# Machine-Automated Vowel Measurement and Oral History Recordings

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Machine-automated vowel measurement has emerged as an important tool in sociophonetics, allowing researchers to compile and analyse massive acoustic datasets. FAVE (Rosenfelder et al. 2014) has gained especially widespread use for studying US speech communities, and MacKenzie and Turton (2013) showed FAVE could be effective for measuring vowels in British Englishes.

This study examines the viability of using FAVE to examine the rich source of sociophonetic data available in oral history archives (as exemplified by the chapters collected in Hickey 2017). While comparisons between FAVE and hand-measurement (Severance, Evanini & Dinkin 2015; Bailey 2016) have shown agreement between the methods, sound recordings in oral histories present particular challenges for FAVE, including poor recording quality and physiological changes associated with speaker age.

I compare FAVE measurements of vowels for speakers in one American and one British oral history against a sample of hand measurements. Pairwise comparisons between hand- and FAVE measurements reveal statistically significant differences between the methods in F1, F2, and F3, in individual vowels and across all vowels. The differences appear to emerge from four sources: transcription practices, phone assignments in the CMU dictionary, phone boundaries, and FAVE's error correction procedures. Crucially, though, significant differences remain despite a series of time-consuming steps to reconcile these sources.

Results challenge the assumption that FAVE measurements are similar to measurements derived by hand, at least when working with old sound recordings. I suggest that researchers exercise caution, at least, in comparing results from studies that measure vowels by hand to results generated by FAVE.

## References

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