# The Notion of Syllable across History, Theories and Analysis

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by

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بِسْمِّمَّ اللهِ الَّ رحْمٰنِ الَّ رِحِيم

(أَجَعَلَ الْآلِهِةَ إِلهَا وَاحِدًا إِنَّ هَذَا لشَيْءٌ عُجَابٌ)

سورةص/5 صدق

الله العظيم

**In the Name of Allah , Most Gracious, Most Merciful**

"Has he made the gods only one God? Indeed, this is a curious thing."

**(Ali, 1987:155)**

                       **Allah Almighty is truthful**

# Dedication

To

my dear father and mother and the people who have supported me throughout this study.

# Acknowledgments

All thanks and praises are due to Allah, The Almighty. Thanks and respect are to my tutors for their great support, guidance, and constructive suggestions.

My sincere thanks go to my supervisor M. Dr. Raed Abdulalah Mohammed for his valuable guidance .

I express my deep sense of gratitude to my parents and friends for helping and supporting me.

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# Abstract

This research aims to investigate that syllables are a unit of organization in phonology, the study of the patterns of sounds and signs in language. However, this study discusses the situations of achieving syllables in both generative and optimality theory. So, generative theory is a system of processes and representations that serve as the foundation in linguistics. The behavior produced by the related system of processes and representations is how the theory is articulated. It aims to explain how language develops in people and how everyone is capable of speaking, despite the fact that everyone speaks a different language while optimality theory is a linguistic model proposing that the observed forms of language arise from the optimal satisfaction of conflicting constraints. OT differs from other approaches to phonological analysis, which typically use rules rather than constraints. The findings of the study proves that the syllable is different in both generative and optimality theory. However, to show the differences, this research discusses the syllable of Arabic Accent in optimality theory to prove how syllables are happening in optimality theory more than generative one.


This research is subdivided into three sections; Section one presents the preliminary remarks if the study. Section two explains the meaning and origin of syllables then justifies how syllables happen in generative theory by explaining the types and properties of syllables in generative theory. Section three provides the process of syllables in optimality theory by discussing the notion of syllables of Arabic Accent in Optimality theory. Then, the conclusion is concluded.

V

# Section One: Preliminary Remarks

## 1.1 Introduction

The syllable is a unit of organization in phonology, the study of the patterns of sounds and signs in language. Typically, a syllable consists of a vowel and at least one consonant, though various combinations are possible, including single vowels. The syllable in phonology can be analyzed in two different types of theories which are; generative and optimal theories. In linguistics, **generative theory** is based on a system or systems of processes and representations. The theory is expressed as behavior generated by running the associated system of processes and representations. Generative grammar is a theory first put forth by Noam Chomsky. It seeks to explain how humans develop language and how all humans have a capacity for language even if the specific languages differ from person to person.

On the other hand, **Optimality Theory** (frequently abbreviated OT) is a linguistic model proposing that the observed forms of language arise from the optimal satisfaction of conflicting constraints. OT differs from other approaches to phonological analysis, which typically use rules rather than constraints. However, phonological models of representation, such as autosegmental phonology, prosodic phonology, and linear phonology which are equally compatible with rule-based and constraint-based models. OT views grammars as systems that provide mappings from inputs to outputs; typically, the inputs are conceived of as underlying representations, and the outputs as their surface realizations. It is an approach within the larger framework of generative grammar. In linguistics, Optimality Theory has its origin in a talk given by Alan Prince and

Paul Smolensky in 1991 which was later developed in a book manuscript by the same authors in 1993.

This study will focus on the meaning of with itś origin, then showing the relationship in analyzing syllables according to **Generative** and **Optimal** theories of phonology in Arabic and Arbil languages as a case study.

However, the research aims to answer the following questions:

1.What is the syllable?
2.How is it analyzed according to generative and optimality theory?

## 1.2 Aims of the Study

The study aims to

1.give definition to the syllable.
2.analyze the syllable according to the above mentioned linguistics theories

## 1.3 Hypothesis of the Study

1.It hypothesized that the syllable is a phonological unit that is used in different phonological processes.

2.The syllable can be analyzed according to different types of theories.

## 1.4 Limits of the Study

The study is limited to define and discourse the syllable in two linguistic theories which are; generatively and optimality theories.

## 1.5 Value of the Study

This study is valued and interesting for most people who want to know about the syllable and how it can be analyzed in two different types of theories which are; **generative** and **optimality** theory.

