

November 3, 2003

## CLASS 9: MORPHOPHONOLOGY

### THE LEVEL ORDERING HYPOTHESIS (LOH)

In general, affixation involves the addition of an **affix to a base** in order to derive morphologically complex words. According to Siegel (1979) there are **two kinds of affixes**:

- **Class I affixes** attach to a morpheme (+) boundary, so closer to the root  
**Class II affixes** attach to a word (#) boundary, so they attach to a stem

- (1) Class I suffixes: +ion, +ity, +y, +al, +ic, +ate, +ous, +ive...  
Class I prefixes: re+, con+, de+, sub+, pre+, in+, en+, be+...
- (2) Class II suffixes: #ness, #less, #hood, #ful, #ly, #y, #like...  
Class II prefixes, re#, sub#, un#, non#, de#, semi#, anti#...

The two classes of affixes give rise to **different phonological effects**:

- Class I suffixes cause **stress shift** (they may even attract stress, if they are prefixes), while Class II suffixes are **stress neutral**:

- (3) 

	<u>Class I</u>	<u>Class II</u>
productive	productivity	productiveness
finite	infinite	nonfinite

- Class I affixes may undergo **automatic phonological processes**, as the result of their attachment. Class II affixes **may not**:

- (4) 

a.	in-edible	un-eatable
b.	illegal, *inlegal	un-lawful, *ullawful
c.	con-tain	
d.	correct, *conrect	non-basic, non-racial

Selkirk's (1982) **Affix Ordering Generalisation**

- (5) *Class I affixes always occur inside Class II affixes, i.e. they appear nearer to the root.*

- (6) \*hopefulness, \*irrefillable, ....

- (7) **The Level Ordering Hypothesis**

Level I: +affixation  
Stress Rules  
Level II: #affixation  
Level III: compounding  
Level IV: regular inflection

- (8) passion fruit, passion fruits, \*passion fruit#y, \*com-passion fruit.

Problems with the *Level Ordering Hypothesis*:

- **some compounds** such as: *systems analyst, student affairs manager*...
- **words like organization**: the suffix *-ize* is Class II, but it occurs inside the Class I suffix *-ion*. The same holds for words ending in *-ability, -istic (desirability, probabilistic...)*

## THE BRACKETING PARADOX

(9) *ungrammaticality*:

- a. un- [grammatical -ity] (according to the LOH)  
b. [un- grammatical ] -ity because *un-* only attaches to adjectives.

The second bracketing is also favoured by the actual interpretation of the word (**semantics**): *ungrammaticality* is the condition that refers to something being *ungrammatical*. According to the first bracketing what *un-* negates is the state of *grammaticality*.

**Other examples** of bracketing paradoxes:

- (10) a. hydro- [ electric -ity ] (12) a. macro- [ economi -ic ]  
b. [ hydro- electric ] -ity b. [ macro- economy ] -ic
- (11) a. nuclear [ physic -ist ] (13) a. un- [happy -er ]  
b. [ nuclear physic ] -ist b. [ un- happy ] -er

In (10) we can take *hydro* to be a **Class II prefix, or a bound compounded root**. In either case though it **should be affixed after *-ity***, thus giving the bracketing in (10a). However, **in terms of meaning** we should bracket *hydroelectric* first.

## THE CYCLE

The *LOH* turned out to be **too restrictive**, as it **incorrectly rules out possible word formations**, and furthermore **gives rise to bracketing paradoxes**. At the same time we want to maintain **some notion of ordering**, while *allowing for the same rule to apply more than once* in the derivation.

Juan Mascaró (1976), working on Catalan phonology, proposed that rules can apply in a **cycle**, or in a **cyclic domain**. In other words, each application of the relevant rule constitutes a single cycle. Thus while the same rule can apply again and again, i.e. on different cyclic domains, it cannot, however, reapply on a previous defined cycle. This is the **Strict Cycle Condition (SCC)**.

Kiparsky (1982) extended the results of cyclic phonology to the **interaction with morphology**, thus revising Siegel's *LOH*. This revision is partly attributed to Pesetsky (1979) who argued that the set of cyclic phonological rules applied every time a morphological operation took place. (This gave rise to what was later known as **lexical phonology**.)

Related to the notion of the cycle is that of the **Elsewhere condition**, also introduced by Kiparsky, which basically ensures that the more specific rule will apply before the more general one. In other words, we state the specific rule and then say that the more general one applies in all the other cases, i.e. elsewhere. (Recall the rules for English passive or past-tense formation.)

How does the cycle solve the **problem of bracketing paradoxes**?

Consider the case of *ungrammaticality*, which is assigned the following **two representations**:

- (14) [ [ un- grammatical ] -ity]: meaning, attachment properties of *un-*.  
(15) [ un- [grammatical -ity] ] : LOH

Affixation of *-ity* causes **stress shift** (a phonological rule), so *-ity* is a Class I affix. Let us call it **cyclic**, while *un-* is noncyclic. We **start** by attaching *un-* to the adjective *grammatical*:

- (3) a. un- grammatical NO CYCLE (NO MS Rules)  
b. [ungrammatical]-ity CYCLE defined  
c. ungrammaticality Main Stress, cyclic rule

## THE RIGHTHAND RULE (RHR)

(4) *If both X and the head of X are eligible members of category C, then  $X \square C \Rightarrow$  head of  $X \square C$ .*

According to (4) **the feature of the head will percolate to the dominating node**.

Williams (1981) argues that in a morphologically complex word the head is defined as the rightmost member of the word. This has become known as the **Righthand Rule (RHR)**.

(5) a.  b. 

In (5a) *-ion* is the head of the word *education*. **What is the head in (5b)?** It is both *-ion* and *education*: *-ion* determines the head of the most embedded constituent, and now *education* counts as the head of the newly formed complex word *re-education*. So we derive the (valid?) observation that **suffixes, unlike prefixes, are always heads**.

The same extends to **compounds**:

(6) a.  b. 

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### Further readings:

📖 Spencer (1991) Ch. 3 (§3.4), Ch. 4 (§4.3 up to p. 116), Ch. 10 (§10.1-10.4)  
[PS: I'll make these sections available for photocopy, which you can pick up from my office.]

The following primary literature has been mentioned above and might be of interest to some:

- Kiparsky, P. (1982) From cyclic phonology to lexical phonology. In H. van der Hulst & N. Smith (eds.), *The Structure of Phonological Representations, Part I*. Dordrecht: Foris.  
Mascaró, J. (1976) *Catalan Phonology and the Phonological Cycle*. Doctoral dissertation, MIT.  
Pesetsky, D. (1979) Russian morphology and lexical theory. Unpublished manuscript, MIT.  
Selkirk, E. (1982) *The Syntax of Words*. Cambridge, Mass.: MIT Press.  
Siegel, D. 1979) *Topics in English Morphology*. New York: Garland.  
Williams, E. (1981) On the notions 'lexically related' and 'head of word'. *Linguistic Inquiry* 12, 245-274.

### Readings for next class:

📖 Haegeman & Guéron (2000): Part 1, Ch. 1 (pp. 21-44) [optionally the first 20 pp. to refresh]

**NEXT CLASS HITS OFF THE SOE-PART OF MASOE, IN WHICH WE EXPLORE FURTHER AND REFINE THEORETICALLY MUCH OF WHAT WE DID IN PG.**