

## Level Ordering: A Model For Suffix Combinations

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### Abstract

One of the principles responsible for the combinatorial properties of affixes, in particular of English suffixes, is the existence of lexical strata. This model assumes that English affixes belong to different strata and that these strata interact phonologically and morphologically in intricate ways. This is called level ordering. This paper deals with level ordering as a model for suffix combinations and to what extent can we depend on level ordering in order to provide a correct order of suffix combinations.

### 1-Lexical Strata

One of the central principles in lexical morphology is that the morphological component of a grammar is organized in a series of hierarchical strata.

English affixes are divided into two classes on the basis of their phonological behavior. One class is neutral and the other is non-neutral. Neutral affixes have no phonological effect on the base to which they are attached whereas non-neutral ones affect in some way

the consonant or vowel segments, or the location of stress in the base. For example, the addition of the neutral suffixes -ness and -less, on the one hand, makes no difference in the base as in:

1-abstract	abstractness	home	homeless
serious	seriousness	power	powerless
alert	alertness	paper	paperless

On the other hand, the suffixes -ic and -ee are non-neutral. They affect the location of stress and they make changes in the shape of the vowel or consonant of the base to which they are added as in:

2-satan	satanic	pay	payee
morpheme	morphemic	employ	employee

(Katamba, 1993:89-90)

Chomsky and Halle deal with, in their book the Sound Pattern of English, the difference between the behavior of neutral and non-neutral affixes in terms of the strength of boundaries. There is a weak boundary(symbolized by # ) separating the base and a neutral suffix like -ness or -ly.

In contrast, a strong boundary(symbolized by +) is said to separate the base from a non-neutral suffix like -ic ,-ee, or -th.(ibid:91)

Lexical phonology and morphology, unlike the SPE, approach the difference in behavior of affixes in terms of level ordering (i.e. the ordering of strata). This theory is known as level ordering hypothesis. According to this theory, as Plag (2002:2) says, English suffixes and prefixes belong to the following classes or strata:

Class I suffixes: +ion, +ity, +y, +al, +ic, +ate, +ous, +ive

Class I prefixes: re+, con+, de+, sub+, pre+, in+, en+, be+

Class II suffixes: #ness, #less, #hood, #ful, #ly, #y, #like

Class II prefixes: re#, sub#, un#, non#, de#, semi#, anti#

This theory assumes that each stratum is defined by a group of phonological, morphological and semantic characteristics. Raczka (2003:1) says that stratum I affixes trigger and undergo phonological processes i.e. stress shift. For example:

3- productive      productivity

Stratum I affixes trigger other non-automatic phonological processes, i.e., processes dependent on the type of morpheme involved. These processes are:

a-Trisyllabic Shortening: Katamba (1993:99) states that this rule applies when a derived word of three or more syllables is created as a result of the addition of stratum I affixes. It involves changing a tense

vowel (i.e. a long vowel or diphthong) in a stem to a lax vowel (i.e. a short vowel). For example:

4- fragile          fragility

b-Spirantisation: Matthews (1997:350) defines spirantisation as "a historical process by which a stop consonant becomes a fricative" .  
For example:

5- democrat    democracy

c-Nasal Assimilation: Nasal assimilation is illustrated by the following example:

6- inedible, illegal, impossible vs. uneatable, unlawful, unruly

Stratum II affixes are phonologically inert ,i.e., stress neutral. For example:

7- productive          productiveness  
    fragile              fragileness

Stratum I affixes tend to be of foreign origin (Latinate), while stratum II affixes are mostly Germanic. Stratum I affixes attach to free and bound morphemes as in:

8- possible            impossible

-ept                    inept

-ert                    inert

leg-                    legal

while stratum II affixes attach to free morphemes only (derived or underived words). Stratum I affixes are relatively unproductive and semantically unpredictable than stratum II affixes. For example, the suffix -less, which belongs to stratum II, has a regular predictable meaning 'without' as in:

9- X-less means 'without X'

pitiless, shameless, joyless, fatherless

By contrast, the meaning of the stratum I suffix -ous is vague and unpredictable. It does not have a meaning that can be easily pinned down. The OED lists the following:

'abounding in, full of, characterized by, of the nature of'

10- dangerous    curious    courageous    tremendous

It seems that it is not always clear which of the above meanings is relevant in a particular word. (Katamba, 1993:118)

What is important is that the order of affixes is subject to certain restrictions. When affixes of stratum I and stratum II occur in a word, stratum I affix is always closer to the root than stratum II affix. Thus, stratum II suffixes cannot occur inside stratum I suffixes. This means that suffixes can only combine in such a way that they attach to suffixes of a lower stratum or of the same stratum. This is, as Plag (2002:3) says, the most important generalization concerning suffix combinations that emerges from stratum models. This model rules out such combinations as \*atomlessness whereas combinations such as historicalness are allowed.

Another point is that if more than one affix of the same stratum appear in the same word, their order is also restricted by certain restrictions. For example, if the suffixes -less and -ness occur in the word power, we must respect the part of speech of the word. The suffix -ness attaches to adjectives to form abstract nouns while the suffix -less attaches to nouns to form adjectives. This means that the suffix -less is added first to the noun, turning it into an adjective. Then the suffix -ness is added to this adjective to form a noun as in:

11- [ [ [power] less] ness

To support this rule, Katamba (1993:116-117) says:

If rule A feeds (creates the input to) rule B which is at the same stratum, then rule A must apply before rule B. Always the rule that does the feeding will apply first and create the forms that constitute the input required by the rule that is fed otherwise the feed cannot apply.

This model raises several problems. One problem is that a stratum cannot be defined by the set of affixes it contains, because the same affix belongs to stratum I and stratum II at the same time. Such affixes are called 'dual class' affixes. Some of these dual class affixes are:

#### Dual Class Prefixes

hyper-  
circum-  
neo-  
mono-

#### Dual Class Suffixes

-ize  
-ment  
-ism  
-ist  
-ive  
-y

(Szpra,1989:42)

For example, the suffix -ize occurs at stratum I in the word Catholicize. It is non-neutral in this word since it shifts stress from the first to the second syllable whereas the same suffix is at stratum II in Bermudaize since it is phonologically neutral.

Another problem is that level ordering cannot be generalized in all examples since there are cases that contradict it. For example:

12- readability

organization

In this example, stratum I suffixes -ity and -ation occur outside stratum II suffixes -able and -ize which is contradictory to the restriction.

A final problem is the so-called bracketing paradoxes. For example, the prefix un- is added to adjectives to form derived adjectives with the meaning of 'not' as in:

13- [ un [ kind ] ]

Another example is the following :

#### 14- [un [ [grammatical] ity ]]

In this example, stratum I suffix -ity is added to adjectives to form nouns. Then, the prefix un- is forced to attach to a noun, whereas it is added to adjectives only . This is the paradox which is the result of lack of syntactic properties.

## 2-Conclusions

The main conclusion of this paper is that level ordering helps us to say that English affixes belong to different strata and that stratum I is distinguished from stratum II phonologically, morphologically and semantically. Most importantly, the order of affixes is constrained by a certain restriction that stratum I affixes cannot occur outside stratum II affixes. However, level ordering does not prove a powerful model for affix combinations since it encounters serious problems. These problems involve some counterexamples to the above restriction , dual-class affixes and bracketing paradoxes. Thus, we have to look for another model for affix combinations.

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