# Section Two

## Syllable in Generative Theory

## 2.1 Definition of Syllable

The structuralist linguist Charles F. Hockett, drawing on the 1947 work of Kenneth and Eunice Pike, referred to the syllable as a "structural unit", analyzing it into Immediate Constituents (capitalisation in original) of an onset, a peak and a coda. He went on to claim that their origin was phonetic and pulmonic (of the lungs): it appeared that the rhythm of pulmonic exhalation correlated with the production of syllables. This was a similar view to the idea that syllables were associated with 'chest pulses' (Chomsky & Halle, 1968: 62).

Although humankind has been aware of syllables throughout recorded history, as evidenced by the existence of syllabaries, a formal definition remained elusive until the late 20th century. Sometimes the syllable was defined on loosely phonetic grounds, while on other occasions a more phonological description was sought. A syllable is a single, unbroken sound of a spoken (or written) word. Syllables usually contain a vowel and accompanying consonants. Sometimes syllables are referred to as the 'beats' of spoken language (Hayes, 2009: 112).

However, this phonetic definition of the syllable in generative theory does not adequately describe its behavior. Whilst phonetic analysis of speech often finds a correlation between breaks in voicing and syllable margins, there are many instances where boundaries are absent from the acoustic waveform. Furthermore, changes in pronunciation within syllables often seem unmotivated by phonetic factors. For example, English speakers vary a good deal in how much and when

they glottalise the phoneme /**t**/ in words such as **hat**; this process occurs syllable finally, but is not obligatory (Gussenhoven, 2005: 245).

## 2.2 Origin of the syllable

Evidence for the existence of syllables as significant structures in the world's languages can be divided into evidence both external and internal to the system of language. The former refers to ideas about syllables in various cultures, such as their use in poetry, as well as speakers' 'intuitions' about them. Internal evidence refers to actual linguistic behavior (e.g. positions where speakers modify a pronunciation), which can perhaps be better accounted for if it is assumed that 'rules' of phonology operate within the syllable rather than some other domain (Crystal, 2008: 90).

Giegerich (1985: 123) states that there are several pieces of external evidence for the syllable:

Its place in various cultures around the world; for instance, there are many writing systems, known as syllabaries, that write syllables rather than individual phonemes (distinctive segments).

Their use in language games, such as Pig Latin, where syllables are moved around.

Native speaker intuitions; people often 'feel' that words are not the fundamental unit of speech, but are further divided into smaller units

Speech errors and wordplay seem to respect the position of segments within the syllable. e.g. **town drain** is a possible spoonerism for down train, because only onsets are swapped, but *nown traid is not.

## 2.3 The Syllable in Generative Theory

Generative phonology was the creation of Noam Chomsky and Morris Halle, both to be professors in the Department of Modern Languages and Linguistics and later the Department of Linguistics and Philosophy at the Massachusetts Institute of Technology. In several ways, the development of generative phonology was born of a disciplinary rupture, and brought with it rifts in the field. Proponents of generative grammar ironically, in light of the similar views of the earlier generation of linguists noted above believed that generative grammar was the first truly scientific account of language, the first to develop something that could be called a theory (Hayes, 1980: 310).

Getting indulged into dealing with generative phonology, it is important first to come across the term "generative" and its meaning. The term generative is introduced by Noam Chomsky in his book "*Syntactic Structures*" (1957) to denote "the capacity of a grammar to define the set of grammatical sentences in a language". There are two main branches of generative linguistics: generative phonology and generative syntax (Goldsmith, 1993: 120).

GP is an approach of generative linguistics whose aim is to establish a set of rules, principles or constraints efficiently to produce the surface phonetic forms of a language and to model the internalized linguistic knowledge of native speakers. It was a central idea in linguistic research throughout the 1960s and

although it has undergone reforms and changes in subsequent decades, it continues to be the dominant framework for many developments in phonological theory. It is a component of generative grammar that assigns the correct phonetic representations to utterances in such a way as to reflect a native speaker's internalized grammar (Donegan, 2002: 61).

**e.g. The derivation of a simple tree structure for the sentence "the dog ate the bone" proceeds as follows. The determiner the and noun dog combine to create the noun phrase the dog. A second noun phrase the bone is created with determiner the and noun bone. The verb ate combines with the second noun phrase, the bone, to create the verb phrase ate the bone. Finally, the first noun phrase, the dog, combines with the verb phrase, ate the bone, to complete the sentence: the dog ate the bone. The bellow tree diagram illustrates this derivation and the resulting structure:**
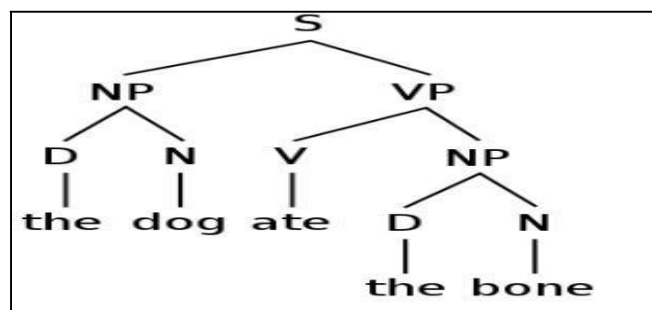


Such a tree diagram is also called a phrase marker. They can be represented more conveniently in text form, (though the result is less easy to read); in this format the above sentence would be rendered as:

**[S [NP [D The ] [N dog ] ] [VP [V ate ] [NP [D the ] [N bone ]**

(Goldsmith,1993: 41).

