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Phonology and phonetics of tone in Northern Sotho, a Southern Bantu language

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Prosodic systems of Bantu languages are understudied, considering the number of languages in this family. Existing case studies on Bantu tone are often based on data gathered by introspection and auditory impression which are transcribed with discrete tone labels, namely H and L. In recent years, however, it has become considered standard to conduct quantitative studies also on understudied languages and in tone research (cf. Xu 2006). For Bantu languages, only a handful of studies follow this paradigm (Myers 1999, 2003, Downing et al. 2004).

The paper presents the results of an acoustic study of high tone realization in the verb word in Northern Sotho, a Bantu language spoken in South Africa. The methodology follows standards in experimental phonology, relating to aspects such as segmental make-up of stimuli, controlled tonal context, and background of the four speakers involved.

Our results show that the reported high tone spread in this language is best captured by a phonetic implementation rule (cf. Myers 1999), (1), and thus does not need to be indicated in transcriptions. Capturing “tone spread” phonetically also accounts for the observed inter- and intraspeaker variation as well as for the variation correlating with the number of syllables of the verb stem. On the other hand, the realization of a high tone from an object concord marker is controlled by a phonological rule which shifts the high tone one syllable to the right, (2). Also the realization of two adjacent high tones across an auxiliary stem boundary (cf. Myers 1998) is governed by a phonological rule which re-associates the second high tone with the following syllable, (3). The subsequent “spread” of the shifted or re-associated tone in (2) and (3) is again captured by a phonetic implementation rule.

	<i>context</i>	<i>Northern Sotho</i>	<i>surface tone by</i>
(1)	SubjAGR- <u>verb</u>	re-rú <u>m</u> ela ...	phonetic implementation rule
(2)	SubjAGR-Obj <u>AGR</u> -verb	re-le- <u>n</u> ámola ...	phonological + phonetic rule
(3)	<u>SubjAGR</u>] _{Aux} - <u>verb</u>	<u>ó</u> -hulá ...	phonological + phonetic rule

The results of our study suggest that next to a lack of comparability, studies that do not differentiate between phonetics and phonology in tone run the risk of over-burdening the phonological component of the grammar. If every tonal change is considered a phonological change then each of these changes necessitate a tonal rule. On closer inspection, however, some tonal surface changes together with their observable variation can be accounted for by phonetic implementation rules. Other changes are clearly phonological and indeed warrant a phonological rule.

References

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