SECTION 2

PHONETICS, PHONOLOGY, PHONOTACTICS

Primary Stress Displacement: An Investigation into the Application of English Morphophonological Rules by Students of English in Bingham University

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ABSTRACT

This paper investigated the application of English morphophonological rules by the students of English in Bingham University in Nigeria. Using an experimental research design, copies of a questionnaire were administered to twenty available students of the department across all levels, before and after pedagogic exposure to some morphophonological rules. The analysis of the data shows that students of English in Bingham, and by extension E.S.L users of the language, can improve their primary stress placement, and consequently improve their English communication, if they are properly taught morphophonological stress rules.

Structured Practitioner's Note

- *Primary stress is a known phenomenon in English studies, and many people know that a shift in the original stress placement of a word can affect its meaning or lead to ineffective communication.*
- *However, not many people know that there are underlying rules that determine to a large extent, how native speakers of English place primary stress on the syllables of words.*
- *It also reveals that an exposure to morphophonological stress rules can help students in appropriate stress placement.*

Introduction

In a paper titled *"Patterns of Nigerian English Intonation"*, Jowitt claims that a vast majority of speakers of English as a second language do not succeed in the appropriate use of English stress and intonation (63). The focus here is on stress. How factual is Jowitt's claim? Eka did a theoretical explication on the concepts of L_1 and L_2. He observed that an L_1 speaker of English who is

of African origin, and resides in Africa is different from an L_1 speaker of English who is of British origin, and resides in Britain. He therefore categorized speakers of English into three: L_1, L_2 and L_3 (pronounced /el wʊh tu:/). The same theory can be expanded to include L_3 speakers/learners. Based on Eka's explication, how factual is Jowitt's claim? Does it include those who are of African origin, and reside in Britain, or all categories of L_2 speakers/learners?

Statement of the Problem

Often, E.S.L (English as Second Language) users of English hardly communicate effectively with native speakers, especially in speech. The reason is not far-fetched. There are differences in pronunciation; differences in the pronunciation of phonemes, allophones, syllabic stress, and differences in intonation. Communication is the essence of every language. Where this is lacking, there is a problem.

Scope of the study

The study covered only the students of English in Bingham University. Across the levels, from 100 to 400 levels, twenty students were randomly chosen to serve as the respondents for this study. There are many English phonological rules, but only those that are morphologically determined were considered in this study. In addition, only those that pertain to primary stress placement were considered for investigation. Thus, primary stress rules that have much to do with prefixes and suffixes were the core of this study.

Aim and Objectives of the Study

While some scholars see mispronunciations by E.S.L (English as Second Language) users of English as mistakes/errors, advocates of linguistic variation see them as reflections of a new variety. The aim of this paper is not to join the debate. Rather, the aim of the paper is to carry out an investigation into the application of English morphophonological rules by the students of English in Bingham University. Therefore, the objectives of the study are:

i) to determine if students of English, in Bingham University displace primary stress; and

ii) to consider the possibility of pedagogic correction, by teaching and evaluating the students' performance to see if there is significant improvement, if 1.3.1 above is the case.

Research Questions

i) To what extent do students of English in Bingham University displace primary stress?

ii) To what extent can primary stress displacement be corrected among students of English in Bingham University?

Review of Relevant Literature

1. The Concept of Morphology

Yule (63) claims that morphology is a type of investigation which analyses all those basic 'elements' which are used in a language; the 'elements' are technically known as morphemes. According to McGregor (56), morphology is the scientific investigation of the internal structure of words, that is, how they can be divided into smaller meaningful units. McGregor's definition of morphology suggests that all units that make up the structure of a word are meaningful.

This is not completely true, if one is dealing with written language, as a letter in isolation is meaningless. But if one considers spoken language, McGregor's claim is completely true, as the omission or inclusion of a sound unit goes a long way in affecting or determining meaning.

