

BACKGROUND

Silent centers (SC): listeners can identify vowel quality in a CVC syllable even with 65% of tense vowels and 50% of lax vowels removed (Strange & Jenkins, 2013). However, listeners may still require vowel centers to hear social information. Three complementary ideas in the literature suggest that social information in vowel centers may be *essential*:

- Primacy of F1/F2 at the vowel midpoint**, sometimes taken along with duration, e.g., sociophonetics, sound change, second language acquisition, etc. (Kelley & Tucker, 2020; Labov et al., 1972; Nycz & Hall-Lew, 2013; Thomas, 2014)
- Hybrid silent centers** (Rakerd & Verbrugge, 1987; Verbrugge & Rakerd, 1986): pairing SC syllable edges from different talkers does not undermine vowel perception so argue vowel edges do not carry social information
- Vowel normalization** (Johnson, 2005; Johnson & Sjerps, 2021) assumes that variation is problematic for listeners so models typically operate on vowel centers where contextual variation is least (Barreda & Jaeger, 2025) XXX cite Joe here too

METHODOLOGY

- Talkers:** Three non-Southern talkers from the Wildcat corpus (Van Engen et al., 2010) and two Southern talkers recorded in Kentucky
- Stimuli:** BVT syllables with [i, ɪ, e, ɛ, æ, u, ʊ, o, ʌ, ɔ, a]; **middle 50% for lax vowels & middle 65% for tense vowels** (Strange et al., 1983) excised with a custom Praat script (see Figure 3)
- Procedure:** 2AFC; listeners heard a CVC word and answered either “what did you hear?” with a pair of words or “who did you hear?” and the maps in Figure 1. “What?” trials displayed a map congruent with the talker; “Who?” task trials displayed the word that was being spoken.

