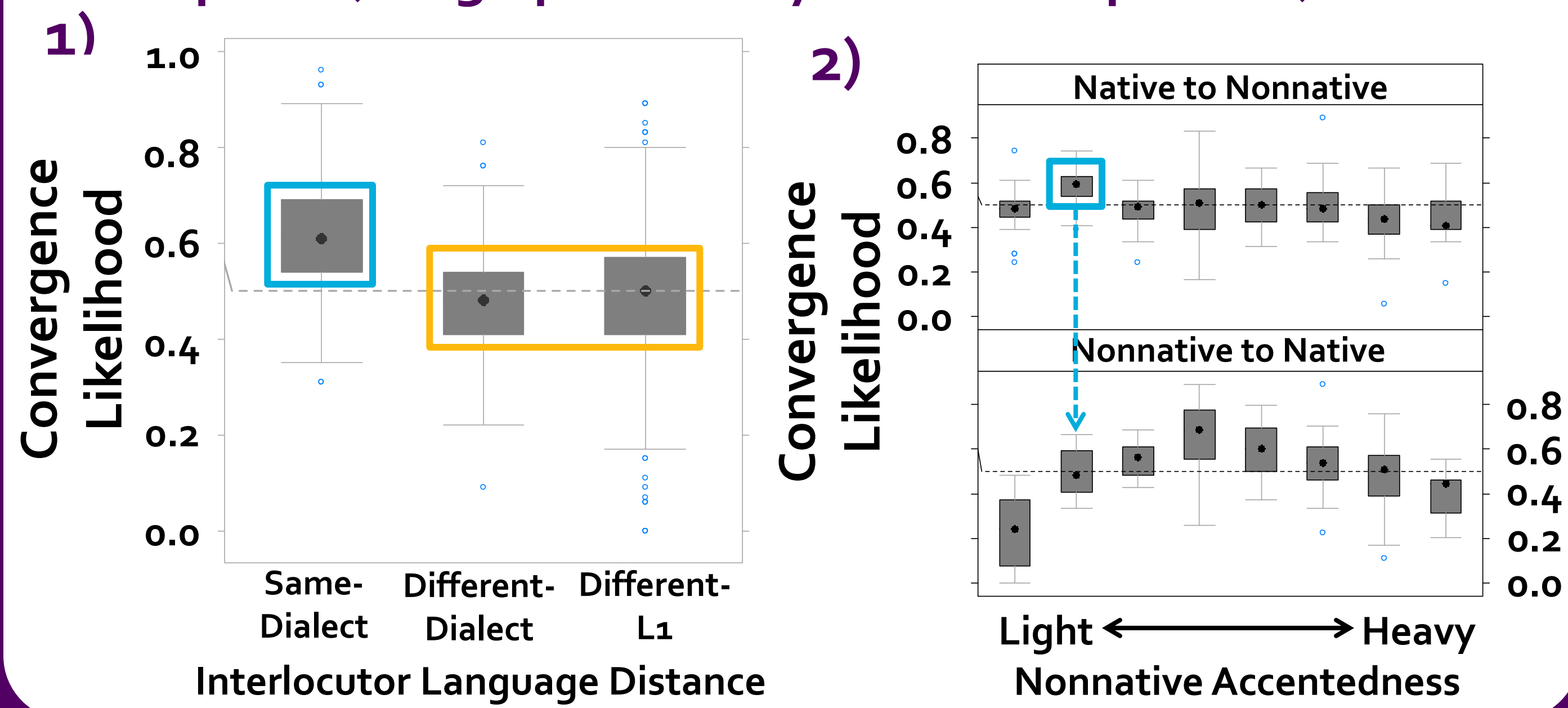


Background

- Previous study: Kim et al. (2011)
 - In a task-oriented conversation between two talkers,
 - When holistically measured in an XAB perception test,
- 1) Language distance negatively affects phonetic convergence between interlocutors.
- 2) In N-NN conversations, native talkers tend to not converge towards nonnative partners, with only one exception (a high proficiency nonnative partner).



