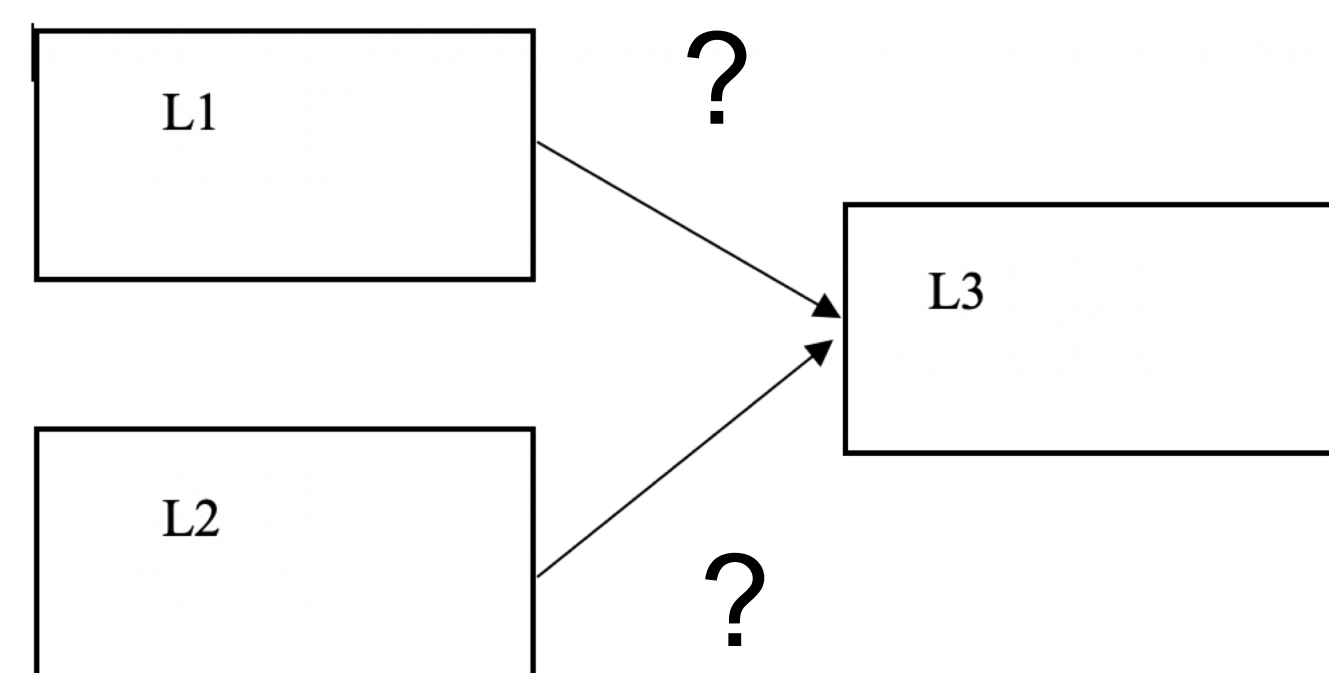


Determining L3 Phonological Proximity

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Introduction



Models of L3A

Typological Proximity (Rothman, 2013)

- Wholesale Transfer (Schwartz & Sprouse, 2019)

The language which is typologically closest to the L3 transfers in its entirety.

Lexicon > Phonological cues > Functional morphology > Syntactic structures

Lexical and phonological comparisons are viewed as more 'straightforward' than morphological or syntactic comparisons.
But how?

Linguistic Proximity (Westergaard et al. 2017)

- Piecemeal Transfer (Slabakova, 2017)

The structure which is most similar to L3 transfers.

Slabakova's 'Scalpel'

"There is no need for wholesale initial transfer because the scalpel can successfully single out the uniquely relevant features and properties."
But how?

Surface proximity: An Epistemological challenge

Classic learnability issues arise when comparing two grammars via an evaluation metric (Yang, 2017); which grammar better accounts for the data? And how to know what to change if the grammar is wrong?

- Blame Assignment (Pinker, 1989)
- The Credit Problem (Dresher, 1999, 1995)

This is analogous to the L3 CLI question. Does the L1 or the L2 better fit the L3 data? If my current hypothesis is wrong, what do I change, and when do I change it?

