

GENERAL INFORMATION

General Information:

Course Material: pdf-files at <http://ifla.uni-stuttgart/~jilka>
click on “Advanced Morphology”

Course Demands:

Intermediate exam: December 14

Final exam: February 8 (*planned*)

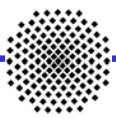
Matthias Jilka

Room 4.54

Phone (0711) 685-8-3123

jilka@ifla.uni-stuttgart.de

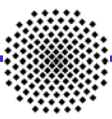




THE LEXICAL PHONOLOGY AND MORPHOLOGY MODEL

- application in English derivational and inflectional morphology
- word is regarded as the key unit of morphological analysis
- symbiotic relationship between morphological and phonological rules
- common organization in hierarchically ordered strata/layers/levels





LEXICAL STRATA

central principle of lexical morphology:

- the morphological component of the grammar is organized in a series of hierarchical strata

English affixes can be grouped in two broad classes on the basis of their phonological behavior: **neutral** and **non-neutral**

neutral affix: no phonological effect on the base to which it is attached

Examples: -ness, -less

‘abstract – ‘abstractness, ‘serious – ‘seriousness, a’lert – a’lertness

‘home – ‘homeless, ‘power – ‘powerless, ‘paper – ‘paperless

non-neutral affix: effect on segmental or suprasegmental structure of the base

Example for non-neutral affixes: -ic, -ee

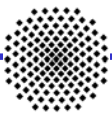
‘strategy – stra’tegic, ‘morpheme – mor’phemic, ‘photograph – photo’graphic

em’ploy – emplo’yee, de’tain – detai’nee, ‘absent – absen’tee

-ic is a **pre-accenting** suffix (syllable immediately before it is stressed)

-ee is an **auto-stressed** suffix (attracts the stress itself)





LEXICAL STRATA - EXERCISE

Exercise:

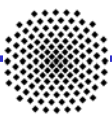
- (a) Transcribe the adjectives *wide*, *long* and *broad*
- (b) What nouns are derived from them? Transcribe them.
- (c) Derive adverbs from them and transcribe.
- (d) Are the used suffixes neutral or non-neutral?

Adjective

Noun

Adverb





NEUTRAL AND NON-NEUTRAL AFFIXES

the neutral/non-neutral distinction corresponds to the more traditional distinction between **primary** (= non-neutral) and **secondary** (= neutral) affixes and the classic distinction of weak boundary ('#') between neutral suffix and base vs. strong boundary ('+') between non-neutral suffix and base in SPE

secondary affixes can produce segment sequences that are disallowed in a single morpheme

example:

no geminate consonants in morphemes:

miss [mɪs]

no geminate consonants with attached primary affix:

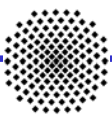
ad-duce [ədju:s]

geminate consonants with attached secondary affix:

thin-ness [θɪnnes]

typically (there are exceptions) primary affixes are Greek or Latinate, secondary affixes are Germanic (affixes tend to combine with bases from the same source)



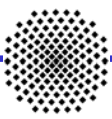


BASIC PRINCIPLES

Basic principles of the Lexical Phonology/Morphology Model

- **level ordering:** affixes are added at different strata/levels
- each stratum/level has associated with it a set of morphological rules that do the word-building
- the morphological rules are linked to phonological rules that indicate how the structure built by morphology is supposed to be pronounced
- **underived lexical items** are listed in the lexicon





DERIVATION IN LEXICAL MORPHOLOGY

- primary affixes are attached at level 1
- secondary affixes and compounding at level 2

[*root*]

[level 1 affix – *root* – level 1 affix]

[level 2 affix – level 1 affix – *root* – level 1 affix – level 2 affix]

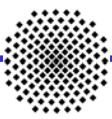
⇒ level 1 affixes are always closer to the root, level 2 (i.e. neutral) affixes are on the outside

Exercise (Data from Kiparsky 1983):

Mendel	Mendel-ian	Mendel-ian-ism	*Mendel-ism-ian
Mongol	Mongol-ian	Mongol-ian-ism	*Mongol-ism-ian
grammar	grammar-ian	grammar-ian-ism	*grammar-ism-ian
Shakespeare	Shakespear-ian	Shakespear-ian-ism	*Shakespear-ism-ian

- The suffix –ian is on level 1 because it is phonologically non-neutral. Explain in what way.
- Is –ism a neutral or non-neutral suffix and why?
- What can be predicted about the ordering of these suffixes if they co-occur?





