Summary of GLMM1 based on binary data concerning the first direction towards food or no food adopted by subordinates in the four experimental conditions. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dominant. Number of data = 435; Number of subjects = 11; Number of dyads = 21.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  |  391.94 |  |  |
| Condition |  3 |  564.28 | 178.342 |  < 2.2e-16\*\*\* |
| Number of trial |  1 |  397.74 |  7.799 | 0.005227\*\*  |
| Hierarchical rank difference |  1 |  393.15 |  3.215 | 0.072985  |

Summary of multiple comparisons between the four experimental conditions with Tukey corrections from GLMM1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| comparisons | Estimate | Std.Error | z value | Pr(>|z|)  |
| 2 - 1 == 0 |  1.9594 | 0.5064 |  3.869 |  0.000563 \*\*\* |
| 3 - 1 == 0 |  -2.8905 |  0.3876 | -7.458 |  < 1e-04 \*\*\* |
| 4 - 1 == 0 |  -1.5330 |  0.3446 | -4.449 |  < 1e-04 \*\*\* |
| 3 - 2 == 0 |  -4.8499 |  0.5333 | -9.094 |  < 1e-04 \*\*\* |
| 4 - 2 == 0 |  -3.4924 |  0.4912 | -7.111 |  < 1e-04 \*\*\* |
| 4 - 3 == 0 |  1.3575 | 0.3386 |  4.010 |  0.000310 \*\*\* |

Summary of GLMM2 based on binary data concerning the first direction towards food or no food adopted by subordinates in conditions 1 and 2. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dyad. Number of data = 225; Number of subjects = 11; Number of dyads = 20.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 140.01 |  |  |
| Condition | 1 | 151.28 | 13.2690 |  0.0002698 \*\*\* |
| Number of trial | 1 | 141.37 | 3.3665 |  0.0665352  |
| Hierarchical rank difference | 1 | 143.03 | 5.0219 |  0.0250291 \*  |

Summary of comparisons between conditions 1 and 2 from GLMM2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | StdError | Zvalue | Pr(>|z|)  |
| (Intercept) | 2.45562 | 0.90592 | 2.711 | 0.006715 \*\*  |
| Condition 2 | 1.88561 | 0.56674 | 3.327 | 0.000878 \*\*\* |
| Number of trial | 0.03262 | 0.01893 | 1.723 | 0.084810  |
| Hierarchical rank difference | -0.27573 | 0.12178 | -2.264 | 0.023568 \*  |

Summary of GLMM3 based on binary data concerning the first direction towards hidden food or visible food adopted by subordinates in conditions 1 and 2. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dyad. Number of data = 225; Number of subjects = 11; Number of dyads = 20.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 140.01 |  |  |
| Condition | 1 | 151.28 | 13.2690 | 0.0002698 \*\*\* |
| Number of trial | 1 | 141.37 | 3.3665 | 0.0665352  |
| Hierarchical rank difference | 1 | 143.03 | 5.0219 | 0.0250291 \*  |

Summary of comparisons between conditions 1 and 2 from GLMM3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects |  |  |  |  |  |
|  | Estimate | Std.Error | z value | Pr(>|z|)  |
| (Intercept) | 2.45562 | 0.90592 | 2.711 |  0.006715 \*\*  |
| Condition 2 | 1.88561 | 0.56674 | 3.327 | 0.000878 \*\*\* |
| Number of trial | 0.03262 | 0.01893 | 1.723 |  0.084810  |
| Hierarchical rank difference | -0.27573 | 0.12178 | -2.264 |  0.023568 \*  |

Summary of GLM4 based on binary data concerning the first direction towards hidden food or visible food adopted by dominants in conditions 3 and 4. Fixed effects: Condition; Trial number; Hierarchical rank difference. Number of data = 210; Number of subjects = 11; Number of dyads = 20.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Df | Deviance | AIC | LRT | Pr(>Chi)  |
| <none> |  | 274.09 | 282.09 |  |  |
| Condition | 1 | 275.88 | 281.88 | 1.7948 | 0.18034  |
| Number of trial | 1 | 277.51 | 283.51 | 3.4234 | 0.06428  |
| Hierarchical rank difference | 1 | 274.36 | 280.36 | 0.2702 | 0.60318  |

Summary of comparisons between conditions 3 and 4 from GLM4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Std Error | z value | Pr(>|z|)  |
| (Intercept) | 0.236197 | 0.345135 | 0.684 | 0.4937  |
| Condition 4 | -0.387539 | 0.290438 | -1.334 | 0.1821  |
| Number of trial | 0.014891 | 0.008245 | 1.806 | 0.0709 |
| Hierarchical rank difference | 0.023981 | 0.046292 | 0.518 | 0.6044  |

Summary of GLMM5 based on binary data concerning the outcome 1 in the four experimental conditions. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dominant. Number of data = 196; Number of subjects = 11; Number of dyads = 20.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 260.06 |  |  |
| Condition | 3 | 596.20 | 342.13 | < 2e-16 \*\*\* |
| Number of trial | 1 | 259.66 | 1.59 | 0.20693  |
| Hierarchical rank difference | 1 | 261.58 | 3.52 | 0.06077  |