I-Proximity and the Successive Division Algorithm

Similarity (aka I-proximity) is based on Fodorian treelets; contrastive feature representations determined by the Successive Division Algorithm (following Dresher, 2009; Mackenzie, 2011)

A Case Study (Benrabeh, 1991)

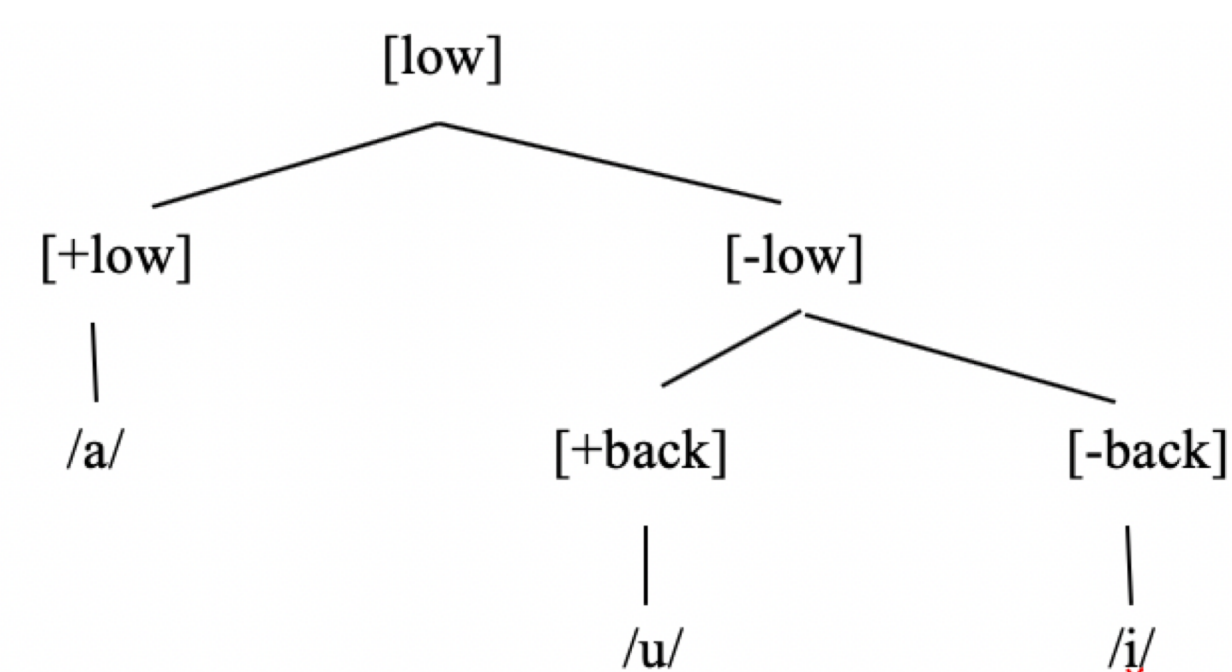
L1 Arabic (Algerian)
L2 French
L3 English

The speakers (n=24) when speaking English (L3), use:

