

Rules, Constraints, and Overlapping Violations: the case of Acoma accent loss

Wilson (in prep) observes that classic, non-derivational Optimality Theory (OT) (Prince and Smolensky 1993) predicts an unattested non-local interaction. In contrast, these problematic predictions do not arise in rule-based theory. Wilson proposes an extension of the system introduced in Wilson (2001) as an alternative. Targeted Constraint OT (TCOT) avoids predicting such “farsighted” patterns while also maintaining advantages of an OT system. Surprisingly, TCOT also allows for an analysis of Acoma accent loss, a pattern involving overlapping violations, left unexplained by both classic OT and rule based theory.

Acoma is a Native American language in which a short syllable between obstruents followed by an accented syllable loses its accent (Miller 1965), as in (1). Anderson (1974) writes the rule for such changes as in (2):

- (1) s í u k á č á n í → s í u k a č á n í ‘when I saw him’
 (2) V → [-accent] / [+obst] ____ [+obst] C₀ [+syll, + accent]

When two consecutive vowels meet the conditions for application of this rule, more than one syllable can lose its accent. In the cases referred to as *overlapping violations*, a segment that satisfies the conditions for application of the rule, the *focus*, may be part of the context for another instance of the focus of the rule. That is, there is the potential to bleed a reapplication of a rule, though it seems that this is not what happens:

- (3) k’ á p í š é n í → k’ a p i š é n í ‘at night’

This pattern can be accommodated by positing directional application of the rule from left to right. However, the attested pattern when three consecutive foci are also part of one another’s context requires the opposite directionality, right-to-left application of (2).

- (4) s ú č í t í s t á a n í → s u č í t í s t á a n í ‘when I was thinking’

The Acoma accent loss pattern is also problematic for classic OT. Freedom of Analysis, requires (k’ápisóní, k’apisóní), the attested winner, to compete against (k’ápisóní, k’ápisóní), and the attested pairing (síukáčání, síukačání) competes against (síukáčání, síukačání). However, every constraint that prefers the attested pair (k’ápisóní, k’apisóní) prefers the desired loser (síukáčání, síukačání). Thus, no constraint may be top ranked.

The TCOT system can be seen as a mixed-model that incorporates rules and constraints and provides a well-articulated means for their interaction. Like traditional rewrite rules, targeted constraints specify preferred repairs and generate intermediate representations. Unlike rewrite rules, however, they generate competing output candidates which are evaluated against a set of ranked, violable constraints after each application of the targeted constraint. The targeted constraint rewards an output that repairs a marked sequence in the preferred manner while penalizing dispreferred repairs. As in classic OT, the significance of the targeted constraint’s evaluation is subject to its position in the constraint hierarchy. The TCOT system allows us to translate Anderson’s rule, which appears to be the right generalization, into a targeted constraint that rewards deaccenting the first syllable in the case of two consecutive accented syllables. When this targeted constraint is ranked below a constraint that penalizes three consecutive unaccented syllables, *EXTLAPSE-ACCENT (Gordon 2002), but above a constraint that penalizes two consecutive unaccented syllables, *LAPSE-ACCENT, the system correctly predicts the Acoma pattern. The higher ranking of *EXTLAPSE-ACCENT prevents the targeted constraint’s preferred candidate in cases of three overlapping violations, that which removes three consecutive accents, from being optimal. The lower ranking of *LAPSE-ACCENT, on the other hand, cannot eliminate the targeted constraint’s preferred candidate in cases of two overlapping violations, that which removes two consecutive accents. The Acoma data brings to light where the predictions of ordered rules, classic OT, and TCOT diverge and aligns clearly with those made by TCOT.

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