Trial #147 — Recognition Potential Analysis

OK

Subject	AF • recorded 04/13/2026 18:44:21.546 • dataset Celebrities
Stimuli	501 images: 62 clear, 439 scrambled • 60 keypresses (60 matched to clear images, median RT 417 ms)
EDF file	AH_20260228_153928_qJxIvii.edf
Alignment	photodiode on CH21 (positive and negative spikes, matched to every image); clock offset 8831 ms (EDF header would give 3812693546 ms); 529/501 images matched; drift -104 ppm; jitter 23.2 ms
Electrodes	noise after filtering — O1 240 µV, O2 307 µV, T5 448 µV, T6 17 µV ✓, P3 263 µV, P4 481 µV, Pz 352 µV, Cz 332 µV (✓ = used, threshold 50 µV)
Processing	60 Hz notch, 0.5–15 Hz bandpass, epochs -200 to 800 ms, baseline -200 to 0 ms, reject > 100 µV peak-to-peak

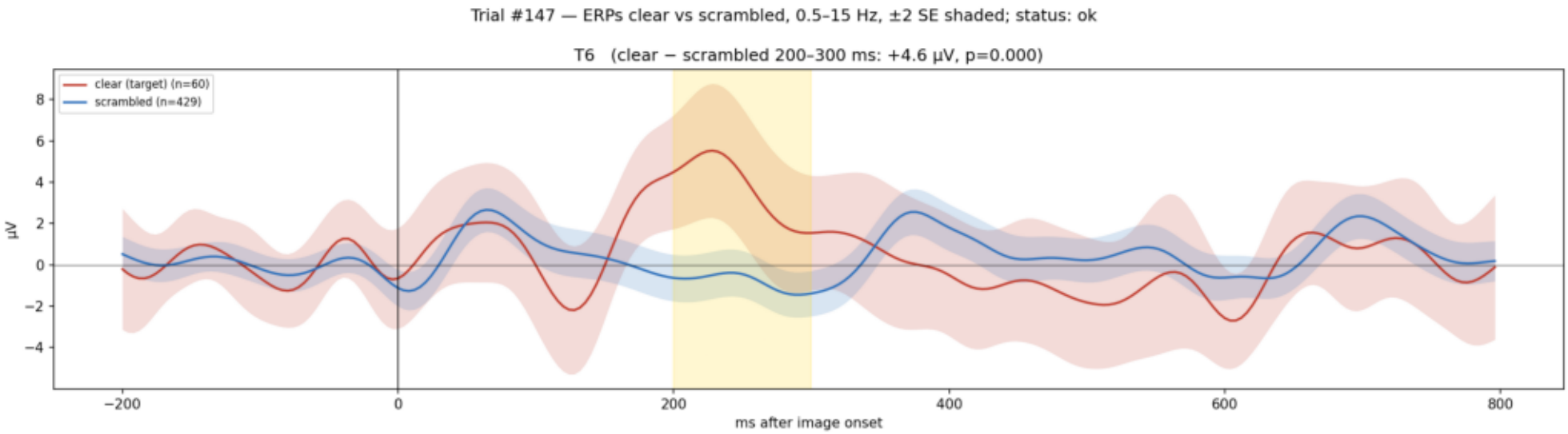
Clear − scrambled, 200–300 ms RP window

Channel	Epochs (clear / scrambled)	Mean difference	p (permutation, 2000)	Largest difference 150–350 ms
T6	**60 / 429**	**+4.56 µV**	**0.000**	**+6.0 µV @ 224 ms**

Bold = p < 0.05. Not corrected for testing several channels.

