

What to cut with Occam's Razor?

This poster presents a case where

- the simplest analysis at a lower level causes complications at a higher level and proposes an analysis where
- the Principle of Parsimony is applied in one go spanning multiple levels

1 Setting up optimal phoneme inventories

Which feature is phonemic for which segment?

- Gesture regularly shared between consonant & vowel: French *su* [s^wy] 'known' vs. *si* [si] 'if'
 - Principle of Parsimony: the feature cannot be distinctive for both the consonant and the vowel
 - Distinctive for vowels, allophonic for consonants: 3 more vowels: [y], [ø], [œ] ✓
 - Distinctive for consonants, allophonic for vowels: 20 more consonants ✗
 - Perceptual salience: labialization is more perceptible on vowels than on consonants

2 When simplest is suboptimal: the case of Arabic emphatics

2.1 Basic Concepts

- **Emphatic consonants:** consonants articulated with a primary closure in the oral cavity and a secondary retraction of the tongue root
- **Emphasis spread:** sharing the gesture of tongue root retraction with preceding and following segments (leftward and rightward spread)
 - **The domain of emphasis spread:** varies from dialect to dialect (cf. Watson 2002: 273–279, Al Khatib 2008). This poster focuses on CV sequences sharing the same gesture.

2.2 CV sequences

- **Co-occurrence:** plain consonants co-occur with ATR vowels and emphatic consonants co-occur with RTR vowels as in *سوس* [su:s] 'licorice' vs. *صوص* [s^u:s^u] 'chick' (sound files retrieved from UCLA Phonetic Lab Data: Arabic)

2.3 Competing accounts

- **Consonantal:** emphasis is distinctive for consonants and allophonic for vowels
 - Adds 7 consonants to the phoneme inventory: /t^c/ (ط), /d^c/~ /ð^c/ (ظ/ض), /s^c/ (ص), /l^c/, /r^c/, /b^c/, /m^c/ (for the latter four cf. Watson 2002: 275)
 - The number of vowel phonemes stays at 6 (or 3 if long vowels are represented as geminates)
- **Vocalic:** emphasis is distinctive for vowels and allophonic for consonants
 - Adds 6 more vowels to the phoneme inventory (or 3 if long vowels are represented as geminates)
 - 7 less consonant phonemes than in the consonantal account
- **Mixed:** emphasis is distinctive for /t^c/ (ط), /d^c/~ /ð^c/ (ظ/ض), /s^c/ (ص) but [l^c], [r^c], [b^c], and [m^c] are allophones of plain consonants adjacent to [a^c] (cf. Youssef 2007)

2.4 A perception experiment

Jongman et al. (2011) conducted an experiment with cross-spliced natural stimuli

- CVC sequences composed from an initial plain consonant and a VC sequence taken from an emphatic word received a majority of emphatic responses (69%)
- CVC sequences composed from an initial emphatic consonant and a VC sequence taken from a non-emphatic word received very few emphatic responses (15%)

2.5 Best account?

- **Economy of phonemic analysis:** the vocalic account with the smallest phoneme inventory
- **Perceptual salience:** the vocalic account (2.4)

2.6 Root-pattern morphology

- **Root morpheme:** a discontinuous string of consonants such as C₁C₂C₃
- **Infixed:** a discontinuous string of vowels inserted into the root morpheme
 - ➔ Changing the vowels does not change the root: كتاب [kitæ:b] 'book', كتب [kutub] 'books'.
- **However,** plain vs. emphatic pairs belong to different roots: *سوس* [su:s] 'licorice' vs. *صوص* [s^u:s^u] 'chick'
 - ➔ Since the root morpheme is a string of consonants, the feature that distinguishes roots must be consonantal, too.

Conclusion

If the simplest analysis at the level of phonology creates unnecessary complexity at the level of morphology then break the barriers between phonology and morphology and apply the Principle of Parsimony in one go for both levels.

References

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