Phonetic Accommodation in Hindi-English and Telugu-English Early Sequential Bilinguals: The Roles of Category Establishment and Phonetic Dissimilarity

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How does the L1 of early sequential Hindi-Indian English bilinguals (HEBs) and Telugu-Indian English bilinguals (TEBs) affect their L2 English during accommodation to American English (AE)?

Hypotheses

Based on phonetic dissimilarity-led L2 accommodation[4], we predict the following:

- **H1:** Because HEBs' L2 /s/ (COG ~6000 Hz) is more dissimilar from AE, HEBs will accommodate to AE /s/ more than TEBs (L2 /s/ COG ~7500 Hz)[1,2].
- **H2:** Because TEBs have no L1 /z/[7], TEBs will accommodate to AE /z/ more than HEBs (who have L1 /z/)[8].
- **H3:** Because HEBs' word-final [l] is more dissimilar from AE word-final [ɬ], HEBs will accommodate to AE word-finally more than TEBs [3].

Methods

- 50 participants (25 HEBs & 25 TEBs) tested in India; L2 AoA: <10 years
- Tasks: Baseline Production Task (read words off a screen) & Accommodation Task (repeat words spoken by an AE interlocutor)[5]
- Speech materials & Analysis:
  - Words with /s/ and /z/ in word-initial position: *seat, sad, suit, set, zap, zen, zoo, zeal*
    - Centre of Gravity (COG) measured over the whole fricative; for non-target affricate-like (0.58% of total utterances) productions, only fricative portion after the stop was measured
      - A Praat script[9] was used for extracting COG over the whole duration
  - Words with /l/ in initial and final positions: l*ateral, lentil, lethal, loofah*
    - Mean F1 & F2 measured within a 10-ms steady-state interval annotated for each lateral [6]
- Statistics: COG/F1/F2 ~ Task * Phoneme/Position * Group + (1 + Task | Participant) + (1 | Word)

Findings

Figure 1. Centre of Gravity in English fricatives by group, phoneme, and task.

