

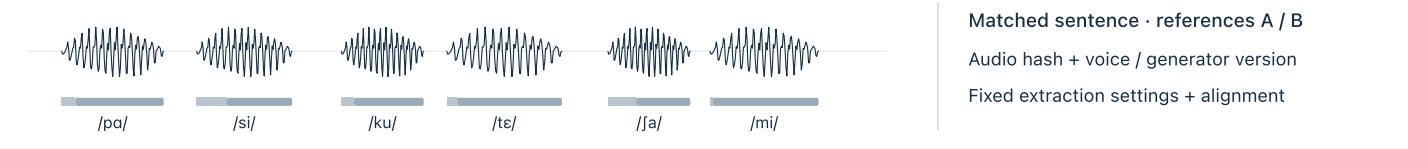
# MI engine

Feature-resolved measurement and contrast qualification.

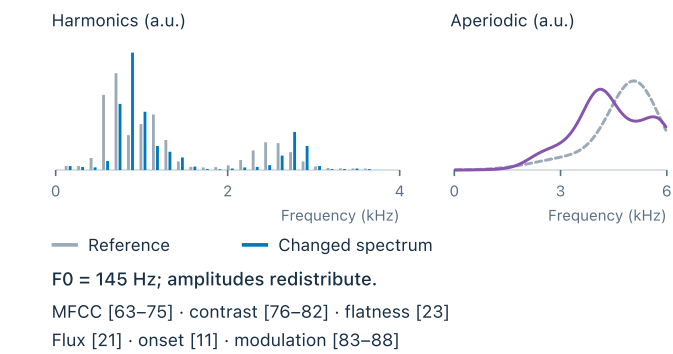
## From waveform to qualified contrasts

MI ENGINE / FEATURE-RESOLVED MEASUREMENT AND STIMULUS ACCEPTANCE

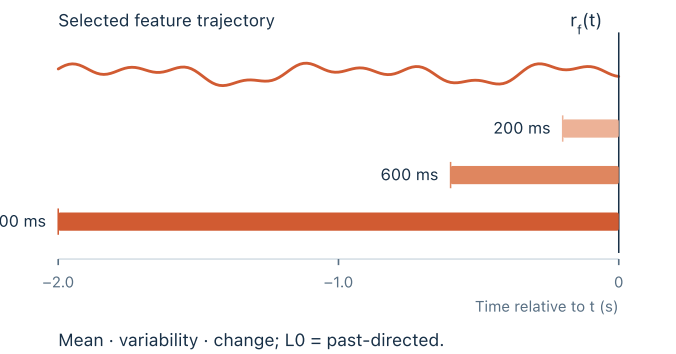
● a One signal, a traceable measurement record



● b R<sup>3</sup> · spectral components



● c T<sup>3</sup> · temporal organization

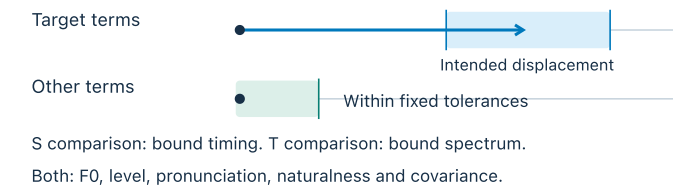


d Speech-specific integration

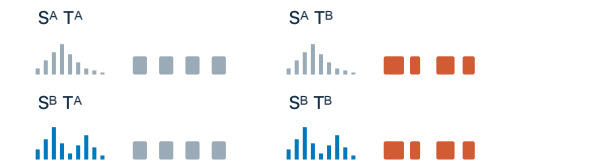
Checked phoneme timing · F0 · F1–F3 · harmonic / aperiodic measures · calibrated level