LEXICAL ENTRIES OF AFFIXES

What kinds of information should lexical entries of affixes contain?

- meaning
- to which bases (category and other criteria) can the affix attach?
- grammatical category of the created word
- at which level does affixation take place (affixes at the same level share traits, thus generalities are captured)?

Data:	suffix	attach to	output
	-ion _N	[[erode _V]ion _N]	[erosion] _N
	-ive _A	[[compete(t) _V]ive _A]	[competitive] _A
	-al _A	[[Pope _N]al _A]	[papal] _A

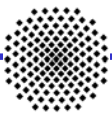
all examples contain level 1 affixes that modify the base in some way

erode – erosion: [d] → [ʒ]

compete – competitive: necessity of stem extender –it-; vowel [i:] → [ɛ]

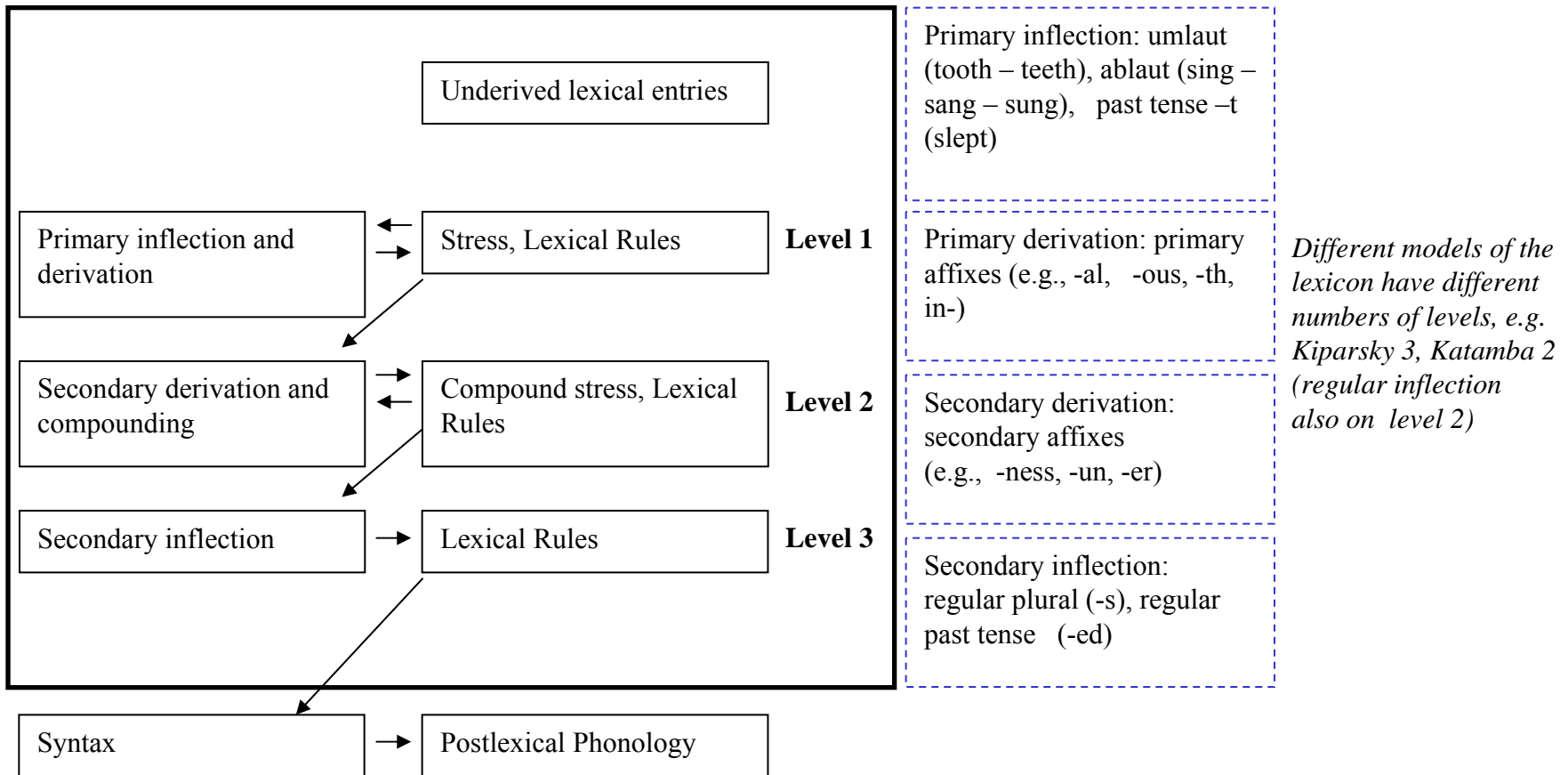
Pope – papal: vowel change [əʊ] → [ɛɪ]





