Stability of manner and place of articulation in the formation of Portuguese-based creoles

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Understanding the nature and mechanisms driving phonological change in creole formation is critical for the reconstruction and categorization of these languages (Greenhill et al., 2017). In this study, we take a comparative approach to creole phonology by asking: given all the features brought into the contact situation, why are some features selected, while others are not (Mufwene, 1996)? Specifically, we aim to evaluate the diachronic stability in different manners and places of articulation in the transfer of consonants from Portuguese to Portuguese-based creoles in Africa and Asia and to find out what motivates these changes (Nichols, 1995).

To do so, we collected 703 phonetically transcribed words of Portuguese origin (from 1460 to 1975) from Swadesh lists (Swadesh, 1955) of 19 Portuguese-based creoles, representing all consonants in all word positions of the lexifier. Then, we compare the lexifier's segment versus the creole's segment and assign stability values of 0 (unstable) and 1 (stable) for manner and place of articulation using the IPA chart (Honeybone, 2019). Finally, we measure the stability of each segment and statistically test for correlations between the stability score and categorical variables for place and manner of articulation.

Overall, the place and the manner of articulation have very similar stability values when we average all consonants in all creoles (0.86 and 0.83, respectively). However, the linear regression models show that place stability is not related to manner stability ($p=3.44$) and thus cannot be predicted from it and vice-versa. Still, we find that variance increases when a consonant's overall stability decreases. When we assess manner and place separately, other patterns also emerge, including:

- Manner stability scale
  stop > nasal > fricative > rhotic > lateral
  0.97 > 0.92 > 0.74 > 0.73 > 0.63 (mean)

- Place stability scale
  labial > velar > alveolar > labiodental > palatal
  1 > 0.98 > 0.93 > 0.73 > 0.63 (mean)

Regarding the manner of articulation, we find that stops and nasals are the most stable phonological classes. Despite fricatives being in the middle of the scale in terms of mean stability, they comprise the most variable class across Portuguese-based creoles. Concerning the place of articulation, labials, and velars are the most stable. On the contrary, coronals, especially palatals, are among the most unstable.

These results have important implications for historical phonology and contact linguistics. They suggest that places and manners of articulation requiring less articulatory precision, fewer features, and maximal contrastiveness, are favored in the transfer of the lexifier's consonant system to Portuguese-based creoles. However, these patterns can be even broader as they are in line with most theories that explore the phonetics-phonology interface (Stevens, 2002).

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