

MORPHOLOGICAL AND MORPHOPHONEMIC PROCESS (NATURE, TYPES, AND RULES)

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Abstract: Morphology or morphemic is defined as the study of the morpheme and their arrangements in building new larger morphological constructions. Morph is a physical form representing some morpheme in a language. Morpheme is the minimal unit of linguistics in a certain language. Seeing from the word formation, a new word in English and the change form of morpheme can be analyzed through two main processes. The morphological process has two main types of processes, affixation and non affixation. Affixation consists of two processes, (1) internal change, (2) Zero Modification. Affixation has ten processes namely (1)compounding, (2) blending, (3) borrowing, (4) coinage, (5) clipping, (6) backformation, (7) conversion (8) acronym, (9) multiple process (10)Reduplication. Morphophonemic processes are classified into ten processes, namely (1) loss of phonemes, (2) addition of phonemes, (3) simple consonant change, (4) assimilation; (5) dissimilation; (6) synthesis; (7) change of syllabic vowel or diphthong; (8) gradation; and (10) suppletion. This article tries to describe the process which should be conducted to analyze the word formation through morphological and morphophonemic processes.

Key words: process, morphological, morphophonemic

As a matter of fact, the term word is difficult to define, and not many linguists try to define it especially after more and more primitive and alien language has been analyzed. Most people usually understand what a word in those two languages, and that's why it is taken for granted. They always agree that a word is a linguistic from larger than one morpheme. Then it is better for the learners to study it deeper. Like syllables and sentences, words have an internal structure consisting of smaller units organized with respect to each other in a particular way. The most important component of word structure is the morpheme, the smallest unit of language that carries information about meaning or function. In other word morpheme is defined as the smallest unit of meaning or grammatical function (Katamba, 1993: 42). The word builder, for example, consists of two morphemes: build (with the meaning of ('construct') and -er (which indicates that the entire word functions as a noun with the meaning 'one who builds'). Similarly, the word house is made up of the morphemes house (with the meaning of 'dwelling') and -s (with the meaning 'more than one').

Some words consist of a single morpheme. For example, the word *train* cannot be divided into smaller parts (say, *tr* and *ain*) that carry information

about its meaning or function. Such words are said to be simple. However, these words below: an orange, a car, a building, an eel, an accent, a girl.

The form *a* is used before beginning with a consonant, and the form *an* before words beginning with a vowel. If different morphs represent the same morpheme, they are called allomorphs of that morpheme (Katamba, 1993: 26). In other word it can be said that the variant forms of morpheme are called its **allomorphs**.

Another example of allomorphic variations is found in the pronunciation of the plural morpheme-s in the following words: cats, dogs, judges.

Whereas the plural is pronounced as /s/ in the first case, it is realized as /z/ in the second, and as /ɪz/ (or perhaps /eɪz/) in the third. The selection of the proper allomorph is dependent on phonological facts.

There are other examples of patterns in which a morpheme's changes when it combines with another element are easy to find in English. The final segment in invent and assert, for instance, is realized as /t/ when these morphemes stand alone as separate words but as /ʃ/ when they combine with the morpheme-ion in the words such as permit/permis-sive ([t] [s]), electric/electric-ity [k] [s]),divide-/divis-ion ([d] [ɪ]), impress/impress-ion ([ʃ] [j])and so on.

The students can also be confused by changes in spelling found in some morphological patterns even when there are no corresponding changes in pronunciation. Thus, the final e in the words create and write is lost when they combine with a morpheme beginning with a vowel (creat-ive, writ-er). These spelling modifications do not change a morpheme's identity, of course and should simply be ignored when doing morphological analysis.

ROOT AND AFFIXES

According to Katamba (1993: 41) a root is the irreducible core of a word, with absolutely nothing else attached to it. It is the part that is always present, possibly with some modification, in the various manifestations of a lexeme. For example, walk, is a root and it appears in the set of word-forms that instantiate the lexeme WALK such as walk, walks, walking, and walked.

Then he further mentions (1993: 44) an affix is a morpheme which only occurs when attached to some other morpheme or morphemes such as a root or stem or base. Obviously, by definition affixes are bound morphemes. No word may contain only an affix standing on its own, like *-s or *-ed or *-al or even a number of affixes strung together like *-al-s.

There are three types of affixes. We will consider them in turn.