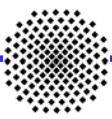
Lexical Morphology

KIPARSKY'S MODEL OF THE ENGLISH LEXICON



- the model is divided into two main spheres: **lexical** and **post-lexical**
- phonological lexical rules are activated by preceding word structure-building morphological rule
- postlexical rules apply when fully-formed words are put in syntactic phrases





LEVEL 1 AFFIXES

Example analysis –ity

Data: sanity, divinity, extremity, verbosity, productivity, profundity, serenity, vanity, morosity, morbidity, obscenity, bellicosity

- a. State the base to which –ity is attached in each case
- b. What are the changes in the phonology of the base caused by –ity?

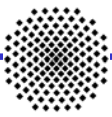
More drastic changes can be observed when the adjectival base has already been created with an adjective-forming suffix, such as –(i)ous. This suffix is deleted from the base when –ity attaches.

a. audacious
rapacious
vivacious
pugnacious

b. audacity
rapacity
vivacity
pugnacity

c. *audaciousity
*rapaciousity
*vivaciousity
*pugnaciousity





Lexical Morphology

IDENTIFYING THE LEVELS OF AFFIXES

Example analysis –ory

Data: explain – explanatory; defame – defamatory; inflame – inflammatory

Ignoring consonantal changes, there is a change to the last base vowel $\epsilon\text{I} \rightarrow \text{a}$

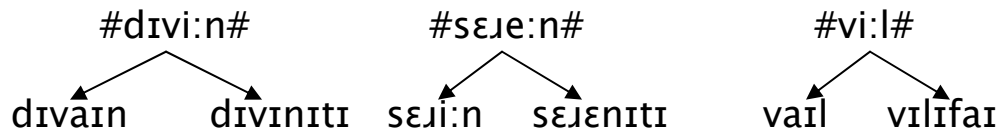
⇒ the similar behavior of –ory and –ity shows them belonging to the same level, allowing generalizations about shared properties (level 1 affixes affect stress and vowels in the base)

⇒ alternations conditioned by level 1 affixes are not phonologically motivated

The vowel alternations triggered by such affixes as –ity, -ory, -ify, -ize, -ous etc. are the result of **Trisyllabic Laxing**

- the underlying vowels that are assumed to retain the form from before the Great Vowel Shift are simply laxed.
- in the unaffixed form the vowels have undergone the Great Vowel Shift.

Trisyllabic Laxing occurs primarily with bases of Latinate origin.

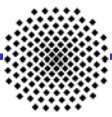


Level 2 suffixes are phonology neutral and do not cause changes in the base to which they are attached:

Data: remote-ness, power-less, purpose-ful, severe-ly, money-wise, velvet-y, pretend-er

⇒ derivational word formation takes place on levels 1 and 2 – non-neutral processes are found at level 1 while neutral ones are found level 2





Lexical Morphology

INFLECTION IN LEXICAL MORPHOLOGY I

most level 1 inflectional morphology consists of either

- erratic morphemes whose behavior is largely unpredictable
- processes that were once extremely productive but are now frozen
- borrowed affixes which only co-occur with a few loanwords

Frozen historical relics:

ablaut

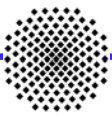
- change in a root vowel which indicates a change in grammatical function, e.g. /aɪ/ alternates with /əʊ/ to mark the change from present to past tense