The basic language elements that Yule refers to are the same as the units referred to by McGregor; they are all morphemes. A morpheme is a letter or a group of letters, which form (s) a word. Some letters qualify as words. For example 'I', (the first-person singular pronoun). Some letters or groups of letters must be attached to words before they can serve a purpose. E.g -s (shoes), -es (batches), pre- (prehistoric), and im- (impossible). Many groups of letters qualify as words in English language.

2. The Concept of Phonological Rules

A phonological rule is a statement on the variance of a phoneme or a class of phonemes in some particular environment. This definition covers only segmental rules. Generally however, a phonological rule can be defined as a specification or generalization on what obtains in the sound system of a particular language, which distinguishes it from others. For instance, in English, all voiceless plosives are aspirated word-initially. In addition, in English, strong (heavy) syllables are always stressed whereas the weak (light) ones are always unstressed.

The following is an English phonological rule given by Clark et al (133 135):

2.2.1 $C \longrightarrow [+\text{Voiced}]/V\_\_\_V.$

Rule 2.2.1 States that a consonant is voiced between two vowels.

For instance, in the word 'pleasant', the letter <s> is pronounced /z/ which is voiced alveolar fricative because it is between two vowels: /e/ and /ə/. Katamba posits that the syllable is the domain of phonological rules (166-168).

3. The Syllable as the Domain of Phonological Rules

From a general point of view, a syllable could simply be defined as a unit of sound that is made of a phoneme or a group of phonemes. Yavas defines it as 'a phonological unit consisting of segments around the pivotal vowel or vowel-like (diphthong) sound, which is known as the nucleus (20).' Clark et al. describe a syllable as a unit that commonly consists of a vocalic peak, which may be accompanied by an onset or a coda (67). An onset is a consonant or a consonant cluster that begins some syllables. A coda is a consonant or a consonant cluster that ends some syllables.

The definition given by Yavas is arguable, in that it does not cover examples such as: are /□ :/,I /□ i/ and air /eə/, which are nuclei without any other segments. He however does well in saying that the nucleus is pivotal; because indeed, there is no English syllable that has no vowel except a syllabic consonant, and where it exists, it does because of the preceding nucleus. The description by Clark et al. on the other hand, can be said to be universal.

Katamba posits that the syllable is the domain of phonological rules because the structure of a syllable often plays an important role in conditioning the application of phonological rules in a language. In his example of an obstruent devoicing rule, which he claims is found in many languages including Russian, German, and Turkish, Katamba makes his point very clear. Please consider the rule thus given:

$$[-\text{sonorant}] \longrightarrow [-\text{voice}] / \underline{\quad} \{C\}$$

Katamba asserts that in stating that obstruents are devoiced word-final or before another consonant, one must also observe that the two environments share the property of being syllable final (166). His claim and example represent the importance of syllable structure in determining phonemic phonological rules, which makes his example a segmental one.[3]

4. Stress Rules

Yavas defines stress as a cover term for the prosodic features of duration, intensity and pitch. This means that length, loudness, and higher pitch are the characteristics of stressed syllables. From the speaker's perspective, stress refers to the amount, of articulatory effort. From the hearer's perspective, it refers to the perceptual prominence of what is heard (156).

Katamba posits that from a phonological point of view, there are different kinds of stress, one of which is word stress. Word stress refers to the prominence that is given to a particular syllable over another (or others) within a word. Uttered in isolation, all English monosyllabic words are stressed. Katamba further asserts that in disyllabic words, one of the two syllables is stressed while the other is unstressed. In longer words, one syllable receives the main or primary stress, while another receives secondary stress. The syllable with the primary stress is longer than the other (s) (222).

Stress rules can therefore be defined as generalisations on the patterns of the articulatory effort that is made on certain syllables, which gives them the quality of being perceived as more prominent than others. Stress rules are supra segmental generalisations on patterns of syllabic articulatory and auditory prominence. Such generalisations are made from observable characteristics of the syllables that carry the primary stress. In English language, word stress is greatly influenced by the morphological structure of a word, word class of the word, and/or the weight of its syllable (s).

