

BBN-ANG-243 Advanced Phonology: Phonological Analysis

1. Introduction

Kiss Zoltán / Starcevic Attila / Szigetvári Péter / **Törkenczy Miklós**
 Dept of English Linguistics, Eötvös Loránd University

(1) Where you are

year 1: BBN-ANG-141 Foundations of phonology lecture 45mins/week, 2 credits
 ✓ THIS IS SOMETHING YOU HAVE ALREADY DONE

year 2: core phonology courses

a. BBN-ANG-241 Phonology lecture, 45 mins/week, 2 credits

b. BBN-ANG-242 Phonology seminar (for major students only) 90 min/week, 3cred

✓ YOU HAVE ALREADY DONE THESE TOO

year 3: **BBN-ANG-243 Advanced phonology lecture (for students specializing in English only), 90 mins/week, 3 credits**
THIS IS WHERE YOU ARE NOW!

● web: <http://seas.elte.hu/w!/courses/analysis/start>



● assessment: written examination

fill-in+multiple choice (80 Qs, fail: 50%)

● no-risk, non-compulsory Preliminary Test

15 fill-in Qs <you must register in advance>

(2) What we assume you already know



- how to characterise speech sounds in terms of articulatory features (*phonetics*)
- the difference between *phonetics* (physical sound properties, gradual) and *phonology* (sound pattern, behaviour, categorical)
- difference in status between *distinctive* and *redundant* features (distribution, phoneme, allophone, contrast)
- loads of distributional facts about the English sound pattern (*rules* of E. phonology)



(3) What the course is about: phonological analysis

(3.1) Patterns

PATTERN TYPE	DESCRIBED/EXPRESSED BY
i. Allophonic patterns	<i>Allophonic phonological rules</i> : they predict non-contrastive features of sound e.g. aspiration [p] [p ^h]
ii. Morpho-phonological patterns	<i>Morpho-phonological rules</i> : they state generalisations about alternations: they predict the phonological form of allomorphs (alternants) and state under what conditions each occurs. e.g. regular past allomorphy {/t/, /d/, /ɪd/}
iii. Phonotactic patterns	<i>Phonotactic rules</i> : they state what a phonologically possible word is, i.e. how segments can combine into words e.g. */fpɒt/ but /spɒt/

(3.2) Levels of representation & mapping

Phonological analysis assumes that the surface patterns/regularities are captured by

- a. an abstract *representation* which encodes the information necessary for capturing them (the phonological/underlying representation)
- b. a set of *rules* that derive the surface/phonetic representation from this abstract representation

phonological/underlying representation (UR) → phonetic/surface representation (SR)

(3.3) The relationship between the SR and the UR informally expressed: the 'AS IF' assumption

If a unit X of the phonetic/surface representation 'behaves like' the unit Y, then X and Y are the same *phonologically*, i.e. they are represented in the same way in UR.

Phonological relationships can be read off the UR and regularities are expressed by phonological rules

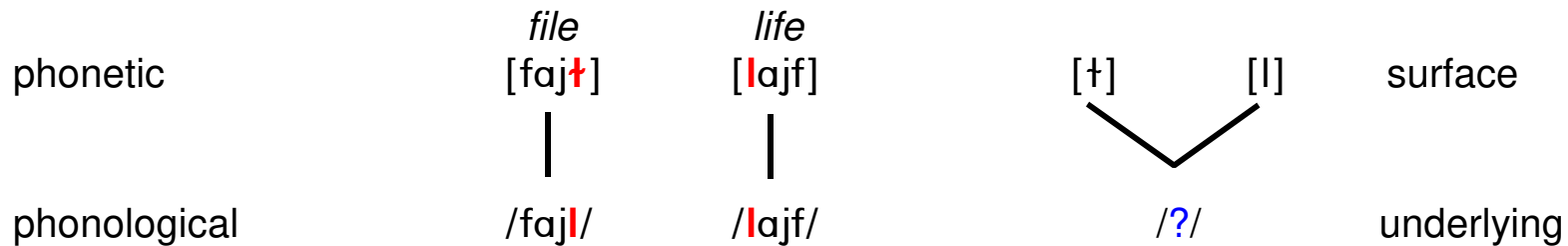
(4) Phonological analysis: the task is to determine (i) the UR and (ii) the mapping (the rules)

