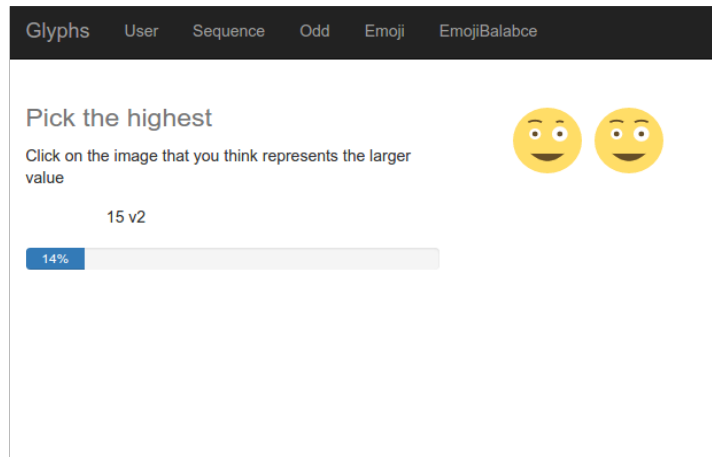# A SUPPLEMENTAL MATERIAL[1]

A.1 Study Interface

Figure 13: Selected screen shot of parameter estimation task (Task 1), showing a pair of Emoji glyphs.
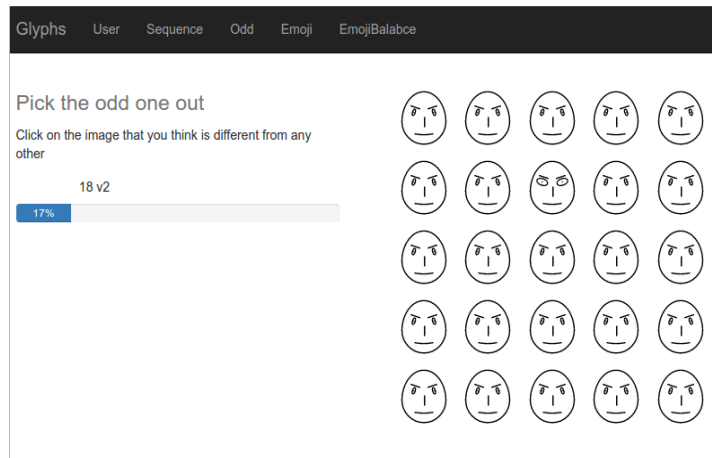

Figure 14: Selected screen shot of outlier detection task (Task 2) showing a grid of Chernoff faces glyphs.
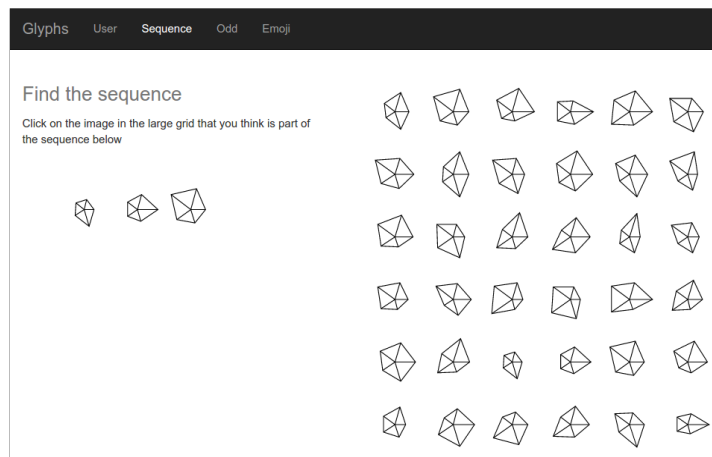

Figure 15: Selected screen shot of pattern detection task (Task 3) showing a grid of Star glyphs (right) and the sequence to be discovered (left).

A.2 Analysis by Channel

We report statistical summary results of analysis by channel for Task that reached significance for either accuracy or response time. For clarity of reading within each matrix we report the p-value between a pair only once.