5. Morphologically Determined Stress Rules (Morphophonological Rules)

The morphological structure of a word determines its stress placement. Affixation (the attachment of prefixes or suffixes to words) plays a vital role in determining what syllable carries the primary stress within a word. The following examples from Katamba should suffice:

a) The suffix - ette when added to a word attracts the primary stress to itself. E.g
  i)   Maison ⟶ Maison'ette
  ii) Kitchen ⟶ Kitchen'ette
b) The suffixes -ic, -ity, and -al make the primary stress move to the syllable that is just before them. E.g
  i)   'Democrat demo'cratic
  ii) A'pology apolo'getic
  iii) 'Public   pu'blicity
  iv) 'Adjective adjec'tival
     (238-240)
c) Katamba also observes that in English, the addition of a prefix tends not to affect the placement of stress in words, as in the following examples:
  i)   'Write   re'write
  ii) E'xamine re-e'xamine
  iii) 'Gratitude in'gratitude
  iv) 'Moral a'moral
  v) Po'litical apo'litical
The following are more examples:
  vi) Com'plete incom'plete
  vii) 'Possible im'possible
  viii)'Perfect im'perfect
  ix) 'Like   un'like
  x) De'pendence inde'pendence

6. **Lexical Categorisation & Stress Rules**
The most common generalization that can be made on lexical categorization and stress rules is on the observable distinction that stress is used to make between nouns and verbs in English language. Any other generalization will always include a condition; the condition that the syllable to be stressed is heavy (strong). Please consider the following examples for the observable distinction between nouns and verbs:

	NOUN	VERB
i)	'Import	im'port
ii)	'Project	pro'ject
iii)	'Protest	pro'test
iv)	'Conduct	con'duct
v)	'Object	ob'ject

From the pairs in examples (i)-(v), the first words have stress on the first syllables, and the second have stress on the second syllables. In all the pairs the first word is the noun, whereas the second is the verb.

We can say therefore, that some disyllabic words are stressed on the first syllable to serve as nouns, and on the second syllable to serve as verbs. This is not new knowledge though. Also, in disyllabic nouns and adjectives, the first syllable always receives the primary stress, e.g pencil, apple, engine, table, happy, angry, and painful (Yavas 157).

7. **Syllable Weight and Stress Rules**
Most stress rules are determined by the concept of syllable weight. Katamba claims that a heavy syllable is one that contains a long vowel or diphthong. Such a syllable can also be said to be strong. He adds that a syllable, which has a short vowel followed by a consonant is also heavy. If the consonant is, however, a cluster, the syllable cannot be said to be a heavy one. It is light. It is weak (235). A stress rule that is determined by the concept of syllable weight is, according to Katamba, quantity sensitive (238). The following are examples:
a) Where disyllabic verbs contain no

heavy syllables, stress falls by default on the first syllable. E.g lavish, copy, ferry (Katamba 234).

b) Pen-ultimate syllables of tri-syllabic nouns are stressed if they are heavy; if they are not heavy, the stress falls on the heavy syllable that is just before them. E.g tomato, aroma, horizon, and agenda (Yavas 159).

The stress rules given would not be much of a problem to educated ESL/EFL users of the language if they were all transparent; the problem lies mainly in the fact that a good number of them are opaque.

8. **The Concept of Transparency**
According to Clark et al., a rule is transparent if it applies in all instances; if there are no exceptions to the rule (149). Typical examples of transparent rules are for instance:

a) In English, the reduction of unstressed vowels to /e/ is relatively transparent, at least in varieties such as R.P... (Clark et al. 149). E.g around /ə'raʊnd/, father /'fɑːðə/, instance /'instəns/ e.t.c

b) In English, the addition of a prefix tends not to affect the placement of stress in words. E.g e'xamine - re-e'xamine, 'gratitude - in'gratitude, 'moral - a'moral, and po'litical-apo'litical.

