Supporting Information

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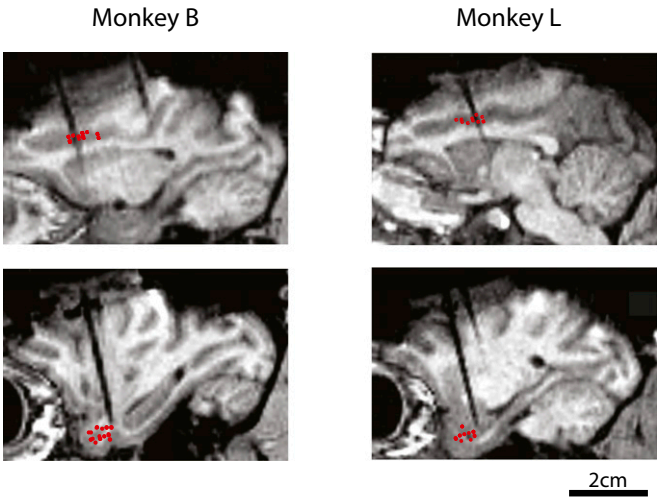

Fig. S1. Reconstruction of recording sites. Sagittal MRI view of the right amygdala and dorsal anterior cingulate cortex (dACC) of the two monkeys, overlaid by the reconstructed recording locations (red dots). Shown also are calibrating electrodes that were inserted during the scan to allow reconstruction. MRI was performed before, during, and after recordings to allow multiple reconstruction and alignment of recording locations to electrodes.

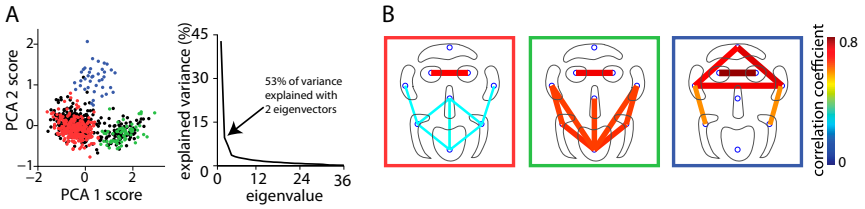

Fig. S2. (*A*) Principal component analysis (PCA) of the correlations between pairs of facial regions (fROI) reveal three distinctive clusters. K-mean analysis reliably distinguished between the clusters (colored red, green, and blue), and inspecting the eigenvalues indicated that the first two eigenvector explained 53% of the total variance (*Right*). Facial expression of the monkey immediately after the shutter was closed were also projected (black dots) and, as evident, they occupy similar areas to that of the facial expressions during shutter opening. We next inspected the correlations that are characteristic to each of the clusters by averaging the inter-fROI correlations within each of the clusters to identify the most salient feature of each. (*B*) Presented is the highest set of correlations that were found to characterize each of the clusters. Line's width and color reflect the correlation coefficient. Rectangle colors correspond to cluster color. As can be seen, the red cluster is characterized by strong correlation between the eyes only, and corresponds to neutral facial expression (as in Fig. 1*B*). The green cluster characterized by correlation between lower facial regions and corresponds to lip smacking. The blue cluster characterized by correlations between upper facial regions and corresponds to direct starring (that is accompanied by elevated eyebrows, as seen in Fig. 1*B*).