Summary of multiple comparisons between the four experimental conditions with Tukey corrections from GLMM5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comparisons | Estimate | Std. Error | z value | Pr(>|z|)  |
| 2 - 1 == 0 | 0.4066 | 0.6030 | 0.674 | 0.9028  |
| 3 - 1 == 0 | 6.5355 | 0.7599 | 8.600 | <0.001 \*\*\* |
| 4 - 1 == 0 | 5.3938 | 0.6731 | 8.013 | <0.001 \*\*\* |
| 3 - 2 == 0 | 6.1288 | 0.6974 | 8.788 | <0.001 \*\*\* |
| 4 - 2 == 0 | 4.9872 | 0.6030 | 8.271 | <0.001 \*\*\* |
| 4 - 3 == 0 | -1.1416 | 0.4751 | -2.403 | 0.0728  |

Summary of GLMM6 based on binary data concerning the outcome 2 in conditions 1 and 2. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dominant. Number of data = 30; Number of subjects = 7; Number of dyads = 9.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 160.76 |  |  |
| Condition | 1 | 182.12 | 23.3616 | 1.342e-06 \*\*\* |
| Number of trial | 1 | 166.38 | 7.6203 | 0.005772 \*\*  |
| Hierarchical rank difference | 1 | 159.81 | 1.0486 | 0.305838  |

Summary of comparisons between conditions 1 and 2 from GLMM6.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects | Estimate | Std.Error | z value | Pr(>|z|)  |
| (Intercept) | -5.26133 | 1.14044 | -4.613 | 3.96e-06 \*\*\* |
| Condition 2 | 2.43110 | 0.60512 | 4.018 | 5.88e-05 \*\*\* |
| Number of trial | 0.03936 | 0.01492 | 2.637 | 0.00836 \*\*  |
| Hierarchical rank difference | 0.10667 | 0.11188 | 0.953 | 0.34037  |

Summary of GLMM7 based on binary data concerning the outcome 3 in conditions 1 and 2. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dominant. Number of data = 177; Number of subjects = 11; Number of dyads = 19.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 214.88 |  |  |
| Condition | 1 | 233.41 | 20.5253 | 5.885e-06 \*\*\* |
| Number of trial | 1 | 218.37 | 5.4862 | 0.01917 \*  |
| Hierarchical rank difference | 1 | 218.37 | 5.4890 | 0.01914 \*  |

Summary of comparisons between conditions 1 and 2 from GLMM7.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects | Estimate | Std. Error | z value | Pr(>|z|)  |
| (Intercept) | 3.80333 | 0.70262 | 5.413 | 6.20e-08 \*\*\* |
| Condition 2 | -1.77949 | 0.43122 | -4.127 | 3.68e-05 \*\*\* |
| Number of trial | -0.02851 | 0.01277 | -2.234 | 0.0255 \*  |
| Hierarchical rank difference | -0.16468 | 0.07207 | -2.285 | 0.0223 \*  |

Summary of GLMM8 based on binary data concerning the outcome 4 in conditions 3 and 4. Fixed effects: Condition; Trial number; Hierarchical rank difference. Random effect: Dominant. Number of data = 25; Number of subjects = 6; Number of dyads = 6.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Df | AIC | LRT | Pr(Chi)  |
| <none> |  | 139.79 |  |  |
| Condition | 1 | 143.31 | 5.5120 | 0.01889 \* |
| Number of trial | 1 | 139.62 | 1.8203 | 0.17728  |
| Hierarchical rank difference | 1 | 139.08 | 1.2849 | 0.25699  |

Summary of comparisons between conditions 3 and 4 from GLMM8.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects | Estimate | Std.Error | z value | Pr(>|z|)  |
| (Intercept) | -3.76122 | 1.32996 | -2.828 | 0.00468 \*\* |
| Condition 4 | 1.16705 | 0.52319 | 2.231 | 0.02570 \*  |
| Number of trial | 0.01889 | 0.01415 | 1.335 | 0.18185  |
| Hierarchical rank difference | -0.15539 | 0.13744 | -1.131 | 0.25821 |

Summary of GLM9 based on binary data concerning the link between first direction adopted by subordinates and outcome 2 in conditions 1 and 2. Fixed effect: First direction adopted by subordinates. Number of data = 30; Number of subjects = 7; Number of dyads = 9.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Df | Deviance | AIC | LRT | Pr(>Chi)  |
| <none> |  | 111.87 | 115.87  |  |  |
| First direction adopted by subordinate | 1 | 168.43 | 170.43 | 56.563 | 5.443e-14 \*\*\* |

Summary of GLM9.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Std.Error | z value | Pr(>|z|)  |
| (Intercept) | 0.3023 | 0.3198 | 0.945 | 0.345  |
| First direction adopted by subordinate | -3.3737 | 0.5017 | -6.724 | 1.77e-11 \*\*\* |