MORPHOLOGY I
LING-440A - Fall 2002
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UNIT 5 ALLOMORPHY AND MORPHOPHONOLOGY

5.1 Two kinds of phonological rules

Optimality (a leading idea in phonology)

(1) Properties of UG and language-specific rules "conspire" to achieve optimal representations:

- consonants may voice intervocalically, but devoice word-finally.
- schwa-epenthesis driven by sonority profiles

But sometimes, two apparently identical sequences of phonemes will behave differently:

(2)

finger		singer	
√[fɪŋ.gər]	*[fɪ.ŋər]	*[sɪŋ.gər]	√[sɪ.ŋər]

(3)

lightning	lightening
[lajt.nɪŋ]	[laj.tə.nɪŋ]

(4) Syllabification (German)

The adjective *trocken* 'dry' in German is pronounced with a final syllabic nasal, which we will represent as a schwa-*n* sequence, thus: [trɔkən].

This adjective may combine with a variety of affixes, including two homophonous /-*ər*/ affixes (making an agentive noun and the comparative adjective, respectively) and with two homophonous /-*ən*/ affixes (making a verb and an inflected plural form of the adjective). This is illustrated here:

[trɔkən]	→	[trɔknən]	'to dry'	[trɔkənən]	'dry' (plural form)
		[trɔknər]	'dryer' (e.g., a machine)	[trɔkənər]	'drier' (more dry)

Although the affixes on the left are themselves homophonous with the affixes on the right, the fate of the schwa in the root is different depending on the affix chosen, sometimes deleting and sometimes being preserved.

5.1.1 Across The Board rules (= "Post-Lexical", Allophonic Rules)

- *FLAPPING (North American English)*

(5) In North American English, the difference between /t/ and /d/ disappears between vowels when the first vowel is stressed. The resulting sound called a "flap" (written [D], IPA [ɾ]) is a voiced sound, produced by tapping the tongue quickly against the roof of the mouth.

(6) /t,d/ → [D] / V́___V

(7)

a.	ládder	/lǽdər/	→	[læDər]
b.	látter	/lǽtər/	→	[læDər]
c.	átom	/ǽtom/	→	[æDəm]
d.	atómic	/ætómic/	→	[ʌt^{h}amɪk]
e.	rider	/ráydər/	→	[rayDər]
f.	writer	/ráytər/	→	US: [rayDər] CAN: [rʌyDər] (see below)
g.	I'll **<u>ride her</u>** bike tomorrow.			[al rayDər bʌyk t^{h}əmarow]

(8) OBSERVATION: The *FLAPPING* rule (6) applies whenever it can – i.e., wherever its *structural description* is met. It applies internal to a single morpheme (7a,c), across morpheme boundaries (7b,e,f) and even across words (in fast speech) (7g). We call it an *across-the-board rule*.

(9) Across-The-Board rules are so pervasive in our languages that we are typically unaware of their existence and effects – it takes training to "hear" them.

- **Some other examples of ATB rules in English**

(10) Canadian Raising:

There is a good deal of variation in the distribution of this rule: take 104-325B.

aj -> ʌj / ___ C
æw -> ʌw [-voice]

e.g.	write	[rʌjt]	vs.	ride	[rajd]
	wife	[wʌjf]		wives	[wajvz]
	fife	[fʌjf]		five	[fajv]
	house	[hʌws]		houses	[hæwzəz]

(11) Aspiration of Voiceless Stops:

/p,t,k/ → /p^{h}, t^{h}, k^{h}/ when simple syllable onsets

eg. pit [$p^hɪt$] vs. spit: [spɪt] NOT: [$sp^hɪt$]
cat [$k^hæt$] vs. scat: [skæt] NOT: [$k^hæt$]

(12) Some properties of Across The Board Rules:

a. ATB rules can "create" new allophones, e.g.: [D], [p^h], [ʌj]
(None of these occur in underlying representations in English)
b. Automatic, exceptionless.
c. Insensitive to morphological structure:
monomorph: ladder [lædər], house [hʌws]
bimorphemic: latter [lædər], pouter [pʌwdər]

5.1.2 Morphologically Sensitive Rules (Lexical or Morphophonemic Rules)

(13)

