Supplementary Information

Gender differences in subliminal affective face priming: A high-density ERP study

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SI.1 Face stimulus data set

Images of faces were taken from the ATR face database (ATR Promotions, Inc., Kyoto, Japan). Psychological evaluation was conducted by ATR Promotions to determine the intensity of emotion for each facial image. According to their data, the average intensity of the fearful face images used in the current study was 4.49 ± 1.89 for the male actors and 4.63 ± 1.99 for the female actors (intensity level was rated from 1 to 7). These average intensity levels were almost equal, indicating that any effect of intensity of fearful expression on gender differences should be minimal.

SI.2 Definition of the region of interest

The optimal time windows for P1, N170 and P2 in females and males were determined by microstate analysis. The time windows which measured the peak amplitudes and latencies were as follows: P1: 419–447 (119–147) ms in males and 418–447 (114–147) ms in females; N170: 444–488 (144–188) ms in males and 473–503 (173–203) ms in females; P2: 515–559 (215–259) ms in males and 511–545 (211–245) ms in females). Then, the electrodes that recorded the maximum amplitude for each ERP component were extracted. The regions of interest (ROIs) were defined as the most frequently appearing electrodes (appearance rank of 1 to 4) that recorded maximum amplitudes of ERP components in all participants by rank function. The ROIs for each ERP component were defined as follows: P1 (left: O1, 65, 69, 74; right: O2, 82, 89, 90), N170 (left: T5, 57, 64, 65; right: T6, 90, 95, 100), P2 (left: T5, 64, 65, 66; right: T6, 84, 90,

95).

SI Figures

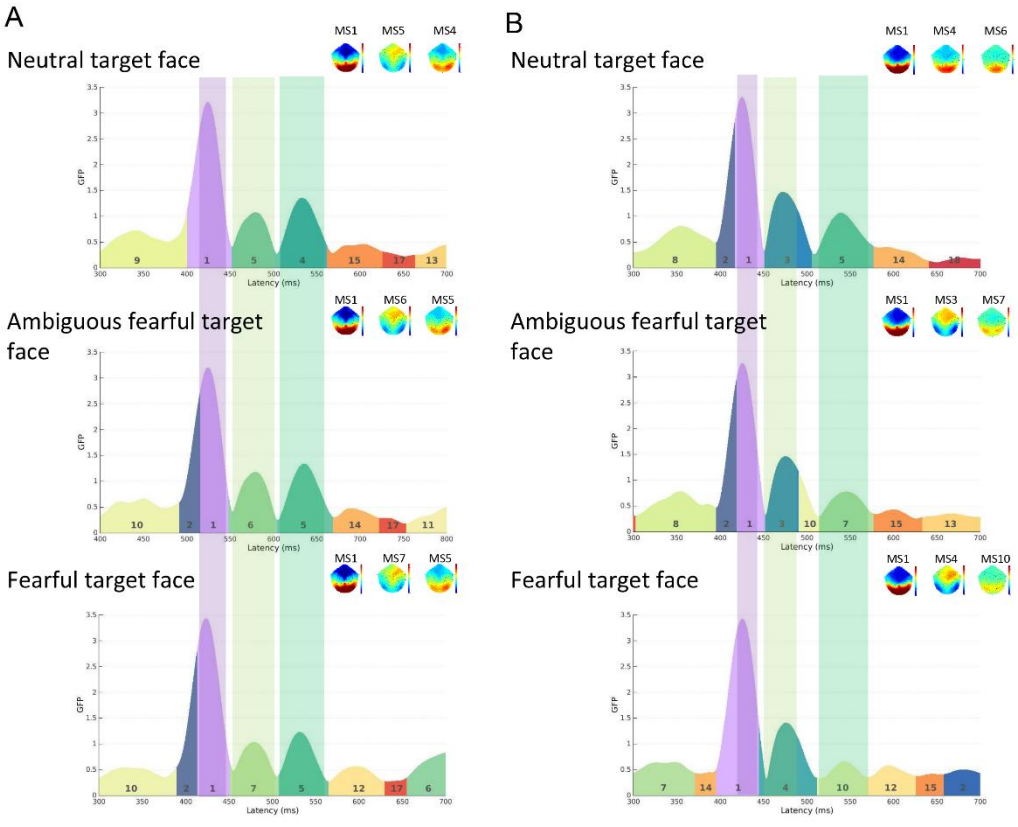

Fig. S1: Microstate analysis outlining periods of topographic differences in the grand mean ERPs in females (A) and males (B). Neutral faces were used as the subliminal prime. Scalp topographies show microstate maps obtained from the cross-validation procedure. The microstate maps are displayed in sequence of occurrence from left to right. Insets show the different patterns in each condition. Red and blue indicate positive and negative potential values, respectively. Contrary to the microstate analysis for the fearful prime condition (see Fig. 3), MS5, 6, and 7, which correspond to the N170 time window in females, are almost the same duration. This suggests that subliminal priming with neutral faces did not affect the ERPs in response to the subsequently presented target faces.

