LangLoc_Eng_visual_PTB

Brief description

Participants read sentences and nonword sequences. The sentences>nonwords contrast can be used to localize high-level language processing brain regions (e.g., Fedorenko et al., 2010 *J Neurophys*), i.e., regions that support lexico-semantic and combinatorial (syntactic and semantic) processes (e.g., Fedorenko et al., 2012 *Neuropsychologia*; Fedorenko et al., 2016 *PNAS*; Fedorenko et al., 2018 *bioRxiv*).

Timing

Each run lasts 358 s (5 min 58 s) (ips=179 for TR=2).

Each run consists of 16 experimental blocks (8 per condition, each block = 18 s) and 5 fixation blocks (each block = 14 s).

One run is sufficient to localize the language regions in most participants, but we always recommend doing 2 runs, so as to be able to estimate the magnitudes of response using across-runs cross-validation.

Location

~/LangLoc_Eng_visual_PTB/ evlab_langloc_2conds

Command

Runs in MATLAB: evlab_langloc_2conds('<subjID>', <set>, <run>)

- subjID = subject ID (any string; must the be same across runs for a subject)
- set = 1 - 5, depending on i) whether the subject has been scanned on this task before, and ii) how many times they have been scanned (e.g. If a subject has been scanned twice, they should have seen sets 1 and then 2, so should be shown set 3 in their current session; NB: for first-time subjects, set should be 1 for both runs)
- run = run number (1 or 2)

Typical order of function calls

1st run: evlab_langloc_2conds('<subjID>', 1, 1)

2nd run: evlab_langloc_2conds('<subjID>', 1, 2)

Debugging/Testing

The script expects a “+” to be sent as a character from the scanner, thus when presented “Waiting for scanner…” you must press either “shift-+” or “ctrl-+” to move past that screen. Or edit the script if your scanner sends out a different character.

If you get stuck, or want to end the script for whatever reason, try: “ctrl-c” (this cancels a running command in matlab), then type “sca” and press enter (sca is a PTB command which closes every open PTB screen).

Subject Instructions

In this task, you will read sentences or sequences of word-like nonwords (like “blicket” or “florp”). The materials will be shown one word/nonword at a time. Your task is to read the materials attentively as they appear. Please read silently to yourself, as you would when reading a book. Don’t be stressed if the words/nonwords seem to be appearing too quickly at first – you will get used to the presentation speed after a few trials. At the end of each sentence / nonword sequence, you'll see a picture of a finger pressing a button; whenever you see that picture, please press button 1. This task is included to help you stay alert throughout the task. Your main task is to read attentively.