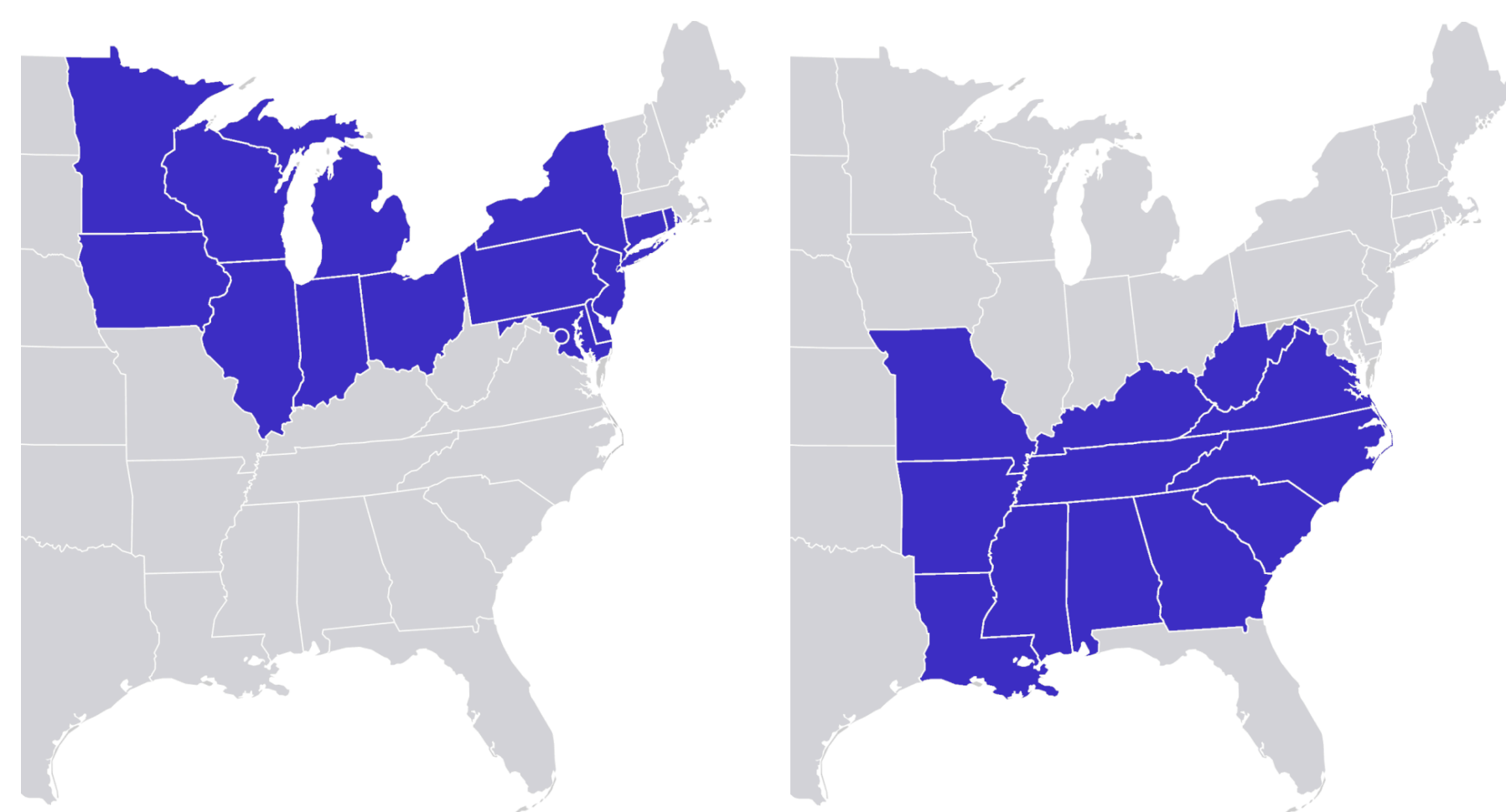


Figure 1: “Non-Southern” and “Southern” stimuli

- Participants:** 60 US participants recruited via Prolific
- Analysis:** BRMS logistic regression in R (Bürkner, 2017), NHST with bayestestR (Makowski et al., 2019)

- Many studies have found that listeners perform poorly when asked to label regional accents (Campbell-Kibler, 2025; Clopper & Pisoni, 2004; Milroy & McClenaghan, 1977). Our simplified maps are intended to represent Clopper & Pisoni’s “dialect clusters”
- While it is clear that listeners do not need vowel centers to perceive vowel quality accurately, it is not yet known whether listeners can perceive, for example, regional accent without the vowel center.

PREDICTIONS

	IF V center is necessary	IF V center is not necessary
"Who do you hear?" task	Chance or below-chance accuracy	Above-chance accuracy
"What do you hear?" task	High accuracy (SC replication)	High accuracy (SC replication)