(1) Prefixes

A prefix is an affix attached before a root or stem or base like re-,un,- and in-

Re-make	un-kind	in-decent
Re-read	un-tidy	in-accurate

(2) Suffixes

A suffix is an affix attached after a root (or stem or base) like-ly, -er, -ist, -s, -ing, and -ed.

Kind-ly	wait-er	book-s	walk-ed
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Quickl-ly play-er mat-s jump-ed

(3) Infixes

An infix is an infix inserted into the root itself. Infixes are very common in Semitic languages like Arabic and Hebrew, but infixing is somewhat rare in English. Sloat and Taylor (1978) suggest that the only infix that occurs in English morphology is /-n-/ which is inserted before the last consonant of the root in a few words of Latin origin, on what appears to be an arbitrary basis. This infix undergoes place of articulation assimilation. Thus the root-*cub-* meaning 'lie in, on or upon' occurs without [m] before the [b] in some words containing root, e.g. *incubate*, *incubus*, *concupine*, and *succubus*. But [m] is infixed before that same root in some other words like *incumbent*, *succumb*, and *decumbent*. This infix is a frozen historical relic from Latin.

In fact, infixation of sorts still happens in contemporary English. Here are some examples from Bauer (1983):

- a. Kalamazoo(place name) →Kalama-goddam-zoo
 - Instantiate (verb) → in-fuckin-stantiate
 - b. Kangaroo → kanga-bloody-roo
 - Impossible → in-fuckin-possible
 - Guarantee →guaran-friggin-tee
- (Recall that the arrow → means 'becomes' or is 're-written as')

As it can be seen that, in present-day English affixation, not of an affix morpheme but of an entire word (which may have more than one morpheme, e.g. blood-y, fuck-ing) is actively used to form words. Curiously, this infixation is virtually restricted to inserting expletives into words in expressive language that one would probably not use in polite company.

In other words it can be said that all learners should concern more the elements of word such as root, affixes.

ROOTS, STEMS AND BASES

According to Katamba (1993: 45-46) the stem is that part of a word that is in existence before any inflectional affixes (i.e. those affixes whose presence is required by the syntax such as markers of singular and plural number in nouns, tense in verbs etc) have been added. For example:

Noun stem	Plural
Cat	-s
Worker	-s

A base is any unit whatsoever to which affixes of any kind can be added. Example: an unadorned root like boy can be a base since it can have attached to it inflectional affixes like-s to form plural boys or derivational affixes like-*ish* to turn the noun boy into the adjective *boyish*. In other words all roots are bases. Bases are called stems only in the context of inflectional morphology.

MORPHOLOGICAL PROCESS

Morphological process is the process in which the language user combines one morpheme with another in order to form a word. Hence, morpheme plays a role as the smallest elements in the structure of the word. Morphological process is a process combining two morphemes in finding new word.

According to Yule (1996, 63-70) there are two main types of morphological process, A) affixation and B) non affixation.

A) Affixation

1. Internal Change : complete change of form

Example: go + ed -went

Good +er – better

Good + est- best

There is core vowel change

Foot +es = feet

Tooth +es = teeth

2. Zero Modification: There is no change

Example: put + ed - put

Deer + es- deer

Normal-There is “No Case”

Act-action

Under morphological process

There is morphophonemic

Walk+ ed- walked

Open+ed-

B) Non Affixation :

1. Compounding is combining two words resulting new meaning. For example: blackboard, Whitehouse

Phrase, it can be written in one word

Example: black-board= any boards which is black

White-house= any boards which is black

M N

2. Blending: Mixing, usually we combine the initial letter/combining two separate forms to reproduce a single term. Typically this is accomplished by taking only the beginning of one word and joining it to the end of other word such as brunch is derived from breakfast and lunch, motel= motor + hotel, bionic, infotainment, transistor.
3. Borrowing: that language has not term in the language itself or it can be said that one of the most common source s of new words in English is process simply labeled borrowing, that is taking over of words from other languages. For example: bamboo (Chinese), alcohol(Arabic), piano(Italia),yogurt (Turkish), boss (Dutch),zebra (Bantu),robot (chezch), tycoon (Japanese),lilac(Persian), croissant(French)
4. Coinage: a new term, brand/one of the least common processes of noun formation in English is s the invention of coinage, that is, the invention of totally new terms example: Teflon, nylon, Kodak, flossy, aspirin, zipper, kleenex, xerox