Current Research

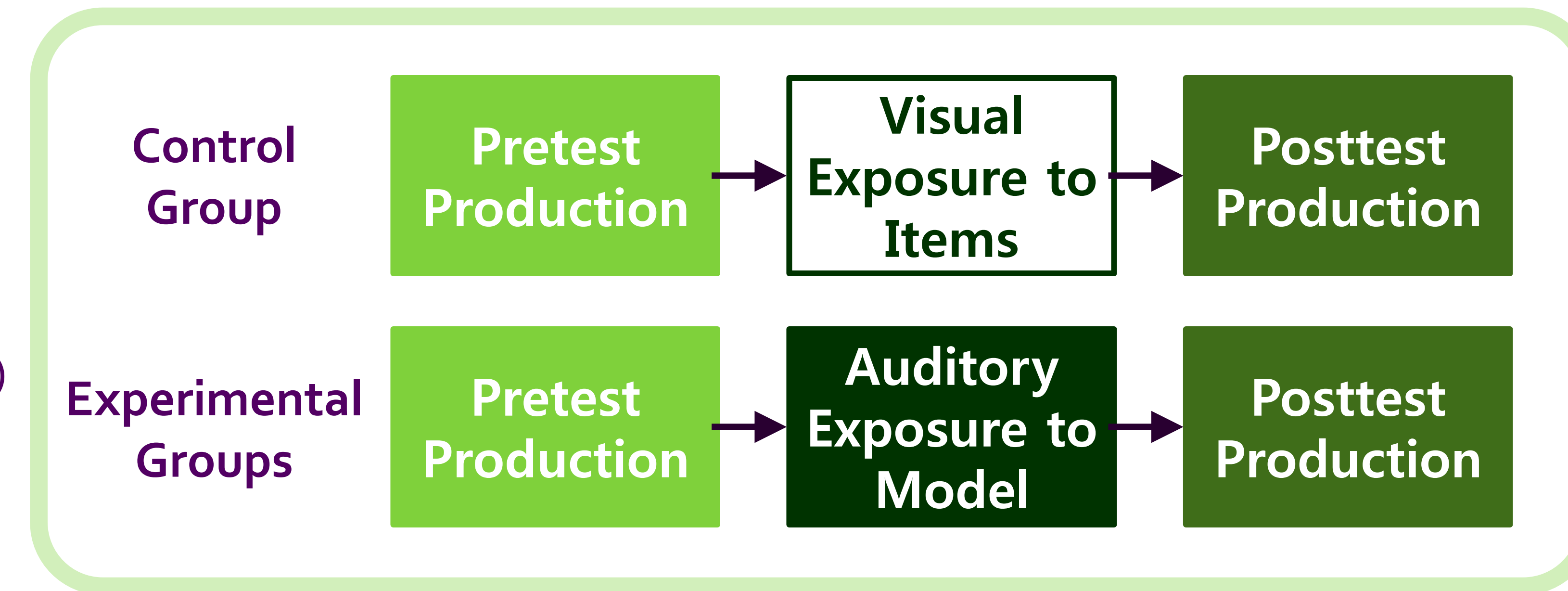
1. Linguistic limitation of phonetic convergence in a non-interactive condition
 - Can a native talker converge towards a model talker with different dialects or with different L1s?
 - How does preexisting acoustic distance between participants and model talker affect phonetic convergence?
2. Generalizability of phonetic accommodation
 - Can change transfer from exposed items to unexposed items?
3. Various measurements of phonetic accommodation
 - Words: segmental & suprasegmental measurements
 - Sentences: human & computational holistic measurements