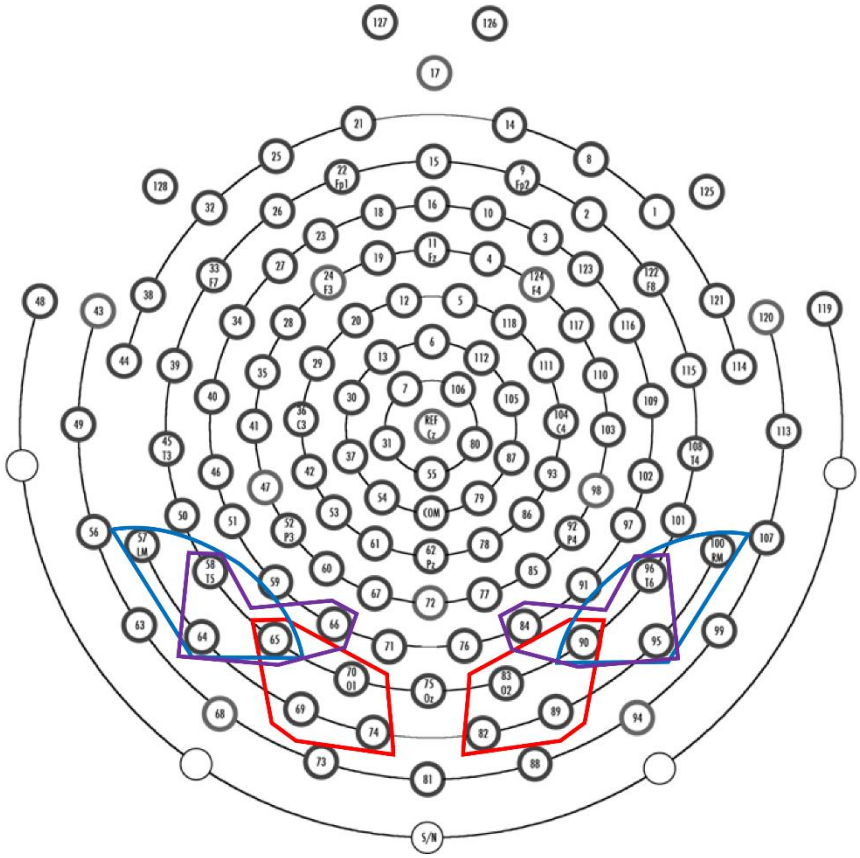

Fig. S2: Layout of the electrode array. The groups of electrodes enclosed by red borders represent the regions of interest (ROIs) for P1 (left: O1, 65, 69,74; right: O2, 82, 89, 90), those enclosed by blue borders indicate the ROIs for N170 (left: T5, 57, 64, 65; right: T6, 90, 95, 100), and those enclosed by purple borders indicate the ROIs for P2 (left: T5, 64, 65, 66; right: T6, 84, 90, 95).

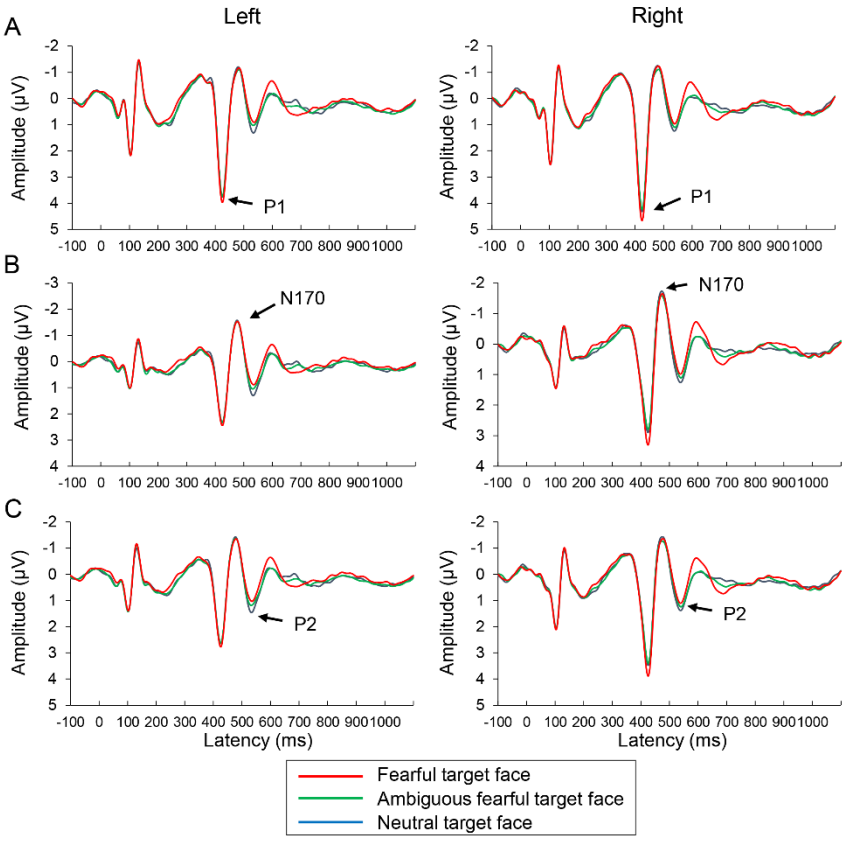

Fig. S3: Grand averaged waveforms of all participants for P1 (A), N170 (B) and P2 (C) for each target face in each ROI during the fearful face-prime condition. P1 amplitudes for the fearful target-face stimuli were larger than those for the neutral and ambiguous target-face stimuli in both ROIs (A). In contrast, we found no main effect of prime face, target face, or laterality for N170 amplitude (B). P2 amplitudes for the neutral target face were larger than those for the ambiguous and fearful target-face stimuli. P2 amplitudes for the ambiguous target-face stimuli were also larger than those for fearful target-face stimuli (C). Note that ERP waveforms in response to the neutral face-prime condition are not shown because of the overlapping nature of the responses.