

## **A physiological investigation of voice quality in Kabiye assertions and yes/no questions**

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*Previous studies on question prosody in Africa brought out a large diversity of markers (Rialland 2007). A “lax” question prosody – referring to a set of features (lengthening, falling intonation, open vowel, lax voice) or a subgroup of them in a given language - was found in many languages, spoken in an area that extends from the Atlantic Ocean to Kenya. Thus, it has been proposed that this “lax” prosody is a characteristic of the Sudanic belt as a linguistic area (Clements & Rialland 2008).*

*In addition to acoustic data, this paper presents the first pluriparametric physiological investigation of voice quality in a language with “lax” question prosody: Kabiye. Realizations of “tense” assertive and “lax” question forms are studied, based on simultaneous acoustic and fiberoptic data (1 speaker), as well as on simultaneous acoustic and airflow and EGG measurements (3 speakers).*

*Acoustically, the final vowel of the “lax” question forms exhibits a systematic increase in duration. At the physiological level, important differences are observed towards the end of this final vowel. “Tense” assertive forms exhibit an abrupt decrease of the airflow and of the Open Quotient. They are produced with a tight adduction of the ventricular bands in conjunction with posterior-anterior constriction of the arytenoids and the base of the glottis, yielding a configuration similar to that observed for aryepiglottal segments (Esling et al. 2007). “Lax” question forms, which bear a low tone, show a progressive increase of the airflow and of the Open Quotient. They are produced with a much less compression of the base of the epiglottis and the arytenoids and ends with an opening at the aryepiglottic level in conjunction with a small opening of the glottis.*

*The involvement of voice quality in assertion/question marking which passed unnoticed in Kabiye and was first reported in another Gur language (Moba, Rialland 1984) is probably underestimated in African languages and would need further investigation.*