**SUPPLEMENTARY MATERIALS**

**Details of Bayesian models**

For accuracy, the zero-and-one inflated beta-regression models were modelled with by-group (i.e. Response Mode) and by-Angle random intercepts and slopes for the parameters ‘phi’, ‘zoi’ and ‘coi’, which estimated the measures of variability in the beta distribution part of the model, the proportion of 0s and 1s in the distribution, and the proportion of 1s within that proportion, respectively. This allowed the models to converge better. These parameters were not used for any inferences, as the most relevant measure was the beta distribution representing the continuous probability of a correct response (i.e. Accuracy), which was modelled as explained in the Methods section of this paper.

**Customisability options in the Hand Laterality Judgement Task**

Both local and online versions of the HLJT were developed in a modular manner, that meaning that the level of flexibility is relatively high. The details about customisation are fully described in a ‘Readme’ file specific to each version. As a general description, in the current versions the experimenter can select the following parameters:

* Language: English (default), Spanish and French. Language to display instructions and messages throughout the task.
* Response mode: Both hands (default), Right hand or Left hand. Whether the participant should respond bimanually or unimanually.
* Practice block: Yes (default) or No. Whether a practice block with all the stimuli should be displayed before the actual test blocks.
* Number of angles: 4 angles with increments of 90° (default), 6 angles with increments of 60°, 8 angles with increments of 45° or 12 angles with increments of 30°.
* Hand views: Palmar and Dorsal (default), Palmar or Dorsal. Whether the stimuli should appear in one hand view only or both.
* Number of repetitions: 12 (default), 8 or 4. Number of repetitions per unique stimulus in the test blocks overall (i.e. in total excluding the practice block). As of now the number of test blocks is fixed at 4, therefore, the total number of repetitions must be a multiple of 4.
* Feedback: 0.3 seconds (default), 0.5 seconds, 0.8 seconds, 1 second or No feedback. Time of feedback for accuracy (correct/incorrect) on a trial-by-trial basis. This only applies to test blocks. If a practice block is included in the experiment, feedback throughout this block is always provided.

In the **local version**, the inter-trial interval (ITI) for both the practice and test blocks, is set at a random number between 0.6 and 1 seconds, with more probability in the range 0.75 to 0.85 seconds, with the goal of having a random ITI throughout the experiment with an average duration of ~0.8 seconds every 50 trials.

In the **online version**, the ITI is fixed at 0.8 seconds but can be easily modified with custom code.

**Supplementary Tables with descriptives statistics in the in-person version.**

**Supplementary Table 1**. Mean and SD for response time (milliseconds) for each Response Mode (group) according to Angle (0° to 315°), Laterality (left or right) and View (dorsal or palmar).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Left | | | | Right | | | |
| **Dorsal** | | **Palmar** | | **Dorsal** | | **Palmar** | |
| Angle | **Group** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| 0° | Foot | 827.92 | 253.69 | 1017.97 | 423.06 | 793.29 | 278.66 | 904.85 | 347.17 |
| Bimanual | 978.47 | 343.97 | 1126.10 | 481.00 | 924.41 | 414.39 | 1070.51 | 467.73 |
| 45° | Foot | 910.84 | 349.62 | 1022.03 | 404.03 | 855.49 | 303.41 | 1001.50 | 385.67 |
| Bimanual | 1081.33 | 470.16 | 1179.46 | 450.01 | 970.79 | 436.83 | 1152.25 | 444.00 |
| 90° | Foot | 1079.28 | 407.96 | 1187.59 | 465.03 | 1005.50 | 387.16 | 1184.31 | 438.60 |
| Bimanual | 1256.92 | 498.70 | 1410.35 | 532.55 | 1261.10 | 543.17 | 1369.96 | 552.18 |
| 135° | Foot | 1328.12 | 538.27 | 1195.54 | 497.79 | 1318.98 | 505.93 | 1046.16 | 423.22 |
| Bimanual | 1531.75 | 573.52 | 1492.67 | 617.45 | 1504.95 | 598.91 | 1311.45 | 523.80 |
| 180° | Foot | 1084.28 | 415.45 | 977.93 | 409.21 | 1033.37 | 495.20 | 864.78 | 359.97 |
| Bimanual | 1230.12 | 453.12 | 1116.48 | 433.89 | 1171.71 | 460.69 | 1010.36 | 380.81 |
| 225° | Foot | 964.34 | 374.04 | 869.37 | 312.95 | 866.95 | 373.05 | 822.56 | 334.15 |
| Bimanual | 1119.10 | 419.03 | 1000.62 | 370.66 | 1029.21 | 426.37 | 963.80 | 365.45 |
| 270° | Foot | 829.88 | 286.18 | 871.26 | 322.64 | 773.60 | 301.17 | 799.48 | 320.38 |
| Bimanual | 907.83 | 315.06 | 993.13 | 369.08 | 848.45 | 369.50 | 926.59 | 325.69 |
| 315° | Foot | 827.92 | 253.69 | 1017.97 | 423.06 | 793.29 | 278.66 | 904.85 | 347.17 |
| Bimanual | 978.47 | 343.97 | 1126.10 | 481.00 | 924.41 | 414.39 | 1070.51 | 467.73 |