This theory fits with the rest of Chomsky's early theories of language in the sense that it is transformational as such it serves as a landmark in Chomsky's theories by adding a clearly articulated theory of phonology to his previous work

which focused on syntax. In generative phonology, phonetics that was assumed to be universal played a secondary role, ultimately useful just to the extent that it could provide a vocabulary of features permitting the linguist to specify explicitly and overtly the abstract dimensions of the sound stream in a strictly binary fashion. The formal manipulation of these features by the phonology itself remained strictly binary (with marginal exceptions involving stress (Clark & Yallop, 1995: 225).

The sound pattern of English has had some influence on subsequent work. Derivatives of generative theory have made modifications by changing the inventory of segmental features, considering some to be absent rather than having a positive or negative value, or adding complexity to the linear, segmental structure assumed by Chomsky and Halle. Its treatment of phonology as rules that operate on features, as well as its particular feature scheme, survive in various altered forms in many current theories of phonology. Some major successor theories include autosegmental phonology, lexical phonology and optimality theory (Giegerich, 1985: 223).


In generative phonology, the syllable is regarded as a unit of organization in phonology, the study of the patterns of sounds and signs in language. Typically, a syllable consists of a vowel and at least one consonant, though various combinations are possible, including single vowels. The number and type of syllables in a word, phrase or sentence may strongly influence stress and intonation throughout (Crystal, 2008: 130).

In linguistics, the existence of syllables as organizers of speech sounds and sign language movements is typically used to explain observations about what is possible in language, from native speakers' perceptions of how many 'beats' there are in a word to the possible ordering of segments such as c, a and t in cat: why

English speakers 'feel' there are two syllables in mother but only one in fire, and why *nxalr is not a possible word in English and, indeed, most languages. The 1950s and 1960s saw a new approach to language study: generative linguistics, associated primarily with Noam Chomsky and his contemporaries (Katamba, 1989: 55).

The existence of the syllable in generative theory as an abstract phonological unit that limits the possible sequences of segments is not uncontroversial, and its use in mainstream linguistics literature has been inconsistent. Theories predating the arrival of the currently mainstream generative phonology, as well as more recent approaches from within generativism itself, have called into question or even outright rejected the syllable in favour of other behavioral explanations from within both phonology and phonetics (Kager, 1999: 141).

An **example** of this is glottalisation in English, where the /t/ in **but**, **butter** and **bottle** may be glottalized by many speakers. Assuming this occurs at the right edge of the syllable covers what might otherwise be regarded as three separate rules. Another **example** of syllable in generative theory, note that this means there is no prosodic difference between **hand** and **handy**; the addition of -y requires only that the vowel be 'plugged' into the existing syllable structure, rather than requiring a resyllabification rule to produce a new structure (Jensen, 2004: 61).

## 2.4 Types of Syllable in Generative Theory

### 2.4.1 Natural Generative Phonology

Notably a movement came into being that argued for concrete, naturalist, surface oriented analyses which remained vocal up through the 1980s at least. Although it would be impossible to identify a homogeneous and stable core

doctrine, naturalist approaches fell roughly into two camps that of natural generative theory. By choosing the term natural, the adherents of natural phonology inevitably invited the interpretation according to which generative theory of phonology is in some sense artificial phonology, and thus incapable of grasping or adequately modeling what is natural and universal in well-studied processes found in both diachronic and synchronic phonological studies(Hooper, 1976: 24).

In retrospect, it is notable that natural phonology seemed incapable of completely breaking with the generative phonological framework which was in full swing at this point: natural phonology continued, notably, to employ phonological derivations and ordered rules (Kenstowicz, 1994: 230).

Natural phonology was grounded in diachronic studies far more than was classical generative phonology, and nowhere was this more so than in reconsideration of neogrammarian analyses couched in terms of phonetic laws and diachronic rules, such as Grimm's or Verner's law, or those describing the passage from classical to vulgar Latin. If the impetus for derivational conceptions of phonological analysis can be found, in part, in ordered sound change, this may account in part for natural phonology's continued adherence to a derivational perspective. In the end, natural phonology limited its positive statements to formulations of constraints and principles whose effect was to limit the generative power of the dominant model, and to put limits on the distance permitted between abstract underlying representations and surface representations (McCarthy, 2007: 18).

