A study of Some English Phonological Rules and Their Processes

Idha Nurhamidah
Fakultas Bahasa, Unissula Semarang

Abstract

This article discusses some English phonological rules and their phonological process. The rules dealt with in this article include aspiration, nasalization, vowel lengthening and regressive assimilation with fixed spelling—just to limit; despite the fact that there are more phonological rules. Each of the rules under study is described in terms of generative phonology followed data analysis to justify the application of the rules in line with the underlying forms. More significantly, the study will be able to give linguistic evidence that English has rules in their systems of sounds that are rule-governing and generative in nature

Key words: *phonological rules and processes, aspiration, nasalization, vowel lengthening, regressive assimilation, rule-governed*

INTRODUCTION

Despite its high importance in the learning of English as a foreign language (EFL) in Indonesia, pronunciation is least paid attention to. This is understandable since EFL teachers assume that there are a lot of dictionaries equipped with phonemic or phonetic transcription for each word entry to which students can easily refer with respect to the pronunciation of a particular word. However, it is also true that the acquisition of a foreign language is much facilitated by pronunciation drill since the production of speech sounds can only be made perfect through drills. Pronunciation drills, in other words, are very important to train the speech organs for the production of at either the level of individual sounds or that of words, or even that of phrases and clauses, along with word stress and intonation patterns.

The science that deals with speech sounds as sounds is called 'phonetics' (Ramelan, 1985:3). This will give the students special training in the production of individual speech sounds in addition to the training of word-stress and intonation, and most importantly catenation of sounds.

With respect to the catenation of sounds to form a natural flow of the oral production of language, the students need to study the sound systems of language in what is termed as 'phonology' (Finegan, 1994:50).

Through phonology, the students learn the environments by which a certain phoneme is produced (uttered) into its allophones, resulting the allophonic variants of for example a certain word which may be differently pronounced but without causing different meanings. All regular and predictable forms are ruled by the phonological rules which are generative in nature in the sense that one rule can be used to generate unlimited number of allophones in the same environment (Finegan, 1994:59). Such allophonic forms of a phoneme is phonologically conditioned.

In this article, the writer would like to focus on the discussion of English phonological rules and their phonological processes within the framework of the following problem statements:

1) What is the phonological process for 'aspiration' of the voiceless stop /p/, /t/, and /k?
2) What is the phonological process for nasalization?
3) What is the phonological process for vowel lengthening?
4) What is the phonological process for regressive assimilation?

Based on the four areas of problems, this article is aimed at:

1) describing the phonological process for 'aspiration' of the voiceless stop /p/, /t/, and /k/;
2) describing the phonological process for nasalization;
3) describing the phonological process for vowel lengthening;
4) and describing the phonological process of regressive assimilation

THEORETICAL FRAMEWORK

In this part, the writer would like to describe at a glance the theoretical framework that will be used in the data analysis for linguistic evidence.

It is argued (Raynor, 1998:72) that language is built on three systems, namely (1) sounds (dealt with in phonology), (2) meaning (dealt with in semantics) and (3) grammar (dealt with in morphology at word level; and syntax at phrase and clause levels). The writer prefers to use the term grammar which is subdivided into morphology and syntax while Raynor uses the terms rules (grammar or syntax). This should not make any conflict because the syntax of words is linguistically called morphology.

As the title suggests, the writer shall, however, limits the discussion to phonology, which is the study of sound patterns in language.

It is theorized (Raynor, 1998:113) that there are two main areas of phonology, manely (1) what happens at the phoneme level. That is what happens to the individual sounds within a language; this is sometimes called segmental phonology (the phonemes are the "segments"; (2) what happens beyond the phoneme or segment level, sometimes suprasegmental phonology.

Again, the writer has to limit the discussion of these two areas of phonology to only discussing the area of phoneme level without touching upon the suprasegmental one. This is because phonological rules mainly deal with segmental phonemes—how they are by rules formed into meaningful units of language in their phonological processes.

In line with the statement of the problems in this article, the writer focuses on the following issues (Finegan, 1994:60-69)

1) Aspiration

By aspiration is meant here a slight puff of breath resembling a [h] sound. It occurs in voiceless stops /p/, /t/, /k/ as ruled out under the following phonological rule:

$$\begin{pmatrix} -\text{voiced} \\ +\text{plosive} \\ +\text{bilabial} \\ +\text{alveolar} \\ +\text{velar} \end{pmatrix} \rightarrow \text{ASPIRATED} \; / \; \text{in \# stressed syllables}$$

2) Nasalization

Nasalization occurs in a vowel or a diphthong before a nasal, also called regressive assimilation as the nasal influences the previous vowel to become nasalized. The rule can be illustrated below:

$$\begin{bmatrix} +\text{vowel} \\ +\text{diphthong} \end{bmatrix} \rightarrow \text{NASALIZED} / \_\_\_\_\_ \begin{bmatrix} +\text{nasal} \\ +\text{bilabial} \\ +\text{alveolar} \\ +\text{velar} \end{bmatrix}$$