5. Clipping: to cut/to clip the initial part of the word comes gather the final part. Example: final part= ad- advertisement, photo-photograph, the beginning phone-telephone, both: flu-influenza
6. Backformation: is the formation of a word from one that looks like its derivative. It is usually derived from verbs. Ex: *teller* from *tell*, *reaper* from *reap*, *writer* from *write*, *singer* from *sing*, *emotion* from *emote*, *editor* from *edit*, There is form adjective into nouns: *greed* from *greedy*.
7. Conversion: converting part of speech without changing the form. Example:

My mother is watering the garden.	Down that suitcase!
He is papering his walls.	Empty your glass!
Up this box, please!	Dirty his room!
8. Acronym: the forming of new word using the initial letter of word. For example: VIP (Very Important Person), RADAR (Radio Detecting and Ranging), CD (compact Disk), VCR (Video Cassette Recorder) Scuba (Self Contained Underwater breathing Apparatus), ZIP (Zona Improvement Plan), PIN (Personal Identification Number), WAR (Women Against Rape), ATM (Automatic Teller Machine).
9. Multiple Process: Combination two processes in creation of a particular word. For example: the term *deli* visa process 'borrowing' delicatessen (German) and then 'clipping' that borrowed form. WASP attitude, the form WASP (White Anglo-Saxon Protestant) has lost its capital letters and gained a suffix (-ish) in the derivation process.
10. Reduplication: It is a process of reduplicating either partial (partial reduplication) or entire (total reduplication) grammatical unity.
 Partial Reduplication can be difference of the initial consonant between the two elements, e.g. walkie-talkie, or medial, eg. criss-cross.
 Total Reduplication in English occurs only sporadically and it usually indicates intensity, e.g. goody-goody ('affectedly good'), din-din ('dinner').

So it can be concluded that there are two main types in morphological processes, the first is affixation which consists of two types those are internal change and zero modification, the second is non affixation which is classified into ten types in morphological process, all those processes can be used to analyze the word formation in finding new word.

MORPHOPHONEMIC PROCESS

Related to the affixation processes, there is a term called morphophonemic processes (Fromkin, 1990: 141). The term morphophonemic processes is derived from two words, they are "morpheme" and "phoneme". The word Morphophonemic refers variation in the form of morphemes because of the influence phonetic factor or the study of this variation (Longman).

According to Parera, the form change of morpheme is based on the sounds surround it which relates to the correlation between morphemes and phonemes (1982:42). It is also called morphophonemic changes.

Ramlan further mentions morphophonemic refers the changes of phoneme as a result from the merging of one morpheme and another (2001:83). He also states that morphophonemic process is a process of form changes in which phoneme and morpheme are involved. Morphophonemic is the branch of structural

linguistics that studies the variations or changes in the phonemic structure of allomorphs of two or more morphemes which combine to form a new derivational as well as inflectional word forms.

It also can be said morphophonemic is the study of the phonemic representation of morphemes in different environment. To be noted here that the description of changes in the phonemic structure is analyzed from the view point of synchronic linguistics, not the diachronic one. Synchronic linguistics deals with formulating the simplest possible description of the existing structure of a language whereas diachronic or historical linguistics is concerned with the most accurate description of the changes that have occurred during the history of a language. In noticing the phonemic change in the structure of allomorphs of the morphemes that combine into a new word, it is considered one allomorph as the normal form while the other (s) is the variation (s) or changes from the normal.

Types of Morphophonemic Change

According to O Grady (1996: 332-344) there are some types of morphophonemic change briefly discusses in this section include: (1) loss of phonemes, (2) addition of phonemes, (3) simple consonant change, (4) assimilation; (5) dissimilation; (6) synthesis; (7) change of syllabic vowel or diphthong; (8) gradation; and (10) suppletion.