Liberman (1977: 103) states that in English world, the word final devoicing is regarded as a classic case of neutralization process; similarly, it is perfectly acceptable as a rule in syllable that is existed in generative theory since it expresses a true generalization: all word final obstruents are voiceless.

**e.g. ta[k]**     **day**          **ta[g]e**       **days**
     **lei[t]**     **sorry**        **lei[d]en**     **to suffer**
Voiced obstruents become voiceless when they occur at word final position.

Much of natural phonology was or at least appeared to be motivated by a particular conception of human cognition, one which was both empiricist and "sensualist," in the sense that the "natural" in "natural phonology" included (and was perhaps dominated by) the character of human audition and articulation; naturalness and function would follow directly (if the theory were to hold) from the anatomy and physiology of the human species, and the grounding of a phonological explanation would ultimately emanate from a deeper understanding of anatomy and physiology of acoustic perception and articulatory action (Jensen, 2004: 117).

## 2.4.2 Lexical Generative phonology

Lexical phonology was a program of research developed during the 1980s jointly by a number of phonologists, including Paul Kiparsky It was proposed as a refinement of classical generative phonology, but incorporated insights from a wide range of theories, notably pre-generative structuralist phonology and natural phonology. One of its strengths, and one of the aspects that made it attractive, was that it was an effort to synthesize elegant solutions to a large number of problems, many of which had not hitherto been viewed as directly related.

**e.g bath – bathes /θ/ → /ð/ cloth – clothes /θ/**

**→ /ð/ worth – worthy /θ/ → /ð/** (Donegan,

2002: 250).

Here the voiceless interdental fricative changes to the voiced interdental according to the principle of syllable in lexical phonology of generative theory.

Clark & Yallop (1995: 71) states that within the framework of lexical phonology, the phonology of a language was divided into two distinct components, lexical phonology and post-lexical phonology. In processual terms, the output of the lexical phonology was the input to the post-lexical phonology, which meant that no information computed in the post lexical phonology could play a role in any rule or generalization in the lexical phonology. In addition, much of the information about the internal morphological structure of a word was "erased" (so to speak) from a representation when it passed to the postlexical component, and thus such information could play no role in a generalization in the postlexical phonology.

## 2.4.3 Autosegmental generative Phonology

The inadequacies of a purely linear model of phonological representations were discussed in detail in the two principal statements of American structuralist phonology, structural linguistics and a manual of phonology. Harris discussed what he termed long components in connection with phenomena that today would be called prosodic or autosegmental, while Hockett placed hierarchical structure, especially syllable internal hierarchical structure, at the center of his account of phonological structure. While not all phonologists in the 1950s and 1960s agreed that phonological analysis should include syllable structure, SPE dismissed it.

Indeed, one of the bones of contention between natural generative phonology and SPE was NGP's strong adherence to the syllable as a unit of analysis (Hayes, 2009: 98).

**e.g. the English plural suffix may be pronounced: /s/ in books, /z/ in cars, or /əz/ in buses. All these forms are stored mentally as the same s, but the surface pronunciations are derived through a phonological rule.**

This phonological rule is represented by the following rewrite rule: [+stop,+consonant,+alveolar]→[flap]/[+vowel,+stressed]_[+vowel,-stressed](ibid: 99).

## 2.5 Formal Properties of Generative Rules

Chomsky and Halle's (1968) generative rules have the following formal properties:

1. Generative rules are sequentially ordered re-writing rules (i.e. rules which "change or transform one symbol into another" (ibid.).
2. Generative rules "apply sequentially, that is, one after another, rather than applying simultaneously": this means that each rule creates as its output a new intermediate level of representation which serves as the input to the next rule (ibid.).

## 2.6 Derivation Syllables in Generative Theory

GP postulates two levels of phonological representation; a phonological underlying representation and a phonetic surface representation. The underlying

representation is "the most basic form of a word before any phonological rules have been applied to it. It refers to the abstract underlying phonology of the language. A phonetic representation, on the other hand, is the form of the word that is spoken and heard. There is no phonemic level intervening between Sapir's phonological and phonetic representations (Kenstowicz, 1994: 249).

