Supplementary Online Content


**eMethods.** OAS Task Instructions  
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This supplementary material has been provided by the authors to give readers additional information about their work.
eMethods: OAS Task Instructions

**At start of experiment:**

*Read instructions to participant:*

“I am now going to read the instructions for this task, so please follow along on your screen as I read.

In the following experiment, you will make judgments of videos showing facial expressions, like happiness and anger. In the first phase of the experiment you will rate how authentic you find each expression. In other words, you will rate how much the expression looked like it originated from a true underlying feeling. To rate the authenticity of the expressions, you will use a scale from 1 (not authentic at all) to 7 (very authentic). To indicate your response, use the number keys at the top of the keyboard.

Press the SPACE BAR to start with a few practice trials.”

*After the practice trials, instruct the participant to continue by pressing the spacebar if they have no questions.*

*After the first phase, read instructions to the participant:*

“For the rest of the experiment, you will be watching the same videos, but making different judgments. You may have noticed that some of the expressions are asymmetrical, in the sense that they start earlier on one side of the face. During each video, please indicate which side (left or right, from your perspective) the expression started on as quickly and accurately as possible. To do so, use the LEFT ARROW and RIGHT ARROW keys on the keyboard. If you do not answer before the end of the video, another screen will appear after the video, asking you to give your response. If you are not sure what side the expression started on, guess.

Press the SPACEBAR to start with some practice trials.”

*After the practice trials, remind the participant of the task instructions, and ask them to continue by pressing the spacebar if they have no questions.*
In Phase 2 of the OAS task, an LMM with the number of errors as dependent variable, and as fixed effects OAS-Side, OAS-Time, Emotion, and Paralysis-Side (Figure 3) resulted in a significant main effect of OAS-Time ($F(1, 1753) = 282.0, p < .001$), and significant interaction effects of OAS-Side X Emotion ($F(1, 1753) = 4.0, p = .04$), OAS-Time X Emotion ($F(1, 1753) = 4.0, p = .04$), OAS-Side by Paralysis-Side ($F(1, 1753) = 6.5, p = .01$), and OAS-Side X Paralysis-Side X Emotion ($F(1, 1753) = 6.0, p = .01$). No other effects were significant (all $F < 1.6$, all $p > .2$). The main effect of OAS-Time was due to a greater number of errors for trials with a 20 ms asymmetry ($M = 7, SD = 1.4$), than with a 40 ms asymmetry ($M = 1.8, SD = 2.2$). The OAS-Side X Emotion effect was due to more errors (but t test not significant: $t(56) = 1.5, p = .14$) for anger starting on the right side ($M = 2.4, SD = 1.8$) than on the left side of the stimulus ($M = 1.9, SD = 1.2$), while happy faces elicited similar number of errors when starting on either the right or left side (respectively $M = 2.2$ and $2.2, SD = 1.8$ and $1.3$). The OAS-Time X Emotion interaction was due to more errors ($t(56) = 2.4, p = .01$) for happy ($M = 1.1, SD = 1.2$) compared to angry faces ($M = .7, SD = 1.2$) with an asynchrony of 400 ms, while happy and angry faces elicited similar numbers of errors when shown with a 20 ms asynchrony (respectively $M = 3.4$ and $3.7, SD = 1.0$ and $1.2$). The OAS-Side X Paralysis-Side interaction was due to patients with a right-side paralysis doing more errors in response to expressions starting on the right ($M = 4.9, SD = 2.8$) compared to the left side of the stimulus ($M = 3.8, SD = 1.7$), while patients with a left-side paralysis showed the opposite pattern of more errors for expressions starting on the left than on the right (respectively $M = 4.7$ and $4.2, SD = 2.1$ and $2.4$). Paired samples t tests were however not significant.