(5) The non-uniqueness of phonological analysis

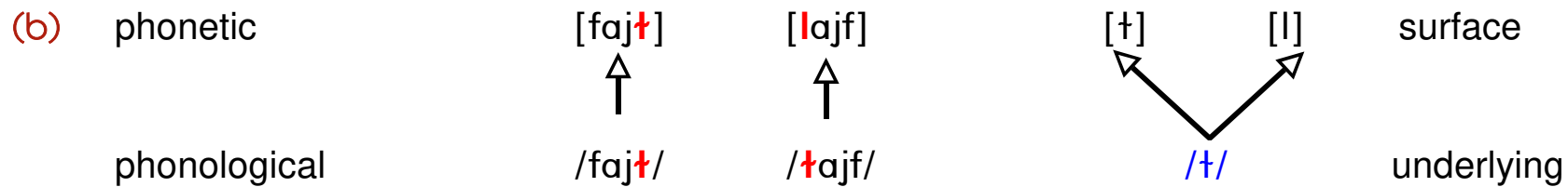
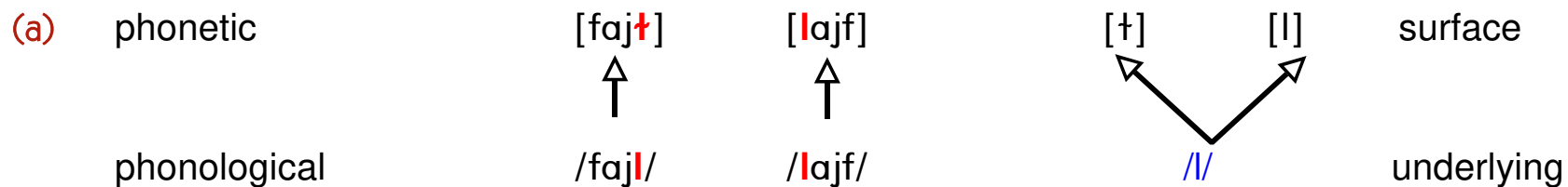
More than one analysis of the same data is possible – depending on the general theoretical assumptions we make (ideally, it is possible to argue that one of is them is the optimal one)

(6) Simple (and sad) example: [ɪ] and [ɪ̯]

(6.1) Complementary distribution and contrast: *velarisation is non-contrastive*



(6.2) Derivation: (a) /ɪ̯/ → [+velarisation] / _ {C≠j, || } or (b) /ɪ̯/ → [-velarisation] / _ {V, j }



(6.3) Argumentation: Which is the better analysis: (a) or (b)?

- Are there any facts that are incompatible with one of the analyses?

- Are there any facts that are better explained by one analysis than the other?
 - distributional facts?
 - phonetic facts (phonetic motivation)?

(7) Complex (and happier) example: [ŋ] or How many underlying nasals are there in English?

(7.1) Phonemics/taxonomic phonology: “once a phoneme always a phoneme”

if two sounds contrast in some environment, their difference should always be assumed to be distinctive: they belong to different phonemes. [sʌn] vs. [sʌŋ] ⇒ /n/ vs. /ŋ/ 3 UR nasals: /m/, /n/, /ŋ/

(7.2) Closer look: distribution

(7.2.1) Limited contrast

contrast with other nasals

i. morpheme-initially	#_	<i>map</i>	<i>nap</i>	*[ŋap]	NO
ii. morpheme-medially	_V	<i>Emmy</i>	<i>any</i>	*[ɛŋIj]	NO
	_C	<i>limp</i>	<i>lint</i>	[lɪŋk]	NO
iii. morpheme-finally	_#	<i>some</i>	<i>sun</i>	<i>sung</i> [sʌŋ]	YES

!! [sɪŋə] = [sɪŋ#ə]

!! *[lɪŋt]

!! [baŋd] = [baŋ#d]

(7.2.2) 'lonely' [ŋ] vs. [ŋg]: complementary distribution

(a)		[ŋ]	[ŋg]		[ŋk]
	morpheme finally	<i>sing</i> [sɪŋ]	–		<i>sink</i> [sɪŋk]
	morpheme medially	–	<i>anger</i> [aŋgə]		<i>anchor</i> [aŋkə]
	[ŋg]	<i>never</i> before a morpheme boundary	<i>singer</i> [#sɪŋ#ə#]		*[#sɪŋg #ə#]
	[ŋ]	<i>only</i> before a morpheme boundary	<i>finger</i> [#fɪŋgə#]		*[#fɪŋə#]

exceptions: i. *longer, stronger, younger, longest, strongest, youngest*
 ii. *hangar, –ingham* (!*gingham*)

['lɒŋg #əst]
 ['nɒtɪŋəm]

(b)	[n] - [nd]	<i>money - Monday</i>	<i>ten - tend</i>
	[s] - [st]	<i>soul - stole</i>	<i>miss - mist</i>