Orthography	Phonetic Transcription	
divine - divinity	dɪ. **vájn**	dɪ. **ví**. nɪ. tij
serene – serenity	sə. **ríjn**	sə. **ré.** nɪ. tij
profane – profanity	pro. **féjn**	pro . **fǽ** .nɪ .tij
deprave – depravity	dɪ. **préjv**	dɪ. **prǽ.** və. tij
profound – profundity	prə. **fǽwnd**	prə. **fún.** dɪ. tij
vile – vilify	**vájl**	**ví**. lɪ. faj
clear – clarify	**klíjr**	**klé.** rɪ. faj
rite – ritual	**rájt** / rʌjt	**rí**. tʲu . əl

(14) English vowels come in pairs of "long" and "short". In grade school, we learn to write these as: ī, ĭ respectively. Having taken phonetics (or even intro) we should now know that these symbols are somewhat misleading. Long vowels are "tense" diphthongs, while short vowels are "lax" (if you have the (old) O'Grady & Dobrovolsky textbook from 201, this is discussed on pp34-35). There is also something called a "Vowel Shift" going on (which we won't discuss in detail) which gives the following pairs:

orthography	tense	lax	orthography	tense	lax
i	aj	ɪ	(o)u	æw	ʊ
e	ij	ɛ	o	ow	a,ɑ
a	ej	æ			

What is important for present purposes is that these vowels alternate productively.

- *TRI-SYLLABIC LAXING (TSL)*

(15) Long (tense) vowels correspond to short (lax) vowels three syllables from the right edge of certain words:

TRI-SYLLABIC LAXING: V → [-tense] / ___ . □ . □ . #

(16) Addition of the suffixes –ity, -ify, -ual triggers the TSL rule (15), deriving the alternations in vowel quality [aj/ʌj, ij, ej, æw] ~ [ɪ, ɛ, æ, ʊ]. But now consider the following words:

(17)	Orthography	Phonetic Transcription	
	nightingale	**náj.** Dɪn. gejl	* **nɪ́.** Dɪn. gejl
		nʌ́j. Dɪn. gejl	
	ivory	**áj.** və. rij	* **ɪ́.** və. rij
	stevedore	**stíj.** və. dowr	* **stɛ́.** və. dowr

- These are monomorphemic words which meet the Structural Description of the TSL rule (15), but the rule fails to apply.

(18) OBSERVATION: The *TRI-SYLLABIC LAXING* rule (15) cares about morphological structure — it does not apply in mono-morphemic words (nor does it apply across words). We call it a *morphologically sensitive rule*.

But that's not all…

(19)	Orthography	Phonetic Transcription (of righthand word)	
	righteous - righteousness	**ráj.** čəs. nəs	* **rɪ́.** čəs. nəs
		✾ **rʌ́j.** čəs. nəs	
	pirate - pirating	**páj.** rət	* **pɪ́.** rə. tɪŋ
	brave - bravery	**bré.** və. rij	* **brǽ.** və. rij
	profound – profoundnesses	prə. **fǽwnd.** nəs	* prə. **fʊ́nd.** nə. səz

- Addition of the suffixes –ness, -ing, and –ry create derived words which meet the Structural Description of the TSL rule (15), but the rule (still) fails to apply.

(20) OBSERVATION: Morphologically-sensitive rules like the *TRI-SYLLABIC LAXING* rule (15) care about which affixes are added to create the environment.

(21) There are two types of affixes:

- "CYCLIC" AFFIXES — Those affixes which trigger Morphologically sensitive rules;
  "Class 1" — -ity, -ify, -ual, -ial, -ous, -ize, -(at)ion, -ic, -y$^{X \rightarrow N}$

- "NON-CYCLIC" AFFIXES — Those affixes which don't trigger Morph.-sensitive rules.
  "Class 2" — -ness, -less, -ful, -ly, -er, -ish, -ing, -ry, -y$^{N \rightarrow Adj}$

- **Some other examples of Morphologically Sensitive Rules in English:**

(22) /k/ → /s/
/t/ → /s/ / ___{cyclic suffixes}
/g/ → /ǰ/

a.	public [pʌblɪ**k**]	vs.	public-ize, public-ity [pʌblɪ**s**…]
		but	publicly, publication *[pʌblɪsejʃən]
b.	electric [ilɛktrɪ**k**]	vs.	electic-ity [ɛləktrɪ**s**əDij]
c.	democrat, recent [t]	vs.	democracy, recency^{N} "c" = [s]
		but	cat → catty^{Adj} [t], % recentish/ recenty
d.	analog [ænəlɑg]	vs.	analogy^{N},
		but	log → logger, bog → boggy^{ADJ}