Figure 2: Predictions under two assumptions about social information

SILENT CENTERS VISUALIZED

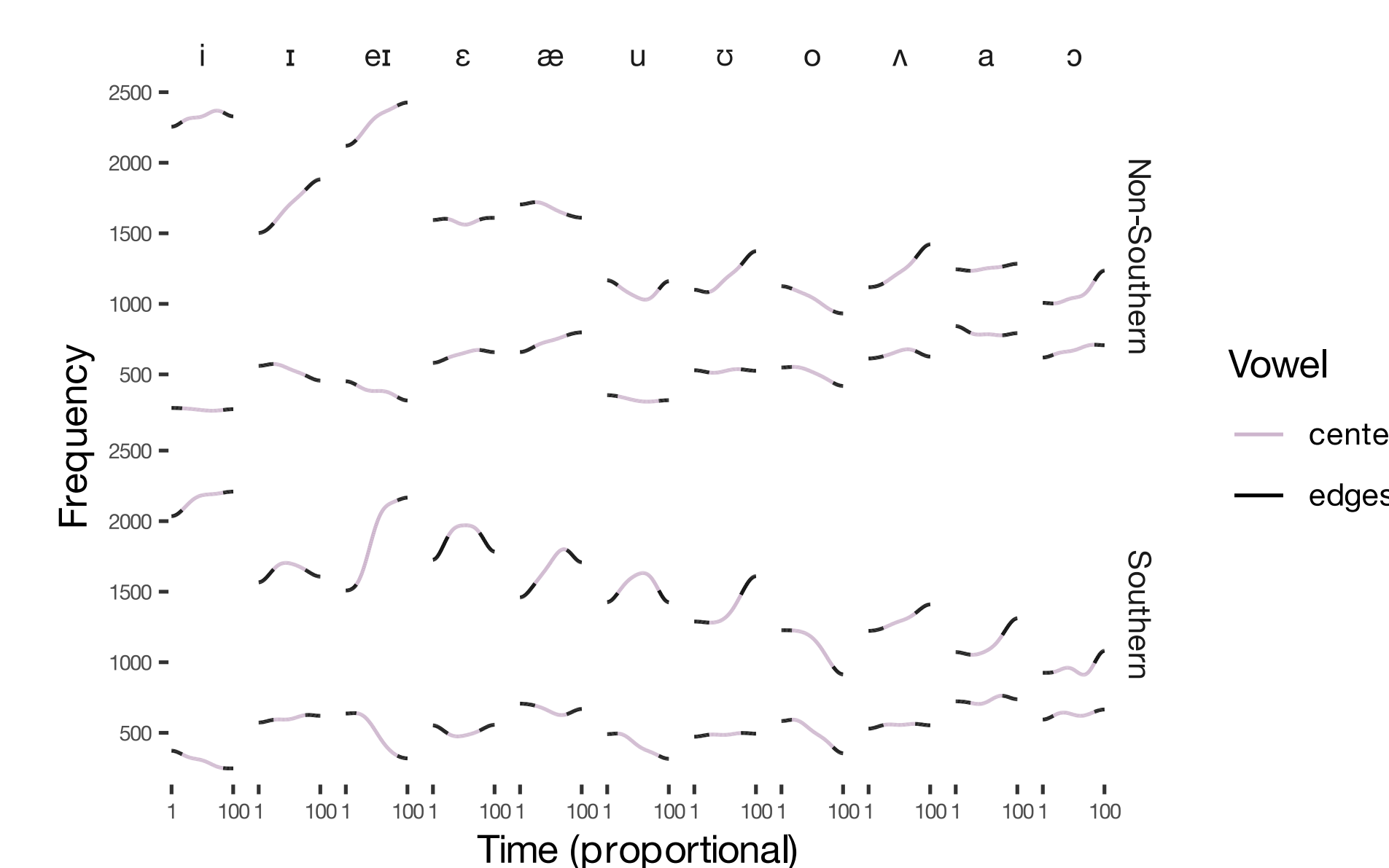


Figure 3: Vowel stimuli unnormed F1/F2 DCTS with excised portions indicated

DISCUSSION

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REFERENCES



THANKS

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RESULTS

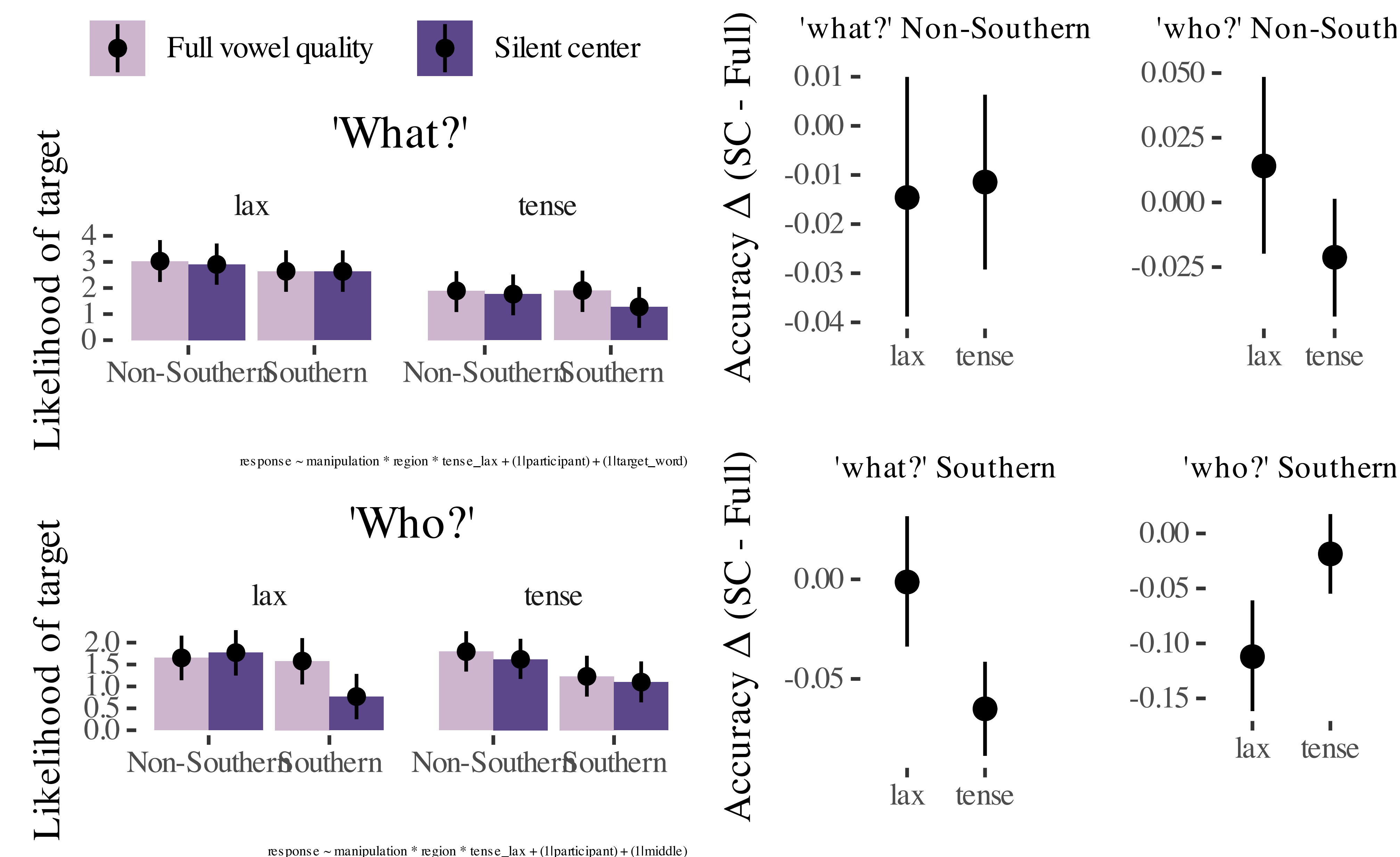


Figure 4: ‘What?’ (top left) and ‘Who?’ (bottom left) model predictions (95% HDI) and Accuracy differences for responses to Non-Southern (top right) and Southern (bottom right) talkers