|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pair ID | N solo trials | Solo trials: fraction choosing own, agent A [%] | | | Solo trials: fraction choosing own, agent B [%] | | | Choice preference (own/other’s/ balanced),  last 200 dyadic trials | | ATA, all trials | ATB, all trials | Test on  ATA vs. ATB | | | ATA – ATB  all trials | |ATA – ATB| all trials | |ATA – ATB|,  coordinated trials | | | |ATA – ATB|,  uncoordinated trials | | | Test on  coordinated vs. uncoordinated  AT differences | | | Total reward [EUR] | |
| all trials | 26- 50 | last 25 | all trials | 26- 50 | last 25 | agent A | agent B | mean | mean | df (corr.) | t | p | mean | mean | mean | SD | N trials | mean | SD | N trials | df (corr.) | t | p | agent A | agent B |
| *column* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | *14* | *15* | *16* | *17* | *18* | *19* | *20* | *21* | *22* | *23* | *24* | *25* | *26* | *27* | *28* |
| 1 | 100 | 43 | 44 | 48 | 54 | 52 | 60 | bal. | bal. | 493.2 | 598.7 | 793.2 | -21.1 | **<0.0001** | -105.5 | 113.7 | 119.8 | 77.9 | 306 | 94.2 | 70.5 | 94 | 168.6 | 3.0 | **0.0031** | 20.0 | 19.2 |
| 2 | 100 | 93 | **100** | **100** | 96 | **100** | **100** | bal. | bal. | 572.1 | 500.1 | 597.6 | 16.5 | **<0.0001** | 72.0 | 82.6 | 83.3 | 74.3 | 383 | 66.8 | 61.2 | 17 | 18.2 | 1.1 | 0.2956 | 22.8 | 24.0 |
| 3 | 100 | 86 | **88** | **100** | 55 | 60 | 52 | bal. | bal. | 672.6 | 560.0 | 669.1 | 17.2 | **<0.0001** | 112.6 | 138.6 | 151.1 | 87.6 | 263 | 102.1 | 79.0 | 90 | 169.4 | 4.9 | **<0.0001** | 19.5 | 19.0 |
| 4 | 100 | 92 | **100** | **100** | 99 | **100** | **100** | own | own | 519.1 | 540.3 | 795.7 | -5.9 | **<0.0001** | -21.3 | 42.8 | n/a | n/a | 0 | 42.8 | 36.7 | 400 | n/a | n/a | n/a | 14.9 | 15.0 |
| 5 | 100 | 98 | **100** | **100** | 95 | **100** | **100** | own | bal. | 510.6 | 534.0 | 786.6 | -7.6 | **<0.0001** | -23.4 | 47.6 | 45.3 | 35.6 | 121 | 48.6 | 36.0 | 279 | 230.6 | -0.8 | 0.3990 | 18.6 | 16.7 |
| 6 | 100 | 92 | **100** | **100** | 87 | **92** | **92** | bal. | bal. | 629.4 | 635.6 | 797.8 | -1.3 | 0.1813 | -6.2 | 60.5 | 60.0 | 50.0 | 396 | 104.3 | 70.0 | 4 | 3.0 | -1.3 | 0.2954 | 23.8 | 23.7 |
| 7 | 100 | 26 | 32 | 4 | 50 | 64 | 48 | bal. | bal. | 469.8 | 497.4 | 797.0 | -5.1 | **<0.0001** | -27.6 | 63.4 | 61.4 | 47.0 | 367 | 85.5 | 53.3 | 33 | 36.6 | -2.5 | **0.0165** | 21.6 | 22.4 |
| 8 | 100 | 54 | 56 | 52 | 99 | **100** | **100** | bal. | bal. | 454.6 | 625.2 | 795.9 | -31.6 | **<0.0001** | -170.6 | 174.4 | 179.3 | 76.5 | 377 | 94.5 | 84.4 | 23 | 24.3 | 4.7 | **0.0001** | 23.1 | 23.0 |
| 9 | 100 | 97 | **100** | **100** | 93 | **100** | **100** | bal. | bal. | 541.1 | 537.4 | 663.6 | 0.8 | 0.4098 | 3.7 | 56.8 | 56.5 | 61.0 | 320 | 57.9 | 51.1 | 80 | 140.9 | -0.2 | 0.8250 | 22.0 | 22.0 |
| 10 | 50 | 86 | **96** | **96** | 24 | 16 | 16 | own | other’s | 512.8 | 548.6 | 554.1 | -8.1 | **<0.0001** | -35.8 | 62.0 | 61.7 | 54.3 | 300 | 156.2 | 0.0 | 1 | n/a | -30.2 | n/a | 19.4 | 14.7 |
| 11 | 50 | 46 | 48 | 48 | 2 | 0 | 0 | bal. | other’s | 478.7 | 517.8 | 580.6 | -10.5 | **<0.0001** | -39.1 | 56.8 | 59.9 | 51.7 | 176 | 52.5 | 37.6 | 124 | 297.7 | 1.4 | 0.1521 | 13.6 | 10.5 |
| 12 | 50 | 34 | 64 | 64 | 61 | 64 | 64 | bal. | bal. | 577.3 | 599.9 | 597.9 | -2.9 | **0.0039** | -22.6 | 90.2 | 91.5 | 89.2 | 276 | 75.3 | 63.6 | 24 | 31.5 | 1.2 | 0.2586 | 15.7 | 17.2 |
| 13 | 50 | 89 | **92** | **92** | 60 | 44 | 44 | bal. | bal. | 616.1 | 516.3 | 549.8 | 16.0 | **<0.0001** | 99.8 | 117.3 | 123.6 | 89.0 | 239 | 92.7 | 64.5 | 61 | 125.1 | 3.1 | **0.0026** | 15.8 | 15.1 |
| 14 | 50 | 94 | **100** | **100** | 50 | 40 | 40 | own | other’s | 470.9 | 505.9 | 596.4 | -10.2 | **<0.0001** | -35.1 | 49.7 | 50.9 | 43.9 | 240 | 45.0 | 43.6 | 60 | 91.2 | 0.9 | 0.3562 | 18.7 | 13.7 |
| 15 | 100 | 1 | 0 | 0 | 53 | 44 | 40 | other’s | bal. | 468.6 | 436.7 | 769.2 | 8.1 | **<0.0001** | 31.9 | 58.9 | 71.8 | 53.4 | 166 | 49.8 | 47.3 | 235 | 327.6 | 4.2 | **<0.0001** | 13.1 | 16.3 |
