Methods

* The stimuli are modified recordings from Kraljic & Samuel, 2005
* No recording repeated twice within each version of the experiment
* 80 critical word
  + 2 Versions of each
  + 40 ambiguous
  + 40 unambiguous
    - 40 unique critical words were selected
    - Critical words possess either an s or sh sound in the middle of the word
      * 20 possess an s sound
      * 20 possess an sh sound

* Divided into two sets of Materials (A/B)
  + Each set of materials contains 10 s words and 10 sh words
* In each experiment, either Materials A or Materials B is shifted
  + Shifted words possess a blended, ambiguous s/sh sound
  + Nonshifted words possess a typical, nonambiguous s/sh sound
* Either s/sh of Materials A assigned to Talker A
  + The inverse for Materials B is assigned to Talker A
    - The rest are assigned to Talker B
* Each Talker is assigned:
  + 10 unique ambiguous words, either s/sh
  + 10 unique unambiguous words, either s/sh
* 60 unique filler words were selected
  + Filler words are real English words of similar length
  + Do not contain an s or sh sound
  + Chosen randomly
  + Assigned to Talker A
  + Split into 3 Sets (A, B, C)
* 60 unique filler nonwords were selected
  + Filler nonwords are nonwords that follow the sound patterns of typical English words
  + Do not contain an s or sh sound
  + Chosen randomly
  + Assigned to Talker B
  + Split into 3 Sets (A, B, C)
* The 6-item “ashi” test continuum was also selected
  + TASHI 25 *(S)*
  + TASHI 30
  + TASHI 40
  + TASHI 45
  + TASHI 50
  + TASHI 70 *(Sh)*
* Each recording was manipulated using Praat () Vocal Tool Kit () to create two versions
  + Version 1 simulates a typical male talker
    - Format shift ratio of 0.8 + new pitch median of 100 Hz (Luthra et al., 2021)
  + Version 2 simulates a typical female talker
    - Format shift ratio of 1.0 + new pitch median of 180 Hz (Luthra et al., 2021)
* Talker A recordings were paired with Talker B recordings to create Critical Items and Filler Items
  + Critical Items
    - Talker A Voice Gender is assigned either Typical Male Talker (Version 1) or Typical Female Talker (Version 2)
      * Talker B Voice is assigned the inverse
    - Talker A Voice Ear is assigned to either the Left Ear or the Right Ear
      * Talker B Voice is assigned the inverse
  + Filler Items
    - Filler recordings were paired between Talkers by Set
      * Talker A recordings in descending alphabetical order were paired with Talker A recordings in ascending alphabetical order
        + Similar word/nonword matches were randomly rematched within each Set
    - Talker A recordings in Set A
      * Paired with the same Gender as Talker A Voice in Critical Items
      * Paired with opposite Ear as Talker A Voice in Critical Items
        + Talker B Voice is the inverse of Talker A Voice
    - Talker A recordings in Set B
      * Paired with the opposite Gender as Talker A Voice in Critical Items
      * Paired with same Ear as Talker A Voice in Critical Items
        + Talker B Voice is the inverse of Talker A Voice
    - Talker A recordings in Set C
      * Paired with the opposite Gender as Talker A Voice in Critical Items
      * Paired with opposite Ear as Talker A Voice in Critical Items
        + Talker B Voice is the inverse of Talker A Voice
* Each participant will experience 80 unique Exposure Items in each experiment
  + 20 Critical Items
  + 60 Filler Items
    - 40 Talker A Word recordings
      * 60 Talker B Word recordings
    - 40 Talker A Nonword recordings
      * 20 Talker A Nonword recordings
    - 40 Talker A Female recordings
      * 40 Talker B Male recordings
    - 40 Talker A Male recordings
      * 40 Talker B Female recordings
    - 40 Talker A recordings in the Left Ear
      * 40 Talker B recordings in the Right Ear
    - 40 Talker A recordings in the Right Ear
      * 40 Talker B recordings in the Left Ear
    - 20 Talker A Male recordings in the Left Ear
    - 20 Talker A Female recordings in the Left ear
    - 20 Talker A Male recordings in the Right Ear
    - 20 Talker A Female recordings in the Right Ear
    - 20 Talker B Male recordings in the Left Ear
    - 20 Talker B Female recordings in the Left ear
    - 20 Talker B Male recordings in the Right Ear
    - 20 Talker B Female recordings in the Right Ear
* Test Items only consist of Talker A (1 talker)
  + Heard in both ears
* 72 total trials
* 12 Blocks
  + 6 trials per block
    - Ashi test continuum
    - No repeats
* 6 Blocks per Gender
  + Either assigned Male or Female
  + Gender inverts every two blocks
    - Block Gender order counterbalanced across participants