- French (L2) vowels
- Arabic (L1) consonants

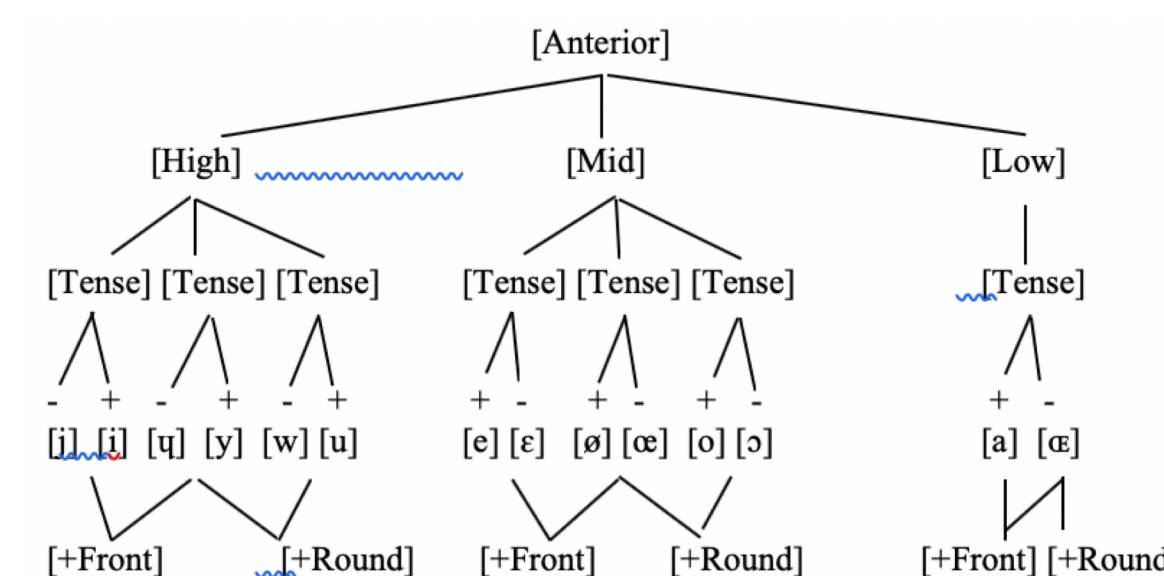
Arabic Active Vowel Features

3 vowel system: [i, a, u]
[low] > [back]



French Active Vowel Features

[Anterior] > [Aperture] > [Tense] > [Round] > [Front]



The I-proximity of French vowels is closer to English vowels than Arabic vowels are when we take active contrastive features in a ranking as the measure of similarity.

Arabic

Voiced and voiceless stops: [b, t/d, k, q, ʔ]
Emphatic (pharyngealized) consonants: [tʕ/dʕ]

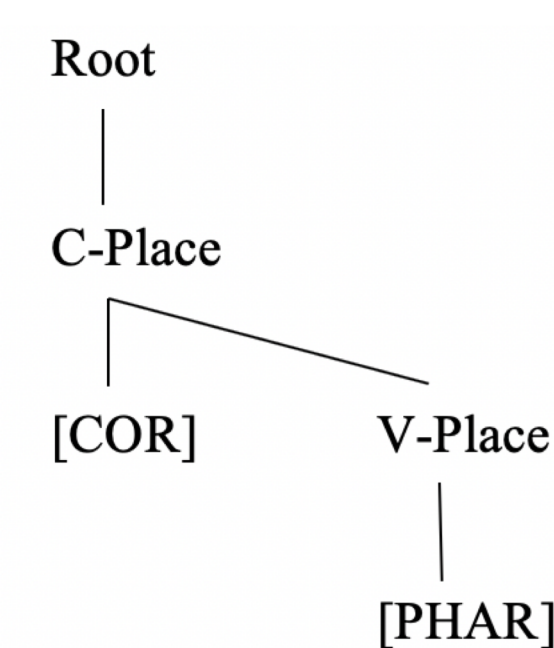
French

[p/b, t/d, k/g]

| Language | Voiceless | Voiced | Feature |
|----------|-----------|----------|------------------|
| Arabic | Long | Short | [spread glottis] |
| French | Short | Negative | [voice] |
| English | Long | Short | [spread glottis] |

The I-proximity of Arabic laryngeal features is closer to English than French is.

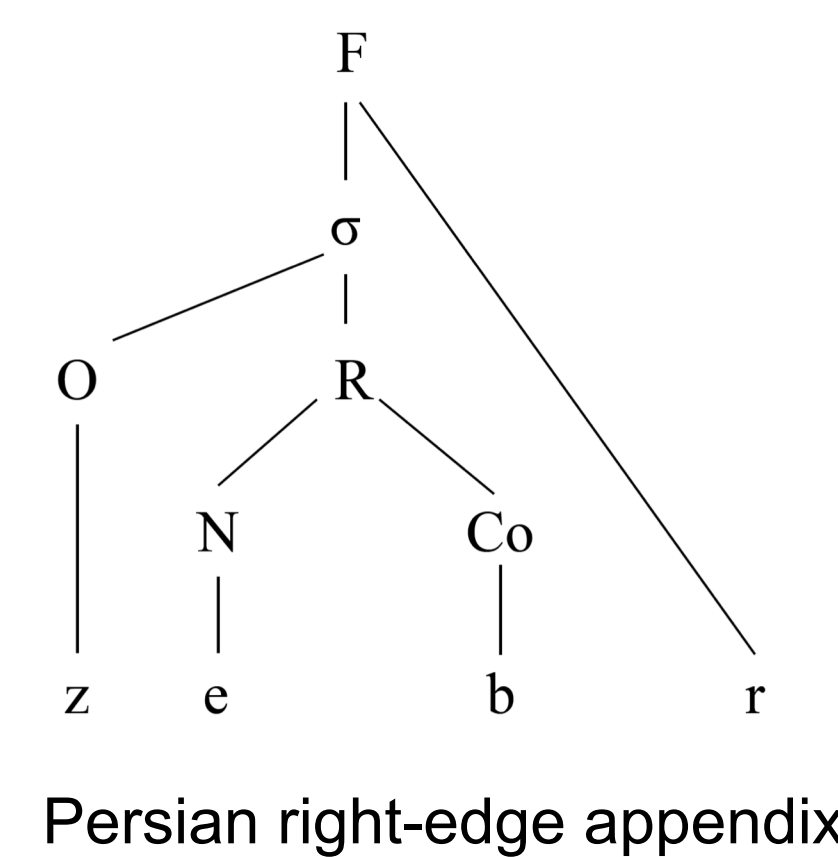
Arabic has dental stops [t̪] and [d̪]
Secondary pharyngealization happens only on the [CORONAL] consonants in Arabic
Producing a pharyngealized stop results in a more back articulation in English



