**Task:** detect color change (200 ms) on the fixation cross

**Figure S1.** Position of the fixation cross, which became red 6-8 times/block. Subjects had to detect the brief (200 ms) color change.

**Figures S2 to S5.** Harmonics

Following stimulation of different faces, there also marked increases at the second harmonic (7Hz) up until the 5th harmonic (17.5Hz), although at much lower EEG power values (Figure 2 of the paper). However, EEG power decreased progressively and scalp topography became less specific with higher harmonics.
Figure S2. The scalp topography was similar albeit less right lateralized at 7Hz, and was diffused over posterior parietal and occipital central electrode sites for following harmonics.

Figure S3. Second harmonic at 7Hz. There was also a larger response for different as compared to identical faces, although the effect was much smaller in magnitude that for the fundamental at 3.5 Hz (compare to Figure 2 in text).
Figure S4. Absence of a larger response to different faces than same faces over right occipito-temporal channels at the different harmonic frequency (10.5Hz) at which a peak of EEG power was visible above noise in the two conditions.
Figure S5. Absence of a larger response to different faces than same faces over right occipito-temporal channels at the different harmonic frequency (14Hz) at which a peak of EEG power was visible above noise in the two conditions.
Figure S6. Absence of a larger response to different faces than same faces over right occipito-temporal channels at the different harmonic frequency (17.5 Hz) at which a peak of EEG power was visible above noise in the two conditions.
Figure S7. Illustration of the phase delay between the response to inverted faces as compared to upright faces (here identical face condition in two typical subjects).