example, enthusiasm, rhythm, simple, single. These kinds of a syllable are called syllabic consonants or vocalic consonants (Collins, 2014)

2.6 Conceptual Rules of Syllable Structure

2.6.1 Nucleus Rule

It is a universal rule every syllable must have a Nucleus that occupies a peak position in the sonority hierarchy.

2.6.2 Maximal Onset Principle

The principle of Maximal Onset was introduced by Kahn (1976). MOP is the principle that states that intervocalic consonants should be considered onsets first if possible as long there is no violation of the sonority hierarchy. That is, there is a preference for consonants to be onsets rather than codas (. MOP also suggests that VS is universally acknowledged. Deep study of the languages evinces that is a basic universal principle for syllable structure.

The evidence comes from the first utterances from the tongue of the children. The children first say 'ma' and 'ba' then mama and baba.

2.6.3 Phonotactic Constraints

The word Phonotactics can be segregated into two words of ancient origin; 'phone' means voice and 'tactics' means to arrange. Linguistically, it becomes the arrangement of phonetic sounds to meaningful words. Phonotactics set the boundaries of syllable structure, syllable structure, consonant clusters, and vowel sequences employing Phonotactic constraints.

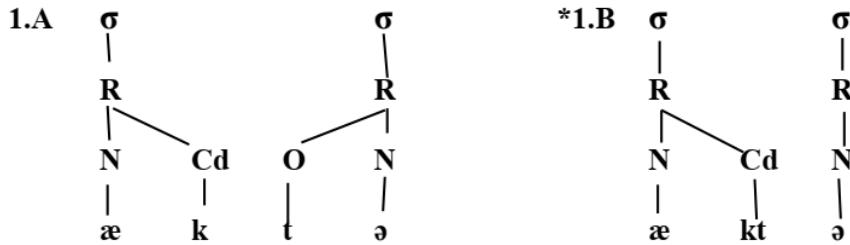
Accepting the notion that the phonotactic structure of words can be largely understood by assuming that segments are organized into syllable-sized units, of which words can contain multiple occurrences, we begin by noting that in some languages, words show a simple repetition of CV syllables, with no further complications at the edges of words. 1 The number of CV-unit repetitions allowed per 'word' is typically not unlimited, but rather depends on general constraints that determine the maximum size of feet and prosodic words in terms of 'prosody templates.' (Riemsdijk, 1996).

3. Research Methodology

In the present study, an analytical approach to qualitative research methodology was carried out through conceptual models of the Syllable structure. Traditional conceptual models: Nucleus Rule, Optimal Onset Principle, and Phonotactic constraints will provide the background knowledge for understanding and analyzing the syllable structure. The researcher himself was the instrument in the process of collecting secondary data and background knowledge through different sources like books on English Phonetics and Phonology, research articles, reports, internet media blogs, etc. Data containing 26 words in alphabetical order were collected from random choice from the Oxford Dictionary of Current English (1993). Internal ambiguous phonemic boundaries were focused on to clarify the syllabic boundaries. Each word was syllabified into two units of segments: A and B. All syllabic structure A's were correct pronunciation and others which produced incorrect pronunciation were syllabic structure B's. IAP Chart (2005) of symbols was utilized for the phonemic representation of words. Transcription of the words was written by using the software, PhoTransEdit 2.2.

4. Data Analysis

1. Actor

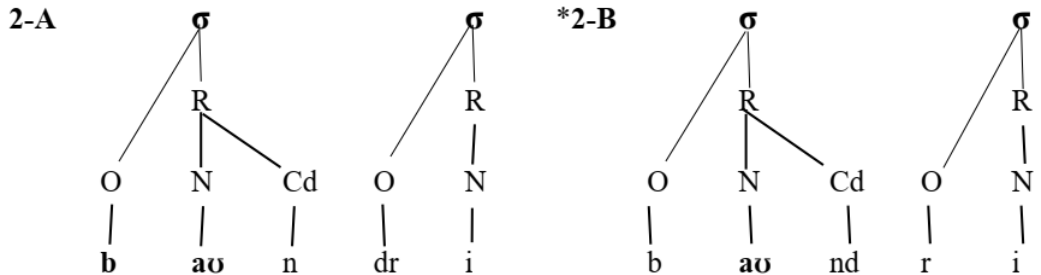


In structure 1-A, 'æk' is a bond of phonemes 'æ' and 'k' and it makes an isolated syllable. 'tə' is the second syllable of the word actor. The structure 1-B depicts two syllables 'ækt' and 'ə' which seem to be two complete syllables but the combination of both these don't produce correct pronunciation as the principle of Onset in the second syllable of the structure 1-B is violated.