9. **The Concept of Opacity**
Opacity is the opposite of transparency. An opaque rule does not apply in all instances; it has many exceptions. Clark et al. claim that the generative generali-

zation that a 'tense' vowel becomes 'lax' before a consonant cluster is true. However, that there are exceptions to the rule, in that there are instances of 'tense' vowels before consonant clusters (e.g. fiend, heaped, pint, and heights), and some 'lax' vowels before clusters are not derived from 'tense' vowels (e.g dent, adept, crypt, and hint) (149). Please consider the following opaque rules as examples:

a) As a rule, unless they are long or complex, grammatical words like prepositions and conjunctions do not receive primary word stress (but long grammatical words e.g the preposition 'underneath' and the conjunction 'notwithstanding' receive primary word stress) (Yavas 235).

b) Disyllabic verbs are usually stressed on the second syllable. E.g rePRINT, coMMIT and reLEASE. There are however, many exceptions to the rule. For example, the following disyllabic verbs are stressed on the first syllable: conjure, boycott, vomit, bargain, and canvass.

Methodology
It was an experimental research design that was used for this study. Copies of a questionnaire were administered to twenty available students of English across all levels. They were asked to fill only sections A and B (which sought demographic information about them), and to do section C (a pre-test). After that, the questionnaire was retrieved. The respondents were then taught some morphophonological rules and given back the questionnaire to do the test.

Data Presentation And Analysis

1. Table 1: pre-test scores

S/N	Word	Respondent																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Maisonette	X	X	X	√	-	√	X	X	√	X	√	√	X	√	√	-	√	X	√	√
2.	Kitchenette	X	X	X	√	-	√	X	√	X	-	√	√	X	√	√	-	√	X	√	√
3.	Democratic	√	√	X	√	√	√	√	X	X	X	√	√	X	√	√	-	√	X	X	√
4.	Apologetic	√	√	X	X	X	√	√	-	X	X	√	√	X	√	√	-	√	√	√	√
5.	Publicity	√	X	X	X	√	X	X	√	√	X	X	√	X	X	X	-	√	X	X	√
6.	Adjectival	-	X	X	√	X	√	√	-	X	X	-	√	X	√	X	-	√	X	X	X
7.	Rewrite	√	X	X	X	X	√	X	√	X	X	√	√	X	√	√	-	√	√	√	X
8.	Re-examine	√	X	X	X	X	X	X	X	X	X	-	X	X	√	X	-	X	√	X	X
9.	Ingratitude	√	√	X	X	-	√	X	√	X	√	√	X	X	X	√	-	√	X	√	X
10.	Amoral	X	-	X	√	X	√	√	√	X	X	√	X	X	√	√	-	√	X	√	X
11.	Apolitical	X	-	X	X	-	√	X	-	X	X	X	X	X	√	X	-	X	X	X	X
12.	Incomplete	X	-	X	X	X	X	X	X	√	X	X	X	X	X	X	-	X	X	X	X
13.	Impossible	√	-	X	√	√	√	X	√	X	√	-	√	X	√	√	-	√	X	√	X
14.	Imperfect	√	-	X	X	√	√	X	√	√	√	X	√	X	√	√	-	√	X	√	X
15.	Unlike	X	-	X	X	√	√	X	√	√	√	X	X	X	√	√	-	√	√	√	X
16.	Independence	√	-	X	X	√	X	X	X	X	X	√	X	X	√	X	-	X	X	X	X
17.	Reintroduce	√	-	X	X	-	X	X	X	X	X	X	X	X	√	√	-	X	X	X	X
18.	Unimportant	√	-	X	X	√	√	X	X	X	√	√	X	X	√	X	-	X	X	X	X
19.	Unreliable	√	-	X	X	-	√	X	√	√	X	X	X	X	√	√	-	X	-	X	X
20.	Inactive	√	-	√	X	√	√	X	√	X	√	√	√	X	√	√	-	√	-	√	X
	Total score	13	3	1	6	8	15	4	10	6	6	10	10	0	17	13	0	13	4	10	5