3) Vowel lengthening

Vowel lengthening occurs in a vowel or diphthong being pronounced longer **before** a voiced consonant (this is also another form of regressive assimilation) under the following rule:

$$\begin{bmatrix} +\text{vowel} \\ +\text{diphthong} \end{bmatrix} \rightarrow \text{LENGTHENED} / \_\_\_\_\_ \begin{bmatrix} +\text{voiced} \\ +\text{consonant} \end{bmatrix}$$

4) Regressive assimilation with fixed spelling

People may not be aware of the fact that the words 'impossible'. 'irregular', 'illogical', 'imbalance', incongruent actually have the same underlying form of prefix {in-} which can be ruled out as follows

$$\begin{bmatrix} +\text{nasal} \\ +\text{alveolar} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{nasal} \\ +\text{bilabial} \end{bmatrix} / \_\_ \begin{bmatrix} +\text{stop} \\ +\text{bilabial} \end{bmatrix}$$

$$\begin{bmatrix} +\text{lateral} \end{bmatrix} / \_\_ \begin{bmatrix} +\text{lateral} \end{bmatrix}$$

$$\begin{bmatrix} +\text{nasal} \\ +\text{velar} \end{bmatrix} / \_\_ \begin{bmatrix} +\text{stop} \\ +\text{velar} \\ -\text{voiced} \end{bmatrix}$$

It is argued that regressive assimilation occurs in the form of a change in any of the three variables (of manner, of place and of voicing) in the consonants (Roach,1998:124). The results of regressive assimilations may be so strong that even they become fixed as in their spelling system. Thus, people recognize the word 'irregular' as a word in itself without regard to its regressive assimilation. There are of course regressive assimilations which only influence the pronunciation, thereby maintaining their original spellings one of which is nasalization as described above.

DISCUSSION

Below is the application of the phonological rules the writer has outlined by describing the **phonological processes**. From each application of rule, it can then be understood how important it is phonological rules for the students of English as a foreign language. Some may argue that they can pronounce the English sentences well without knowing the phonological rules. They may be true in some respect,

maybe they are native speakers of English or those who learn the language for instrumental purposes.

Rule 1: Aspiration

The aspiration rule that has been outlined above representing the underlying form of the rule can be worded as **"voiceless stops /p/, /t/ and /k/ are aspirated in word initially and in initially stressed syllables."**

Consider the following linguistic data:

'pipe	[p(h)aIp]	apparent	[ə'p(h)ǽrənt]
'temporal	[t(h)Empərəl]	accountable	[ə'k(h)aUntəbl]
'keep	[k(h)i:p]	attorney	[ə't(h)ə:nI]
'time	[t(h)aIm]		

(the writer's data)

The phoneme /p/ in the word 'pipe' is aspirated to become its allophonic form [**p(h)__**] as it occurs **initially**, meanwhile the /p/ is not aspirated in its final position [___p] as in the words 'pipe' and 'keep'. Similarly, the [po] in 'tem**po**ral' and the [ta] in 'accoun**ta**ble' are not aspirated because they are not stressed syllables.

The /p/ the word 'apparent' is aspirated because it occurs in a stressed syllable. This aspiration rule also applies in /k/ in the word 'accountable' and /t/ in the word 'attorney'. Thus the allophonic forms of aspiration occurring in /p/, /t/, /k/ are **phonologically conditioned**, that is in stressed syllables. They become phonetically [p(h)], [t(h)] and [k(h)].

However, it should be noted that aspiration is not symbolized in broad transcription because it is predictable and allophonic in nature. In narrow transcription it is sometimes symbolized as a small letter of (h) as a diacritic symbol right at the aspirated consonant. In other words, since it is an allophonic form, it will not change the meaning of the word in question if it is not aspirated. The only disadvantage for not aspirating the consonants /p/, /t/, and /k/ in such phonological conditions is that the English spoken in that way (without aspiration) will sound **foreign**.

Rule 2: Nasalization

The nasalization rule can be reworded as "**all vowels and diphthongs are nasalized before a nasal.**"

Compare the following lists of words

1	2
game [geI(n)m][1]	gate [geIt]
song [so(n)ng]	log [log]
him [hI(n)m]	hit [hIt]

(the writer's data)

The diphthong and vowels in the list 1 [ei], [o], [i]) are nasalized because of the regressive assimilation (influenced) by the next nasals (-m, -ng, and –m). The diphthong [eI] for example is nasalized due to the influence of the nasal [m] that follows. Similarly, the vowels [o] and [I] are nasalized due to the influence of the nasal [-ng] and [m] respectively.

[1] (n) means that the vowel or diphthong is nasalized. My computer does not provide nasalized symbol.

