

# Actors Practice as Bodily Hermeneutics: score time representation of prosodic features in actors speech for comparative analysis

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**Abstract.** We describe a tool for the visualisation and analysis of acoustic variations in performances of known (and often familiar) texts by actors. The epistemic situation of the analyst is here different from the standard situation of speech recognition because our performance analyst will generally know the high-level syntactic and semantic properties of the text in question, but may be ignorant of the low-level acoustic properties of the performance of that text. By contrast, speech recognition is usually understood to move in a uniform direction from the non-cognitive to the cognitive, from the merely acoustic to meaningful speech.

In a case study, we select two performances of Hamlets last soliloquy by two different actors. In both cases, the task of the actor is to communicate to his audience an understanding of the role played (Hamlets character), without sacrificing understandability of Shakespeares text, through their embodied actions. Each performance was produced and recorded as a final outcome without intention to post process them, or represent them in different media.

We use the methods of computational linguistics to investigate our two recordings by assessing the acoustic properties of the digitalised speech signal. These prosodic features are commonly taken to reflect phenomenological properties of spoken language. We consider changes in fundamental frequency (intonation); changes in the intensity of the signal (loudness), proportional duration (pacing), and silence (phrase segmentation.) Typically, when these features are studied in speech, tools like Praat represent them in real (performance) time. Here, similarly to ProseVis logic, we employ a score time (indexed by words) representation to enable comparisons across actors, and across phrases of a verse. Taking advantage of the periodic verse structure of Shakespeare's text, we propose a new cyclic representation that divides time in the whole performance into segments corresponding to verse durations, and marks moments of silence with radial extensions of varying lengths for ease of comparison.

Our tool enables us to grasp phenomenological and quantified differences in how actors use prosody to express their understanding of the character by modulating their voice and varying the ways in which they segment the text. Furthermore, these emerging patterns in the two performances, separated by approximately 80 years, can be connected to existing discourse on interpretations of Hamlets character and on acting traditions, as well as additional resources that reflect the psychological and physiological backgrounds of the actors themselves.

The visualisation tool is inherently hermeneutic in its design: the user starts with fully contextualised knowledge (such as a full semantic grasp of the text) and employs that standpoint to supplement,

criticise, or revise our existing knowledge about the embodied interpretations of Hamlet.

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