A phonological derivation is "the set of stages used to generate the phonetic representation of a word from its underlying representation" (Hayes, 2009: 70). The following is a diagram and an example representing the stages of a derivation, wherein phonological rules influence each stage of a derivation:

Stages of a Derivation in GP (Chomsky & Halle, 1968: 100) **e.g.**

Word……….                           **impossible**

                                         ↓

**Underlying representation……**      **/im/ /pasəbəl/**

                                         ↓

**Assimilation …………**              **/impasabəl/**

                                         ↓

**Aspiration……………**              **/im asəbəl/**

                                         ↓

**Phonetic representation…….**       **[im asəbəl]**
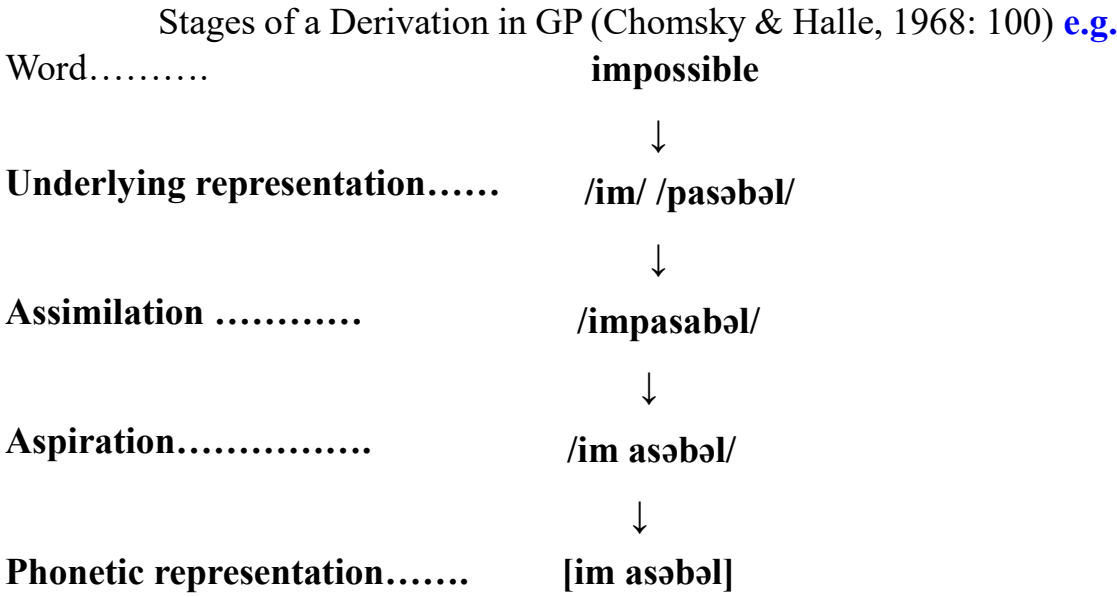
## Section Three

### Syllable in Optimality Theory

## 3.1 Origin of Syllable in Optimality Theory

Optimality Theory (OT) is an explanatory model for syllable structure in Arabic and English language It abandons the idea that the underlying (input) and surface (output) matching is accomplished via rules. Optimality Theory assigns a ranking to all of the candidate realizations of a word, calling the scale a measure

of harmony. All of the candidates which show the maximal amount of harmony are accepted by the constraint system, and others are rejected(Hayes, 1980: 147).

Goldsmith (1993: 70) mentions that a derivation in Optimality Theory consists of an original candidate set produced by a function called GEN (Generator), and the subsequent application of constraints to reduce the candidate set, eliminate all non-optimal candidates and preserve those with greatest harmony. The internal structure of the syllable in optimality theory has been described by many linguists in different views. The segments on the skeletal tier are directly linked to the syllable node. The nucleus plays an important role in phonological representation. They propose that the phonological representation consists of the syllable tier, the CV tier, and the segmental tier. The first three tiers represent the organization of speech units at higher levels as shown below:
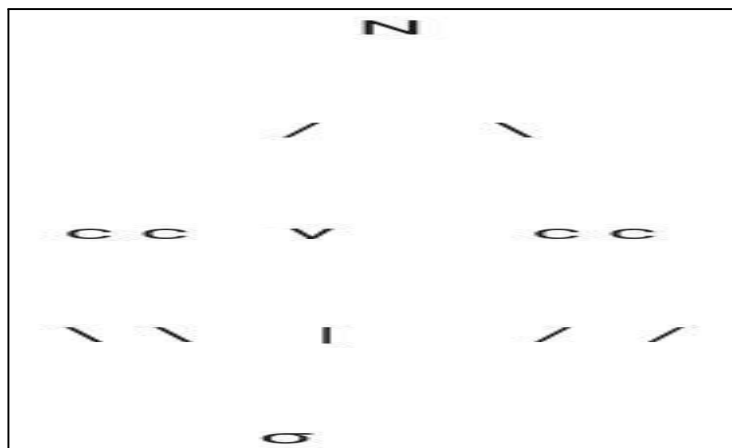


The segmental tier, on the other hand, consists of bundles of distinctive features matrices which represent consonants and vowels.