| 16 | 100 | 58 | 44 | **80** | 20 | 40 | 0 | own | other’s | 543.3 | 544.0 | 795.7 | -0.2 | 0.8444 | -0.8 | 50.2 | 48.2 | 45.7 | 388 | 115.4 | 83.2 | 12 | 11.2 | -2.8 | **0.0174** | 26.0 | 19.6 |
| 17 | 100 | 94 | **100** | **100** | 94 | **96** | **100** | bal. | bal. | 785.0 | 664.4 | 786.3 | 21.6 | **<0.0001** | 120.6 | 129.8 | 123.3 | 72.1 | 337 | 164.9 | 62.5 | 63 | 95.6 | -4.7 | **<0.0001** | 22.4 | 22.5 |
| 18 | 100 | 96 | **96** | **96** | 31 | 48 | 24 | other’s | own | 607.4 | 702.9 | 537.3 | -15.5 | **<0.0001** | -95.4 | 114.9 | 115.3 | 88.1 | 398 | 46.3 | 13.5 | 2 | 1.5 | 6.6 | **0.0455** | 21.0 | 25.9 |
| 19 | 100 | 93 | **100** | **100** | 1 | 4 | 0 | own | own | 614.9 | 592.7 | 787.7 | 4.2 | **<0.0001** | 22.2 | 68.4 | n/a | n/a | 0 | 68.4 | 63.7 | 407 | n/a | n/a | n/a | 15.1 | 13.7 |

**Supplementary File 1. Table S1: human pairs.**

**Columns 2-10: No strong relationship between own target preference in solo trials and dyadic behavior.** Number of solo trials and percentage of choosing own preferred target color in each agent of each human pair, for all solo trials, trials 26-50, and the last 25 solo trials. In 19 of 38 subjects there was clear preference for their own color at the end of the solo training trials (own color selection >75% in 26-50 and last 25 trials, marked by bold font). Only 4 subjects selected own color in <25% of trials 26-50 and the last 25 solo trials (marked by red font). Note that out of 28 subjects trained with 100 solo trials only one (16A) did not reach 75% threshold in trials 26-50 trials but eventually reached it in trials 76-100 – this shows that 50 solo training trials used in pairs 10-14 was generally sufficient for training. Pairs displaying dynamic coordination (turn-taking behavior) are designated by a teal background. Choice preference in dyadic trials: other’s (FCO<25%), balanced (“bal.”, 25%≤FCO≤75%), own (FCO>75%). Out of 10 pairs (20 subjects) that showed turn-taking, 11 subjects showed a strong preference for own targets already in solo trials (bold font), and 9 did not. In the remaining 9 pairs (18 subjects), 7 subjects who had own preference in solo trials also showed it in dyadic trials, 4 subjects who had other’s preference in solo trials also showed it in dyadic trials, and 5 out of remaining 7 subjects switched the preference from solo to dyadic trials, e.g. other’s to own. Thus, the behavior in the solo trials is not predicting the behavior in the dyadic trials. This indicates that most human participants did not simply carry their established preferences into the dyadic setting, but continued to explore and modify their strategies. **Columns 11-26: Action times, action time differences and coordination.** Columns 13-15: comparison of ATs between the two players by t-test using Satterthwaite's approximation to allow for unequal variance. Columns 18-26: comparison of absolute trial-by-trial AT differences between the two agents in the pair (|ATA – ATB|, note that this is equivalent with the difference in AT between the slower and the faster agent individually for each trial). The t-test using Satterthwaite's approximation showed significant differences between coordinated and uncoordinated trials in 9 pairs (bold green and purple font denotes significant differences with a p<0.05; green shows pairs in which absolute AT differences increased with coordination - indicating that seeing the other’s action can facilitate coordination, purple – pairs in which absolute AT differences decreased with coordination). Pairs 4, 10, and 19 had too few trials for one of the trial types to calculate the test statistic (n/a). **Columns 27-28.** **The total reward earned by each agent in solo and dyadic trials**. Note that pairs 10-14 were offered only 350 (50 solo and 300 dyadic) trials instead of 500 (100 solo and 400 dyadic) trials, explaining the lower totals.