Examples: ride – rode; drive – drove, write – wrote; rise – rose; strive - strove

- special class of verbs established at level 1 - any verb belonging to this class undergoes the vowel mutation
- more general process of adding suffix –ed happens on level 2 and is **blocked** by the more specific process that happened already on level 1 (*wroted)
- ablaut is not productive anymore – new verbs (“to rine”) would not use it to form the past tense (*rone vs. rined)
- affected verbs are so-called **strong verbs** (7 original classes):

Class I:	rise	rose	risen	Class II:	freeze	froze	frozen
Class III:	shrink	shrank	shrunk	Class IV:	bear	bore	born
Class V:	give	gave	given	Class VI:	know	knew	known
Class VII:	stand	stood	stood				





Lexical Morphology

INFLECTION IN LEXICAL MORPHOLOGY II

umlaut

- fronting of a vowel if the the next syllable contains a front vowel, thus originally phonologically conditioned (regular phonological process in Germanic, now fossilized, i.e. not productive)

Example:	Noun Sg.	Noun Pl.
	fo:t ('foot')	fo:tiz ('feet')
		fø:tiz (umlaut)
		fe:tiz (loss of rounding)
		fe:t (loss of suffix)
	fu:t (GVS)	fi:t (GVS)
	fʊt (shortening)	

other examples: goose – geese; tooth – teeth, louse – lice, mouse – mice

- with the loss of the plural suffix containing /i/ the phonological basis is lost and umlaut becomes a morphological device to mark plural in small class of nouns (level 1 rule)

-en-plural

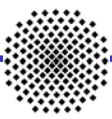
- historical remnant plural suffix found in very few words: *oxen, brethren, children*

- irregular plural inflection in loanwords

examples: addendum – addenda; erratum – errata; stratum – strata; medium – media; datum – data

- the suffixes are confined to the original borrowed words and thus assigned at level 1
- possibility of reanalysis as a singular noun





LEXICAL RULES I

- information necessary to specify morphological rules:

- | | | | |
|---|--------------------------------------|---|-----------------------------------------------|
| a | the class of bases affected | b | the affix that is attached |
| c | where the affix is attached | d | the class which the resulting word belongs to |
| e | the level to which the affix belongs | | |

- Form

At level/stratum n insert A in environment [Y _____ Z]_x ⇔ Output: *word*

(i.e. insert A in the environment of a preceding Y or following Z, if a given morphological property or complex of properties symbolized as X is being represented)

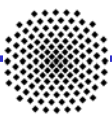
- Example: Assignment of noun plural at level 1

Level 1

Either	a. Insert	/ə/ in environment	[dɛɪt_] Noun + Plural	⇔ Output: /dɛɪtə/
or	b. Insert	/ən/ in environment	[ɒks_] Noun + Plural	⇔ Output: /ɒksən/
or	c. Insert	0 in environment	[ʃi:p_] Noun + Plural	⇔ Output: /ʃi:p/
or	d. Insert	Replace /ʊ/ with /i:/ in nouns subject to umlaut	[fʊt_] Noun + Plural ↓ [i:]	⇔ Output: /fi:t/

If the plural marking is received at level 1, the plural assignment is blocked at level 2.





LEXICAL RULES II: PLURAL ASSIGNMENT

If there is no plural assignment at level 1, then regular –s plural suffixation applies by default (on level 2 for Katamba, level 3 for Kiparsky)

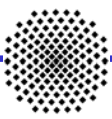
Level 2

Insert /s/ in environment [Y _____] Noun + Plural ⇔ Output: Y-/s/

Y stands for any count noun that wasn't assigned plural at level 1 (bed, pet etc.)

- in the Lexical Phonology/Morphology Model phonological rules are coupled with morphological rules found at the same stratum in the lexicon
- a lexical phonological rule is always triggered by a preceding morphological rule
- the same rules can be triggered repeatedly by different preceding rules (typically a phonological rule triggered by various affixes) on the same level, thus lexical rules are termed **cyclical**.





DIFFERENCES BETWEEN LEXICAL AND POST-LEXICAL RULES I

As the name suggests postlexical rules apply outside of the lexicon.

