**RUNNING HEAD: FECHNER’S LAW AND REPRESENTATION UPDATING**

**The foundation of Fechner’s law: representation updating in working memory decodes the conscious perception of logarithmic magnitudes**

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**Supplementary materials**

**Supplementary Table 1.** Best-fitting parameter values of the classical model

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *ω* | | | | | |  | *wp* | | | | | |  | *BIAS0.8* | | | | | |  | *BIAS1.2* | | | | | |
|  | M | 95% CI | | | | |  | M | 95% CI | | | | |  | M | 95% CI | | | | |  | M | 95% CI | | | | |
| S1 | 0.999 | [ | 0.996 |  | 1.001 | ] |  | 0.248 | [ | 0.193 |  | 0.302 | ] |  | 0.402 | [ | 0.215 |  | 0.589 | ] |  | 0.281 | [ | 0.137 |  | 0.425 | ] |
| S2 | 0.999 | [ | 0.998 |  | 1.000 | ] |  | 0.269 | [ | 0.249 |  | 0.289 | ] |  | 0.065 | [ | -0.008 |  | 0.138 | ] |  | -0.067 | [ | -0.173 |  | 0.038 | ] |
| S3 | 1.001 | [ | 0.998 |  | 1.003 | ] |  | 0.279 | [ | 0.176 |  | 0.382 | ] |  | -0.080 | [ | -0.267 |  | 0.106 | ] |  | -0.287 | [ | -0.603 |  | 0.029 | ] |
| S4 | 1.000 | [ | 0.997 |  | 1.002 | ] |  | 0.427 | [ | 0.334 |  | 0.521 | ] |  | 0.860 | [ | 0.624 |  | 1.096 | ] |  | 0.640 | [ | 0.331 |  | 0.948 | ] |
| S5 | 0.998 | [ | 0.996 |  | 1.000 | ] |  | 0.334 | [ | 0.299 |  | 0.369 | ] |  | 0.343 | [ | 0.163 |  | 0.523 | ] |  | 0.339 | [ | 0.119 |  | 0.559 | ] |
| S6 | 0.999 | [ | 0.997 |  | 1.000 | ] |  | 0.429 | [ | 0.402 |  | 0.455 | ] |  | 0.320 | [ | 0.147 |  | 0.493 | ] |  | 0.106 | [ | -0.064 |  | 0.275 | ] |
| S7 | 0.999 | [ | 0.998 |  | 1.001 | ] |  | 0.205 | [ | 0.176 |  | 0.234 | ] |  | 0.228 | [ | 0.114 |  | 0.341 | ] |  | -0.103 | [ | -0.233 |  | 0.027 | ] |
| S8 | 1.000 | [ | 0.997 |  | 1.002 | ] |  | 0.256 | [ | 0.196 |  | 0.317 | ] |  | 0.580 | [ | 0.410 |  | 0.750 | ] |  | 0.287 | [ | 0.061 |  | 0.512 | ] |
| S9 | 0.998 | [ | 0.997 |  | 1.000 | ] |  | 0.642 | [ | 0.589 |  | 0.694 | ] |  | 0.687 | [ | 0.585 |  | 0.790 | ] |  | 0.134 | [ | -0.053 |  | 0.321 | ] |
| S10 | 0.999 | [ | 0.996 |  | 1.001 | ] |  | 0.394 | [ | 0.315 |  | 0.474 | ] |  | 0.654 | [ | 0.358 |  | 0.951 | ] |  | 0.468 | [ | 0.286 |  | 0.651 | ] |
| S11 | 0.998 | [ | 0.996 |  | 1.001 | ] |  | 0.835 | [ | 0.750 |  | 0.921 | ] |  | 0.741 | [ | 0.413 |  | 1.069 | ] |  | 0.501 | [ | 0.241 |  | 0.762 | ] |
| S12 | 1.000 | [ | 0.998 |  | 1.001 | ] |  | 0.253 | [ | 0.227 |  | 0.280 | ] |  | 0.238 | [ | 0.114 |  | 0.363 | ] |  | 0.042 | [ | -0.087 |  | 0.171 | ] |