2. Boundary

/ 'baʊn.dri/

/ 'baʊnd.ri/

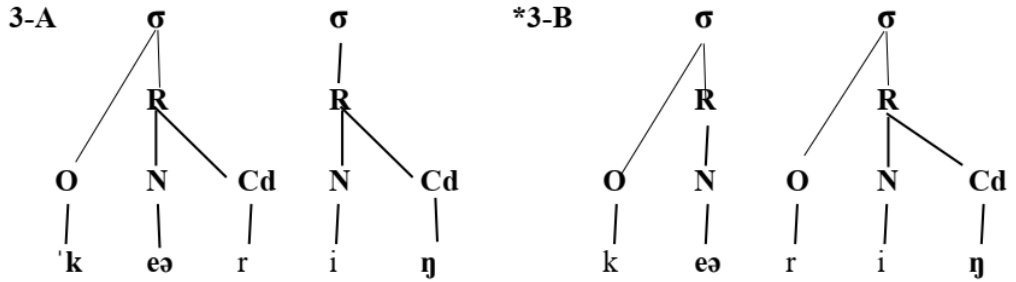


The constituents of the word 'boundary' are / 'baʊn.dri/ in 2-A and / 'baʊnd.ri/ in 2-B. In the second syllable of 2-B, MOP is violated which causes mispronunciation of word boundary.

3. Caring

/ 'keər.ɪŋ/

/ 'kæ.rɪŋ/



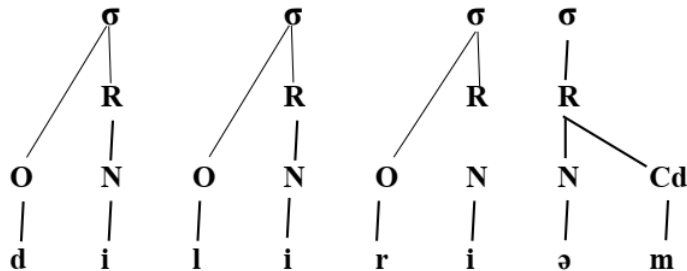
Word 'caring' is structured in two ways /**keər.ɪŋ**/ as in 3-A and /**kæ.rɪŋ**/ as in 3-B. In 3-B, 'ɪŋ' as an isolated unit does not make any sense which results in the mispronunciation of the word caring.

4. Delirium

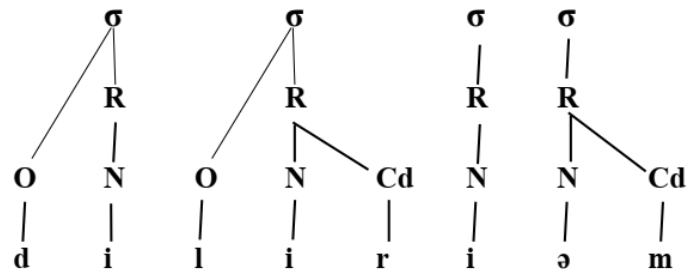
/dɪ.'lɪ.rɪəm/
dɪ 'lɪ.rɪəm

/dɪ.'lɪr.i.əm/
dɪ 'lɪr.i.əm

4-A



***4-B**



In 4-A, the syllabification of delirium is **/dɪ.'lɪ.rɪəm/** which is based on the prominence of stress, and in 4-B is **/dɪ.'lɪr.i.əm/** which is based on phonemic sounds. English is prominent based on the base of phonemic sounds.

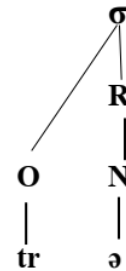
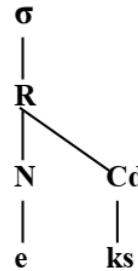
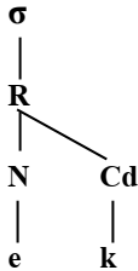
5. Extra

/'ek.strə/
'ek.strə

/'eks.trə/
'eks.trə

5-A

*5-A

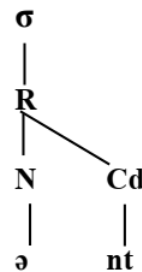
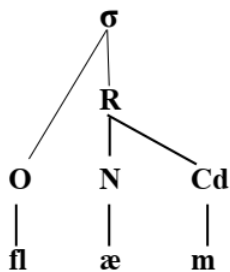


Phonemic segments of the word extra are /'ek.strə/ in 5-A and /'eks.trə/ in 5-B. There violation of SSP in the second segment of 5-B.

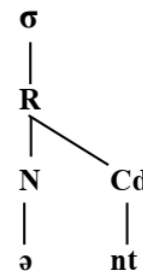
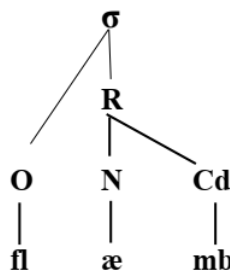
6. Flamboyant

/flæm' bɔ:ɪ.ənt/ /'flamb.ɪ.ənt/

6-A



*6-B

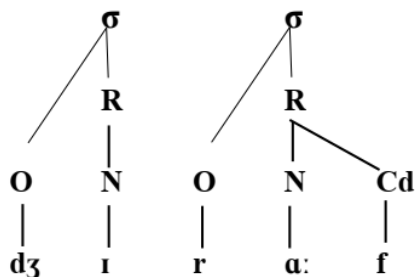


Flamboyant is segregated into /flæm' bɔ:ɪ.ənt/ and /' flamb.ɔɪ.ənt/ in 6-A and 6-B respectively. Although in the first segment of 6-A, the consonant cluster 'mb' is broken down, hence acceptable in English pronunciation by rule.

