

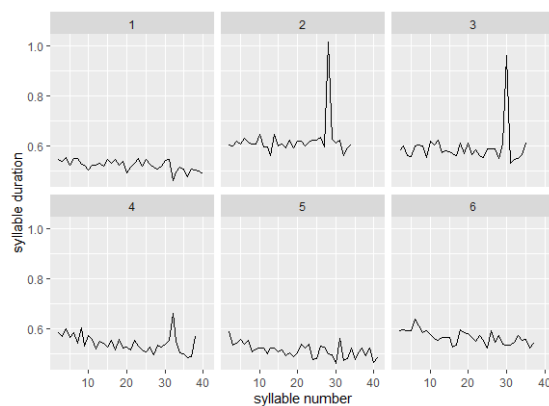
## Temporal stability of spontaneous production rates

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In human activities that involve repeated movement, individuals gravitate towards narrow rate ranges, often called their ‘natural rates’ (NRs, e.g. Collyer et al. 1994). In research on timing, NRs tend to be estimated through participants’ ‘spontaneous production rates’ (SPRs): rates at which individuals perform production tasks in the absence of external cues. It is generally presupposed that SPRs vary across individuals and activity domains but are stable within individuals. However, SPR task results are often reported in outline only, so it is difficult to gauge from existing research how stable individuals’ SPRs really are.

The aim of this study is to examine the temporal stability of SPRs using data from a corpus in which female young adult speakers of Standard Southern British English performed production tasks in repeated sessions. This study analyses three SPR tasks—finger tapping, /pa/ repetition and sentence reading—for 14 participants who completed 6 repeated sessions each. The results of each task form a series—of inter-tap intervals, syllable durations and sentence articulation rates respectively. Figure 1 shows one participant’s syllable duration series. This study derives measures of central tendency, variance and within-task drift from the series and assesses correlations among these measures, as well as within-participant variation. Moreover, participants reported how alert and how happy they felt in each session; correlations between their responses and SPRs are also assessed.

Preliminary results reveal a general tendency for participants to speed up within the tasks; significant between-session variation within some participants and tasks; significant between-participant variation in between-session stability; and moderate but significant effects of self-reported alertness on performance across the three tasks. The results are compared with those of published studies (e.g. Plug et al. 2021 on articulation rate), and implications for good practice in eliciting and interpreting SPRs are discussed.



**Figure 1:** Participant H’s syllable duration series in recording sessions 1 to 6

### References

Collyer, C.E., Broadbent, H.A. & Church, R.M. (1994) Preferred rates of repetitive tapping and categorical time production. *Perception & Psychophysics* **55**.

Plug, L., Lennon, R. & Gold, E. (2021) Articulation rates’ inter-correlations and discriminating powers in an English speech corpus. *Speech Communication* **132**.