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Supplementary Online Material

Experiment S1: Less-attractive judgments

To ensure that participants were not simply responding to the face at the cued location, regardless of which task they were performing, we ran two control experiments in which we changed the task instructions. In the first experiment, we asked participants to choose the face that appeared *less* attractive (rather than more attractive).

Participants. Sixteen participants completed the experiment. All participants (10 female) had normal or correct-to-normal vision, were between the ages of 18 to 28 years old, and gave written informed consent prior to the experiment.

Stimuli. Stimuli and experimental set-up were exactly the same as in Experiment 1 of the main paper, except that only three contrast levels were used (instead of all five). Two faces were always presented, a standard face (contrast 0.39) and a test face (contrast 0.3, 0.39, or 0.5). Either the test face or the standard face was cued, and participants reported the vertical alignment (up/down) of the less attractive face.

Results. Figure S1 shows the percentage of trials in which the test face was chosen as less attractive as a function of the test face contrast, separately for when the test face was cued (blue solid) or the standard face was cued (red dashed). If only physical contrast influenced responses (lower contrast = less attractive), then there would be no effect of the cue (the red and blue lines would overlap), and the lines would be negatively sloped (the lower contrast face would be chosen more often). If participants were biased to choose the cued face, then the blue line would be above

the red line. These effects were not observed. Although participants tended to choose the face with lower contrast as less attractive, the effect of contrast on attractiveness judgments was not reliable ($F(2,15)=2.05$, $p=0.15$; ; $\eta^2 = 0.04$). This implies that participants were not consistent in using the contrast of the eye region of the faces to judge how unattractive a face was, which diverges from the "more-attractive" - experiments reported in the main part of the paper. These results suggest that choosing the less attractive face and choosing the more attractive face rely on different strategies and perceptual mechanisms. Most important for the present study, there was no effect of the cue ($F(2,15)=0.01$, $p=0.93$; $\eta^2 = 0.0002$), nor a cue by contrast interaction ($F(2,15)=2.03$, $p=0.15$; $\eta^2 = 0.009$). Of particular interest were participants' responses for trials in which the exact same face was presented. Here, participants did not pick the face at the cued location as less attractive ($p=0.91$; $\eta^2 = 0.0007$), rejecting the hypothesis that subjects simply responded to the face at the cued location, regardless of which task they are performing.

Overall, this pattern of data suggests that choosing the *less attractive* face does not rely on the same mechanisms as choosing the *more attractive* face: Attractiveness judgments depend on contrast and are modulated by attention, whereas unattractiveness judgments do not rely on contrast and are not modulated by attention. Critically, these results also indicate that participants are not generally biased to choose cued items when making any perceptual judgment.

