

Morphological analysis, alternations

LING 451/551

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Overview

- Morphological analysis: Kikuyu
- Turkish verb root alternations

Assumed model of grammar

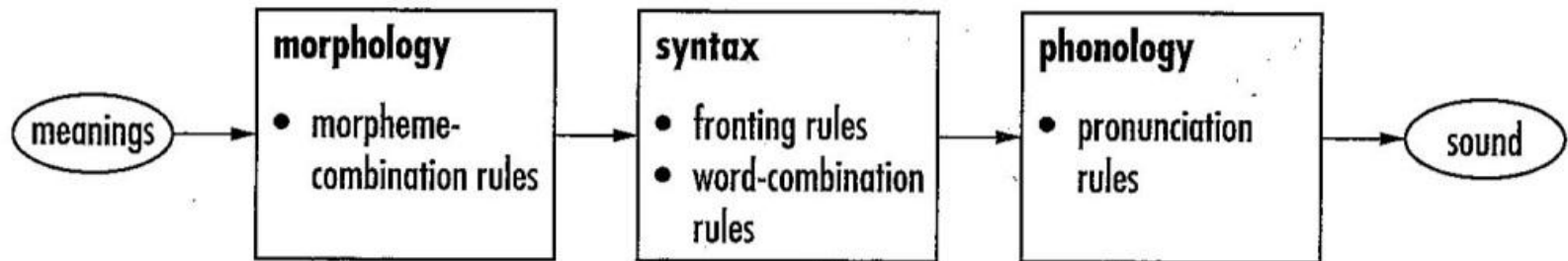


Figure 1.1 A possible descriptive architecture for grammar

Generative view of phonology

- Different pronunciations of same morpheme can provide evidence about phonology
- Hayes 6.1.1
 - ‘The morphology of a language places morphemes in different phonological contexts...’

Morphological analysis

- Always the first step in phonology

Kikuyu verbs

- Data on handout

Kikuyu Verb Conjugation

The following forms illustrate two verb tenses in Kikuyu. Tones are indicated as follows:

á = high

a = low (unmarked)

A. Current imperfect.

'look at'

'send'

1. 'we are V-ing'

torɔɾaya

totomáya

2. 'we are V-ing him/her'

tomorɔɾaya

tomotomáya

3. 'we are V-ing them'

tomarɔɾaya

tomatómáya

4. 'they are V-ing'

márɔɾaya

mátómáya

5. 'they are V-ing him/her'

mámórɔɾaya

mámótomáya

6. 'they are V-ing them'

mámárɔɾaya

mámátómáya

B. Current past.

7. 'we V-ed'

torɔɾiré

totomíré

8. 'we V-ed him/her'

tomorɔɾiré

tomotomíré

9. 'we V-ed them'

tomarɔɾiré

tomatómíré

10. 'they V-ed'

márɔɾiré

mátómíré

11. 'they V-ed him/her'

mámórɔɾiré

mámótomíré

12. 'they V-ed them'

mámárɔɾiré

mámátómíré

1. Identify the following morphemes, ignoring the tone.

'look at'

'send'

'1st plural subject'

'3rd plural subject'

'3rd singular object'

'3rd plural object'

'current imperfect'

'current past'

Morphological analysis = identification of morphemes (and/or morphological processes)

How?

Hayes 5.9: 'Rapid progress can be made by isolating minimal pairs...'

Comparisons

- Some minimal pairs
- A1. torɔraɣa ‘we are looking at’
- A1. totomáɣa ‘we are sending’
- A1. torɔraɣa ‘we are looking at’
- A2. tomorɔraɣa ‘we are looking at him/her’

- Not a minimal pair
- A3. tomaróraγα ‘we are looking at them’
- A4. máróraγα ‘they are looking’

Kikuyu morphemes

(ignoring tone)

- Roots

/rɔr/ 'look at'

/tom/ 'send'

- Prefixes

/to/- 'we'

/ma/- 'they'

/mo/- 'him, her'

/ma/- 'them'

- Suffixes:

-/aɣa/ current imperfective

-/irɛ/ current past

Position class analysis

- Order of morphemes in the Kikuyu verb
 - subject-object-root-tense

to-ma-rór-aγa ‘we are looking at them’

1pS-3pO-look.at-curr.impf

má-má-tóm-íré ‘they sent them’

3pS-3pO-send-curr.past

- Cf. Swahili, Hayes 5.9: subject-tense-object-root

Alternations

- Turkish possessed noun data from handout

Turkish Possessives

In the set of data below, the vowel of the possessed form suffix assimilates to the quality of the preceding stem vowel, according to the rule of vowel harmony. (See the problem “Turkish Vowels”, above.)

Notice the alternation involving the final consonant of the noun stem in some of the forms:

	<u>noun stem</u>	<u>possessed form</u>	<u>UR (stem)</u>
1.	'rope'	ip	ipi
2.	'louse'	bit	biti
3.	'reason'	sebep	sebebi
4.	'wing'	kanat	kanadı
5.	'honor'	şeref	şerefi
6.	'rump'	kiç	kiçi
7.	'pilot'	pilot	pilotu
8.	'bunch'	demet	demeti
9.	'wine'	şarap	şarabı
10.	'Ahmed'	ahmet	ahmedi
11.	'slipper'	pabuç	pabuju
12.	'power'	güç	güjü
13.	'basket'	sepet	sepeti
14.	'art'	sanat	sanatı
15.	'cap'	kep	kepi
16.	'worm'	kurt	kurdu
17.	'hair'	saç	saçı
18.	'color'	renk	rengi

1. Give the underlying representation (UR) of the noun stems in the space provided.
2. Write the phonological rule that accounts for the consonant alternations.
3. Justify your rule by suggesting an alternative and showing that it is inferior to your solution.