Task 1 - Parameters Estimation - Significance [Emoji Accuracy by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.91	0.03	0.6	0.81
C1		–	0.49	0.29	1.0
C2		–	–	0.84	0.38
C3		–	–	–	0.35
C4		–	–	–	–

Task 1 - Parameters Estimation - Significance [Emoji Time (sec) by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.98	0.94	0.15	0.52
C1		–	–	0.68	0.47	0.25
C2		–	–	–	0.13	0.81
C3		–	–	–	–	0.016
C4		–	–	–	–	–

Task 1 - Parameters Estimation - Significance [Chernoff Accuracy by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.01	0.05	0.007	0.78
C1		–	–	0.18	0.56	0.012
C2		–	–	–	0.4	0.12
C3		–	–	–	–	0.02
C4		–	–	–	–	–

Task 1 - Parameters Estimation - Significance [Chernoff Time (sec) by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.02	0.003	0.056	1.0
C1		–	–	0.56	1.0	0.04
C2		–	–	–	1.0	0.005
C3		–	–	–	–	0.13
C4		–	–	–	–	–

Table 6: Task 1 Analysis by Channel. Post-hoc p-values results for outliers detection. Significant differences are highlighted in red ($\alpha = 0.01$).

Task 2 - Outlier Detection - Significance [Emoji Accuracy by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.15	1.0	0.18	0.15
C1		–	–	0.16	0.7	1.0
C2		–	–	–	0.18	0.16
C3		–	–	–	–	0.7
C4		–	–	–	–	–

Task 2 - Outlier Detection - Significance [Emoji Time (sec) by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.007	0.98	0.14	0.001
C1		–	–	0.007	0.01	0.03
C2		–	–	–	0.011	0.001
C3		–	–	–	–	$\ll 0.001$
C4		–	–	–	–	–

Task 2 - Outlier Detection - Significance [Chernoff Accuracy by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	0.03	0.03	0.02	0.03
C1		–	–	0.18	0.25	0.31
C2		–	–	–	1.0	0.56
C3		–	–	–	–	0.65
C4		–	–	–	–	–

Task 2 - Outlier Detection - Significance [Chernoff Time (sec) by Channel]

Pair-wise Test	C0	C1	C2	C3	C4
C0	–	$\ll 0.001$	0.1	0.17	0.12
C1		–	–	$\ll 0.001$	$\ll 0.001$	0.001
C2		–	–	–	0.009	0.79
C3		–	–	–	–	0.002
C4		–	–	–	–	–

Table 7: Task 2 Analysis by Channel. Post-hoc p-values results for parameter estimation. Significant differences are highlighted in red ($\alpha = 0.01$).

**Task 4 - Parameter Estimation - Significance
[Emoji Balanced Accuracy by Channel]**

Pair-wise Test	C0	C1	C2	C3	C4
C0		–	0.39	0.67 0.73	1.0
C1		–	–	0.48 0.87	0.95
C2		–	–	– 0.54	0.52
C3		–	–	– –	0.51
C4		–	–	– –	–

**Task 4 - Parameter Estimation - Significance
[Emoji Balanced Time (sec) by Channel]**

Pair-wise Test	C0	C1	C2	C3	C4
C0		–	0.23	0.10 0.62	0.15
C1		–	–	0.03 0.23	0.03
C2		–	–	– 0.08	0.72
C3		–	–	– –	0.19
C4		–	–	– –	–

**Task 4 - Parameter Estimation - Significance
[Chernoff Accuracy by Channel]**

Pair-wise Test	C0	C1	C2	C3	C4
C0		–	0.05	0.014 0.33	0.31
C1		–	–	0.91 0.09	0.12
C2		–	–	– 0.04	0.04
C3		–	–	– –	0.92
C4		–	–	– –	–

**Task 4 - Parameter Estimation - Significance
[Chernoff Time (sec) by Channel]**

Pair-wise Test	C0	C1	C2	C3	C4
C0		–	0.017	0.006 0.15	0.06
C1		–	–	0.07 0.03	0.1
C2		–	–	– 0.68	0.16
C3		–	–	– –	0.55
C4		–	–	– –	–

Table 8: Task 4 Analysis by Channel. Post-hoc p-values results for parameter estimation task with balanced emoji. Significant differences are highlighted in red ($\alpha = 0.01$).