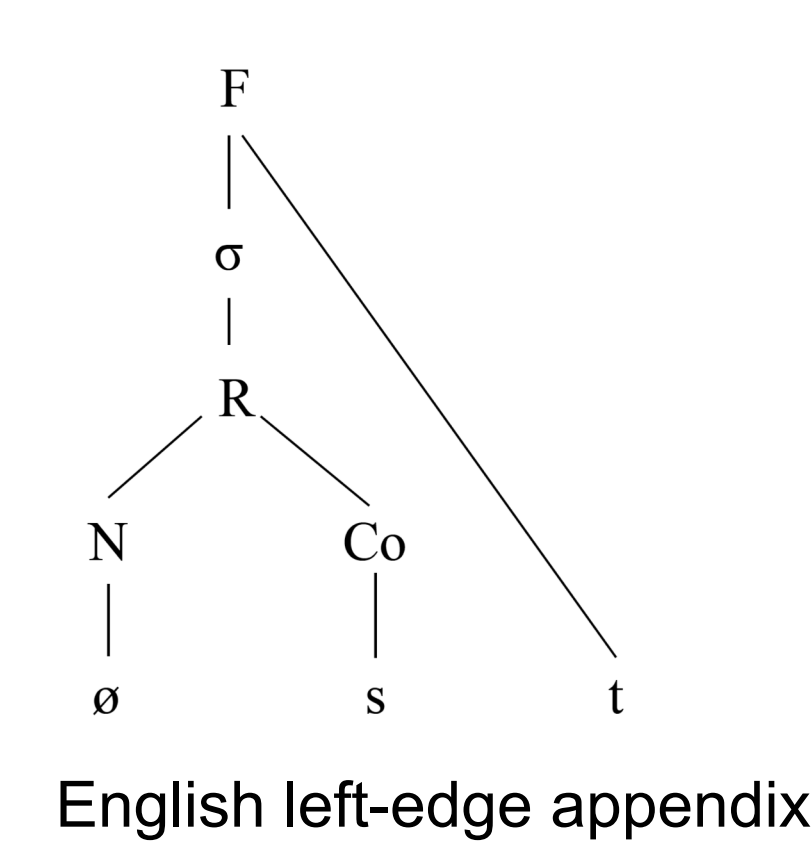
I-Proximity and Syllabic Appendices

Table 1. Syllabic properties of the L1s

| L1 | sC Onsets? | Branching Onsets? | Appendices? | % Error? |
|----------------------|------------|-------------------|-------------|----------|
| Japanese | No | No | No | 72 |
| Brazilian Portuguese | No | Yes | No | 50 |
| Persian | No | No | Yes | 16 |



Persian right-edge appendix



English left-edge appendix

Persian learners of English treat the appendix structures as similar.
I-proximity is calculated with reference to deep triggers.

Conclusion

L3 phonological proximity must be determined on the basis of deep triggers which can be viewed (in these data) as Fodorian treelets manifested via contrastive feature hierarchies, or syllabic trees.

Evidence supports the Linguistic Proximity Model of L3A.

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