# Supplementary Materials

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| --- | --- | --- | --- | --- |
| **Study 1** |  | **Extreme** | **Early neutral** | **Late neutral** |
| **Good** | 0.79 | 0.63 | 0.63 |
| **Bad** | 0.52 | 0.54 | 0.57 |
| **Study 2** |  | **Extreme** | **Early neutral** | **Late neutral** |
| **Good** | 0.80 | 0.62 | 0.62 |
| **Bad** | 0.49 | 0.53 | 0.58 |
| **Study 3: Partial Feedback** |  | **Extreme** | **Neutral** | |
| **Good** | 0.76 | 0.61 | |
| **Bad** | 0.39 | 0.46 | |
| **Study 3: Full Feedback** |  | **Extreme** | **Neutral** | |
| **Good** | 0.74 | 0.59 | |
| **Bad** | 0.35 | 0.43 | |

**Supplementary Table 1. Average rates of approach by alien group and type across studies.** Rates are shown by alien group (good or bad) and alien type (extreme, early neutral, and late neutral in studies 1 and 2; extreme or neutral in study 3) in study 1, study 2, and each condition in study 3. Note that as expected, differences between conditions in study 3 emerge only when trial number is modeled (not shown here; see full text for details).

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| --- | --- | --- | --- |
| **parameter** | **Study 1** | **Study 2** | **Study 3** |
| r | 9.00 | 7.78 | *7.06* |
| beta | 2.43 | 2.29 | *2.07* |
| d | 22.15 | 23.35 | 18.49 |
| threshold | 0.27 | 0.27 | *0.30* |
| learn | 0.30 | 0.29 | 0.23 |
| initlambda | 3.48 | 3.84 | 2.99 |

**Supplementary Table 2. Average parameter values obtained from fitting SUSTAIN to each subject’s task behaviour.** Values in italics represent parameters that were estimated from an initial fit and then fixed to an average value to aid in parameter recovery. All other parameters were fit individually to each participant.

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| --- | --- | --- |
| **Term** | ***X2*** | ***p*** |
| intercept | 22.35 | <.001\*\*\* |
| type | 4.30 | 0.038\* |
| group | 461.25 | <.001\*\*\* |
| trial | 172.19 | <.001\*\*\* |
| condition | 4.80 | 0.028\* |
| type:group | 383.18 | <.001\*\*\* |
| type:trial | 21.74 | <.001\*\*\* |
| group:trial | 0.058 | 0.809 |
| type:condition | 7.94 | 0.005\*\* |
| group:condition | 0.077 | 0.781 |
| trial:condition | 38.98 | <.001\*\*\* |
| type:group:trial | 45.68 | <.001\*\*\* |
| type:group:condition | 0.096 | 0.757 |
| type:trial:condition | 14.53 | <.001\*\*\* |
| group:trial:condition | 0.13 | 0.723 |
| type:group:trial:condition | 5.19 | 0.023\* |

**Supplementary Table 3. Results of multi-level model predicting task behaviour in study 3.**  Trial-by-trial choice behaviour (approach vs. avoid) was predicted from the alien group (good or bad), the alien type (extreme or neutral), the participant’s condition (approach-contingent feedback or full feedback), and the standardized trial number. Trials were nested within participants, and random slopes were modeled for all trial-level variables.