

Icy targets: the case of Karajá

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Karajá, a Macro-Jê language from Brazil, exhibits vowel harmony for the feature ATR (Ribeiro 2002, Fulop & Warren 2014). An important aspect of Karajá’s vowel harmony is the presence of semi-opacity in the high vowels /i/ and /u/ indicative of a distinction between underlying and derived vowel behaviour. To my knowledge, while there exist descriptions of Karajá’s phonology and harmony pattern (Ribeiro 2002, 2012), there has been little focus on the behaviour of these high vowels, which exhibit clear problems for phonological theory. The purpose of this paper is to offer a discussion on why the Karajá data poses a challenge for many frameworks and the changes required to the theory that are necessary to account for these patterns.

Karajá can be described as a dominant/recessive system, where the feature [+ATR] spreads leftward to preceding [−ATR] vowels (1).

- (1) /rʊ-bɛhɛ-re/ \rightsquigarrow [rube’here] ‘He/She went down’.

Additionally, Ribeiro (2002) mentions a difference in behaviour between mid and high [−ATR] vowels. While mid vowels undergo vowel harmony iteratively (1), high vowels /i/ and /u/ exhibit what Ribeiro calls a ‘semi-opacity’ effect: they harmonize to [+ATR], but the harmony would not proceed past them (2).

- (2) a. /krɔbi-dĩ/ \rightsquigarrow [krɔbi’ni] ‘a type of monkey’

This semi-opacity reported by Ribeiro is consistent with icy targets defined in Jurgec (2011). Icy targets are a kind of targets that “disallow any further targets within the relevant domain and effectively terminate spreading” (Jurgec, 2011:91). They are attested in languages such as Icelandic, and are also used for the analysis of Menominee’s ATR-harmony (Walker 2018). Previous to these work, however, icy targets were unreported and their behaviour was not predicted by theories of phonology, an issue that Jurgec successfully resolved. However, the fact that the icy targets in languages analyzed by Jurgec undergo and block the spread of a phonological behaviour is not unexpected. These vowels, when present underlyingly, do not serve as triggers for the phonological phenomena they exhibit the freezing effect for. For example, in Icelandic, /a/ is an icy target for u-umlaut: it raises to [œ], but then blocks the spread from going past it. However, phonemic /œ/ is not a trigger to u-umlaut. In Karajá, underlying /i/ and /u/ are expected to trigger harmony, but when /i/ and /u/ harmonize to [i] and [u], opacity happens. In this regard, Karajá seems to exhibit a very clear distinction between behaviours associated with underlying vowel quality and behaviours associated with derived vowel quality as a result of harmony.

It is already known that there are some issues in dealing with the distinction between derived and underlying behaviour. Chain-shifts and derived environmental effects, for example, also exhibit this distinction and their account can pose problems for certain frameworks (Kirchner 1996, Lubowicz 2002). Similar to those patterns, the behaviour of Karajá’s high vowels is difficult for surface-oriented frameworks to deal with. In OT, for example, markedness constraints cannot target underlying representations and so it is not able to distinguish between the derived /i/ and /u/ and the underlying [i] and [u]. These facts help set Karajá apart from other languages, and make the task of providing a detailed analysis of its vowel harmony that much more essential to further our understanding of phonology.

Reference

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