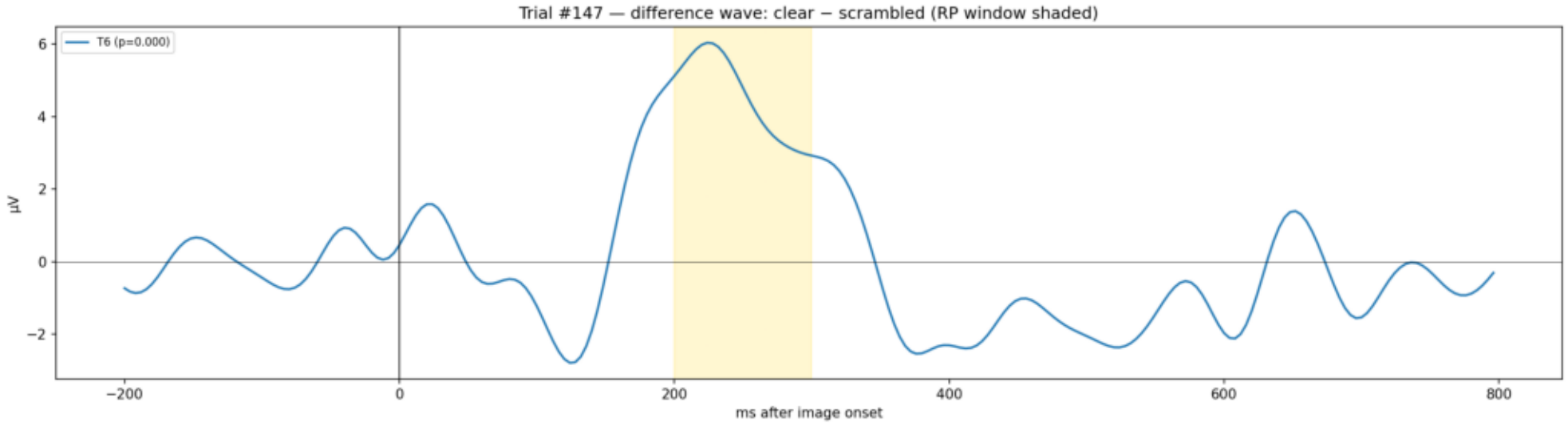
Event-related potentials: clear vs scrambled

The recognition potential (RP) appears about 200–300 ms after a recognisable (clear) image as a deflection that is absent for scrambled images; its sign depends on the reference. The RP window is shaded; bands are ±2 standard errors.



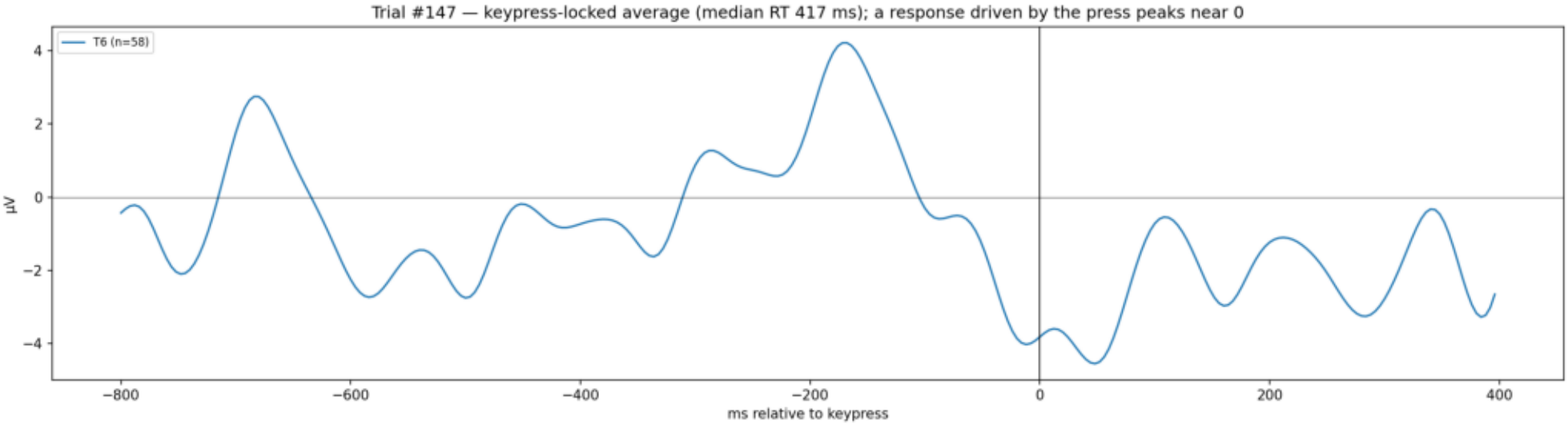
Difference wave (clear − scrambled)

Images arrive every ~330 ms, so each epoch also contains responses to neighbouring images. Subtracting the scrambled average removes that shared part and isolates the RP.