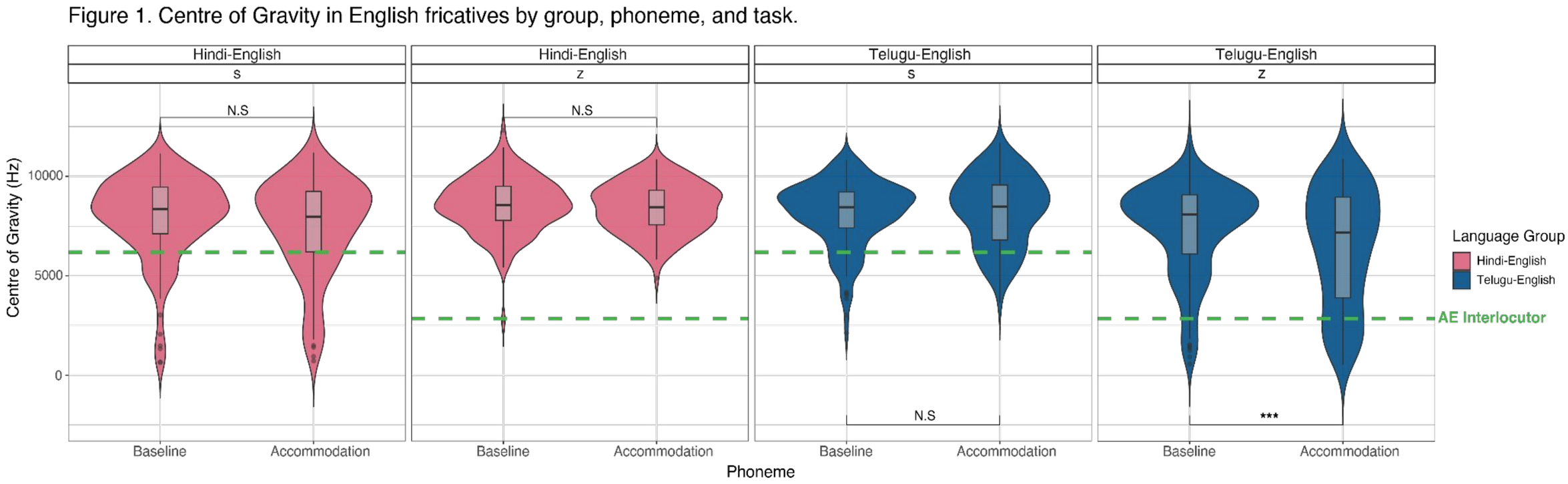
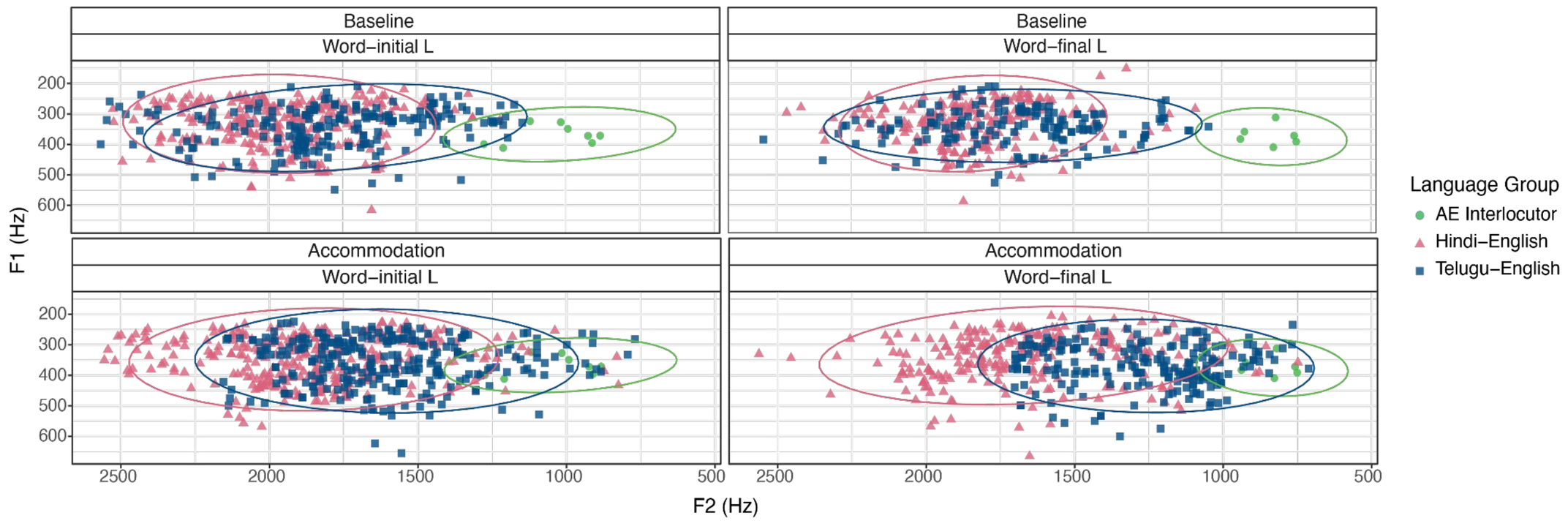


Figure 2. F1 x F2 in English laterals (tokens), by word position, task, and group



Summary of Findings:

L2 accommodation in COG of sibilant fricatives:

- TEBs showed more accommodation than HEBs towards AE /z/ (β=-1090.93, p<0.01), but none for /s/.
- HEBs did not show any significant changes in their L2 /s/ and /z/.

L2 accommodation in formants of laterals:

- **F1** for **word-initial /l/**: TEB showed more accommodation than HEBs (β=10.462, p<0.1)
- **F2** for **word-initial /l/:** TEBs showed more accommodation than HEBs (β=-128.5, p<0.0001)
- **F1** for **word-final /l/**: TEBs showed more accommodation than HEBs (β=24.3, p<0.01)
- **F2** for **word-final /l/**: TEBs showed more accommodation than HEBs (β=-171.15, p<0.0001)

➔ **Results partially support H1, H2 & H3:** HEBs **did not** show any accommodation for /s/. TEBs **accommodated significantly more** on /z/ than HEBs. TEBs **accommodated significantly more** on word-initial and word-final /l/ than HEBs.

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