(23) /s/ → /ʃ/ / ___ {i,ɪ,j}

a.	face, race [fejs], [rejs]	vs.	facial, racial [fejʃəl], [rejʃəl]
		but	racer, racing [rejsər, rejsɪŋ] *[ʃ]
b.	erase [s]		eras-er [əréjsər] vs. eras-ure [əréjʃər]

(24) Stress Shift:

• Stress moves rightwards in (long) examples with cyclic affixes

pro**FÓUND**	→	produc**TÍ**v-ity
	vs.	pro**DÚC**tive-ness
clear	→	clarifi**CÁ**-tion
	vs.	% **CLÁ**rificatory

(25) Some properties of Morphologically Sensitive Rules:

a. Sensitive to morphological structure and triggered only by certain morphemes
b. Do not apply to non-derived (i.e., simple) words.
c. Typically relate one phoneme to another [s] → [ʃ], [k] → [s]
d. Often have lexically specified exceptions

NOTE: Sometimes, a rule which is Morphologically-Sensitive in one language may be an Across-The-Board Rule in another language.

(26) Korean: [s] and [ʃ] are allophones of a single phoneme.

[ʃinho]	'signal'	[us]	'upper'
[ʃilsu]	'mistake'	[sɛk]	'colour'

[ʃipsam]	'thirteen'	[sosəl]	'novel'
[ʃihap]	'game'	[son]	'hand'
[maʃi]	'delicious'	[sɔm]	'sack'

Korean: /s/ → [ʃ] / ___ i — Everywhere, including morpheme-internally
Creates allophone [ʃ] which is not indep. phoneme
Speakers need to be trained to hear the difference

English: /s/ → [ʃ] / ___ i — Only Before Cyclic Affixes
Easy to hear - relates two independent phonemes
e.g., [sij] 'see' vs. [ʃij] 'she'

5.2 Cyclic and Non-Cyclic Affixes in German

(27) The [+sonorant] consonants ([l, r, n, m] = "R") in German may be syllabic in certain environments. Simplifying slightly, we will assume that "syllabification" is realized as a schwa: (this is a simplification: syllabic *r* (/ər/) may "vocalize" to "a-schwa" = [ɐ])

Handel [handəl] 'trade' Wesen [ve:zən] 'existence' Tafel [t^hafəl] 'table'

(28) When certain affixes are added to a word which would end in a syllabic resonant, the resonant may "desyllabify"

"Desyllabification" ə → Ø / __RV

Simple Form		Desyllabification		
Psychiater 'psychiatrist'	/psiçiatər/	psychiatr-ieren 'to institutionalize'	[psiçiatr–irən]	*[psiçiatər–irən]
Filter 'filter'	/filtər/	filtr-ieren 'to filter'	[filtr–irən]	*[filtər–irən]
Zylinder 'cylinder'	/cylindər/	zylindr-isch 'cylindrical'	[cylindr–iç]	*[cylindər–iç]
trocken	/trɔkən/	trockn-en 'to dry' [V]	[trɔkn–ən]	*[trɔkən–ən]
'dry' [ADJ]		Trockn-er [N] 'dryer (machine)'	[trɔkn–ər]	*[trɔkən–ər]

(29) But not all affixes trigger desyllabification:

Simple Form		Failure of Desyllabification		
Psychiater 'psychiatrist'	/psiçiatər/	Psychiater-in 'female psychiatrist'	[psiçiatər–in]	*[psiçiatr–in]
Filter 'filter'	/filtər/	filter-artig 'filter-like'	[filtər–a^{ɐ}tiç]	*[filtr–a^{ɐ}tiç]
Zylinder	/cylindər/	zylindr- artig	[cylindər– a^{ɐ}tiç]	*[cylindr– a^{ɐ}tiç]

‘cylinder’		‘cylinder-like’		
trocken	/trɔkən/	trocken-en	[trɔkən–ən]	*[trɔkn–ən]
‘dry’ [ADJ]		‘dry’ [Plural]		
		trocken-er	[trɔkən–ər]	*[trɔkn–ər]
		‘dry’ [Masc Sg. Nom]		