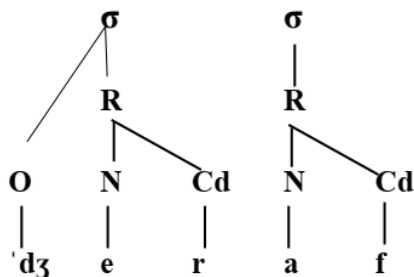
7. Giraffe

/dʒɪ.'rɑ:f/ /'dʒer.əf/

7.A



*7-B

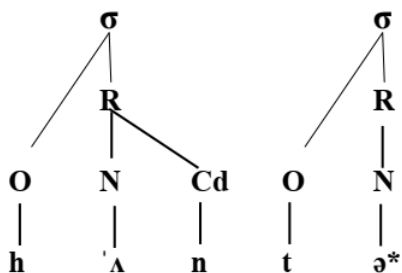


In a 2-syllable word, giraffe, the stress is on the second one. Therefore, the syllable structure 7-A is acceptable, inversely 7-B is a misfit.

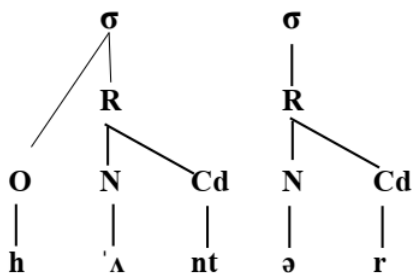
8. Hunter

/'hʌn.tə/ /hʌnt.ər/

8.A



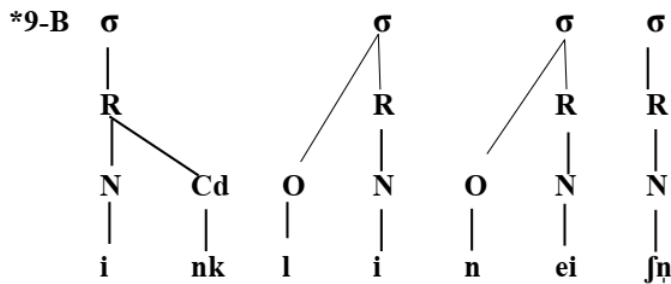
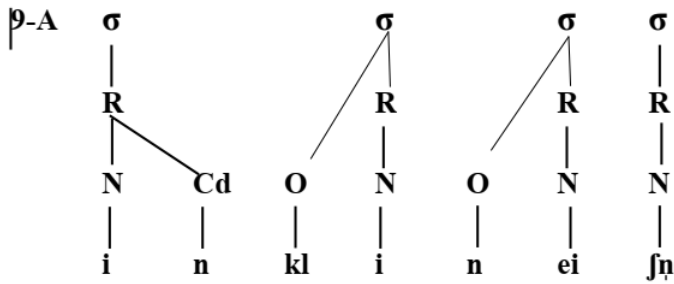
*8-B



Two syllable word 'hunter' is phonetically divided into dyad form as /'hʌn.tə/ /hʌnt.ər/. Suffix /ər/ can't stand alone on itself, it needed an Onset to make a complete syllable. That is why the first structure is the fitter of the two.

9. Inclination

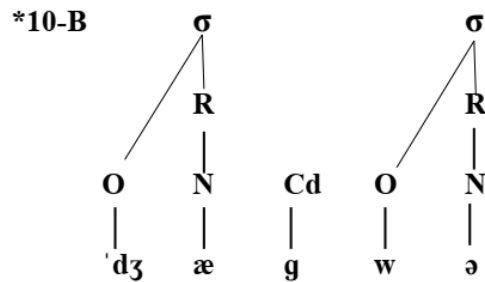
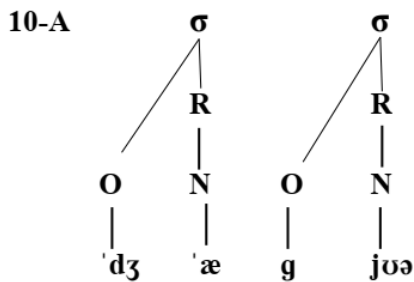
/,ɪn.klɪ.'neɪ.ʃn/ /ɪnk.li.'neɪ.ʃn/



In two diagrams, 9-A and 9-B, /,m.kli.'nei.fn/ and /ink.li.'nei.fn/ the two segmental units. In the second segment of the second unit, MOP is violated which produces an unacceptable piece of pronunciation.

