Group- and individual-level asymmetries for Hindi and English talkers in the continuous recognition paradigm

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Do talker-specificity effects and asymmetries in memory encoding exist across languages?

Background

Talker-specificity effect:

- Words recognized faster/more accurately when repeated in same voice than in different voice (Palmeri et al., 1993).
- Phonetic details stored in long-term memory (Goldinger, 1998).

Limitations:

- Homogeneous sets of talkers/listeners: Recent work motivates update to consider talker/group effects.
- Effects have been tested **exclusively in American English**.

Study:

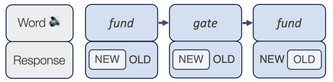
- Identifiably Black and white American English talkers (Exp. 1) & male and female Hindi talkers (Exp. 2).
- Social weighting (Sumner et al., 2014) suggest results driven by social factors in addition to asocial quantitative exposure.
- Hindi is ideal test case due to fundamental morphological differences from English (Kachru, 2006); large number of available participants.

Questions for Today:

- Do talker-specificity effects replicate in Hindi?
- Are social asymmetries comparable across groups and talkers?

Methods

Continuous Recognition Memory Paradigm



SAME (50%): OLD words repeated in same voice

DIFF (50%): OLD words repeated in different voice

Exp 1 Talkers (16)

	LANGUAGE	*RACE*
EB1-8	English	Black
EW1-8	English	White

Exp 2 Talkers (6)

	LANGUAGE	*GENDER*
HF1-3	Hindi	Female
HM1-3	Hindi	Male

Stimuli: Monosyllabic words produced by talkers normed for perceived race, gender.

Trials: 16 practice, 32 memory load, 280 critical

Analysis: Mixed-effects regressions in lme4 for Hits, RTs, FAs and D'. **Here, we focus on Hits.**

Experiment 1

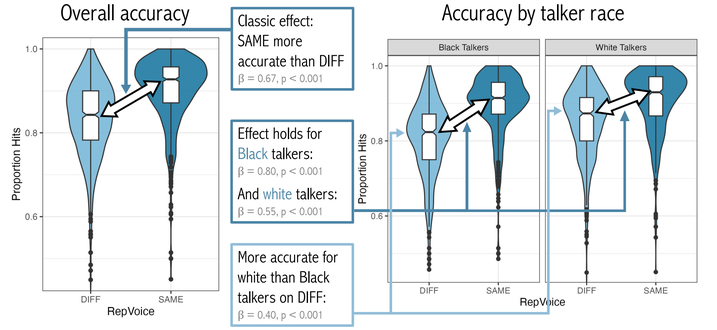
How do response patterns vary in English?

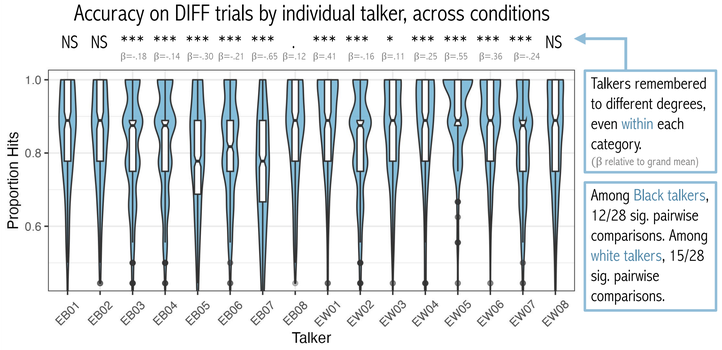
Participants: 680 native English speakers recruited through Prolific.

Stimuli used: 8 Black male, 8 white male native American English speakers. 8 talkers per participant.

Variables: Talker race (Black or white); RepType (OLD vs. NEW); RepVoice (SAME vs. DIFF, among OLD); TalkerSet (8 Black, 8 white, 4B/4W).

Results





Talker-specificity effects are robust, even with more diverse talker sets. Encoding strength varies both across and within macrosocial groups.

Experiment 2

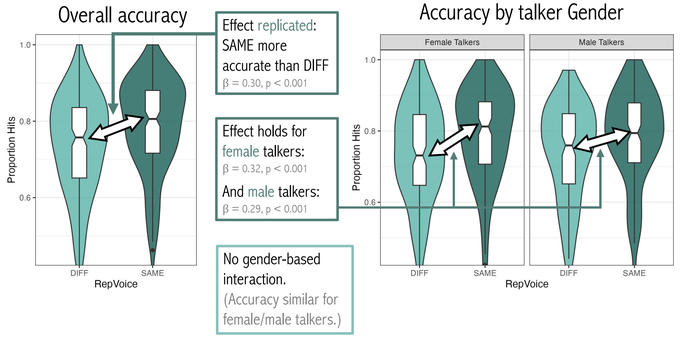
How do response patterns vary in Hindi?

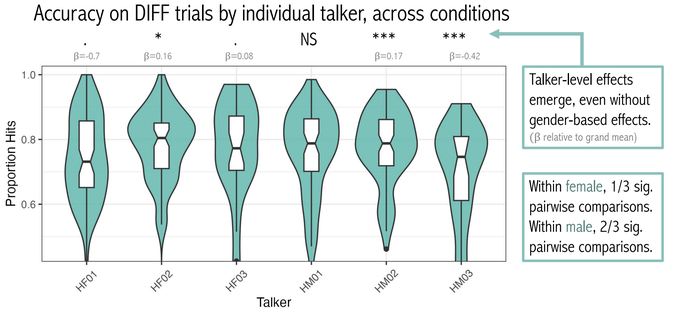
Participants: 178 native Hindi speakers recruited through MTurk.

Stimuli used: 3 female and 3 male native Hindi speakers. Two talkers per participant.

Variables: Talker gender (female or male); RepType (OLD vs. NEW); RepVoice (SAME vs. DIFF, among OLD); TalkerSet (2 female, 2 male, 1F/1M).

Results





Talker-specificity in recognition memory replicated in Hindi. Effects held in both gender groups but did not differ across groups. Asymmetries existed within groups. Accuracy substantially lower than in English.

Discussion

English findings:

- Classic effect replicated: Words repeated in the same voice recognized more accurately than those in a different voice.
- Asymmetrical encoding *across* macrosocial categories. Stronger encoding of words spoken by white than Black talkers.
- Asymmetrical encoding *within* macrosocial categories. Talkers remembered differently even when high-level attributes were shared.

Hindi findings:

- Classic effect replicated: **First replication of talker-specificity in recognition memory in a non-English language.**
- Gender-based asymmetries did not reach significance. May be attributable to Number of Voices.
- Talker-based asymmetries (even within gender) were still observed.
- Accuracy lower across-the-board: **Effect is robust even with less attention on task.**

Conclusions

Talker-specificity appears to be a **cross-linguistic** phenomenon.

Asymmetries in encoding based on **individual-level** (and possibly group-level) characteristics may also be cross-linguistic.

Talkers are not interchangeable: We can't swap one voice for another and expect the same results.

References

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For more information, see our paper, "The episodic encoding of talker voice attributes across diverse voices" in *Journal of Memory and Language, 128.* (February, 2023).