**Supplementary Table 2**. Mean and SD for accuracy (%) for each Response Mode (group) according to Angle (0° to 315°), Laterality (left or right) and View (dorsal or palmar).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Left | | | | Right | | | |
| **Dorsal** | | **Palmar** | | **Dorsal** | | **Palmar** | |
| Angle | **Group** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| 0° | Foot | 89.54 | 30.67 | 86.50 | 34.25 | 93.33 | 25.00 | 88.75 | 31.66 |
| Bimanual | 86.25 | 34.51 | 91.67 | 27.70 | 88.75 | 31.66 | 90.76 | 29.03 |
| 45° | Foot | 92.44 | 26.50 | 89.54 | 30.67 | 91.25 | 28.32 | 87.39 | 33.26 |
| Bimanual | 90.25 | 29.72 | 87.87 | 32.72 | 87.45 | 33.20 | 86.55 | 34.19 |
| 90° | Foot | 86.44 | 34.31 | 88.14 | 32.41 | 88.19 | 32.35 | 84.68 | 36.09 |
| Bimanual | 89.41 | 30.84 | 90.72 | 29.08 | 83.97 | 36.77 | 81.20 | 39.16 |
| 135° | Foot | 77.54 | 41.82 | 79.65 | 40.34 | 71.13 | 45.41 | 78.06 | 41.47 |
| Bimanual | 90.68 | 29.14 | 85.71 | 35.07 | 75.95 | 42.83 | 80.95 | 39.35 |
| 180° | Foot | 72.53 | 44.73 | 75.00 | 43.39 | 57.38 | 49.56 | 79.91 | 40.15 |
| Bimanual | 76.96 | 42.20 | 74.01 | 43.96 | 69.91 | 45.97 | 75.11 | 43.33 |
| 225° | Foot | 82.35 | 38.20 | 87.39 | 33.26 | 83.97 | 36.77 | 93.64 | 24.45 |
| Bimanual | 88.84 | 31.55 | 90.21 | 29.78 | 84.52 | 36.25 | 89.54 | 30.67 |
| 270° | Foot | 91.21 | 28.37 | 93.16 | 25.29 | 89.12 | 31.20 | 95.82 | 20.06 |
| Bimanual | 93.31 | 25.05 | 94.58 | 22.68 | 90.00 | 30.06 | 95.00 | 21.84 |
| 315° | Foot | 93.70 | 24.35 | 94.56 | 22.73 | 93.70 | 24.35 | 96.22 | 19.12 |
| Bimanual | 92.47 | 26.45 | 92.08 | 27.06 | 93.72 | 24.30 | 92.44 | 26.50 |