Materials and Measurements

- Model Talkers
 - 2 female native talkers of English (Dialect: US Midland)
 - 2 female Korean talkers of English (Proficiency: high)
- Two sets of materials to see the generalization effect
 - 63 English monosyllabic words: Set 1 and Set 2
 - 63 English disyllabic words: Set 1 and Set 2
 - 64 English sentences: Set 1 and Set 2
- Dependent measures for accommodation
 - Adjusted acoustic change: 1-syl and 2-syl words
 - $((\text{posttest} - \text{pretest})_{\text{expr}} - \text{average}(\text{posttest} - \text{pretest})_{\text{cntrl}}) \times (|\text{model} - \text{pretest}| / (|\text{model} - \text{pretest}|)_{\text{expr}})$
 - > 0: convergence, < 0: divergence, = 0: maintenance
 - Dynamic time warping: full sentences and hums
 - $\text{similarity cost}(\text{pretest}, \text{model}) - \text{similarity cost}(\text{posttest}, \text{model})$
 - > 0: convergence, < 0: divergence, = 0: maintenance
 - XAB perception test: sentences
 - 55 native English listeners heard three sounds in a row and selected between the second (A) and third (B) sounds for the better match to the first sound (X).
 - Posttest sample selection rate > 50%: convergence

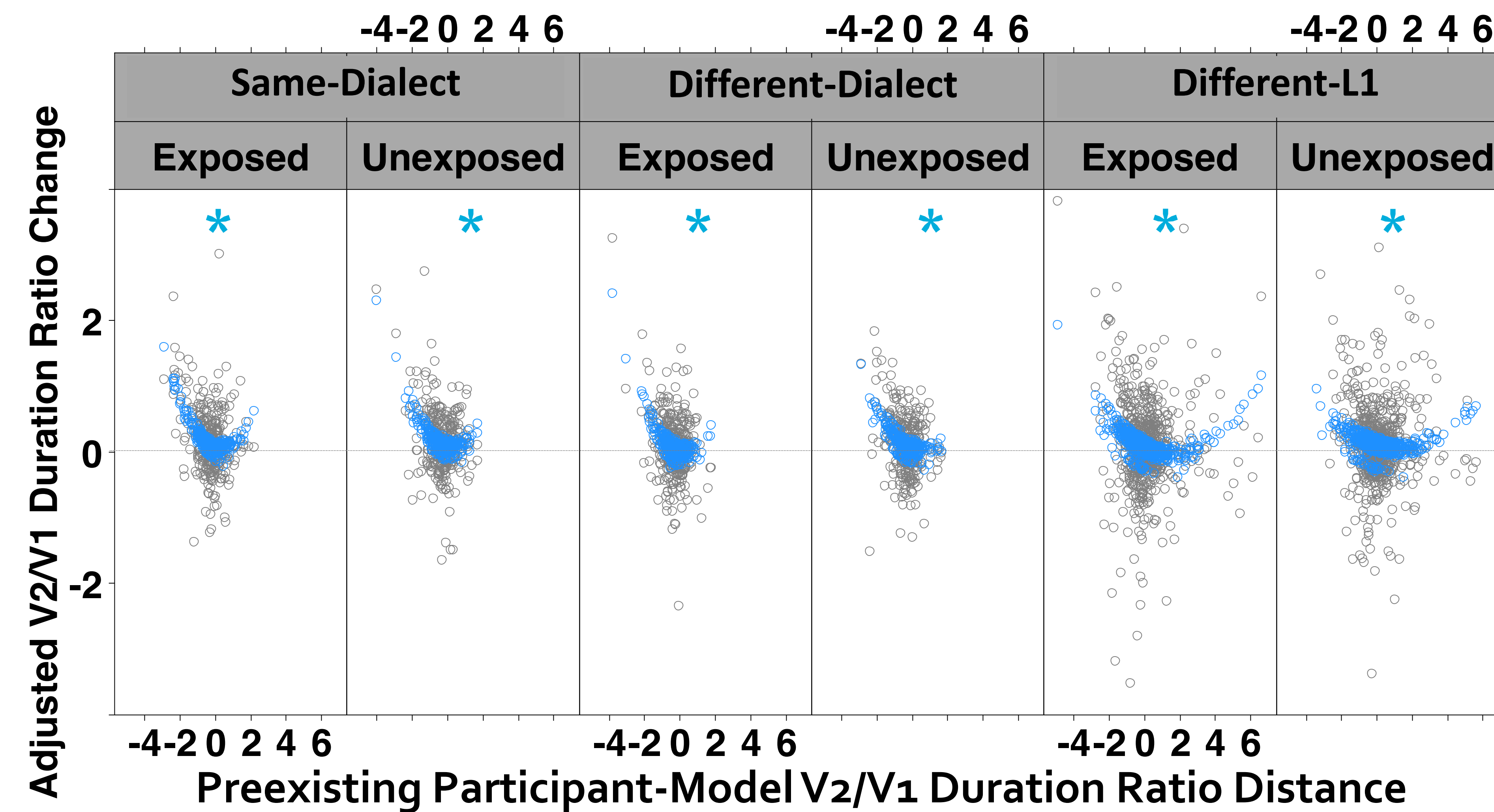
Passive Auditory Exposure Experiment

- Participants
 - 67 female native talkers of English
 - 20 in control, 13 in Same-Dialect, 10 in Different-Dialect, 24 in Different-L1
- Procedure
 - 1 & 3. Pretest and Posttest: Participants read all materials (Set 1 AND Set 2)