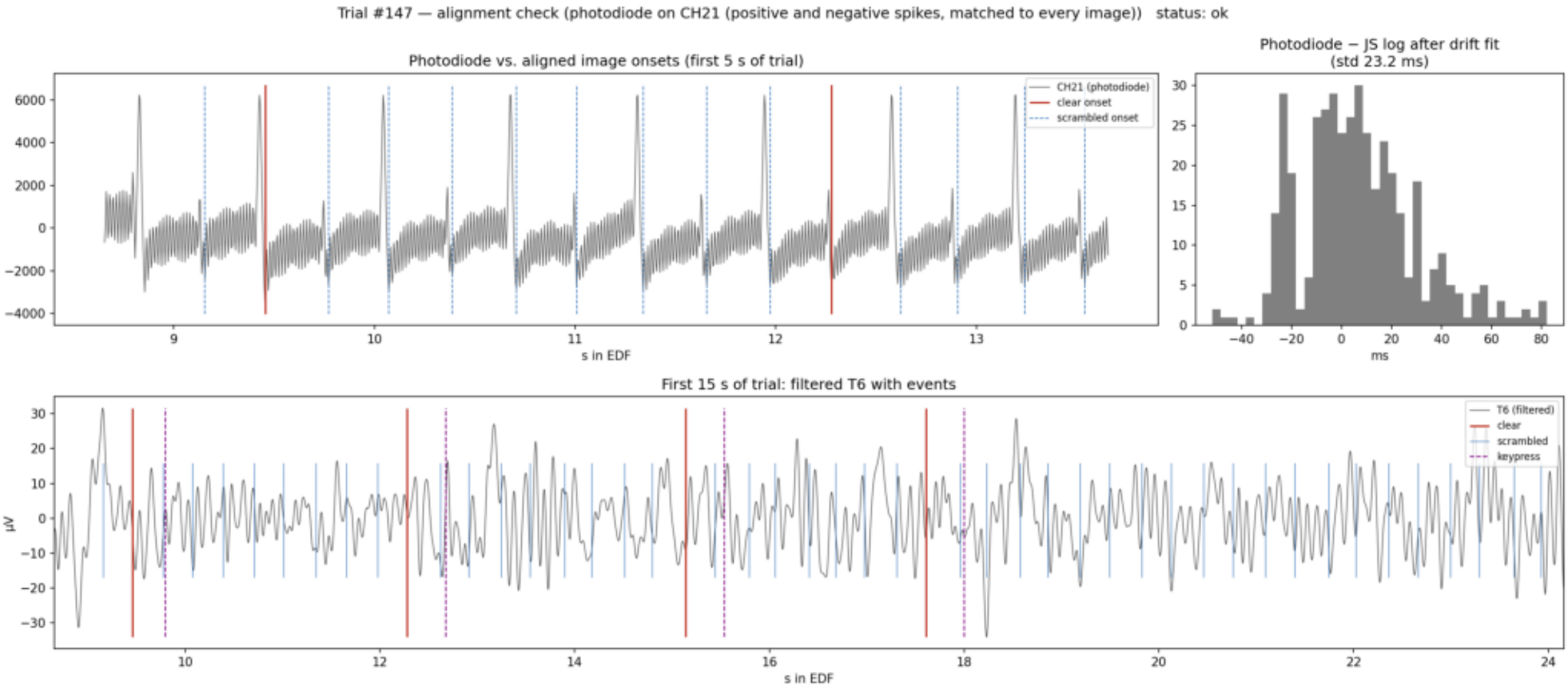
Keypress-locked average

Checks whether activity tied to the button press, rather than recognition, drives the difference between clear and scrambled images.



Alignment check and signal overview

Each image onset is snapped to its photodiode spike. Bottom: the first 15 s of the filtered signal with image onsets and keypresses.



Analysis log

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Trial #147 — subject AF, 04/13/2026 18:44:21.546
  EDF: /home/japhy/eegdata/media/trialData/AH_20260228_153928_qJxIvii.edf
  250 Hz, 172 s; 501 images (62 clear, 439 scrambled); 60 presses
  alignment: photodiode on CH21 (positive and negative spikes, matched to every image)
    offset 8831 ms (EDF header says 3812693546); 80% of images matched (typical 19%); drift -104 ppm; jitter 23.2 ms
  electrode noise (µV): O1 240, O2 307, T5 448, T6 17, P3 263, P4 481, Pz 352, Cz 332
  using: T6
  60 of 62 clear images followed by a keypress (median RT 417 ms)
  T6: clear−scrambled 200–300 ms = +4.56 µV, p=0.000, peak +6.0 µV @ 224 ms
  status: ok
```