**Supplementary Tables with descriptives statistics in the online version.**

**Supplementary Table 3**. Mean and SD for response time (milliseconds) for each Response Mode (group) according to Angle (0° to 315°), Laterality (left or right) and View (dorsal or palmar).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Left | | | | Right | | | |
| **Dorsal** | | **Palmar** | | **Dorsal** | | **Palmar** | |
| Angle | **Group** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| 0° | Bimanual | 962.59 | 406.00 | 1032.30 | 414.57 | 858.16 | 337.01 | 969.95 | 395.07 |
| Left-hand | 1028.31 | 387.03 | 1003.42 | 412.56 | 941.34 | 463.53 | 932.16 | 360.72 |
| Right-hand | 1287.04 | 511.94 | 1188.90 | 500.35 | 1222.52 | 522.32 | 1225.30 | 499.89 |
| 45° | Bimanual | 965.95 | 440.92 | 1133.96 | 457.16 | 902.99 | 394.37 | 1085.00 | 518.76 |
| Left-hand | 1086.17 | 499.99 | 1100.83 | 431.18 | 955.33 | 426.05 | 962.00 | 386.29 |
| Right-hand | 1293.51 | 552.02 | 1201.71 | 495.81 | 1245.36 | 533.03 | 1189.58 | 517.99 |
| 90° | Bimanual | 1118.28 | 574.84 | 1180.72 | 469.77 | 1030.31 | 478.95 | 1152.42 | 550.65 |
| Left-hand | 1133.55 | 462.22 | 1187.68 | 501.55 | 1030.35 | 434.90 | 1117.57 | 494.69 |
| Right-hand | 1397.70 | 593.83 | 1361.04 | 588.06 | 1315.25 | 562.52 | 1387.97 | 620.70 |
| 135° | Bimanual | 1219.58 | 500.47 | 1312.56 | 539.48 | 1162.24 | 496.69 | 1235.60 | 510.30 |
| Left-hand | 1193.48 | 502.08 | 1355.50 | 539.56 | 1189.21 | 500.41 | 1297.34 | 565.08 |
| Right-hand | 1441.74 | 551.71 | 1470.49 | 607.11 | 1452.80 | 574.97 | 1458.47 | 602.75 |
| 180° | Bimanual | 1513.65 | 521.88 | 1249.11 | 531.03 | 1496.75 | 487.37 | 1195.21 | 531.28 |
| Left-hand | 1330.55 | 505.66 | 1304.30 | 473.24 | 1412.99 | 518.96 | 1251.08 | 493.75 |
| Right-hand | 1740.33 | 561.68 | 1547.38 | 626.33 | 1668.54 | 507.88 | 1406.76 | 625.81 |
| 225° | Bimanual | 1272.35 | 506.11 | 1007.86 | 341.32 | 1120.06 | 452.76 | 993.53 | 421.90 |
| Left-hand | 1282.56 | 552.32 | 1122.52 | 464.69 | 1137.60 | 466.82 | 1007.20 | 415.26 |
| Right-hand | 1521.30 | 543.82 | 1251.39 | 585.67 | 1503.63 | 545.24 | 1194.16 | 522.04 |
| 270° | Bimanual | 1073.38 | 402.84 | 971.10 | 386.32 | 1015.00 | 417.41 | 958.45 | 424.24 |
| Left-hand | 1177.24 | 472.97 | 1051.99 | 406.00 | 990.64 | 414.94 | 905.69 | 339.61 |
| Right-hand | 1394.91 | 518.85 | 1188.44 | 524.60 | 1409.68 | 544.31 | 1173.47 | 484.47 |
| 315° | Bimanual | 954.32 | 401.12 | 991.58 | 380.06 | 872.23 | 382.46 | 973.24 | 433.82 |
| Left-hand | 1082.04 | 507.01 | 970.98 | 384.74 | 874.04 | 352.48 | 926.03 | 384.57 |
| Right-hand | 1235.62 | 531.45 | 1088.52 | 477.32 | 1245.80 | 520.03 | 1164.92 | 501.86 |