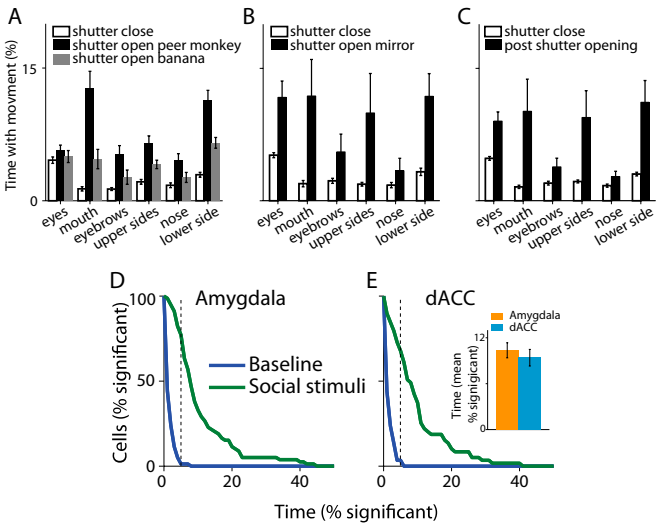

Fig. S3. (*A*) The proportion of time in which facial movement was evident was increased during shutter opening compared with preshutter opening and compared with a view of banana during shutter opening ($P < 0.01$, two-way ANOVA). (*B*) Similar increases in facial movement were found when a mirror was placed behind the shutter ($P < 0.01$, ANOVA). (*C*) Movements continued for several seconds after the shutter was closed again ($P < 0.01$, ANOVA). (*D* and *E*) Cumulative proportions of cells (*y* axis) that were active for increasing proportions of time (*x* axis). The proportion were computed for the time the shutter was open (green lines) and during the baseline period (blue line), and this was done separately for amygdala (*D*) and dACC (*E*) neurons. Cells that were active for more than 5% of the time (vertical dashed lines) can be defined as responsive. The distribution of amygdala and dACC cells activity during the presentation of a social stimuli differed significantly from baseline distributions (Kolmogorov–Smirnov test, $P < 0.001$) but were similar between regions (Kolmogorov–Smirnov test, $P > 0.1$). *Inset* shows the average time proportion in which activity was different from baseline (exceeded chance-level at both regions, $P < 0.01$, but comparable across regions, $P > 0.1$, χ^2).

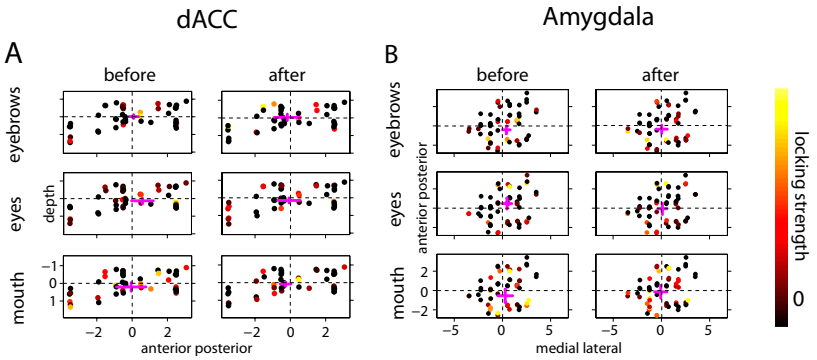

Fig. S4. (*A*) Shown are the lateral projections of all recording sites within the dACC of both monkeys tested. Recording coordinates were normalized around the reconstructed center of the dACC to allow joint presentation of both monkeys. The color of the dots indicate the strength of STMA locking before spike occurrence (*Left*) or after spike occurrence (*Right*), and at three different facial regions (rows). Pink crosses indicate the mean ± SEM of significant neurons location. None of the crosses differ from the zero line significantly. (*B*) Same analysis for dorsal projections of amygdala neurons. None of the distribution means differ from zero significantly.

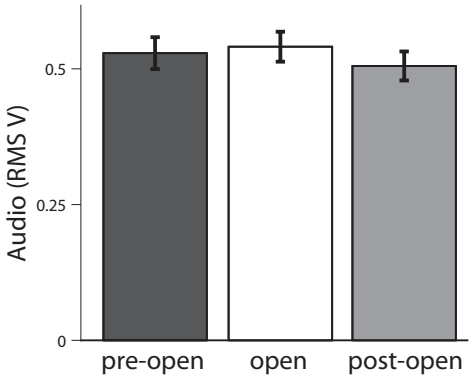

Fig. S5. The monkeys did not emit any vocalizations in our setup. Shown are the audio recordings (rms values, $P > 0.1$, ANOVA), and we also carefully listened to the sensitive microphone.