

Stop Voicing Perception in Gurindji-Kriol, Kriol, and Gurindji-Kriol code-switchers

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The Victoria River District of Australia is home to a well-marked language contact continuum between Australian Kriol and traditional Gurindji (spoken only by older people). In the middle of this continuum, a 'mixed language' called Gurindji-Kriol recently formed via intense code-switching (McConvell & Meakins, 2005). Languages which reach this mid-point are rare and to date only 24 have been classified as such (Nordhoff, Hammarström, Forkel, & Haspelmath, 2013). Gurindji-Kriol is described as a systematic fusion of Gurindji and Kriol whereby both languages contribute systemic and lexical elements (Meakins, 2013). Involving speakers of Kriol, Gurindji-Kriol, and Gurindji code-switchers (the closest language variety to traditional Gurindji), this study makes use of a specific phonemic conflict site (a contrasting area of a language's source phonologies) involving stop voicing contrasts to explore acoustic perception.

One of the more evident phonemic conflict sites in Gurindji-Kriol involves contrastive voicing of stop consonants. In word-initial position, traditional Gurindji, consisting of [p, t, c, k], lacks a phonemic voicing contrast while according to Bundgaard-Nielsen and Baker (in-press), second and third generations of Kriol speakers both produce and perceive stop-voicing contrasts ([p-b, t-d, k-g]). On the other hand, Jones and Meakins (2013) test whether voice onset time (VOT) values systematically relate to those in English cognates and how they compare to those in Gurindji-Kriol. Their results show that there is little effect of source-voicing in Gurindji-Kriol stops in word-initial position, though there is some degree of variability. The authors conclude that Gurindji-Kriol stops, regardless of their source-voicing category, are produced with short lag VOT (with the exception of code-switching data from English).

The variation between the voiced and voiceless series show that speakers are at least able to make the correct articulatory gestures to produce each sound. This means speakers might be able to take advantage of such variability perceptually when needed e.g., under ambiguous conditions such as contrasting minimal pairs out of context.

One question proposed in this study asks whether the stop voicing contrast has entered Gurindji-Kriol perceptually or not. To test this question, we created a word discrimination task containing Kriol minimal pairs which contrast by stop voicing e.g., *bark-park* and *goal-coal*. A 10-step continuum was created between the contrasting pairs by gradually modifying the VOT duration along with other correlates e.g., pitch and vowel duration of the following segment. Seventy-five participants were then asked to listen to the words at random and choose a corresponding picture on a computer screen. Trends in the Gurindji-Kriol data suggest speakers between the ages of 10 and 50 appear to consistently contrast several of the minimal pairs, but not to the degree as would be expected if they were phonemically contrastive. Younger children between the ages of 5-10 and speakers older than 50 showed random responses to the voiced stimuli suggesting the minimal pairs are non-contrastive. Demographic information however, revealed the younger and older groups of speakers were not fluent in English while the middle group (aged 10 to 50) were. Because of their response patterns, their level of English, and the results from the youngest and oldest speakers, it is thought that the middle group responses were influenced by their L2 English. This suggests the stop voicing contrast has yet to enter into Gurindji-Kriol.

Our results resemble acoustic analyses of other mixed languages (Jones & Meakins, 2013; Jones, Meakins, & Buchan, 2011; Jones, Meakins, & Mauwiyath, 2012 for Gurindji Kriol; Rosen, 2006; Rosen, Stewart, & Sammons, forthcoming for Michif; Stewart, 2014, 2015a; 2015b for Media Lengua), which suggest that stratification at the segmental level is more complicated than a simple clear-cut division between source languages.

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