The syllable is maximal substring such that:

a.       no segment is lower on the hierarchy than both its immediate neighboring segments.

b.       no two segments of equal ranking on the hierarchy are adjacent. The onset is maximal within the limits of (a)' (Kager, 1999: 360).

Donefan (2002: 114) provides that in this definition of syllables in optimality theory, no reference is made to language specific rules. Onset is defined in the environment of the well-formed condition of syllabification. In a second approach, the syllable is considered to have the same internal constituent structure. The occurrence of the nucleus because phonological rules refer to it. The **onset**, **peak** and **coda** as the major constituents of the syllable in optimality theory. The occurrence of the rime to distinguish between heavy and light syllables. A hierarchical branching theory in the framework of multi-tiered phonological theory. Syllable structure in this approach is represented as follows:
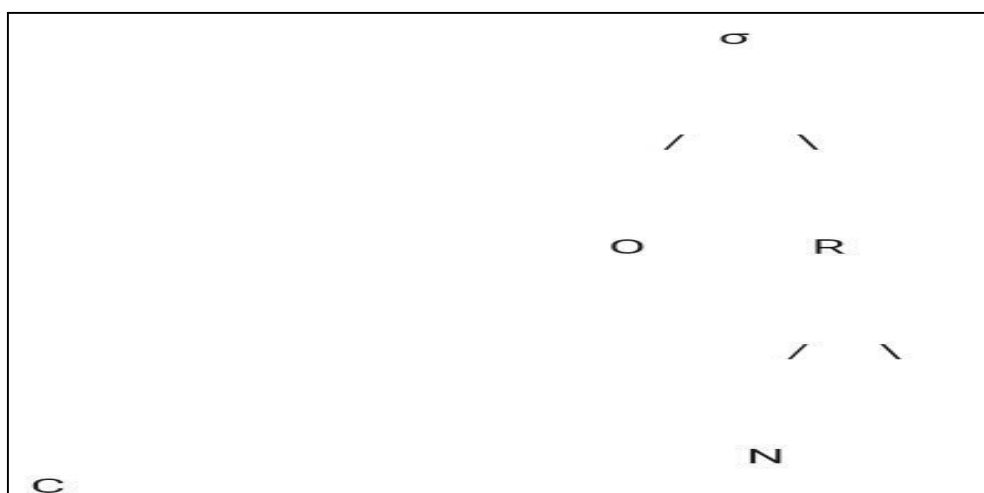


Katamba (1989: 46) clarifies that the syllable (σ) in the above representation consists of two constituents, namely, the onset and the rime; onset comes from the beginning and rime follows it. The rime here branches; it contains a vowel

which is followed by a consonant. The rime is the head constituent, i.e., the obligatory constituent of the syllable; the onset is the sister constituent which comes from the same node (i.e., σ). Syllabic structures are constructed by rules which are ordered among the rules of phonology. She presents two types of syllabification rules, namely, universal and language specific. A universal rule parses the segmental string to form CV syllables. The language-specific rules form complex onsets and rimes (this includes branching onsets and codas). Their relative order of application, their unbounded or binary manner and the presence of segmental well-formedness conditions on their application are also language-specific.

