

Laryngeal contrast in Swahili: the role of perception

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Issue Though it has been claimed that the Swahili language features a laryngeal contrast between aspirated and unaspirated segments, linguists like Polomé (1967) have maintained that the aspiration is geographically dependent on the region where the speaker lives—declining in the south (as in Zanzibar) but becoming more robust in the north (as in Mombasa). In line with Polomé (1967), Wald (2009) also maintains that the aspiration has almost been lost in the south. However, Engstrand and Lodhi (1985) posit a symmetrical relation in aspiration between the north and the south and suggest that it is a characteristic found among native (conservative) speakers of Swahili. Our results in the present study cast doubt on the claim that aspiration is spreading in the north rather than in the south and suggest that the distribution of an aspiration contrast is pretty much limited to native speakers in the south (the Swahili of Zanzibar).

Methodology A Forced-Choice Identification Task was chosen in order to find out whether participants perceive a categorical laryngeal contrast. Native Swahili speakers heard word tokens that began with either aspirated (e.g., *p^haa*, "gazelle") or unaspirated (e.g., *paa*, "roof") segments, and identified each word by choosing a picture that represented the word's meaning. Stimuli were modified from natural productions (of a model talker, who was a native speaker of the language) to span a range of different horizontal voice onset times (VOT), as well as different vertical F0 values, in order to determine whether each or both cues contributed to a perceived aspirated vs. unaspirated contrast in Swahili. In this test of perception, the design is intended to aid in investigating not only the perception of aspiration, but also that of pitch. Each stop or affricate was presented in eight conditions, i.e. four different lengths of VOT and four heights of F0, thus targeting an unaspirated region for the first two lengths/heights and an aspirated continuum for the latter two lengths/heights.

Study Seventy-four Swahili listeners in three locations (Nairobi, Mombasa, Zanzibar) discriminated 128 tokens. The tokens were gathered from eight native Swahili words beginning with three different stops (/p/, /t/, /k/) or one affricate (/tʃ/). There were two minimal pairs for each segment type (including the presence or absence of aspiration), and each minimal pair was presented twice in the listening experiment. All phonemes were in word-initial position.

Results Listeners from the northern dialect areas failed to consistently identify word tokens on the basis of either VOT or F0 differences in the stimuli. Listeners from the South, however did show some evidence of dividing up the VOT continuum into an aspirated and unaspirated contrast, and, to a lesser extent, these listeners also showed influence of F0 on perceiving the difference between the two types of stimuli. The results show that, contrary to work done by previous linguists, the ability to perceive the laryngeal contrast in Swahili is a property of native speakers born in the south (in the Zanzibar Archipelago) and is not found in the north, whether spoken as a first (Mombasa) or a second (Nairobi) language.

Contributions The first-hand data collected for this study provide new insight and further evidence supporting the existence of a laryngeal contrast in Swahili, whereas previous work fell short in accounting for this variability among the speakers of Swahili in East Africa. All subjects recruited for this study were from the lands of the Swahili speakers in East Africa (Tanzania and Kenya) and were met and recorded in their home countries. These participants also produced a series of Swahili words and non-words in a further test of their perception and production of the aspirated-unaspirated contrast, but this work is beyond the scope of the present study.

References

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