Control experiment S1: Reporting the face that is less attractive

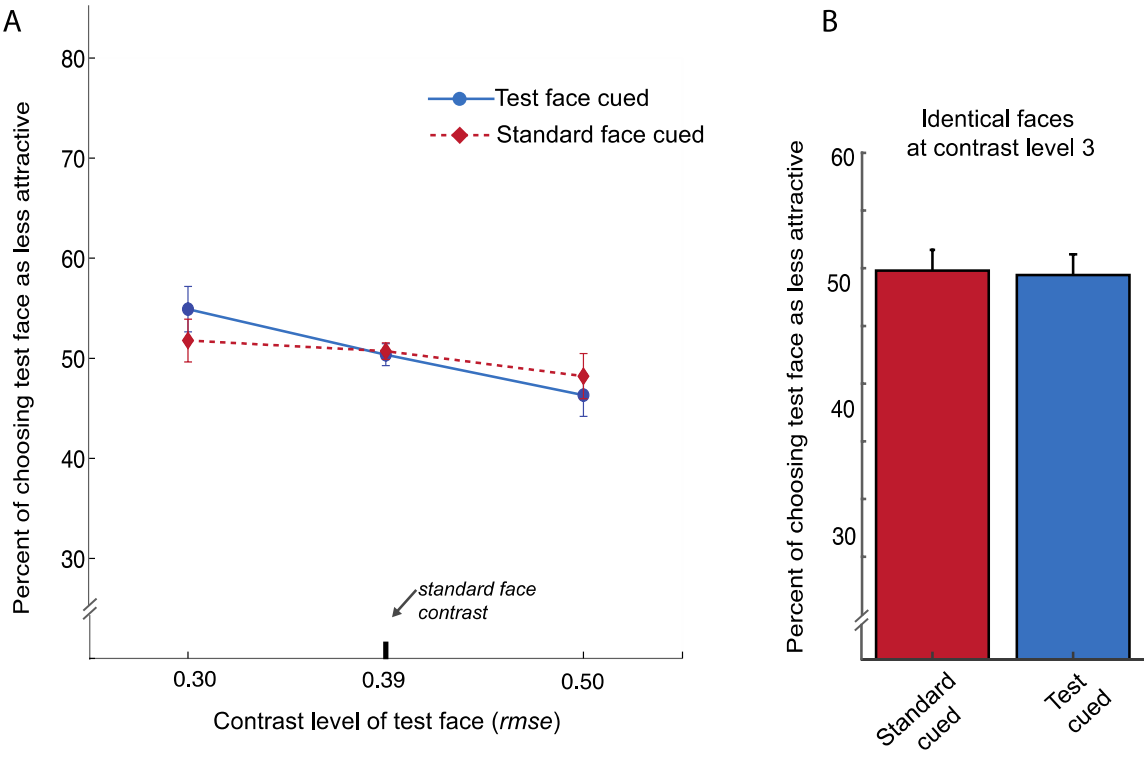

Figure S1. (**A**) Probability of choosing the "test face" as less attractive than the standard face as a function of the test face contrast, separately for when the test face was cued (blue solid) and the standard face was cued (red dashed). (**B**) When both faces were identical and had the same contrast (0.39), participants chose the face at the cued location just as often as the face at the uncued location. Error bars represent within-subjects SEM.

Experiment S2: Lower-contrast judgments

To further illustrate that participants are not biased to choose the stimulus at the cued location in this paradigm, we ran a second control experiment with a simple contrast judgment. In this experiment participants were asked to pick the face with *lower* contrast (instead of *higher* contrast). Judging higher vs. lower contrast is less likely to show any strong asymmetries, because both tasks (higher

contrast vs. lower contrast) require reporting on the same feature dimension (contrast).

Participants. Sixteen participants completed the experiment. All participants (10 female) had normal or correct-to-normal vision, were between the ages of 18 to 28 years old, and gave written informed consent prior to the experiment.

Stimuli. Stimuli and experimental set-up were the same as in Experiment S1 (see above) and only the task instructions were different.

Results. Figure S2 shows the percentage of choosing the test face to have lower contrast as a function of the test face contrast, separately for when the test face was cued (blue solid) or the standard face was cued (red dashed). When the faces were physically matched (contrast 0.39), the face at the cued location was chosen *less* often than the face at the uncued location ($t(15)=2.7$, $p=0.017$; $\eta^2 = 0.33$). This pattern of data is consistent with the account that the attentional cue changes the perception of the faces, making cued faces appear higher contrast, and show that the cue does not simply bias participants to respond to the face at the cued location.