Data Presentation And Analysis

2. Table 2: Test Scores

S/N	Word	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
																		Respondent			
1.	Maisonette	√	√	√	√	√	-	-	-	X	X	√	√	√	√	√	-	√	X	√	√
2.	Kitchenette	√	√	√	√	√	-	-	-	X	X	X	√	√	√	√	-	√	X	√	√
3.	Democratic	√	√	X	√	√	-	-	-	√	√	√	√	√	√	√	-	√	X	√	√
4.	Apologetic	√	√	X	√	√	-	-	-	X	√	-	√	X	√	√	-	√	X	√	√
5.	Publicity	X	X	X	X	X	-	-	-	√	√	√	√	√	X	X	-	√	X	X	√
6.	Adjectival	X	X	√	√	√	-	-	-	√	X	X	√	X	√	X	-	√	√	X	√
7.	Rewrite	√	√	√	√	√	-	-	-	X	√	√	√	√	√	√	-	√	√	√	X
8.	Re-examine	√	X	√	X	X	-	-	-	X	X	X	X	√	√	X	-	X	√	X	X
9.	Ingratitude	X	X	√	√	X	-	-	-	X	√	X	√	√	√	√	-	√	X	√	X
10.	Amoral	X	X	√	√	√	-	-	-	X	√	X	X	√	√	√	-	√	X	√	X
11.	Apolitical	X	X	√	X	√	-	-	-	√	X	√	X	X	√	X	-	X	X	X	X
12.	Incomplete	X	√	√	X	√	-	-	-	√	X	X	X	X	√	X	-	X	X	X	√
13.	Impossible	√	√	√	√	√	-	-	-	X	√	X	√	√	√	√	-	√	X	√	X
14.	Imperfect	√	√	X	√	√	-	-	-	X	√	X	√	√	√	√	-	√	X	√	X
15.	Unlike	√	√	√	√	X	-	-	-	X	√	√	√	√	√	√	-	√	X	√	X
16.	Independence	√	√	√	X	√	-	-	-	X	X	√	X	√	√	X	-	X	X	X	X
17.	Reintroduce	X	X	√	X	√	-	-	-	√	X	X	X	X	√	X	-	X	X	X	X
18.	Unimportant	√	√	√	X	√	-	-	-	X	X	√	X	√	√	X	-	X	X	X	X
19.	Unreliable	X	√	√	X	√	-	-	-	X	X	√	X	√	√	√	-	X	X	X	X
20.	Inactive	√	√	√	√	√	-	-	-	X	√	√	√	√	√	√	-	√	X	√	X
	Total	12	13	16	12	16	0	0	0	6	10	10	12	15	16	11	0	13	13	11	7

3.   Data Analysis/discussion

It is observable from the first table above that of the twenty respondents who took part in the pre-test, only nine got up to 10/20; the others got less. **The gross average score is 154/400.** The same students who did the pre-test took the test. The second table shows that of the twenty students who took the test, fourteen got up to 10/20. **The gross average score is 196/400.**

Summary, Conclusion & Recommendation

Often, E.S.L (English as Second Language) users of English hardly communicate effectively with native speakers, especially in speech. The reason is that there are differences in the pronunciation of phonemes, allophones, syllabic stress, and differences in intonation. This is a problem.

The aim of the paper was to carry out an investigation into the application of English morphophonological rules by the students of English in Bingham University; with a view to finding out if pedagogic exposure can help solve the problem. Across the levels; from 100 level to 400 level, twenty students were randomly chosen to serve as the respondents for this study. Primary stress rules that have much to do with prefixes and suffixes were the core of the study.

A review of relevant literature was carried out. The review covered areas such as: the concepts of morphology, phonological rules, morphophonological rules, stress rules, morphologically determined stress rules, transparency, opacity and others. The researcher conducted an experiment with the students, using a questionnaire to collect data. The questionnaire had a pre-test and a test.