Goals of morphophonological analysis

- Posit
 - Underlying (basic) representation of each morpheme (UR)
 - Phonological rules produce different pronunciations of morphemes in context
- Phonological analysis = URs + rule system

Morphological analysis

	<i>unpossessed</i>	<i>possessed</i>
'rope'	[ip]	[ip-i]
'reason'	[sebep]	[sebeb-i]
'color'	[renk]	[reng-i]
'wing'	[kanat]	[kanad-ı]
'slipper'	[pabutʃ]	[pabuɖʒ-u]
'power'	[gytʃ]	[gyɖʒ-y]

Identify morpheme alternants

- Alternants (or allomorphs)
 - different forms of a morpheme
 - minimally phonologically different
 - predictable distribution
- Turkish possessed suffix alternants
 - -[i] ~ -[i̇] ~ -[u] ~ -[y]
 - all high vowels, differ in backness, rounding

- Turkish roots
 - Some have two alternants
'reason' [sebep] ~ [sebeb]
 - Some have one alternant
'rope' [ip]

Identify alternating segments

- Alternation, alternating segments
 - parts of morpheme alternants which vary in context
- Turkish alternating roots: root final voicing alternation
 - [p] ~ [b]
 - [t] ~ [d]
 - [tʃ] ~ [dʒ]
 - [k] ~ [g]
- Turkish also has non-alternating roots ([ip])

Distribution of alternants

- Where does each alternant occur?
 - this Q about alternating morphemes only

– ‘reason’ _____# _____ V
 [sebep] [sebeb]

- Voiced alternants before vowels (suffix);
voiceless alternants word-finally

Suggest underlying representation

- Underlying representation (UR)
 - phonologically most basic form of a morpheme
- Assumption (in this class)
 - morphemes have **one** underlying or basic representation
- For alternants in complementary distribution
 - choose a UR
 - predict other alternants by phonological rule


How to select UR

- Try out possible analyses, choose between them
- Good practice to consider all logically possible analyses (usually a small set)

Turkish alternating roots

- [sebep] ~ [sebeb]
- Two possible analyses of alternating roots
 1. /sebeb/ (UR), Final Devoicing (P rule)
C --> [-voiced] / ____ #
 2. /sebep/, Voicing
C --> [+voiced] / ____ + V

before morpheme-initial
vowel; cf. [sepet] 'basket'



Decide between analyses

- Consider predictions of each analysis
 - Analysis 2 (with Voicing) predicts all roots will have voiced root-final consonants before vocalic suffixes
 - incorrect prediction about non-alternating roots like [ip-i] (*[ibi])
 - Analysis 1 (with Final Devoicing) predicts all roots will have voiceless consonants word-finally
 - correct for all data provided

Decide between analyses

- Empirical (data-driven) considerations are primary
- But if all analyses equally valid empirically
 - compare in terms of complexity
 - all other things being equal, simplest analysis preferred

- ‘rope’ /ip/
- ‘louse’ /bit/
- ‘reason’ /sebeb/
- ‘wing’ /kanad/
- ‘honor’ /ʃeref/
- ‘rump’ /kitʃ/
- ‘pilot’ /pilot/
- ‘bunch’ /demet/
- ‘wine’ /ʃarab/
- ‘Ahmed’ /ahmed/
- ‘slipper’ /pabuɖʒ/
- ‘power’ /gyɖʒ/
- ‘basket’ /sepet/
- ‘art’ /sanat/
- ‘cap’ /kep/
- ‘worm’ /kurd/
- ‘hair’ /satʃ/
- ‘color’ /reng/

Final list of root URs

Final version of rule

- Final Devoicing

1. C --> [-voiced] / ____ #

Consonants are voiceless word-finally.

vs.

2. C --> [-voiced] / ____ #

[+voiced]

Voiced consonants are voiceless word-finally.

- Remember: ‘phonologists usually do write their rules [like 1.], if only to keep them simpler and easier to read’ (Hayes 4.9.3)
 - 1. applies *vacuously* (without change) to voiceless Cs

Summary

- Goal of analysis of alternations problems
 - (1) URs of all morphemes
 - (2) Phonological rules which predict pronunciation of morphemes
- A.k.a. morphophonemics/
morphophonology

General procedure for alternations problems

1. Morphological analysis: describe structure of words, identify morphemes
2. Identify morpheme alternants.
3. Determine distribution of alternants
4. Consider possible analyses of alternating morphemes
5. Choose one analysis (the best one)
6. Summarize analysis: URs of morphemes; final form of P rule(s)
7. Derivations of representative forms always a good idea

Alternations practice

- Worksheet on Russian

Neutralization of laryngeal contrasts

- Fairly common cross-linguistically. Most common contexts:
 - word-finally (Turkish, Russian)
 - syllable-finally (Korean example in Odden, p. 254)
- Usually affects obstruents only
 - sometimes applies to sonorants (Angas), vowels (Havasupai etc.)

Towards a consonant chart for Turkish

p b t d tʃ dʒ k g
f s ʃ h
m n
 l
 r

Notice: in Turkish, /p/ and /b/ (etc.) are phonemes

[sebep] ‘reason’

[sepet] ‘basket’

i.e. [voiced] is distinctive for stops and affricates

Neutralization

- Allophony (450)
 - rules that describe non-phonemic sounds in complementary distribution
- Many P rules are neutralizing rather than allophonic
 - neutralize or merge distinction between phonemic contrasts in certain contexts
- In Turkish, root-final C contrasts in voicing
 - e.g. /kanad/ ‘wing’ vs. /bit/ ‘louse’
 - Final Devoicing neutralizes root-final voicing contrast in favor of voiceless word-finally.