(30) Compare in particular the forms of the adjective ‘dry’, where we are dealing with homophonous suffixes:

trocken	/trɔkən/	trockn-en ‘to dry’ [V]	[trɔkn–ən]	*[trɔkən–ən]
‘dry’ [ADJ]		Trockn-er [N]	[trɔkn–ər]	*[trɔkən–ər]
		‘dryer (machine)’		
		trocken-en	[trɔkən–ən]	*[trɔkn–ən]
		‘dry’ [Plural]		
		trocken-er	[trɔkən–ər]	*[trɔkn–ər]
		‘dry’ [Masc Sg. Nom]		

(31)

Cyclic suffixes:	-ieren	N → V
	-isch	N → Adj
	-en	Adj → V
	-er	Adj → N
Non-Cyclic Suffixes	-in	(N) Fem
	-artig	N → Adj
	-en	(Adj) Plural
	-er	(Adj) Masc, Sg. Nom

The cyclic versus non-cyclic distinctions are relevant also for coda devoicing and stress.

5.3 RULE ORDERING, THE NECESSITY OF

(32) Flapping and Raising:

writer	[rʌjDər] ,	pouter	[pʌwDər]
rider	[rajDər] ,	powder	[pæwDər]

(33) OBSERVATIONS:

The Raising rule is applying.
But the Flapping rule has changed the form so that it no longer meets the structural description of the Raising rule. Specifically, the flap [D] is voiced and so on the surface, the vowel which raised is not before a voiceless consonant.

(34) We know that the “t” which should trigger raising WAS there (cf. write, pout) prior to the application of Flapping. So, what must have happened is that Raising applied first, when the “t” was still a “t”. Then the flapping came later:

(35) *Derivations*

writer	*rider*	
/rajt-ər/	/rajd-ər/	Underlying Representations
rʌjtər	-----	Raising
rʌjDər	rajDər	Flapping

• As linguists, we need not only to identify the phonological rules that occur in a given language, we must also identify the order in which they apply.

(36) If we apply the rules in the wrong order, we get the wrong results

write	*ride*	*writer*	*rider*	
/rajt/	/rajd/	/rajt-ər/	/rajd-ər/	Underlying Representations
----	----	rajDər	rajDər	Flapping
rʌjt	rajd	-----	-----	Raising
[rʌjt]	[rajd]	[rajDər]	[rajDər]	Output

• Note that this is not equivalent to no Raising rule (e.g., American) since the contrast still exists in the first pair.

5.4 The Cycle: Some Rule Ordering Comes From The Morphology

(37) a. clear - clarify: klijr **klɛ.** rɪ. faj
b. vile - vilify: vajl **vɪ.** lɪ. faj

TSL (above) has applied in the second words since:

(a) -ify is cyclic
(b) the struct. descr. is met
(/kli/- is 3 □ from end)

Now consider the following:

(38) a. clarification klɛ. rɪ. fɪ. **k^{h}ej.** šən * klij. rɪ. fɪ. **k^{h}ej.** šən
b. vilification vɪ. lɪ. fɪ. **k^{h}ej.** šən * vaj. lɪ. fɪ. **k^{h}ej.** šən

(39) If we look at the underlying phonological representation of the whole words, we notice two things:

/ kli. rɪ. faj. kej**.** šən / / vaj. lɪ. faj. kej**.** šən /

(a) TSL should apply to the underlined syllables. It does.
(b) TSL should NOT apply to the initial syllables. It does. ???

(40) The morphological structure (i.e., derivation) is important
clarification is not made from *clear*, but rather from *clarfiy*
By the time you get to *clarification*, TSL has already applied:

clarification [[[clear] - ify] -cation]	*vilification* [[[vile] - ify] -cation]	Morph. Structure[1]
/ klijr /	/ vajl /	Roots <u>MS Rules Do Not Apply</u> (Underlying Representation)
klijr + / ifaj / **klɛr** ɪfaj	vajl + / ifaj / **vɪl** ɪfaj	"Cycle 1" TSL/Laxing
klɛrɪfaj + / kejšən / klɛrɪ **fɪ** kejšən	vɪlɪfaj + / kejšən / vɪlɪ **fɪ** kejšən	"Cycle 2" Laxing
klɛrɪfɪkejšən	vɪlɪfɪkejšən	Outputs

Note: • There is no application of TSL on the root, i.e. prior to Cycle 1
We have seen above that cyclic rules do not apply root-internally.