The number of respondents who passed the pre-test, compared to the number of those who passed the actual test shows a significant improvement; there was an increase in the number. Also, the gross average score of the pre-test, compared to the gross average test score shows a significant improvement. This means that if properly exposed to stress rules, E.S.L speakers of English can master primary stress placement. Therefore, it is recommended that teachers/lecturers of English phonology, especially those in institutions of higher learning should teach stress rules to their students.

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Appendix
Primary Stress Displacement: An Investigation of the Application of English Morphophonological Rules by the Students of English in Bingham University
Questionnaire

SECTION A

The questions on this section have a direct bearing on the dependent variable of the topic of this research, and could be referred to when seeking explanations as to why you responded the way you did in the course of the experiment. Again, be honest. Please!

1. Are you a student of the department of English, Bingham university? Yes ☐ No ☐
2. At what level are you? 100 ☐ 200 ☐ 300 ☐ 400 ☐
3. Are you a Nigerian? Yes ☐ No ☐
4. What tribe is your father? _____
5. What tribe is you mother? _____
6. How many languages does your father speak? _____
7. How many languages does your mother speak? _____
8. What is the dominant language in the environment you grew up? _____
9. On a scale of 1-10, how often do you speak English at home? 1/10 ☐ 2/10 ☐ 3/10 ☐ 4/10 ☐ 5/10 ☐ 6/10 ☐ 7/10 ☐ 8/10 ☐ 9/10 ☐ 10/10 ☐
10. Is English the first language you acquired, or the second? _____
11. On a scale of 1-10, how often do you speak English in school? 1/10 ☐ 2/10 ☐ 3/10 ☐ 4/10 ☐ 5/10 ☐ 6/10 ☐ 7/10 ☐ 8/10 ☐ 9/10 ☐ 10/10 ☐
12. Do you know what primary stress is? Yes ☐ No ☐
13. Do you know what phonological rule is? Yes ☐ No ☐
14. If you know what a phonological rule is, what is it? _____
    _____
    _____
15. Do you know what a morphophonological rule is? Yes ☐ No ☐
16. If you know what a morphophonological rule is, what is it? _____
    _____
    _____
    _____

SECTION B (Pre-test)

Assign syllabic stress to the following pairs of words by simply using a stress mark.

(i)	Kitchen	kitchenette
(ii)	Democrat	democratic
(iii)	Apology	apologetic
(iv)	Public	publicity
(v)	Adjective	adjectival
(vi)	Write	rewrite
(vii)	Examine	reexamine
(viii)	Gratitude	ingratitude
(ix)	Moral	amoral
(x)	Political	apolitical
(xi)	Complete	incomplete
(xii)	Possible	impossible
(xiii)	Perfect	imperfect
(xiv)	Like	unlike
(xv)	Dependence	independence
(xvi)	Introduce	reintroduce
(xvii)	Important	unimportant
(xviii)	Reliable	unreliable
(xix)	Active	inactive

SECTION B (Test)

Having been exposed to the concept of phonological/morphophonological rules, assign syllabic stress to the following pairs of words by simply using a stress mark.

(i)	Maison	maisonette
(ii)	Kitchen	kitchenette
(iii)	Democrat	democratic
(iv)	Apology	apologetic
(v)	Public	publicity
(vi)	Adjective	adjectival
(vii)	Write	rewrite
(viii)	Examine	reexamine
(ix)	Gratitude	ingratitude
(x)	Moral	amoral

(xi)	Political	Apolitical
(xii)	Complete	incomplete
(xiii)	Possible	impossible
(xiv)	Perfect	imperfect
(xv)	Like	unlike
(xvi)	Dependence	independence
(xvii)	Introduce	reintroduce
(xviii)	Important	unimportant
(xix)	Reliable	unreliable
(xx)	Active	inactive