Loss of phoneme

The phenomenon of loss of phonemes occurs when one or more phonemes that are present in the normal allomorph of a morpheme may simply be missing in another allomorph. For example, Morpheme [in-], the normal allomorph of the negative prefix [in-], appears constant in combination with allomorphs beginning with vowels or with the consonants /t, d, k, g, f, v, s, j, h/ such as in inert, intemperate, indirect, incorrect, ingratitude, infelicity, invisible, insecure, injudicious, inhospitable. But before morphemes beginning with /m, r, l/ and usually /n/, another allomorphs, simple /i-/ appears, as in immodest, irreligious, illegal, innoxious. Here, the/n/ of the normal form is dropped before/m, r, l, n/. Another example of a lost consonant phoneme is the/t/ of the stem (-crat) before the derivational (-cy). As in democracy, aristocracy, etc. The loss of a consonant phoneme is a common morphophonemic change. More examples are given below:

Iyziy	Iyziliy
Tayrant	tirany
Salv	saliwibn
Nest	nasal
Sohft	sohfan

Vowel phonemes may also be lost but less commonly than consonants. For example, the normal allomorph of (veget-) is /vejət-/. As in vegetate and its derivatives, but the allomorph /vejt/occurs in vegetable. Likewise the regular allomorphs of (-es) is to consider /-iz/ as having lost the vowel phoneme,/-s/ he exhibits the same loss of vowel together with further change of voicing. Some other pairs showing loss of vowel or diphthong can be seen below:

enəmiy +ity	enmity	ə lost
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rimembər	riməmbɹ ns	ə lost
miytər	metɹɪk	ə lost
celow	celɪst	ow lost
kriyeyt	kriycəɹ	ey lost

Addition of Phonemes

This type of morphophonemic change happens when one of two allomorphs of a morpheme lacks one or more phonemes which are present in the other. It is more convenient to consider that the longer one is normal and the other has lost one or more phonemes. Occasionally, however, the simpler description results from treating the shorter form as the normal one, to which a phoneme or phonemes are added to form the other allomorph. In the case of (idle), the bound form /aydl-/, as in idler, idling, can be called normal, and /ə / is added to it to make the free form /aydəl/. Another example is the normal form of (solemn) is: /saləm/, to which /n/ is added before the derivational suffix / ayz/ to make /salmnayz/. More example of an added consonant appears in the set /lohn-/lohngəɹ, where /g/ appears before the inflectional suffixes (-er) or (est).

Simple Consonant Change

An alternative allomorph of morpheme could differ from the normal in showing a change of one more consonants. Usually it is final consonant that is changed. The normal form of the stem mi) is /mit/, as in permit, committee, etc. But before certain suffixes, the final /t/ changes to /s/, as in permissive, permissible, etc. A further change, to /s/ as in commission, is an example of synthesis, which will be discussed later. Other examples of simple consonant change appear in the following pairs

Dirayd	diraysɪv
Ekstinkt	ekstɪŋwɪs

A common type of consonant change is voicing. Thus, when a voiceless consonant in the normal allomorph is replaced by its voiced counterpart, the process called voicing. We have already seen an example in the pair /pen-penz/, where the allomorph /pen/ of the plural form shows voicing of the final consonant.

Sometimes, the reverse process of unvoicing occurs. The normal form of the plural suffix (-es) is (ɪz), which loses its vowel after morpheme ending in voiced consonants except /z, 'z, j/. After voiceless consonants except /s, s, c/ this is unvoiced to /-s/, as in /ræts, kæps/, and so on.

Assimilation

Assimilation is a phonemic change occurring when two morphemes are combined results in neighboring phonemes becoming more like each other. Here, "more like" means that the new phoneme share more articulatory features (Sukarsono, 2009:6).

Assimilation is a common explanation of consonant change in English. A common change due to assimilation is that of /n/ to /m/ before bilabial consonants. Thus the negative prefix (in-) has an allomorph /im-) which occurs before /p, b/, as

in impossible, imbalance. Similarly, the prefix (en-) has an allomorph /em-/, occurring before /p, b/ in empower, embiter, and the like.

Phoneme /p/ is voiceless and a stop, while /m/ is voiced and nasal. Phonemes /p/ and /m/ are alike in one feature only, their bilabialness. On the other hand, /b/ is more like /m/ than /p/ is, because it shares with it two features, bilabialness and voicedness, rather than just one.

The other definition is also conveyed by (Kelly, 2000:109) assimilation describes how sounds modify each other when they meet, usually across word boundaries, but within words too. If it is considered the words **that** and **book**, and look at the phonemes involved, we get /ðæt/ and /buk/. If then we place the words into a sentence (for example, *Could you pas me that book, please?* we notice that /t/ phoneme at the end of that does not sound like it does in the word said on its own. The phoneme /t/ is an alveolar sound, which is formed when the tongue blade forms a temporary closure against the alveolar ridge.