10. Jaguar

/ 'dʒæ.gjuə/ /dʒæg.wa:/

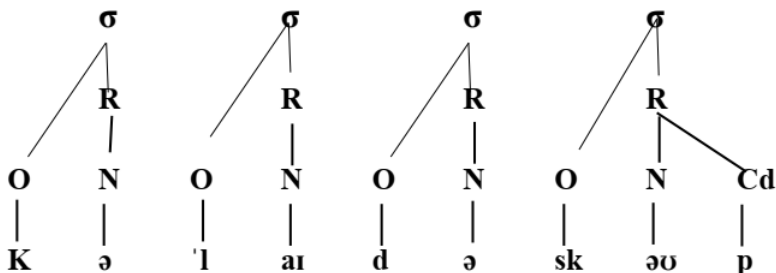


The syllable structures of the word 'Jaguar' are / 'dʒæ.gjuə/ and /dʒæg.wa:/ in 10-A and 10-B respectively. In the second structure, the second syllable is de-shaped by segregating the segments of the second syllable which makes the pronunciation unacceptable.

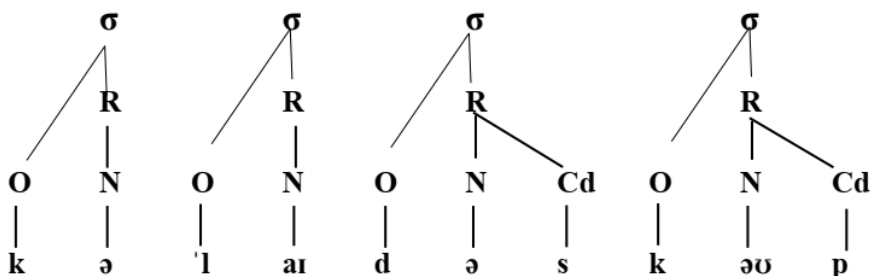
11. Kaleidoscope

/kə.'laɪ.də.skəʊp/ /kə.'laɪ.dəs.kəʊp/

11-A



*11-B

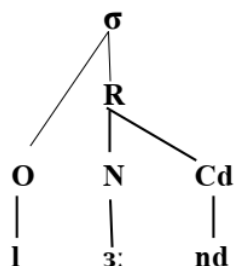


Syllabic constituents of the word 'Kaleidoscope' are presented in two planes as /kə.'laɪ.də.skəʊp/ and /kə.'laɪ.dəs.kəʊp/. In the 11-A, the last two syllables /də.skəʊp/ represent two root words but they are syllables in the first diagram, and in 11-B, /dəs.kəʊp/ both are reshaped where phoneme /s/ becomes the coda of preceding syllable rather than the onset of the last syllable which makes the pronunciation posterous.

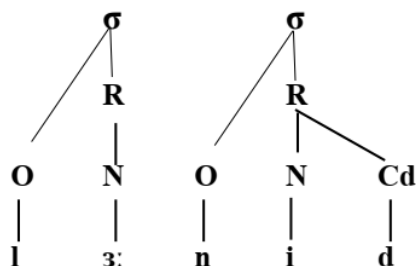
12. Learned

/lɜ:nd/ /lɜ:n.id/

12-A



*12-B

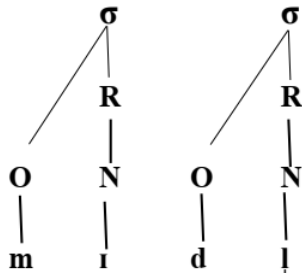


The word learned is a monosyllabic word, not a disyllabic one. The correct pronunciation is /lɜ:nd/ not /lɜ:n.id/.

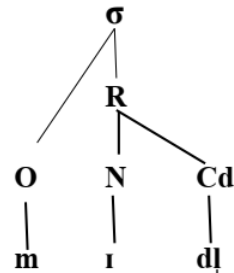
13. Middle

/ˈmɪd.l/ /ˈmɪdl/

13-A



*13-B

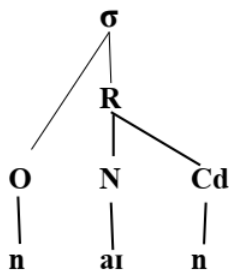


The word middle' is a two-syllabic word, not a monosyllabic one where /id/ is one syllable and /l/ is the second one, and it is a syllabic consonant by definition. Other syllabic consonants are /m, n, and r/.

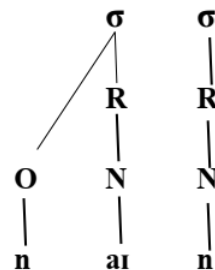
14. Nine

/ˈnaɪn/ /ˈnaɪ.n/

14-A



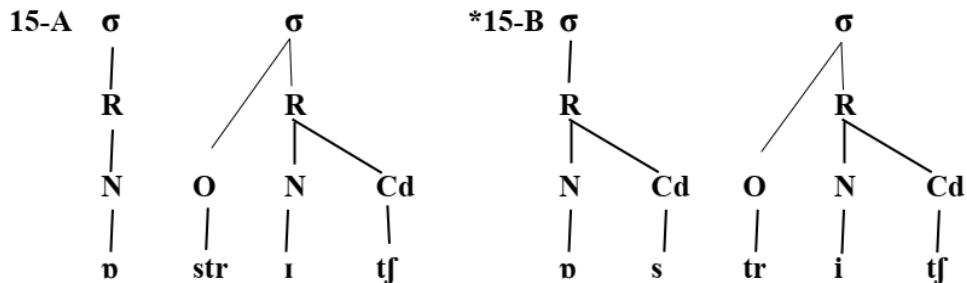
*14-B



Word nine is a monosyllabic word that cannot be split into two constituents. So, the phoneme /n/ will not be treated as a syllabic consonant.

