Exceptions

Class 5: Limits on URs

Adam Albright

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creteling2024.phonology.party

So far

- Speakers generalize lexical trends
  - I.e., try to predict things that are not perfectly predictable in the lexicon
  - This seems to shape lexicons over time
  - Possible interpretation: greater reliance on grammar and less on lexicon than traditionally thought
- Not all lexical trends are generalized
  - Asymmetries: neutralizations in some forms lead to reanalysis/prediction, others seem not to
- Question: why do speakers try to predict some kinds of information, and not others?
  - Said differently: what information do speakers simply memorize, and what information does the grammar try to predict?
  - i.e., how much information can UR's capture about the data?

Information and abstractness

- Pressing question in the early days of generative grammar: how ‘abstract’ can underlying forms be?
- Posed as a question about abstraction
    - How far can URs deviate from surface forms? (Kiparsky, 1968; Hyman, 1970; Schane, 1974)
- Alternative perspective: what kinds of information do URs contain?
    - How much information is specified
    - Perhaps better: what kind of surface distinctions can be captured?

?

Assumptions

- URs in the same representational alphabet as SRs
    - Matrices of features
- Ideally: each morpheme is assigned a single UR
    - i.e., grammar must derive all allomorphs from a single representation
- Ideally: phonological rules operate on UR, and do not refer to lexical information
    - i.e., rules can’t target specific morphemes
- Ideally: no exceptions

How do we reason about URs?

- Theory-internal/analytical considerations: economy, simplicity
- “external evidence”: how humans generalize
    - Loanword evidence, language games, new expressions; language acquisition and change
    - Experimentation and wug testing (not yet common in 1977)

Candidate Condition A

The UR of a morpheme consists of all and only the invariant phonetic properties of that morpheme's various PRs.

- Bakwiri
  - Vowels obligatory nasalized before a nasal consonant, oral otherwise (allophony)
  - E.g., [kõmbà]
- Language game: move last syllable to beginning
  - Result: [mbako], *[mbakõ]
  - Taken as evidence that UR is /komba/

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- Consistent with K&K analysis of Bakwiri: /komba/ $\rightarrow$ [kõmba]
- OT, with ROTB: this assumption is no longer necessary for allophony
- However, insufficient in other cases (e.g., neutralization)

Korean coda neutralization

- /p/, /p^h/, /p’/ $\rightarrow$ m / _[+nasal]
- /p/, /p^h/, /p’/ $\rightarrow$ p / _other C
- Alternant sets, in principle
  - p $\sim$ m
  - p^h $\sim$ p $\sim$ m
  - p’ $\sim$ p $\sim$ m
  - m
- All reduce to same set of invariant properties

Another problem: deletion

- X ∼ ∅ alternations (deletion)
    - No features shared in both allomorphs
- Epenthesis the only possible analysis
- (Why do we ever think there's deletion?)

Candidate Condition B

The UR of a morpheme contains those variant (alternating) and invariant phonetic properties that are idiosyncratic (unpredictable). But it may contain only those variant properties that occur in the PR that appears in isolation (or as close to isolation as the grammar of the language permits).

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- Neutralization in isolation forms
  - Final devoicing
  - Apocope, etc.
- Hayes (1995, 1997) argues that many cases of reanalysis are consistent with this
  - “Inside-out” preference
  - See also Kuryłowicz (1947)
- A limit on UR’s, or a bias under certain conditions?
- Spanish, German, Korean reanalyses: based on suffixed forms

Candidate Condition B′

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- In order to test this, need to define contexts (morphological? phonological?)
- Insufficient when most affixes create a neutralizing context
- Empirical reanalyses: not obviously true for Spanish, German
- Also not true for Yiddish verbs (Albright, 2010)

Candidate Condition B′

The UR of a morpheme may include both variant and invariant phonetic properties. All of the variant properties selected to appear in the UR must occur in a single surface alternant of that morpheme, the basic alternant. The choice of the basic alternant is constrained by a principle of parallelism according to which the basic alternant for all morphemes of a given morphological class (noun, verb, particle, etc.) must occur in the same morphological context.