Some rules for assimilation

1. The phonemes /t/, /d/ and /n/ often become bilabial before bilabial consonants /p/, /b/, /m/:
He's a rather fat boy. (/t/ assimilates to /p/)
She's got an apartment in Manhattan. (/t/ assimilates to /p/)
He's a very good boy (/d/ assimilates to /b/)
There are ten men in the class, and two women. (/n/ assimilates to /m/)
2. /t/ assimilates to /k/ before /k/ or /g/. /d/ assimilates to /g/ before /k/ or /g/:
Where has that cat been all night? (/t/ assimilates to /k/)
Can you see that girl over there? (/t/ assimilates to /k/)
It was a very good concert. (/d/ assimilates to /g/)
She's a very good girl. (/d/ assimilates to /g/)
3. /n/ can assimilate to /ŋ/ before /g/ or /k/:
I've been going out too much lately.
He's bringing his own car.
4. /s/ can assimilate to /ʃ/ before /j/:
I really love this shiny one over here.
5. /z/ can assimilate to /ʒ/ before /j/:
We found this lovely little cheese shop in Paris.

The above examples are cases of **anticipatory assimilation**, where one sound changes to another because of the sound which follows. Here are some cases of **coalescent assimilation**, where two sounds combine to form a different one:

6. /t/ and /j/ coalesce to form /tʃ/:
You went to France last year, didn't you?
7. /d/ and /j/ coalesce to form /dʒ/:
Would you like a cup of tea?

Dissimilation

Dissimilation occurs when the combining of two morphemes brings together two identical phonemes, it results in the change of one of them to a

phoneme less like its neighbor. It is rare in English. One example, taken ever from Latin, is the allomorph /ig-/, which replaces /in-/ before some morphemes beginning with /n/, as in ignoble, ignominious. Thus, dissimilation is the opposite of assimilation.

Synthesis

Synthesis is a consonant change commonly occurs in modern English. It is the fusion of consonants, brought together by morpheme combination, into a single new phoneme different from both of its constituents. The new phoneme must be considered to belong to both the allomorphs whose junction-point it represents. For example, when the morphemes (moist) and (-ure) are combined, the result is not /'moystyə r/ but /moyscər/. The /c/ here phonetically represents the synthesis into a single phoneme of /t/ and /y/. We thus analyze the word into the stem /moysə-/, an allomorph of (moist), and the suffix /-c ə r/, an allomorph of (-ure). The phonemes /c/ belongs to them both. More examples are given below:

t-y > c	neyt+yə r > neycər
t-y > s	ækt + yən > æksən
s-y > š	pres + yər > presər
z-y > z	viz + -yən > vizən
s+y > z	prɪs+-yən > p rɪzən
d +y > j	prɔwsɪyd+ yər > prɔwsɪyjər

Change of Syllabic Vowel or Diphthong

There is a type of morphophonemic change which is very prevalent in English. That is the substitution of another syllabic vowel or diphthong for the one which appears in the normal allomorph. The example is change of syllable in the past tense in pairs like /teyk – tuk/, /rayd-rɔ wd/, and /sty-səh/. Here, diphthong ey, ay, and iy respectively change into (syllabic) vowel u, ow, and o.

Change of syllabic vowel happens in a small group of irregular noun plurals like /guws-giys/ and /mawa-mays/. But there are many other changes of syllabic nucleus that we are less conscious of, partly because the words in which they occur are less common, and partly because standard orthography often conceals changes that take place in the spoken language. Thus, the regular spelling of the pair nation-national conceals the change of syllabic form /ey/ to vowel /æ/, which is clearly revealed in the phonemic spelling /nesyən- næsənəl/. For more examples, see the list below:

e > ow	swell	swolən
ay > i	priysays	priysizən
iy > e	pliyz	plezənt
ih > ə	hihr	hərd
ih	klihr	klæritiy
ow > a	glowb	glabyulər

Stress Shift

Stress shift is a change of a stress occurring in the syllables of newly formed word due to the addition of an affix to a word in English. For instance, when the suffix (-ic) is added to (despot), the primary stress moves from the first to the second syllable, giving us the pair /despat-despatik/. The stress shift is commonly accompanied by vowel change. But there are some cases, without the accompanying of vowel change, as given in the following example:

i'mpals	imp'alsiv
si'ntæks	sint'æktik
li'ngwist	ling'wistik
I'mport	imp'ortənt

Gradation

As previously discussed, the process of derivation involves stress shift usually also involves certain types of vowel change. In this case, the other vowels and diphthongs tend to be replaced by /i/, /ɪ/, or /ə/ when the stress shifts happens to another syllable, and vice versa. This kind of vowel change resulting from shift of stress happens is called *gradation*. There are two kinds of such change: (1) the change of “full” vowels and diphthongs to /i,ɪ,ə/ to “full” vowels or diphthongs when the stress shifts onto the syllable. These changes can be seen in the following table.