15. Ostrich

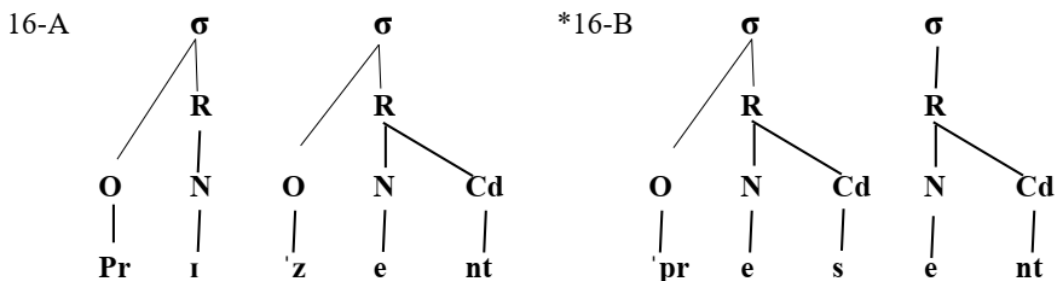
/ˈɒ.stɪtʃ/ /ˈɒs.tɪtʃ/



Two phonetic transcriptions of the word 'ostrich' are /'ɒ.strɪtʃ/ and /'ɒs.trɪtʃ/ in 15 - A and 15 - B. Though 'str' is a string of Phonotactics. This string is broken down in the second diagram which is not acceptable.

16. Present

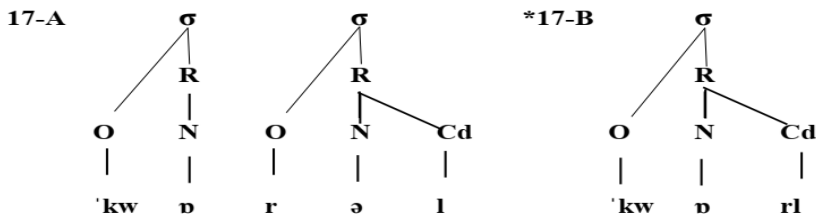
/pri.'zent/ /'pres.ɛnt/



Two phonetic transcriptions word 'present' are structured as /pri.'zent/ and /'pres.ɛnt/. Both of these are acceptable units of syllables. If the stress on the first syllable becomes a noun if the stress is on the second syllable it becomes a verb.

17. Quarrel

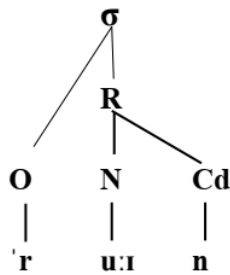
/'kwɒ.rəl/ /'kwɒrɪl/



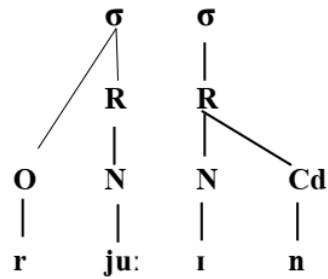
In the case of the word 'quarrel', two phonetic structures are /'kwɔ.rəl/ and /'kwɔrl/. It is not a monosyllable word. The rule of double should be applicable here and intervocalic /rr/ should be split into two; first as the coda of the first syllable and second as the onset of the second syllable.

18. Ruin /'ru:m/ /rju:.ɪn/

18-A



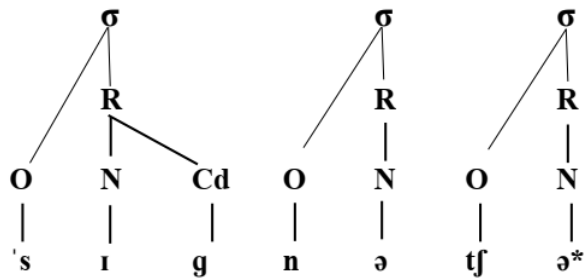
*18-B



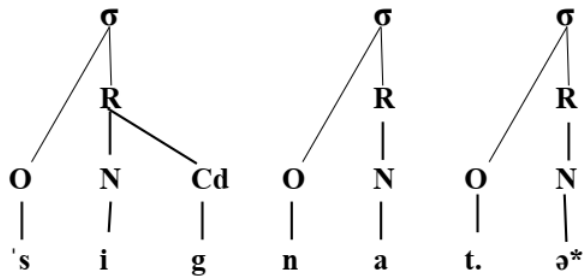
Word 'ruin' is one syllable word as /'ru:m/ /rju:.ɪn/ not a two-syllable word as /'ru:m/ /rju:.ɪn/.