**Supplementary Table 4**. Mean and SD for accuracy (%) for each Response Mode (group) according to Angle (0° to 315°), Laterality (left or right) and View (dorsal or palmar).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Left | | | | Right | | | |
| **Dorsal** | | **Palmar** | | **Dorsal** | | **Palmar** | |
| Angle | **Group** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| 0° | Bimanual | 94.47 | 22.91 | 94.98 | 21.88 | 97.06 | 16.93 | 94.09 | 23.63 |
| Left-hand | 86.44 | 34.31 | 94.07 | 23.67 | 89.66 | 30.52 | 94.04 | 23.72 |
| Right-hand | 89.74 | 30.40 | 95.67 | 20.40 | 86.16 | 34.61 | 94.40 | 23.05 |
| 45° | Bimanual | 91.56 | 27.86 | 90.72 | 29.08 | 95.38 | 21.04 | 94.47 | 22.91 |
| Left-hand | 89.79 | 30.35 | 92.41 | 26.55 | 90.21 | 29.78 | 91.38 | 28.13 |
| Right-hand | 92.41 | 26.54 | 91.89 | 27.36 | 88.00 | 32.57 | 91.19 | 28.41 |
| 90° | Bimanual | 89.79 | 30.35 | 90.04 | 30.01 | 89.92 | 30.18 | 84.55 | 36.22 |
| Left-hand | 88.21 | 32.32 | 90.52 | 29.36 | 87.77 | 32.83 | 82.02 | 38.49 |
| Right-hand | 91.52 | 27.92 | 92.89 | 25.76 | 88.94 | 31.44 | 90.37 | 29.57 |
| 135° | Bimanual | 72.53 | 44.73 | 81.30 | 39.07 | 78.35 | 41.27 | 80.09 | 40.02 |
| Left-hand | 88.60 | 31.86 | 84.55 | 36.22 | 77.92 | 41.57 | 76.44 | 42.53 |
| Right-hand | 84.04 | 36.71 | 80.75 | 39.52 | 83.26 | 37.42 | 90.15 | 29.88 |
| 180° | Bimanual | 65.78 | 47.55 | 83.48 | 37.22 | 60.34 | 49.02 | 83.98 | 36.76 |
| Left-hand | 83.48 | 37.22 | 85.78 | 35.01 | 66.96 | 47.14 | 82.17 | 38.36 |
| Right-hand | 77.39 | 41.94 | 85.71 | 35.07 | 71.36 | 45.32 | 89.20 | 31.11 |
| 225° | Bimanual | 87.88 | 32.71 | 91.56 | 27.86 | 84.32 | 36.44 | 92.50 | 26.39 |
| Left-hand | 91.38 | 28.13 | 91.91 | 27.32 | 85.04 | 35.74 | 92.77 | 25.96 |
| Right-hand | 84.65 | 36.13 | 90.50 | 29.39 | 79.91 | 40.16 | 93.86 | 24.06 |
| 270° | Bimanual | 94.92 | 22.02 | 94.56 | 22.73 | 94.14 | 23.53 | 94.96 | 21.93 |
| Left-hand | 89.61 | 30.58 | 93.19 | 25.24 | 86.40 | 34.35 | 95.36 | 21.08 |
| Right-hand | 90.54 | 29.33 | 95.09 | 21.66 | 89.47 | 30.76 | 95.24 | 21.34 |
| 315° | Bimanual | 95.82 | 20.06 | 95.34 | 21.13 | 97.07 | 16.90 | 98.32 | 12.88 |
| Left-hand | 91.42 | 28.07 | 95.76 | 20.19 | 91.49 | 27.96 | 95.38 | 21.04 |
| Right-hand | 92.61 | 26.22 | 95.22 | 21.39 | 90.83 | 28.92 | 95.24 | 21.34 |