Meanwhile the diphthong and vowels in the list 2 [eI], [o], and [i] are normally pronounced or not nasalized because they are not followed by any nasal.

Similar to aspiration, nasalization is also predictable in terms of phonological position, and thus phonetic in nature. In other words, the words in List 1 may or may not be nasalized without changing the meaning of each word. Again, the label of 'foreign' English will be attached to those who fail to nasalized vowels and diphthongs in such phonological conditions.

Rule 3: Vowel lengthening

The rule for vowel lengthening as above can be reworded as **"all vowels or diphthongs are pronounced longer when followed by a voiced consonant."**

Compare the following lists of words

1		2	
bead	[bi:(.)d][2]	beat	[bi:t]
hid	[hI(.)d]	hit	[hIt]
bed	[bE(.)d)]	bet	[bEt]
bide	[baI(.)d]	bite	[baIt]

(the writer's data)

The vowels and diphthong in the list 1 [i:], [I], [E] and [aI] are pronounced **longer** because of the **regressive assimilation** (influenced) by the next consonant [-d] (which is **voiced**) than the vowels and diphthong in the list 2 [i:], [I], [E] and [aI] as they are followed by [-t], which is a voiceless consonant. Thus a vowel or diphthong is, by vowel lengthening rules, pronounced longer when followed by a **voiced** sound than when followed by a **voiceless** sound.

Likewise, such a linguistic phenomena is phonetic in nature, meaning that if one fails to lengthen the vowel or diphthong, the meaning of the intended word does not change. This is because the length is not measured in terms of obsolete measurement, such as how many seconds longer; rather it is only relatively felt.

Rule 4: Regressive assimilation with a fixed spelling

Over times or simply within a word, which may have undergone morphological process, the results of assimilation is fixed with its spelling form. Consider the following sets of examples:

impossible	**Vs**	**in+possible**
irregular	Vs	**in+regular**
illogical	Vs	**in+logical**

The phonological process is very clear. The [p] in 'possible' influences the [n] to become [m] of which the assimilation occurs in terms of manner of articulation (from alveolar to bilabial) because [p] itself is a bilabial. Meanwhile, the [r] in 'regular' influences the [n[to become [r] of which the assimilation occurs in terms of manner of articulation (from alveolar to rolled fricative) because [r] itself is a rolled fricative. Furthermore, the [l] in 'logical' influences the [n[to become [l] of which the assimilation occurs in terms of manner of articulation (from alveolar to rolled lateral) because [l] itself is a rolled lateral.

[2] (.) means that the vowel is pronounced considerably longer

The question is why the change influences so strongly that it changes the spelling as well. Why is **in+possible** not maintained as **inpossible**, similarly, **in+regular** as **inregular**, and **in+logical** as **inlogical**? This is not the place to answer such a difficult question. A research in historical linguistics may provide the answer in a more satisfying way.

To sum up what the writer has discussed, the following table may be of some use:

Underlying and Surface Forms for Four English Words

Underlying Form	Rule	Surface Form	Written Form
/paIp/	Aspirated	[p(h)aIp]	pipe
/tIn/	Nasalization	[tI(n)n]	tin
/saId/	Length	[sai(.)d]	side
/in+posibl/	Regressive assimilation with a fixed spelling	[imposibl]	impossible

CONCLUSION AND SUGGESTIONS

The writer has outlined, very briefly though, the real phonological processes of some English phonological rules from which it can be justified that rules in phonology are generative. This means that one rule can generate unlimited number of phonological processes within the same phonological entities. The aspiration rule, for example, applies to [p], [t] and [k] in initial and stressed syllables of whatever word for which the rule may qualify so are other rules, such as length, nasalization, etc. Thus, the term generative phonology or one may call it just 'phonology' is a science which studies the sound patterns of language. In this case, the word 'patterns' can indicate the presence of phonological rules which rule out the pronunciation of any single word of a language.

The actual production of words or phrases shall, therefore, follows the phonological rules, mostly in the forms of progressive and regressive assimilations although it is phonetic or allophonic in nature. Failing to do so shall result in 'foreign' forms of pronunciation which may be negatively viewed by students and teachers alike in pedagogical terms.

This short article is of course by no means complete since only four out of many phonological rules have been dealt with. Further similar researches are open with respect to phonological rules which finally contribute to the development of linguistic studies for both theoretical and practical grounds.

For theoretical purposes, for example, there are still wide areas of researches in phonology, especially in line with the development of new Englishes around the world termed as International English. It is important that the pronunciation of 'International English' be intelligible among people of the English speaking countries despite the fact that some countries claim to have their own English—of which Singapore with its Singlish is one.

With a strong theoretical basis developed through researches in phonology, the writer is pretty sure that practical contribution can be offered with respect to promoting intelligible English which is spoken locally but understood internationally.

This can only be achieved by untiring research practices all over the world with one goal in mind—helping students who learn the target language, especially English.

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