19. Signature /'sɪg.nə.tʃə/ /'sɪg.nat.ə/

19-A

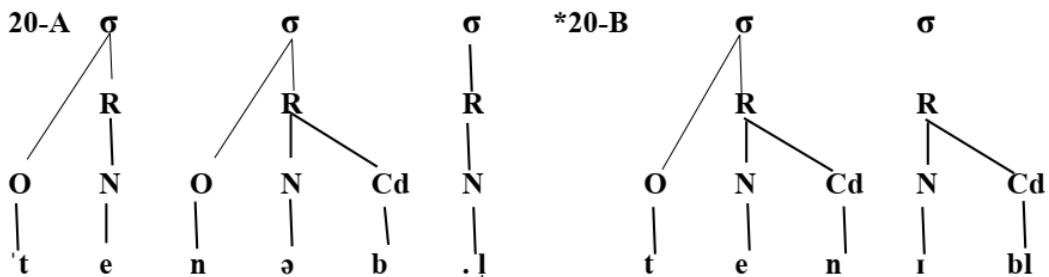


*19-B



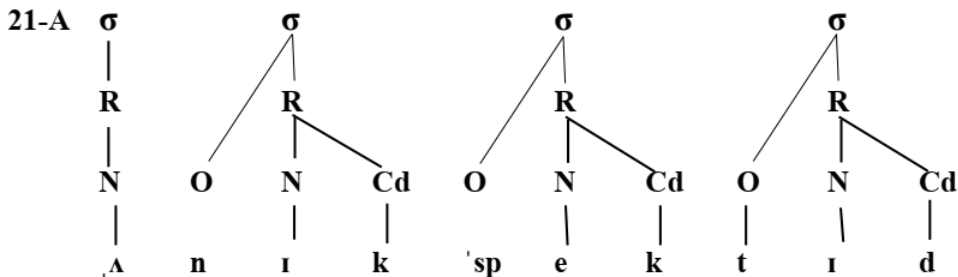
In the first phonetic description /'sig.nə.tʃə/ which is a three-syllable word, '/ture/ syllable is described well as /tʃə/ while in the second set of transcription /'sig. nat. ə/ the claim of /ture/ as one complete syllable is violated which mispronounces the word signature.

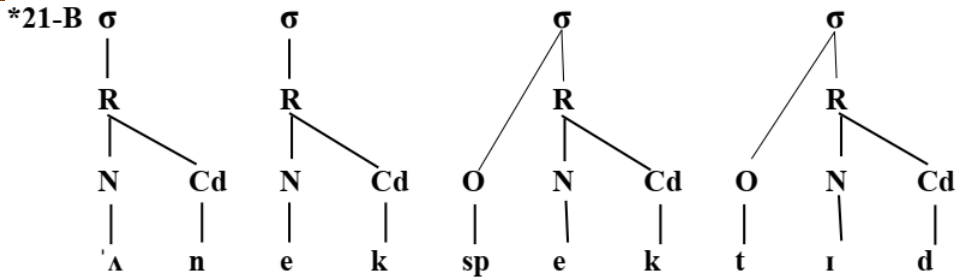
20. Tenable /'te.nəb.l/ /'ten.ɪbl/



Word tenable is the three-syllable word as in /'te.nəb.l/. It cannot be syllabified as /ten/ and /able/. Though /able/ is a suffix and it should be treated as a complete syllable. When it conjoins with ten, the new word 'tenable' does not show the qualities of the lexeme of the word ten, hence 'able' should not be treated as an isolated syllable here.

21. Unexpected /,ʌ.nɪk.'spek.tɪd/ /'ʌn.ek.spek.ɪd/



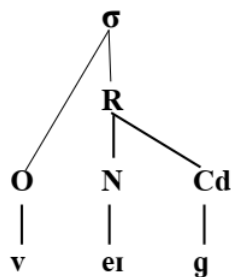


Unexpected is a three-syllable word that is syllabified in two structures as /ʌ. nɪk.ˈspek.tɪd / /ʌn.ek.spek.ɪd/. If by rule, it is divided into three constituents as /ʌn/, /ɪspek/, and /ɪd/, it gives the transcription as /ʌn.ek.spek.ɪd/ which is not appropriate. The fact is that in syllabication, we should keep in mind some other implementations rather than the rule of affixation. In the first set of syllabic segments, the first syllable /ʌn/ is broken, and the /n/ & /t/ sounds are assimilated with the next ones producing new syllables /nɪk/ and /tɪd/ respectively.

