Handout #7

Alternations

Alternations

- **Morpheme alternants** are two different pronunciations of the same morpheme, each of which is limited to a particular context.

- An **alternation** is the relation between two morpheme alternants.

- The sounds that differ in the alternants are **alternating sounds**.

Examples from English

- In English, the tap [ɾ] occurs only after a nonstop sonorant and before an unstressed syllabic sound.

- Aspirated [tʰ] occurs only elsewhere, at the beginning of a syllable.

- Glottalized [t⁻ʔ] occurs only after the syllable peak in a syllable.

- Unaspirated [t] occurs only elsewhere.

Alternations

- ˈmit̚ʔ   "meat"   ˈmiɾi   "meaty"
- ˈmit̚ʔ   "meet"   ˈmiɾɪŋ   "meeting"
- kʰɹiˈeɪt̚ʔ "create"   kʰɹiˈeɪɾɪv "creative"
- kʰɹieɪˈtʰɪvɪɾi   "creativity"
- ˈgɛt̚ʔ   "get"   ˈgɛɾə ˈlaɪf "get a life"
- ˈgɛt̚ʔ ˈlɑst   "get lost"
- ˈɹaɪt̚ʔ   "write"   ˈɹaɪɾɹ̩   "writer"
- ˈɹaɪɾ ə ˈbʊk   "write a book"

Alternations

- $'mit^\gamma$ and $'mir$ are morpheme alternants.

- The latter occurs before an unstressed syllabic sound, and the former occurs only elsewhere.

- There is an alternation between the two, which is indicated by "~": $mit^\gamma \sim 'mir$.

- The two alternants are distinguished by one having t^γ where the other has r.

- These sounds are also alternating: $t^\gamma \sim r$.

Alternations

- Other morpheme alternants:
    - kʰɹiˈeɪt˺ʔ ~ kʰɹiˈeɪɾ ~ kʰɹieɪtʰ

    - gɛt˺ʔ ~ gɛɾ

    - ɹaɪt˺ʔ ~ ɹaɪɾ
- Alternating sounds: t˺ʔ ~ ɾ ~ tʰ
- The alternating sounds are governed by the complementary distribution above.
- The alternations are due to that distribution.

Alternations

- The alternant with the default allophones is the underlying form - the one that occurs unless some phonological rule intervenes.
- Underlying representation of alternating morphemes:
  - / kʰɹieɪt, ɡɛt, ɹaɪt /

Alternations

- If two sounds alternate, there must be a restriction on the distribution of one that doesn't apply to the other.
- In this case the restriction is a complementary distribution.
- Alternations are informative.
- All it takes are a few alternating forms to signal that there is a restricted pattern of distribution.

Shona (Zimbabwe)

Noun	"with (a) Noun"	"like (a) Noun"	Noun gloss
ɓaŋga	*neɓaŋga*	*seɓaŋga*	knife
saḓza	*nesaḓza*	*sesaḓza*	polenta
meso	*nemeso*	*semeso*	eyes
mɣura	*nɛmɣura*	*sɛmɣura*	water
ndarama	*nɛndarama*	*sɛndarama*	money
ŋguruße	*nɛŋguruße*	*sɛŋguruße*	pig

Shona: Morphological analysis

- When we compare the "with (a) Noun" column to the "Noun" column, we see that they differ in form in that the former has *se-* or *sɛ-* at the beginning.

- They differ in meaning in that the forms with *ne-* or *nɛ-* have "with" in the gloss.

- Therefore *ne-* and *nɛ-* must both mean "with". They are morpheme alternants.

Shona: Morphological analysis

- By the same logic, *se-* ~ *sɛ-* must mean "like".
- The other morphemes are the items in the "Noun" column, each with the meaning given in the "Noun gloss" column.
- Example: *ɓaŋga* "knife".

Shona: Phonological analysis

- We have seen two morpheme alternations: *ne- ~ nɛ*, and *se- ~ sɛ-*.

- The sounds that distinguish these alternants are the alternating sounds *e ~ ɛ*.

- Because they alternate, there must be some restriction on distribution that applies to one of these sounds but not the other.

Shona: Phonological analysis

- To determine what this restriction is, we look at where the alternants with *e* occur and try to make a generalization about that.

- Then we do the same for *ε*.

- Consider the following additional data as well.