Control experiment S2: Reporting the face that has lower contrast

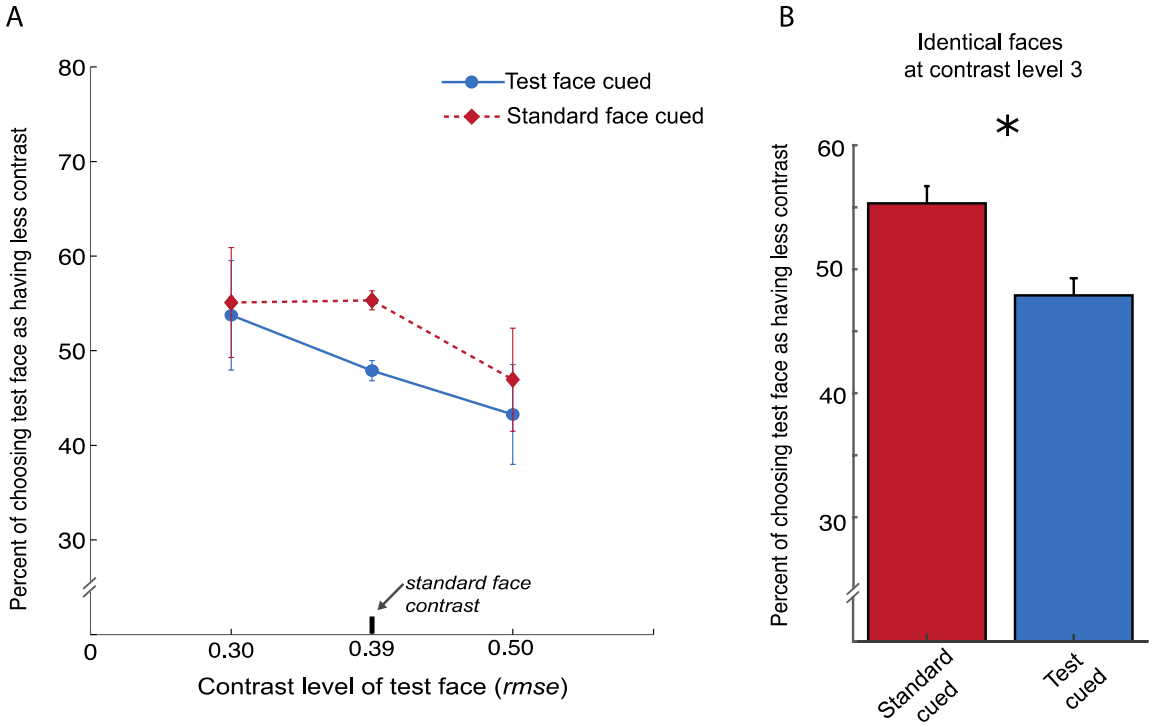

Figure S2. (A) Probability of choosing the "test face" as having lower contrast than the standard face as a function of the test face contrast, separately for when the test face was cued (blue solid) and the standard face was cued (red dashed). (B) When both faces were identical and had the same contrast (0.39), participants chose the face at the cued location as having lower contrast less often relative to the face at the uncued location. Error bars represent within-subjects SEM.

Experiment S3: Brightness and contrast manipulation

In a third control experiment, we examined whether any observed differences between the attractiveness judgments due to the visual cue were driven by differences in perceived brightness of the face as a whole. In particular, the local contrast manipulation of the eye region might have also affected the perceived

brightness of the entire face (although the physical brightness was kept constant). That is, faces with higher contrast around the eye region might have also appeared brighter compared to faces with lower contrast (see Figure 1B for example stimuli). To rule out that possible differences in perceived brightness drove the differences in attractiveness judgments, we systematically manipulated physical brightness of the faces. In more detail, overall brightness of the lower-contrast faces (0.30 RMSE) was brighter (104 cd/m^2) and the overall brightness of the higher-contrast faces (0.50 RMSE) was darker (80 cd/m^2) to counter the potential differences in perceived brightness. If the attractiveness ratings were due to changes in perceived overall brightness, we would expect the attractiveness ratings to reverse (or be absent). Next, to ensure that the attentional cueing effects were not driven by possible changes in perceived overall brightness of the faces, we counterbalanced whether the cued face was physically brighter or darker, while keeping the local contrast constant (level 3, i.e., 0.39 RMSE). Thus, for the matched-contrast condition (contrast level 3), the physical brightness of one face was higher and the physical brightness of the other face was lower. The main question was whether participants' judgments of attractiveness would be influenced by the overall brightness of the faces.

Participants. Sixteen participants completed the experiment. All participants (11 female) had normal or correct-to-normal vision, were between the ages of 18 to 28 years old, and gave written informed consent prior to the experiment.