5.5 Stress – More on the Cycle

(41) The simplified *English Stress Rule*

If the penultimate syllable (second from the end) is heavy (C_0V: or C_0VC)[2], then assign it stress. Otherwise, stress the antepenultimate (third from the end) syllable. *roughly:*

V → [+stress] / ___ (light □) □ #

a.	a.gén.da	con.sís.tent	sta.lág.mite	e.léc.trode
b.	a.mé.ri.ca	cóm.pe.tent	má.la.chite	plá.ti.node

(42) Secondary Stress Rule (long words).

Put secondary stress on the first syllable and every second one thereafter.

(43) The Clash Rule:

Don't have two stressed syllables in a row

$$V_{[+stress]} \rightarrow V_{[-stress]} \; / \; \_\_\_\_\_ V_{[+stress]}$$

(44) hàmamèlidánthemum Tàtamagóuchi, Àpalàchicóla

hamamelidanthemum	Tatamagouchi	
hamameli **dán** themum	Tatama **g[ú:]** chi	Main Stress
hàm a **mè** lidánthemum	**Tà** ta **mà** g[ú:] chi	Secondary Stress

---

[1] There aren't enough kinds of brackets to go around. Here we are using [square brackets] to indicate morphological structure, NOT phonetic representations. The bracket notation is equivalent to tree notations as we have discussed.

[2] C_0 means "a sequence of zero or more consonants". CV: means a syllable with a long vowel (including diphthongs).

-----	Tàta **ma** g[ú:] chi	Clash
hàmamèlidánthemum	Tàtamag[ú:]chi	Output

(45) Secondary Stress in Morphologically Complex Words

so **lì** di fi **cá** tion	NOT	**sò** li **dì** fi **cá** tion	cf. Àpaláchicóla
o **rì** gi **ná** li ty	NOT	**ò** ri gi **ná** li ty	cf. Tàtamagóuchi
pe **rì** phe **rá** li ty	NOT	**pè** ri phe **rá** li ty	

- Is the Secondary stress rule just wrong?

(46) These words all have secondary stress exactly where main stress goes *on the stem* i.e., prior to addition of the last affix:

so **lí** di fy o **rí** gi nal pe **rí** phe ral

(47) Why is there a tight connection between Morphologically Sensitive Rules and "Cyclic" Affixes? It's because the cyclic affixes define a **"cycle":** each time you add a "cyclic" affix, you trigger a round or *cycle* of Morphologically Sensitive rules.

originality

origin	Root [No MS Rule Application]
origin + al o **rí** gi nal	Cycle 1 (by virtue of addition of cyclic affix) MAIN STRESS RULE
oríginal + ity orígi **ná** lity	Cycle 2 (by virtue of addition of cyclic affix) MAIN STRESS RULE (Yes, again – it applies on each "cycle")
orìginálity	Output. Convention: the real "main" stress is the last stress added, all others are "demoted" to secondary stress.

(48) An extra thing to note. Monomorphemic words in English have stress, too, as we saw above. But Morphologically-Sensitive rules do not apply to single morphemes. We need to be able to say that some rules (such as Main Stress in English) are simultaneously both Morphologically-Sensitive (meaning they apply every time a cyclic affix is added) *and* ATB so that they apply to monomorphemic words (and in words with only non-cyclic affixes).

(49) More on Stress and the Cycle:

For some dialects of English, there is a difference in the realization of the second vowel in:

condensation = cond[ɛ] nsátion compensation = comp[ə]nsátion

It has been argued that this (somewhat elusive) difference comes from the cyclic nature of stress assignment in English, coupled with the idea that those vowels which have never been stressed reduce to schwa [ə]. We must also assume that some roots come with their own stress pattern.

condensation	*compensation*	
/kandɛ́ns/	/ kampensejt /	Roots (Underlying Representation) MS Rules Do Not Apply
kandɛ́ns + / ejʃən / ----- kandɛ́n **séj** ʃən	kampensejt + / ən / kampensejʃən kampen **séj** ʃən	"Cycle 1" /t/ → /s/ / cyclic affixes (prev. H.O.) Stress
kàn dɛ́nséjʃən ----- kàn **dɛn** séjʃən	**kàm** penséjʃən kàm **pən** séjʃən -----	ATB rules secondary stress V → ə (when V unstressed) Clash
[kàndɛnséjʃən]	[kàmpənséjʃən]	Outputs

- Note that the vowel reduction rule (an ATB rule), even though it is not the last rule in the derivation, must apply only after the stress rules have had a chance to apply. Otherwise, it could have reduced various vowels to schwa *before they had a chance to get stress*.

