The Role of Task-Relevance in Saccadic Responses to Facial Expressions

SUPPLEMENTARY MATERIAL

1. Results of the analysis on arousal and valence scores

Table S1.

Results of the statistical analyses (one-way ANOVA) on the arousal and valence scores.

	Effect	Factors	df	Statistics	p-value
Arousal	main	Emotion	(1.48, 57.81)*	**F=156.75**	**<0.0001**
	post hoc comparison	Happy vs. Anger	(39)	t=1.685	0.300
		Happy vs. Neutral	(39)	**t=13.158**	**<0.0001**
		Anger vs. Neutral	(39)	**t=14.051**	**<0.0001**
Valence	main	Emotion	(2,78)	**F=703.28**	**<0.0001**
	post hoc comparison	Happy vs. Anger	(39)	**t=36.322**	**<0.0001**
		Happy vs. Neutral	(39)	**t=20.58**	**<0.0001**
		Anger vs. Neutral	(39)	**t=-17.149**	**<0.0001**

Note. Post-hoc tests were adjusted according to Bonferroni. Significant results are highlighted in bold. Abbreviations: df = degrees of freedom; *df values are Greenhouse-Geisser corrected.

2. Analysis of the distribution of saccadic reaction times

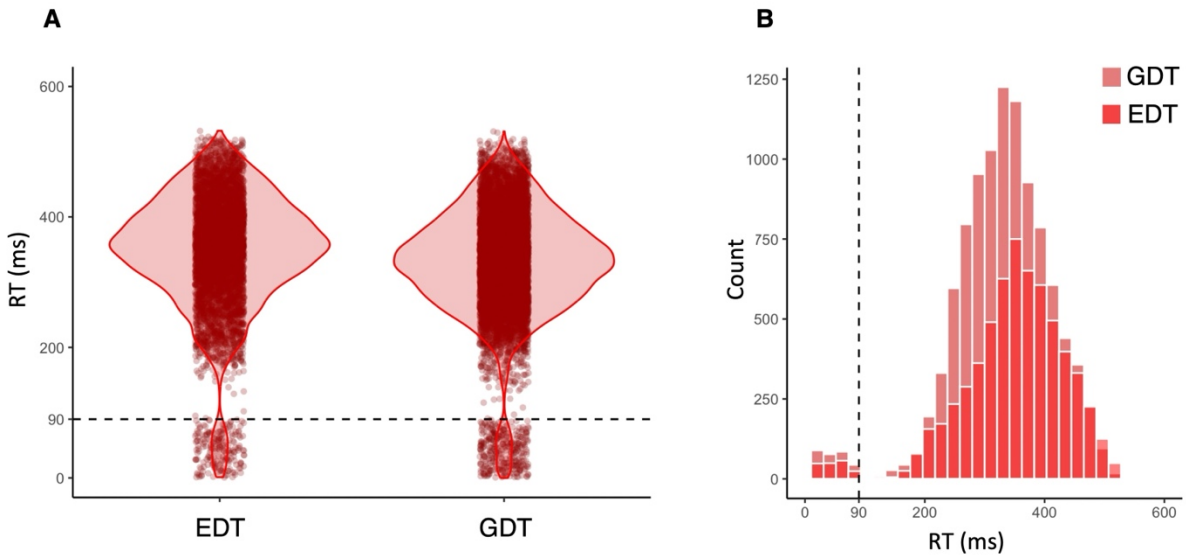

Figure S1. Distribution of the reaction times (RTs) of correct saccades in the Emotion Discrimination task (EDT) and in the Gender Discrimination task (GDT). RTs are represented with boxplots and kernel density distribution (A) and histograms (B). A small group of outliers with very short RTs (<90 ms) is distinguishable in the EDT (n=204 out of 6176 items) and in the GDT (n=340 out of 10049 items).