Stimuli. The face images were manipulated across three contrast levels (0.30, 0.39, 0.50 RMSE). In addition, physical brightness was manipulated. The lower-contrast

faces were brighter (104 cd/m$^{2)}$ and the higher-contrast faces were darker (80 cd/m^2). For contrast level 3, both brighter and darker faces were created.

Procedure. The procedure was the same as in Experiment 1.

Results. The results are shown in Figure S3. Local contrast around the eyes of faces increased attractiveness ratings, just as in the previous experiments ($F(2,15)=4.39$, $p=0.02$; $\eta^2 = 0.18$). Thus, overall brightness of the faces did not influence how attractive participants perceived them. Importantly, the cueing effect was independent of the overall brightness of the faces: For trials in which the contrast of the faces was matched (level 3), faces that were preceded by the cue were judged to be more attractive ($F(1,15)=17.43$, $p=0.001$; $\eta^2 = 0.11$), but there was no effect of brightness ($p=0.38$; $\eta^2 = 0.03$), and the location of the cue did not interact with overall brightness ($p=0.13$; $\eta^2 = 0.008$).

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Control experiment S3: Brightness and contrast manipulation

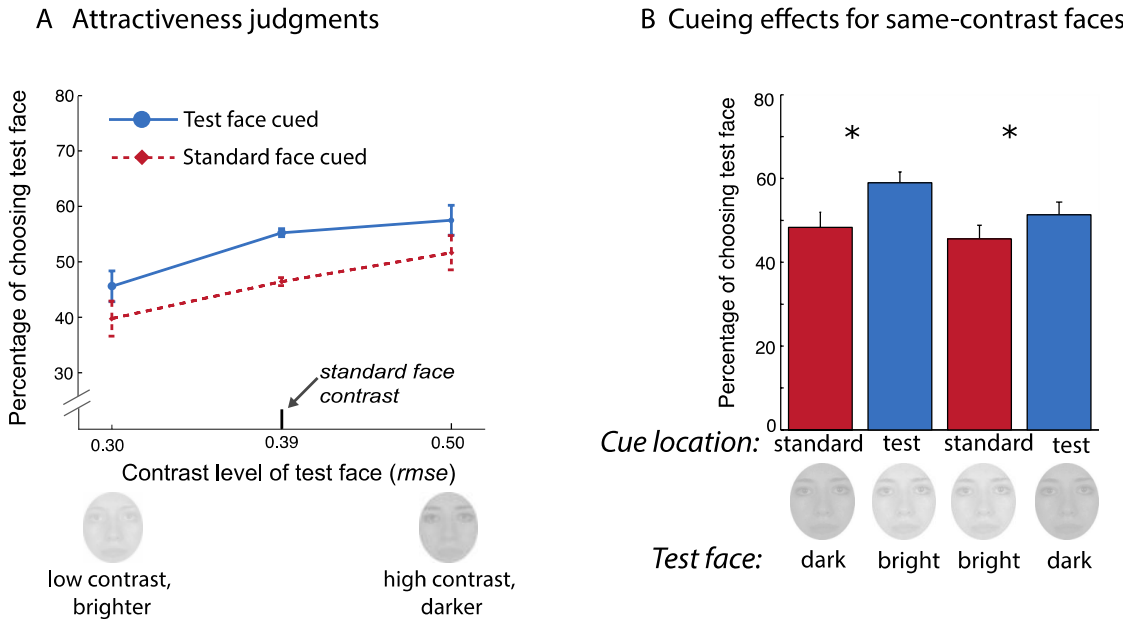

Figure S3. (A) Participants judged the higher-contrast faces to be more attractive than the lower-contrast faces, even when the higher-contrast faces were physically darker and the lower-contrast faces were physically brighter. (B). Probability of choosing the "test face" as more attractive relative to the "standard face", separately for when the test face was cued (black bars) or the standard face was cued (gray bars). Overall brightness of the two target faces was manipulated such that when the test face was darker, the standard face was brighter and vice versa. The data show that participants judged the test faces as more attractive when it appeared at the cued location, independent of the overall brightness of the faces. Error bars represent within-subjects SEM.