THE POST-CYCLIC CONVENTION

All ATB rules apply after the cycles (if any) have triggered MS-Rules.

(50) Implication: Derivations always have the following form:

/ root /	Underlying form (e.g., of root) NO RULES HERE
root **+ /affix1/**	Cycle 1 iff affix1 is cyclic Morphologically Sensitive Rules
root-aff1 **+ /affix2/**	Cycle 2 iff affix2 is cyclic Morphologically Sensitive Rules again
… **+ /affix n/**	Cycle *n* iff affix *n* is cyclic Morphologically Sensitive Rules again
root-aff1 … affn	ATB Rules APPLY HERE
[phonetic form]	Output

5.6 The Strict Cycle Condition

(51) The pair: omen [owmən] vs. ominous [aminəs] shows that *–ous* is cyclic [TSL]
So does:
The pair: right [rʌjt] vs. righteous [rʌjčəs] /t/ → /č/ / ___ Cyclic Suffix.[3]

Given that *righteous* contains a cyclic affix, why does TSL not apply in *righteousness*?

righteousness

/rajt/	Root [No MS Rule Application]
rajt + /əs/	Cycle 1 (by virtue of addition of cyclic affix)
rajčəs	/t/ → /č/
----	TSL (Only two syllables)
rajčəs + /nɛs/	No Cycle Triggered (-ness is not cyclic)
*****	TSL: Can't apply – No MS Rule Application
rajčəsnɛs	ATB Rules (no more affixation)
rʌjčəsnɛs	Canadian Raising
rʌ́jčəsnəs	Main Stress, Vowel Reduction (V → ə)
[rʌ́jčəsnəs]	OUTPUT

5.7 ALLOMORPHY VERSUS PHONOLOGY

- **How does our new-found knowledge of phonology affect our lexical entries?**

(52) Flapping:

write	[rʌjt]	writ-er	[rʌjD-ər]
ride	[rajd]	rid-er	[rajD-ər]
lead	[lijd]	lead-er	[lijD-ər]
fight	[fʌjt]	fight-er	[fʌjD-ər]

[3] Some people say [ənæləgəs] instead of [ənæləǰəs] for *analogous*. Recall from the previous handout that lexical exceptions are one of the defining properties of Morphologically-Sensitive Rules.

(53) Would we want to have lexical entries like the following?

label	**WRITE**	**FIGHT**
phon. & allom.	[rʌjD] / __V[-stress] [rʌjt] / <elsewhere>	[fʌjD] / __V[-stress] [fʌjt] / <elsewhere>
meaning	to form words/letters on a surface	to take part in a physical struggle
subcat	[__]	[__]
category	V	V
Arg Str.	<Ag <(Th), (Go)>>	<Ag <(Th)>>

- **NO!** Why not?

  It would be redundant to write this for every root ending in a t or d.

  We would be missing a robust generalization, a fact about English.

But more importantly, it is PREDICTABLE. Thus, if I make up a new word, say, to spoot [spuwt], the suffixed form will be [spuwDər]. The information that goes in lexical entries is only the arbitrary, unpredictable, idiosyncratic information about an individual morpheme. It is the information that the speaker of a given language (in this case English) must LEARN individually for each morpheme, and memorize.

Thus, if an alternation is predictable by a phonological rule, then that alternation has no business being in a lexical entry.

(go back to Unit 1 notes and Assignment 1 if this is not clear)

Phonological rules are part of the grammar, but they are not part of the lexicon.

(54) The (True) Allomorphy Criteria

(i) Complementary distribution
(ii) Not predictable from general phonological rules

(55) The lesson

➪ Identifying an alternation is a first step. Whenever we posit phonologically-conditioned allomorphy, we should wonder if investigation of the phonology will reveal a deeper analysis.

➪ To know if an alternation is allomorphy or not requires understanding the phonology of the language