**Supplementary Table 2.** Best-fitting parameter values of the logarithmic version of the classical model (LCM)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *ω* | | | | | |  | *wp* | | | | | |  | *BIAS0.8* | | | | | |  | *BIAS1.2* | | | | | |
|  | M | 95% CI | | | | |  | M | 95% CI | | | | |  | M | 95% CI | | | | |  | M | 95% CI | | | | |
| S1 | 0.992 | [ | 0.987 |  | 0.998 | ] |  | 0.240 | [ | 0.227 |  | 0.253 | ] |  | 0.421 | [ | 0.385 |  | 0.458 | ] |  | 0.281 | [ | 0.216 |  | 0.346 | ] |
| S2 | 0.994 | [ | 0.989 |  | 1.000 | ] |  | 0.265 | [ | 0.250 |  | 0.280 | ] |  | 0.061 | [ | 0.017 |  | 0.105 | ] |  | -0.105 | [ | -0.169 |  | -0.041 | ] |
| S3 | 0.997 | [ | 0.985 |  | 1.010 | ] |  | 0.245 | [ | 0.206 |  | 0.284 | ] |  | -0.133 | [ | -0.220 |  | -0.046 | ] |  | -0.395 | [ | -0.507 |  | -0.284 | ] |
| S4 | 0.993 | [ | 0.979 |  | 1.008 | ] |  | 0.406 | [ | 0.370 |  | 0.442 | ] |  | 0.840 | [ | 0.663 |  | 1.017 | ] |  | 0.632 | [ | 0.485 |  | 0.778 | ] |
| S5 | 0.984 | [ | 0.978 |  | 0.990 | ] |  | 0.313 | [ | 0.298 |  | 0.328 | ] |  | 0.333 | [ | 0.297 |  | 0.370 | ] |  | 0.323 | [ | 0.246 |  | 0.400 | ] |
| S6 | 0.993 | [ | 0.984 |  | 1.002 | ] |  | 0.427 | [ | 0.402 |  | 0.453 | ] |  | 0.341 | [ | 0.252 |  | 0.430 | ] |  | 0.133 | [ | 0.048 |  | 0.219 | ] |
| S7 | 0.994 | [ | 0.986 |  | 1.001 | ] |  | 0.196 | [ | 0.180 |  | 0.212 | ] |  | 0.222 | [ | 0.160 |  | 0.284 | ] |  | -0.139 | [ | -0.215 |  | -0.063 | ] |
| S8 | 1.001 | [ | 0.995 |  | 1.007 | ] |  | 0.251 | [ | 0.238 |  | 0.265 | ] |  | 0.609 | [ | 0.575 |  | 0.643 | ] |  | 0.330 | [ | 0.256 |  | 0.404 | ] |
| S9 | 0.988 | [ | 0.973 |  | 1.002 | ] |  | 0.629 | [ | 0.567 |  | 0.691 | ] |  | 0.664 | [ | 0.508 |  | 0.821 | ] |  | 0.123 | [ | -0.031 |  | 0.277 | ] |
| S10 | 0.993 | [ | 0.985 |  | 1.001 | ] |  | 0.378 | [ | 0.351 |  | 0.405 | ] |  | 0.676 | [ | 0.623 |  | 0.729 | ] |  | 0.468 | [ | 0.360 |  | 0.575 | ] |
| S11 | 0.987 | [ | 0.965 |  | 1.009 | ] |  | 0.809 | [ | 0.694 |  | 0.924 | ] |  | 0.748 | [ | 0.547 |  | 0.949 | ] |  | 0.492 | [ | 0.259 |  | 0.725 | ] |
| S12 | 1.000 | [ | 0.988 |  | 1.011 | ] |  | 0.251 | [ | 0.236 |  | 0.266 | ] |  | 0.259 | [ | 0.142 |  | 0.376 | ] |  | 0.054 | [ | -0.032 |  | 0.139 | ] |