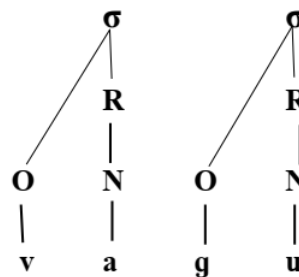
22. Vague

/veɪg/ /va.gu:/

22-A



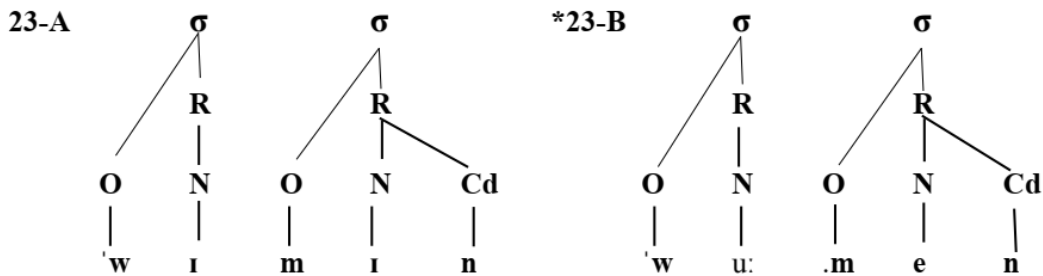
***22-B**



Vague is a monosyllable word with phonetic transcription as /veɪg/. It should not be confused with the two-syllable word /va.gu:/.

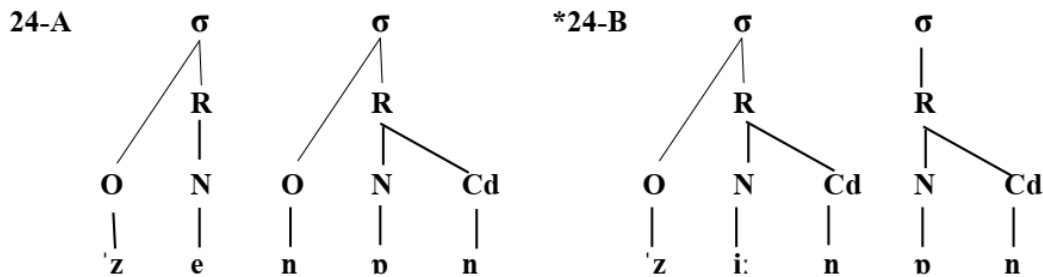
23. Women

/ˈwi.mɪn/ /ˈwu:.men/



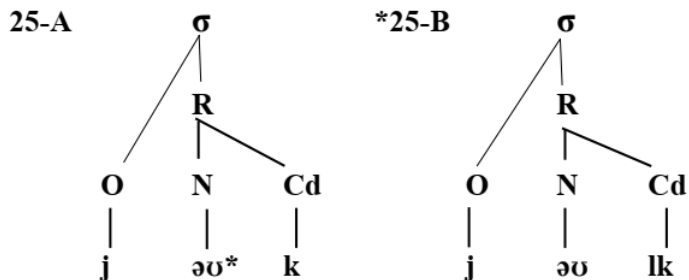
Women is a two-syllable word with two phonetic transcriptions as /'wɪ.mɪn/ and /wɪ:.men/. The segmental unit in 23-A is one appropriate one.

24. Xenon /'ze.nɒn/ /'zi:n.ɒn/



Most of the words starting with 'x' are located in science. 'Xenon' is one of them. It is a two-syllable word with stress on the second syllable.

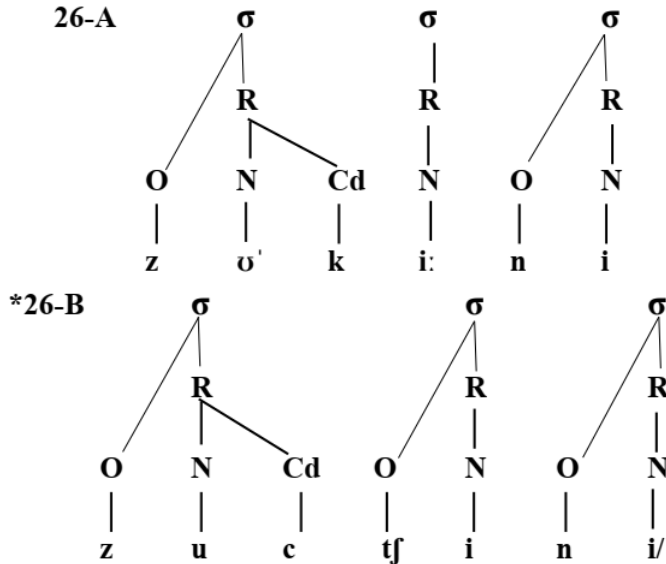
25. Yolk /jəʊk/ /jəʊlk/



/jəʊk/ and */jəʊlk/* are the phonetic transcription of the word ‘yolk’. There are four phonemes in this word */y-o-l-k/*, but while it is pronounced it is *yok* where */l/* is silent by rule.

26. Zucchini

/zʊ'k.i:.ni/ */zuc.tʃi.ni*



Regarding the phonetic transcription ‘Zucchini’ is a three-syllable word. It should not be segmented as */zuc.tʃi.ni/*. The phoneme */c/* is a double consonant, yet in this word, it is treated as one sound */k/* with syllabi prominence.