Finally, the 3-way OAS-Side X Paralysis-Side X Emotion interaction was due to right-side paralysis patients making more errors for both happy ($M = 2.6, SD = 1.36$) and angry expressions ($M = 2.4, SD = .35$) starting on the right compared to the left side of the stimulus (respectively for happy and angry $M = 1.9$ and $1.9, SD = .23$ and .23). Left-side paralysis patients, on the other hand, made more errors when expressions of happiness started on the left ($M = 2.6, SD = .28$) than on the right ($M = 1.7, SD = .27$), and made more errors when expressions of anger started on the right ($M = 2.5, SD = .35$) compared to the left ($M = 2.0, SD = .23$). These differences were however not significant when tested with post hoc t tests.

In Phase 2 of the OAS task, an LMM with response time (RT) as dependent variable, and as fixed effects OAS-Side, OAS-Time, Emotion, and Paralysis-Side (Figure) resulted in significant main effects of OAS-Time ($F(1, 1222.45) = 282.6, p < .001$), and Emotion ($F(1, 1122.50) = 6.3, p = .01$), and significant interaction effects of OAS-Side X Emotion ($F(1, 1223.22) = 6.3, p = .01$), and OAS-Time X Paralysis-Side ($F(1, 1221.33) = 13.5, p < .001$). There were also trends for interaction effects of OAS-Time X Emotion ($F(1, 1751.45) = 2.8, p = .09$), and OAS-Side X OAS-Time X Emotion X Paralysis-Side ($F(1, 1123.12) = 3.8, p = .05$). The effect of OAS-Time was due to faster RTs to stimuli with a 400 ms ($M = 2103.2, SD = 977.2$) compared to a 20 ms asymmetry ($M = 2286.4, SD = 874.4$). The main effect of Emotion reflected faster responses to facial expressions of anger ($M = 2301.9, SD = 971.9$) than happiness ($M = 2437.4, SD = 920.2$). The OAS-Side X Emotion interaction was due to faster RTs for anger starting on the stimulus’ left ($M = 2226.1, SD = 971.7$) compared to the right side ($M = 2302.1, SD = 999.5$), and for happiness starting on the right ($M = 2423.5, SD = 942.9$) compared to the left side ($M = 2473.7, SD = 1003.3$). The OAS-Time X Paralysis-Side interaction was due to a bigger difference between
stimuli with 20 ms and 400 ms asymmetry in patients with a right-sided paralysis (respectively, $M = 2981.9$ and 2144.1, $SD = 856.9$ and 973.0), compared to those with a left-sided paralysis (respectively, $M = 2586.1$ and 2039.8, $SD = 865.7$ and 1003.0). The trend-like interaction of OAS-Time X Emotion reflected a bigger difference between stimuli with 20 ms and 400 ms asymmetry with the emotion of anger (respectively, $M = 2797.5$ and 2035.5, $SD = 950.9$ and 1030.1), compared to those with the emotion of happiness (respectively, $M = 2846.7$ and 2187.0, $SD = 895.6$ and 970.7). Finally, the trend for a four-way OAS-Side X OAS-Time X Emotion X Paralysis-Side interaction (see eFigure 2) is difficult to interpret, but note that while patients with a right-side paralysis tend to detect expression asymmetries of both emotions faster when starting on the left side of the stimulus face, patients with a left-side paralysis showed a more complex pattern of results. These patients showed either no effect of OAS-Side (see OAS-Time of 20 ms), or an effect that differed by stimulus’ emotion (see OAS-Time of 400 ms).
eFigure 1: Mean (SE) number of errors in Phase 2 of the OAS task, across Paralysis-Side, OAS-Time, OAS-Side, and Emotion. Patients suffering from right facial paralysis were more accurate in detecting the onset of facial expressions of both happiness and anger starting on the left side of the stimulus face. In contrast, patients with left paralysis made more errors for happy faces starting on the left, and for angry faces starting on the right. As expected, the number of errors was lower for stimuli with an OAS-Time of 400 ms, but other than that OAS-Time did not play a prominent role in shaping the results (but see OAS-Time X Emotion interaction).
eFigure 2: Mean (SE) RTs in Phase 2 of the OAS task, across Paralysis-Side, OAS-Time, OAS-Side, and Emotion.