3. Description and analyses of exploratory saccades

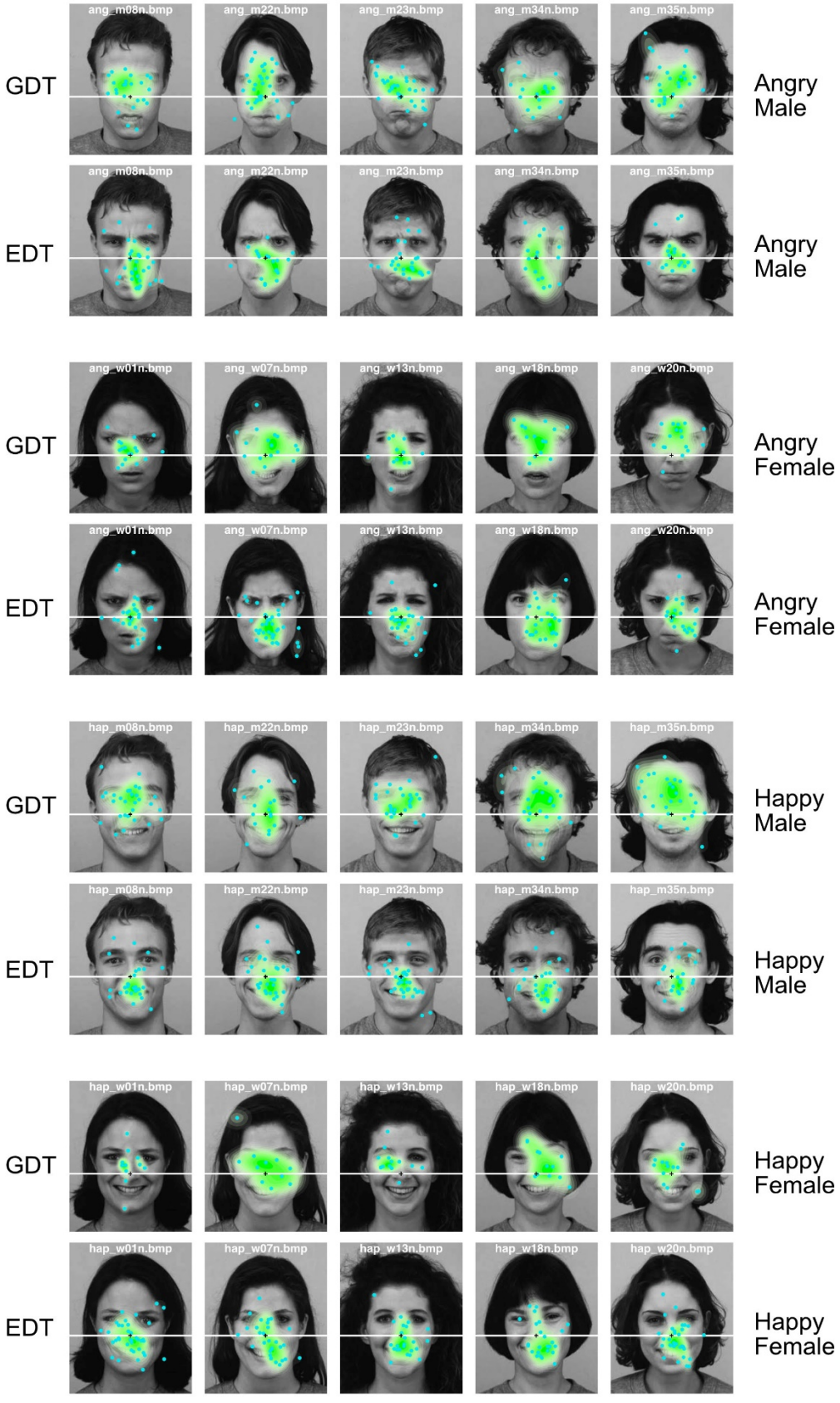

Figure S2. Distribution of the exploratory saccades in the correct Go trials of the Emotion (EDT) and Gender Discrimination task (GDT) depicted over each emotional face used in the experiment. Light blue dots represent the landing position of exploratory saccades within the face. The green area represents the 2D kernel density plot generated using the MASS R function kde2d(), which counts the number of observations within a given area of 2D space and uses color to represent density differences. The horizontal white line positioned over the tip of the nose highlights the relative position of the saccades, whether they are closer to the eyes or the mouth.

To investigate whether the exploratory saccade landing positions differed in the Emotion (EDT) and Gender Discrimination task (GDT), for each emotional image and each task, we calculated the average vertical distance (in pixels) between the eyes level and the saccade ending position (Figure S3). The average landing position of the exploratory saccades was significantly closer to the eyes in the GDT than in the EDT (16.4±3.8 pixels vs. 27.6±4.4 pixels; respectively, paired t-test $t(22)=3.26$, $p=0.004$).

Figure S3. Average landing positions of exploratory saccades in the Emotion (EDT) and Gender Discrimination task (GDT) across all participants. The landing position was computed as the vertical distance (in pixels) between the Y-coordinate of the eyes (indicated by the white line) and the saccade ending position.