Shona (Zimbabwe)

- ɲɛmba "cow pea"
- ɲepa   "lie"
- ɗɛnde   "gourd"
- ɗene   "lust"
- ɸɛmba   "sniff"
- ɸema   "breathe"

Shona: Phonological analysis

- The mid front lax vowel [ɛ] occurs only before a sequence of a nasal followed by an obstruent.
- The mid front tense vowel [e] occurs only elsewhere.
- Phoneme: /e/
- Tensing rule:
  -      V

    [-high] --> [-ATR] / ___ [+nas] [-son]

Shona: Phonological analysis

- The alternating morphemes must take as their underlying form the one with the phonemes: /*ne-*, *se-*/.

- The nondefault alternants *nɛ-* and *sɛ-* are created by the phonological rule.

- The phonological rule doesn't refer to morphemes.

- The alternation is just a side effect of the phonological distribution.

Shona: Derivations

Underlying representation	/ne - ɓaŋga/	/ne - my̤uɾa/
Tensing	——————	/nɛ - my̤uɾa/
Surface representation	[neɓaŋga]	[nɛmy̤uɾa]

Karok (California)
(Kenstowicz and Kisseberth 1979: 73)

Imperative	1st sing.	3rd sing.	Gloss
pasip	*nipasip*	*ʔupasip*	"shoot"
kifnuk	*nikifnuk*	*ʔukifnuk*	"stoop"
ʔaktuv	*niʔaktuv*	*ʔuʔaktuv*	"pluck at"
siːtva	*niʃiːtva*	*ʔusiːtva*	"steal"
suprih	*niʃuprih*	*ʔusuprih*	"measure"

Karok (California)

- *niʃkak* "jump (1st sing.)"
- *ʔuskak* "jump (3rd sing.)"
- *nikʃup* "point (1st sing.)"
- *ʔuksup* "point (3rd sing.)"
- *nikʃah* "laugh (1st sing.)"
- *ʔuksah* "laugh (3rd sing.)"

Karok: Morphemes

- The 1st singular differs from the imperative in having *ni-* at the beginning.

- Thus *ni-* must mean "1st singular".

- The 2nd singular differs from the imperative and the 1st singular in having *ʔu-* at the beginning.

- Thus *ʔu-* must mean "2nd singular"

Karok: Morphemes

- Comparing the row of items meaning "shoot" with the row of items meaning "stoop", they differ in that the former has *pasip* and the latter *kifnuk*.
- Thus *pasip* means "shoot" and *kifnuk* means "stoop".
- By similar comparison we conclude that *ʔaktuv* means "pluck at".

Karok: Morphemes

- Comparing the row of items meaning "steal" to the preceding ones, we find that the new material is either *siːtva* (in the imperative) or *ʃiːtva* (in the 1st or 2nd singular).

- This is an alternating morpheme: *siːtva* ~ *ʃiːtva* "steal".

Karok: Nonalternating morphemes

- ni-   "1st singular".
- ʔu-   "2nd singular"
- pasip   "shoot"
- kifnuk   "stoop"
- ʔaktuv   "pluck at"

Karok: Alternating morphemes

- siːtva ~ ʃiːtva   "steal"
- suprih ~ ʃuprih   "measure"
- ʃkak ~ skak   "jump"
- kʃup ~ ksup   "point"
- ksah ~ kʃah   "laugh"

Karok: Alternating sounds

- Each pair of alternants differs in that one has **s** where the other has ʃ.

- Thus the alternating sounds are s ~ ʃ.

- There must be a restriction on distribution involving these two sounds.

Karok: Alternating sounds

- Statement of distribution:
  - [ʃ] occurs only after   V C_0 .

                      [-back]
  - [s] occurs only elsewhere.
- C_0 is a shorthand for any number of C's, from 0 on up, indicating that the presence or absence of intervening consonants makes no difference.

Karok: Analysis

- Phoneme: /s/
- Rule (Palatalization):
  - [+cor, -son, +cont] --> [-ant] / V C_0
    ___   [-back]

Karok: Derivations

Underlying representation	/ni - siːtva/	/ʔu - siːtva/
Palatalization	/ni - ʃiːtva/	_____
Surface representation	[niʃiːtva]	[ʔusiːtva]

References

- Kenstowicz, Michael and Charles Kisseberth (1979). *Generative Phonology: Description and Theory*. Academic Press, San Diego.