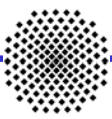
(i) *postlexical rules can apply in any context*

unlike lexical rules they can apply across word boundaries, taking the phrasal context into account – lexical rules only apply inside the word (phonological rules only in derived environments)

(ii) *lexical rules are cyclic*

at each level in the lexicon it is necessary to go through the morphological and phonological rules of that level, especially phonological rules may be triggered repeatedly - postlexical rules apply only once





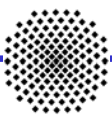
DIFFERENCES BETWEEN LEXICAL AND POST-LEXICAL RULES II

(iii) lexical rules are structure-preserving

a lexical rule may not produce a form that could not be a phonologically well-formed word in the language (if a rule introduces or refers to a noncontrastive segment, then it can only apply outside of the lexicon, i.e. postlexically, as underlying representations within the lexicon may only be composed of elements drawn from the phonemic inventory)

- lexical rules must not produce words with non-phonemes (e.g. */dasp/)
- lexical rules must not produce forms that violate phonotactic constraints (e.g. */ltarp/)
- lexical rules must not produce forms that do not have exactly one main stress (e.g. *'tunan'ta)
- postlexical rules may produce output that is at variance with the canonical patterns of the language (e.g. allophones: GA 'atom' as [æɾəm]; phonotactics: 'it's not' [tsnat])





DIFFERENCES BETWEEN LEXICAL AND POST-LEXICAL RULES III

(iv) *postlexical rules are automatic*

whereas lexical rules may have many exceptions, postlexical are automatic and apply without exception to all forms with the requisite phonetic properties, morphology being irrelevant (no access to morphological structure)

- unpredictability of word formation processes: length, depth, width -
*tallth, *shortth, *thickth
- level 2 Plural –s meaning not always plural: measles, mumps
- postlexical glottalization rule applies always (in certain varieties of British English) without taking words, wordtypes or boundaries into account

t → ʔ

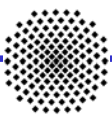
in word-final position: ‘cat’ /kæʔ/; ‘it’ /ɪʔ/; ‘but’ /bʌʔ/

before a consonant: ‘kettle’ /kɛʔl/; ‘settle’ /sɛʔl/; ‘catfish’ /kæʔfɪʃ/

between vowels if /t/ is initial in an unstressed syllable:

‘bottom’ /bʊʔəm/; ‘a bit of butter’ /ə bɪʔ əv bʌʔə/





EXERCISES I

1. Study the following data:

suffix
-(i/u)al

attach to
autumn
medicine
contract
resident
province
sense

output
autumnal
medicinal
contractual
residential
provincial
sensual

-acy

democrat
supreme

democracy
supremacy

-er

London
village

Londoner
villager

-er

hate
slate

hater
slater

-er

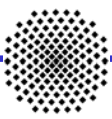
run
sing
quick
clean

runner
singer
quicker
cleaner

(a) For each example determine the word class of the bases that form the input to the suffixation process and the word class to which the resulting word belongs

(b) At what stratum in the lexicon is each one of these suffixes found? Justify your answer.





EXERCISES II

2. (a) From which languages did English borrow the words in the two sets below?
(b) Identify the number of suffixes in these words.
(c) At what stratum in the lexicon is each plural suffix added? What is your evidence?

<i>Set A</i>		<i>Set B</i>	
<i>Singular</i>	<i>Plural</i>	<i>Singular</i>	<i>Plural</i>
<i>stimulus</i>	<i>stimuli</i>	<i>phenomenon</i>	<i>phenomena</i>
<i>fungus</i>	<i>fungi</i>	<i>criterion</i>	<i>criteria</i>
<i>syllabus</i>	<i>syllabi</i>	<i>ganglion</i>	<i>ganglia</i>
<i>radius</i>	<i>radii</i>	<i>automaton</i>	<i>automata</i>

3. At what stratum are the nouns *cook*, *guide* and *cheat* derived from the corresponding verbs? On what basis does one decide?
4. Write formal morphological rules using the notation introduced in this chapter to account for the formation of the past tense of the verbs *moved*, *baked*, *ran* and *hit*

