



Figure S1. Venn diagrams. Venn diagrams illustrate A) probability of the expected combined response $P(P_d \cup P_t)$ and B) the probability of the crabs that responded to both the direct and the tangential dummy $P(D_d \cap D_t)$ which used in Eq. 1.

Table S1. Results of the generalized linear mixed model analyses for response probability for crabs that are close (< 38 cm) to their direct dummy track (random model: crab identity). Terms included in the final model are shown in bold.

| Comparison | $N(n)$ | Fixed effects (x_i) | Estimate | d.f | Loglik | P |
|----------------------|---------|-------------------------|---------------|-----|--------|--------|
| Direct vs Tangential | 259(46) | Intercept | -1.103 | 1 | - | - |
| | | Experiment Type | 1.79 (direct) | 1 | 45.26 | <0.001 |
| | | Crab-burrow distance | - | 1 | 1.47 | 0.186 |
| Direct vs paired | 249(45) | Intercept | 0.927 | 1 | - | - |
| | | Experiment Type | - | 1 | 0.13 | 0.613 |
| | | Crab-burrow distance | - | 1 | 0.620 | 0.266 |
| Paired vs Tangential | 246(46) | Intercept | -0.929 | 1 | - | - |
| | | Experiment Type | 1.98 (paired) | 1 | 47.570 | <0.001 |
| | | Crab-burrow distance | - | 1 | 0.04 | 0.613 |

Table S2. Results of the generalized linear mixed model analyses for response probability for crabs that are far (≥ 38 cm) from their direct dummy track. Random model: crab identity. Terms included in the final model are shown in bold.

| Comparison | <i>N</i> (<i>n</i>) | Fixed effects ^b (x_i) | Estimate | d.f | Loglik | <i>P</i> |
|-------------------------|-----------------------|--------------------------------------|---------------|-----|--------|----------|
| Direct vs Tangential | 196(49) | Intercept | -1.7665 | 1 | - | - |
| | | Experiment Type | 0.56 (direct) | 1 | 3.6480 | 0.007 |
| | | Crab-burrow distance | - | 1 | 0.1130 | 0.0536 |
| Direct vs paired | 207(47) | Intercept | -1.33 | 1 | - | - |
| | | Experiment Type | - | 1 | 0.660 | 0.248 |
| | | Crab-burrow distance | - | 1 | 1.89 | 0.051 |
| Paired vs Tangential | 202(46) | Intercept | -2.40 | 1 | - | - |
| | | Experiment Type | 0.68 (paired) | 1 | 5.70 | <0.001 |
| | | Crab-burrow distance | 0.006 | 1 | 1.970 | 0.047 |