Clark & Yallop (1995: 250) state that a coda is defined as a complement of the nucleus. The onset is defined as a specifier of the syllable. The moraic theory requires the use of the moras as a unit involved in the determination of syllable weight, such that light syllables count as monomoraic, and heavy syllables as bimoraic as shown in below:
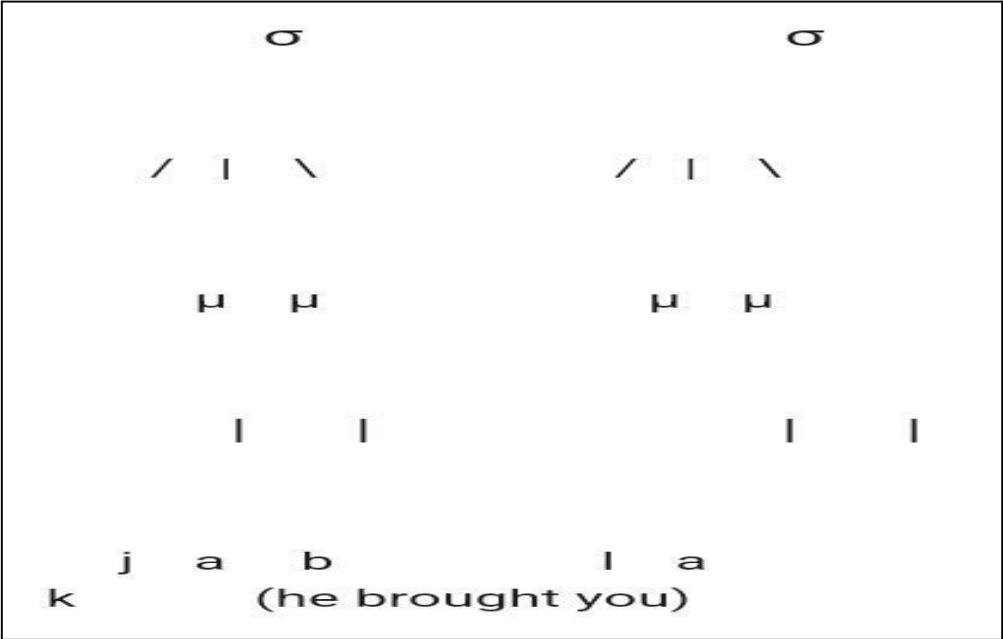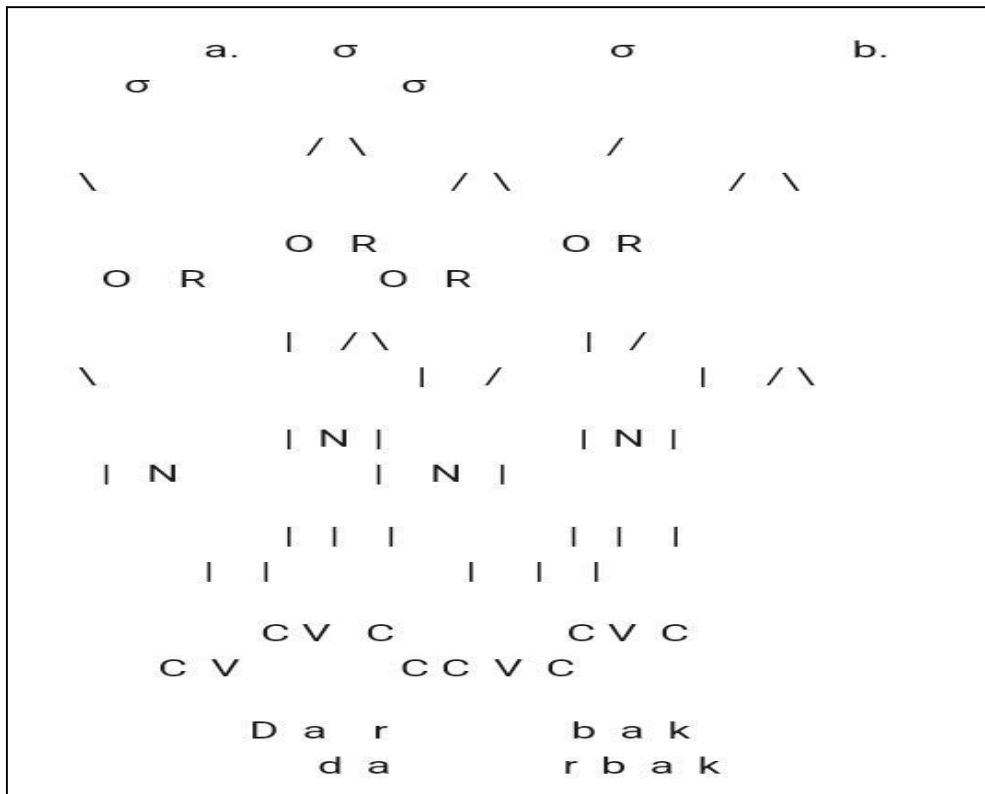
## 3.2 Syllable in Optimality Theory through Arabic Language

Arabic syllable structure has been subject to extensive research for more than two decades. The possible syllable types of the Arabic language are as in the following:

 

 

  a. CV     galam 'pen'
  b. CVV   saakin 'resident'
  c. CVC   jamal 'jamal'
  d. CVVC sakaakeen   'knives'
  e. CVCC 'I hit' (Katamba, 1989: 66).