Vowel change

Stem	Derivative	In syllabic losing stress	In syllable acquiring stress
instrument	instrumentəl	ə > e	
mistəriy	mistiriyəs	ə > i	
simbəl	simbəlɪk	ə > a	
s'ensər	s'ensəriyəs	ə > ʊ	
l'æks'əriy	lægzūriyəs	ə > u	
rɪf'ər	r'efərəns	i > e	
sig'ər	sigər'et	a > ə	
Insp'ayr	Inspireysən	ay > i	
məriyən	mərinər	iy > i	ə > æ
E'ybəl	əb'ility	ey > ə	ə > i
kəmb'ayn	Kambin'eyəsən	ay i	ə > a
d'ipləm'æt	dipl'owməsiy	æ > ə	ə > ow
disp'her	d'espəriə	eh > ə	i > e
ədventij'	ədventetjəs	æ > ə	i > ey
d'eməkræ't	dəma'krəsiy	e > ə; æ > ə	ə > a

Suppletion

Suppletion happens when an allomorph fits into a paradigm with another allomorph; the two belong to the same morpheme even though they may be phonemically completely different. We have already observed a case of suppletion in our discussion of the plural morpheme (-es). Consider the following group of words, illustrating part of the form-class of “plural nouns”.

/meyziz/	= (maze) + /-iz/
/dogz/	= (dog) + /-z/
/r ts/	= (rat) + /-s/
/aks n/	= (ox) + /-n/

Here it is clear that the four suffixes /-iz, -z, -s, -n/ all occupy the same position in the paradigm. In other words, they are semantically similar and in complementary distribution. The first three exhibit some phonemic similarity. If we establish /-iz/ as the normal form, we can describe /-z/ as /-iz/ with loss of the vowel phoneme and unvoicing of the final consonants, but when we come to /-n/, all we can say is that it replaces the normal form /-iz/, to which it is phonemically very different. Such a case is suppletion.

Another case of suppletion occurs in the past tense forms of verbs. Consider the following list:

Base	Inflected Form
Fret	fretid
Reyd	reydid
Rab	rabd
Wohk	wohkt
Teyk	tuk
Gow	went

The inflection (-ed), has normal allomorphs /-id, -d, -t,/ as found in the first our examples above. In the pair /teyk-tuk/ we have change of syllabic nucleus with addition of the zero allomorph of (-ed). On the contrary in the pair /gow-went/, the form /wen-/, which is the best of the inflectional form, is phonemically completely different from the three form /gow/. This case is also called the phenomenon of suppletion.

From those explanation above it can be concluded that there are ten types in morphophonemic process that can be used to analyze the word formation by the learners.

REFERENCES

- Bauer, L. 1983. *English Word-formation*. New York: Cambridge University Press.
- Fromkin, Victoria et.al. 1990. *An Introduction to Language*. Sidney: Harcourt Brace Jovanovich
- Grady, O Malley. et al. 1996. 1996. *Linguistic Contemporer*. Newyork: Cambridge University Press.
- Katamba, Francis. 1993. *Morphology*. London: MacMillan Publisher Ltd.
- Kelly, Gerald. 2000. *How to Teach Pronunciation*. England: Pearson Education Limited.
- Parera, Jos Daniel. 1982. *Studi Linguistik Umum dan Historikal Bandingan*. Jakarta: Erlangga.
- Ramlan. 1985. *Morphology: Suatu Tinjauan Deskriptif*. Yogyakarta: CV. Karyono.

Sloat, C. and Taylor, S. 1978. *The Structure of English Words*. Eugene Oregon: Pacific Language Associates.

Sukarsono.2009. *Morphology*. Tulungagung: Tiara Press.

Yule, George.1996. *The Study of Language*. New York: Cambridge University Press.