PROPOSED ADAPTER

● e Qualify the contrast



● f Require all four cells



FAIL → regenerate / resynthesize → re-measure

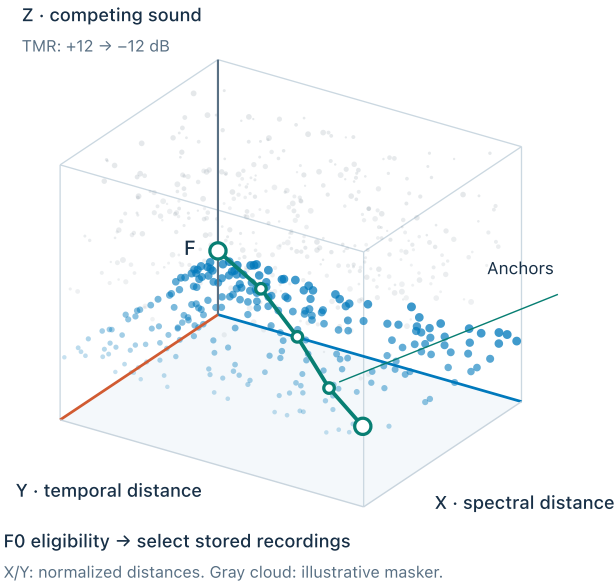
PASS → full vectors for analysis; X/Y for display

Procedural illustrations; no measured spectra, accepted research cells or participant results.

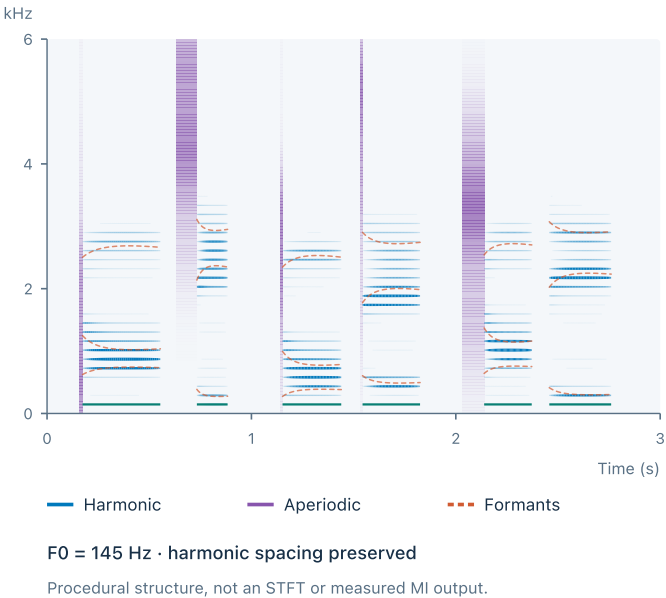
# Stimulus space

Stored anchors, harmonic and aperiodic structure, and local timing.

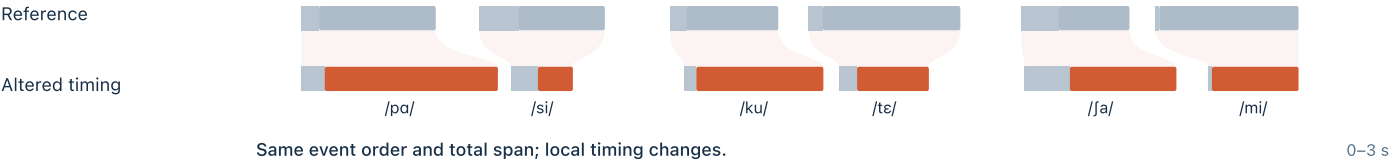
**a A discrete, reference-relative bank**



**b Speech structure at fixed F0**



**c Timing redistributes segments and pauses**



# Experimental design

Reciprocal component comparisons and independent retained transfer.

● a Reciprocal component comparisons



B familiarization vs control-voice C exposure

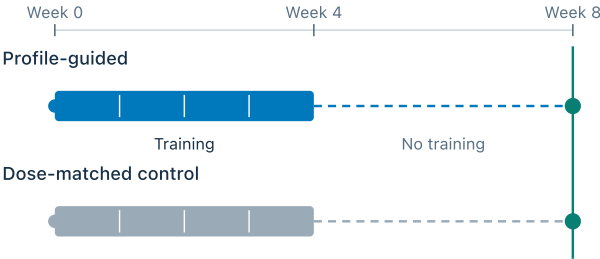
Pre → post → separate-day replication

New utterances · accepted recordings · schematic glyphs

● b Independent transfer trial

STAGE I Profile → probe → lock

New eligible SNHL cohort · randomize 1:1



PRIMARY ENDPOINT

New natural talkers · speech reception threshold

Four weeks after training ends

No assumed benefit; test the between-policy difference.