 2. Exposure: participants were exposed to 9 repetitions of half of the materials (Set 1 OR Set 2) for a closed-set identification test (8-multiple choice including the stimulus).
 - Exp. groups heard the materials read by one of the 4 model speakers.
 - Control group saw the materials written on the monitor.
- No shadowing, no explicit training or feedback



Results

Words: Acoustic Analyses (example: vowel duration ratio of disyllabic words)

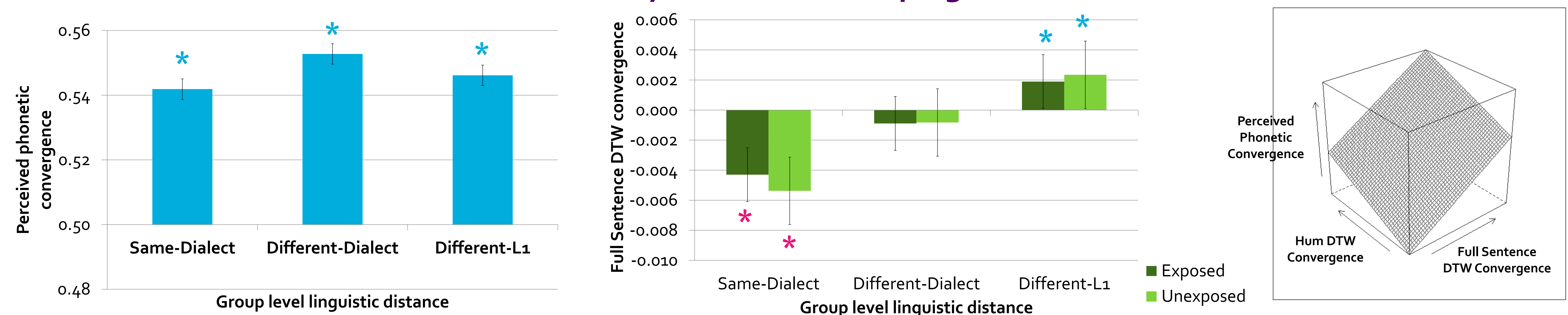


All Accommodation Measurements

C: Convergence, M: Maintenance, D: Divergence

Linguistic level	Measurement	Group level linguistic distance		
		Same-dialect	Same-L1	Different-L1
Monosyllabic words	VOT	C	M	C
	Vowel Duration	C	C	C
	fo-max	C	C	C
	f1	C	C	C
Disyllabic words	V2/V1 Duration Ratio	C	C	C
	V2/V1 fo Ratio	C	C	C
	V2/V1 Amplitude Ratio	C	C	C
Sentences	DTW full sentence	D	M	C
	DTW hum	D	M	C
	XAB perception test	C	C	C

Sentences: XAB and Dynamic Time Warping (example: full sentences)



Summary

1. Phonetic convergence occurred to all model talkers: same-Dialect, different-Dialect, different-L1 (high proficiency)
2. Within each group level distance, the farther the preexisting acoustic distance, the more convergence, for both increasing and decreasing directions. -> Room for change needed
3. Convergence on old items generalized to new items.
4. Convergence was observed with all acoustic measurements on monosyllabic and disyllabic words.
5. Human holistic judgments and computational holistic judgments indicated different group level patterns.
6. The computational holistic judgments positively contributed to prediction of human judgments.