 

 

Goldsmith (1993: 390) provides that the syllable types above exist in Arabic language; CV is a light syllable, CVV and CVC are heavy syllables and CVVC and CVCC are super-heavy syllables. The first three types are the unmarked ones in terms of their distribution, because they occur more often than the other two types (CVVC, and CVCC). CV and CVC are more frequent types, because there are no constraints of any kind on their distribution in any position in the Arabic word. They occur freely in word-initial, medial and final positions. But the CV-type is more frequent than CVC and the rest, and then the least marked and the most natural, while the CVCC syllable is much less natural or marked. On other hand, there are some constraints on the distribution of the CVV type. This type is less frequent in final position than the other two positions, and more frequent in medial position than in initial or final positions. In (e) only 'a' is acceptable syllabification but not 'b':

```
       a.    σ                σ              b.
    σ              σ
          /\             /            / \
  \                /\          / \        /  \
       O  R          O  R
  O   R        O   R
       |  /\          |  /           |  /
  \             |  /          |   /\
       | N |          | N |
  | N          | N |
       |  |  |          |  |   |
    |   |         |  |   |
       C V  C          C V  C
   C  V         C C V  C
       D  a   r          b  a  k
         d  a            r  b  a  k
```

To account for syllable structure for Arabic language, people need to apply the four universal constraints, ONSET, NO-CODA, MAX-IO, and DEP-IO mentioned. As shown above that Arabic language syllables must have an onset, I, therefore, consider the interaction of ONSET and DEP-IO. Whenever such a situation is met we appeal to epenthesis (Katamba, 1989: 44).

| | |
|---|---|
| a. ?ankatab written' | 'was |
| b. ?astalam | 'received' |
| c. ?ana | 'I' |
| d. ?inta | 'you' |
| e. ?axtabar examined' | 'he |

The epenthetic element is the glottal stop /?/, and any form violating the constraint ONSET will be eliminated since there are candidate parses that meet the constraint ONSET by synthesizing a glottal stop, thus violating the constraint DEP-IO (Jensen, 2004: 15).

| Ankatab | ONSET | DEP-IO |
|---|---|---|
| a. an.ka.tab | *! | |
| √ b. ?an.ka.tab | | * |

If it reverses the ranking of ONSET and DEP-IO, the optimal candidate will be the form *[ankatab] with an onsetless syllable which is not acceptable in Arabic language (ibid: 16).

| ankatab | DEP-IO | MAX-IO |
|---|---|---|
| a. ?an.ka.tab | *! | |
| √ b. nka.tab | | * |

The deletion of the low vowel in the above example satisfies the constraint ONSET but violates the MAX-IO. The relation between the two makes a wrong prediction because the optimal parse is the one where the low vowel[a] of the input is deleted. This shows that the two constraints should not be ranked with respect to each other (Hayes, 1980: 78).

| /Hasa_i/ | ONSET | MAX-IO | DEP-IO |
|---|---|---|---|
| √ a. Sa.ma.wi | | | * |
| b. Sa.mai | | *! | |
| c. Sa.ma.i | *! | | |

Any violation of ONSET and MAX-IO will not be optimal. The interaction of faithfulness constraints DEP-IO and MAX-IO with the NO-CODA constraint will be examined (Hooper, 1976: 219).

| /kawya/ | MAX-IO | DEP-IO | NO-CODA |
|---------|--------|--------|---------|
| √ a. kaw.ya |  |  | * |
| b. ka.ya | *! |  |  |
| c. ka.wa.ya |  | *! |  |

The candidate (b) above violates the constraint MAX-IO because it deletes /w/, and the candidate in (c) violates the constraint DEP-IO because it inserts a low vowel, and since both are higher in the rank than the NO-CODA, the candidate in (a) is the optimal syllable (Goldsmith, 1993: 25).

# Conclusion

To sum up, this research leads the readers to learn that in linguistics, generative theory is based on a system or systems of processes and representations. The theory is expressed as behavior generated by running the associated system of processes and representations. Generative grammar is a theory first put forth by Noam Chomsky. It seeks to explain how humans develop language and how all humans have a capacity for language even if the specific languages differ from person to person. On the other hand, Optimality Theory (frequently abbreviated OT) is a linguistic model proposing that the observed forms of language arise from the optimal satisfaction of conflicting constraints. OT differs from other approaches to phonological analysis, which typically use rules rather than constraints.

Furthermore, there is an account for Arabic syllable structure within the Optimality Theory which is a constraint based approach. It has been shown that syllabic well-formedness derived in this approach by the interaction of constraints belonging to Universal Grammar (UG) is better than rule and parameter based syllable structure building algorithms. So, two types of constraints have been distinguished, one is called dominated constraints, which are DEP-IO, NO-CODA, ALIGN-R, and the second is called undominated constraints, which are ONSET, MAX-IO, PARSE-seg, *COMPLEX and SSP. So, this research argues that the undominated constraints are never violated and as such they are ranked top in the ranking scale. The relative ranking of these constraints is what determines the right syllabic output.

Finally, in Arabic sonority plays a very important role in final consonant clusters. All examples discussed above show that consonant clusters in Arabic language obey the optimality theory more than generative theory constraint in

decreasing the sonority of the second member of the cluster to become less sonorous than the first one.

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