(7.2.3) pre-[ŋ] vowels: only short

VC	V:	V	
C≠[ŋ]	<i>fine</i> [fajn]	<i>fin</i> [fɪn]	
C=[ŋ]	*[sajŋ]	<i>sing</i> [sɪŋ]	exc: <i>oink</i> [ojŋk]

OTHER FACTS/GENERALISATIONS

(7.2.4) nasal+plosive clusters

[nasal][stop]#	p	t	k	b	d	g
m	lɪmp	-	-	-	-	-
n	-	tent	-	-	lɛnd	-
ŋ	-	-	lɪŋk	-	-	-

- i. C_[nasal]C_[stop] clusters must be homorganic within the morpheme.
- ii. Non-coronal voiced stops cannot occur after nasals morpheme-finally

(7.2.5) onset clusters and sonority

play	try	twist
*[lpɛj]	*[rtəj]	*[wtɪst]

Sonority Hierarchy: stops, affricates < fricatives < nasals < l < r < glides < vowels

Onset clusters must have rising sonority

(! regular exception: #sC **spot**, **stop**, **ski**)

(7.2.6) vowels before morpheme-final consonant clusters

coronal cluster	<i>mount</i> [mawnt]	<i>sent</i> [sɛnt]
	<i>field</i> [fiɪld]	<i>held</i> [hɛld]
non-coronal cluster	*[ɛjŋk]	<i>tank</i> [tɑŋk]
	*[hiɪlp]	<i>help</i> [hɛlp]

Only phonologically short vowels can occur before morpheme-final non-coronal clusters

(7.3) AS IF

Observation	[ŋ] behaves as if it were a non-coronal cluster, specifically a cluster of a nasal+velar stop (ng)
Analysis	'AS IF' assumption → phonologically it IS /ng/ = There is no UR /ŋ/, only /m/ and /n/ in English.

(7.4) Costs and benefits

(7.4.1) Benefits: What does this analysis buy us?

- (a) explains why 'lonely' [ŋ] & [ŋg] do not contrast <they are the same in UR>
- (b) explains why [ŋ] does not occur morpheme-initially <#nasal+C cluster=sonority violation>
- (c) explains why pre-[ŋ] Vs are short <only short Vs occur before non-cor. clusters>
- (d) explains why the /g/ of /ng/ does not appear phonetically <no voiced stops after nasals _# in general>
- (e) system economy: reduces the number of UR segments (only 2 nasals)

(7.4.2) Costs: What does this analysis cost us?

(a) 'abstractness'

The presence of surface contrast does not necessarily indicate identical underlying contrast: the 'once a phoneme, always a phoneme' principle is given up

(b) complexity of mapping *more complex rules + rule ordering*

(8) Implementation of the 'AS IF' assumption: Generative Phonology

(a) 'behaviour' (= regularities, patterns) are expressed by mapping = *derivation*:

the phonetic (surface) representation is derived from the phonological (underlying) representation by a set of phonological *rules* which are *sequentially ordered*. Phonological rules change representations by adding predictable properties to the representation (input) to which they apply.

(b) EXAMPLE: derivation of surface/phonetic [ŋ] from underlying/phonological /ng/

phonological rules:

1. nasal assimilation: [nasal] → [α place] / _ [C, α place]
2. post-nasal g-deletion: g → ∅ / [nasal] _ #

ordering: 1. before 2.

derivation:

underlying/phonological representation	/#sɪŋ#/	/#sɪŋ#ə#/	/#fɪŋgə#/
1. nasal assimilation	#sɪŋg#	#sɪŋg#ə#	#fɪŋgə#
2. post-nasal g-deletion	#sɪŋ#	#sɪŋ#ə#	—
surface/phonetic representation	[sɪŋ]	[sɪŋə]	[fɪŋgə]

(c) generative phonological analysis aims to 'explain' the pattern by

- (i) identifying what the phonological (underlying) representation is
- (ii) identifying what the phonological rules are
- (iii) showing how the rules apply to derive the phonetic (surface) representation from the underlying one (ordering)

(9) Bad ideas: when 'explanations' do not work

(9.1) $/l/ \rightarrow [ɫ] / _ C$ where $C \neq j$ $['dɛɫtə]$ but $['valjɯw]$, $['sɪɫɪj]$

(9.2) Problem: why is $[j]$ the *only* consonant before which $/l/$ is clear?

(9.3) Idea 1: because *phonologically/underlyingly* it is a vowel NO GOOD ☹ a unit, *an unit

(9.4) Idea 2: the real rule is different: $/l/$ is clear before vowels *and* glides, but dark before a non-glide C
NO GOOD ☹ $['o:ɫwɛjz]$

(9.5) Explanation must lie elsewhere

Silver lining: at least we have seen the problem and excluded two possible explanations!