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- Related to ‘principle parts’ analyses (but only one part, in strongest form)
- Albright (2002): Single Surface Base hypothesis
- Challenge: neutralizations in different forms
    - Turkish: final devoicing in isolation, g-deletion intervocalically

Candidate Condition C

The UR of a morpheme includes those variant and invariant phonetic properties that are idiosyncratic. But all of the variant properties assigned to the UR must occur together in at least one phonetic manifestation of the morpheme. This manifestation can be referred to as the **basic alternant**.

- Not quite consistent with Turkish /g/-deletion (no form with [g]), but perhaps if reanalyzed as /k/-deletion
- Inconsistent with “cobbling”: English, Russian vowel reduction
  - [æɾəm] ‘atom’, [əthamɪk] ‘atomic’ $\Rightarrow$ /ætam/
- Overpredicts possible reanalyses?
  - Korean: would potentially allow for some reanalyses based on C-/i-initial suffixes

Candidate Condition D

The UR of a morpheme includes all those variant and invariant phonetic properties that are idiosyncratic. Given a morpheme with the underlying shape /P/$_i$, /P/$_i$,.../P/$_n$, there must be a [P]$_j$ (where [P]$_j$ is one of the phonetic realizations of /P/$_j$) such that [P]$_j$ contains all of the feature specifications of /P/$_j$.

- Allows cobbling, but each segment in UR must occur somewhere
- Inconsistent: “abstract segments”

Abstract segments: Yokuts Yowlumne (Yawelmani)

- K&K discuss a famous example from Yokuts

woːn-ol	won-hin	‘might hide’/‘hides’
doːs-ol	dos-hin	‘might report’/‘reports’
c’oːm-al	c’om-hun	‘might destroy’/‘destroys’
ṣoːg-al	ṣog-hun	‘might pull out a cork’/‘pulls out a cork’

- Difference neatly accounted for by positing /c’uːm/, /ṣuːg/
- However, no surface realization with [uː], ever

Japanese rendaku

hana	‘flower’	ike-bana	‘arranging flowers’
hi	‘fire’	hana-bi	‘fireworks’ (flower-fire)
hato	‘dove’	yama-bato	‘turtledove’ (mountain-dove)

- Traditional analysis: /p/
- Some morphemes do surface with [p]: hiruma ‘daylight’ ∼ map-piruma ‘broad daylight’, haku-hatsu ‘white hair’ ∼ kiN-patsu ‘blond hair’
- But not all morphemes occur in compounds with the right context to be realized as /p/
- Empirical question: do speakers productively recover /p/ for h∼b morphemes?

Candidate Condition E

The UR of a morpheme includes all those variant and invariant phonetic properties that are idiosyncratic. Furthermore, given a morpheme with the UR. /P/$_i$, /P/$_j$, .../P/$_n$, for all /P/$_j$, it must be the case that each feature value of /P/$_j$ occurs in a [P]$_j$ (though not all of the feature values are required to occur together in the same [P]$_j$).

- Probably consistent with Japanese h$\sim$b $\Rightarrow$ /p/
- Challenge: values that never surface

More Yokuts: the future suffix

UR	/boːk’-iːn/	/c’uːm-iːn/
Rounding harmony	—	c’uːm-uːn
Vː lowering	boːk’-eːn	c’oːm-oːn
Shortening	boːk’-en	c’oːm-on
SR	boːk’-en	c’oːm-on

- Future suffix always surfaces as -en or -on
- Rounding harmony suggests underlyingly high
- Length never actually surfaces

Taking stock

- Traditional assumptions lead to conclusion that UR’s can be quite abstract in order to unify surface variants
- Yet attested reanalyses seem to show that at least under some conditions, learners use more restrictive principles to establish UR’s
- Particular interest: isolation and single surface base
- Next: why these two particular forms?

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