5. Discussion

Random words in alphabetical order from A to Z were chosen from The Compact Oxford Dictionary of Current English by Fowler for the syllabic analysis. Words with internal ambiguous boundaries cause problems in syllabification. Phonotactics restraints were implemented to structure convenience in the process of syllabification. In the process of syllabification, in some words, the Optimal Maximal Principle and in some others Phonotactic Principle were violated for better pronunciation. Only correct syllabification produces correct pronunciation otherwise words may have been mispronounced; hence meaningless and sometimes preposterous.

6. Conclusion

The present study concluded with syllable as the basic unit of pronunciation syllable structure with onset, nucleus, and coda as its constituents. No syllable can sustain on its own except thy syllabic or vocalic consonants. Analysis was conducted on twenty-six words in alphabetical order taken from the Compact Oxford Dictionary of Current English (2008) by Soanes. The words with ambiguous syllabic boundaries were analyzed through the lens of the Optimal Onset Principle and Phonotactic constraints. The process of syllabification provided evidence that sometimes set rules are violated to split the words into appropriate constituents. The study concluded with the following implications.

- Every syllable must have a vowel sound higher in the sonority principle.
- The number of vowel sounds in a word shows the number of syllables.
- Monosyllable words in not divisible anymore.
- Consonant clusters and digraphs are not segregated. But sometimes, there is a violation when clusters are intervocalic.
- Consonant clusters like /ck/ and /x/ are divisible.
- A compound word can be separated into its root words.
- A single intervocalic consonant becomes the coda of the first vowel rather than the onset of the second.
- In a two-syllable word, if the first vowel sound is long, a single intervocalic consonant becomes the onset of the second syllable.
- Two pure vowels in a word often form two separate syllables.
- A vowel sound without any onset or cade itself forms a syllable.
- Affixes and root words are often segregated.
- Be, de, ex, and re at the beginning of a word make a separate unit of the syllable.
- Syllabic or vocalic consonants make an isolated syllable.
- Inflectional -ed, in regular verbs for a syllable unit, if it is preceded by /d/ or /t/.
- 'al' and 'el' at the end of a word form a separate syllable.
- 'ture' and 'tion' at the end of a word are considered separate syllable units.
- 'ly' at the end of a word is divided to make a syllable of its own.

- A word ending in the noun suffix *ant* preceded by a consonant or digraph divides the word before that consonant or digraph.

References

- Ahmadi, M. R. (2011). *Why is Pronunciation So Difficult to Learn ?* 4(3), 74–83.
<https://doi.org/10.5539/elt.v4n3p74>
- Bartlett, S., Kondrak, G., & Cherry, C. (2009). On the syllabification of phonemes. *NAACL HLT 2009 - Human Language Technologies: The 2009 Annual Conference of the North American Chapter of the Association for Computational Linguistics, Proceedings of the Conference*, 308–316.
<https://doi.org/10.3115/1620754.1620799>
- Collins, B., & Mees, I. M. (2013). Practical phonetics and phonology: A resource book for students. In *Practical Phonetics and Phonology: A Resource Book for Students*. <https://doi.org/10.4324/9780203080023>
- Darcy, I. (2018). *Powerful and Effective Pronunciation Instruction: How Can We Achieve It?* 13–45.
- Gullickson, T. (1992). Review of The Sound Pattern of English. In *Contemporary Psychology: A Journal of Reviews* (Vol. 37, Issue 3).
<https://doi.org/10.1037/031431>
- Hayes. (2009). *Syllabification in English - UCLA Linguistics*.
<https://linguistics.ucla.edu/people/hayes/120a/HayesAmbisyllabicity.pdf>
- Ingemann, F., & Crystal, D. (1998). Dictionary of Linguistics and Phonetics. In *Language* (Vol. 74, Issue 1). <https://doi.org/10.2307/417640>
- Johnson, P. L. and K. (2006). A Course in Phonetics. In *Australian Journal of Linguistics* (Vol. 26, Issue 2).
<https://doi.org/10.1080/07268600600885494>
- Kahn. (1976). *Syllable-based Generlisations in Phonology*. Massachusetts: Massachusetts Institute of Technology.
- Katamba, F. (1992). An Introduction to Phonology. In *Journal of Phonetics* (Vol. 20, Issue 2). [https://doi.org/10.1016/s0095-4470\(19\)30628-x](https://doi.org/10.1016/s0095-4470(19)30628-x)
- Lasi, F. (2020). *A Study on the Ability of Supra- Segmental and Segmental Aspects in English Pronunciation A Study on the Ability of Supra-Segmental and Segmental Aspects in English Pronunciation*. 426–437.
<https://doi.org/10.30605/25409190.222>
- Raimy, E., & Cairns, C. E. (2014). The Segment in Phonetics and Phonology. In *The Segment in Phonetics and Phonology*.

<https://doi.org/10.1002/9781118555491>

Riemsdijk, H. van. (1996). *The Syllable*.

Ryu, Y. (2002). *Pronunciation of English as a second or foreign language learners [sic]: the reexamination of teaching pronunciation*.

Soanes, C. (2008). *Compact Oxford English Dictionary of Current English*. 1210.
http://isbndb.com/d/book/compact_oxford_english_dictionary_of_current_english_a02