

Fig. S1. Side profile of the arena showing the central island, water level and position of stimulus above the water. See also Movie 1.

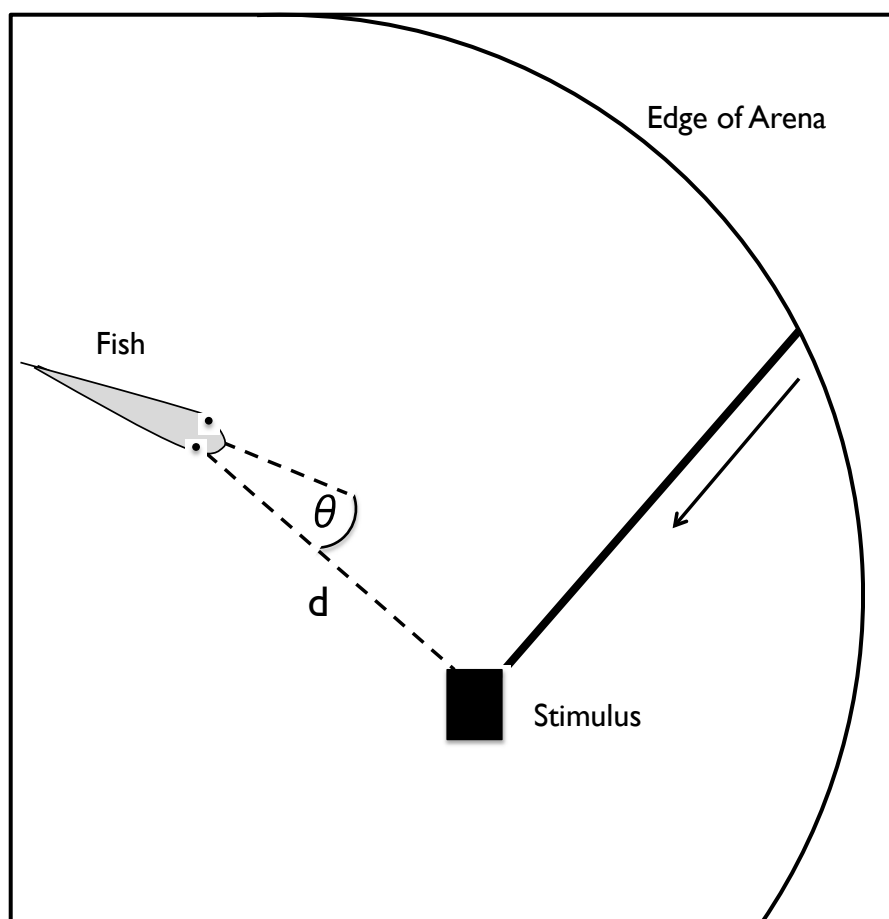


Fig. S2. To account for the different types of stimulation a fish would receive when in different positions with respect to the stimulus, we calculated the angle between the fish's heading and the stimulus' position, θ , at the stimulus' final resting place. We also calculated the distance between the fish and the stimulus' position, d , at the stimulus' final resting place.

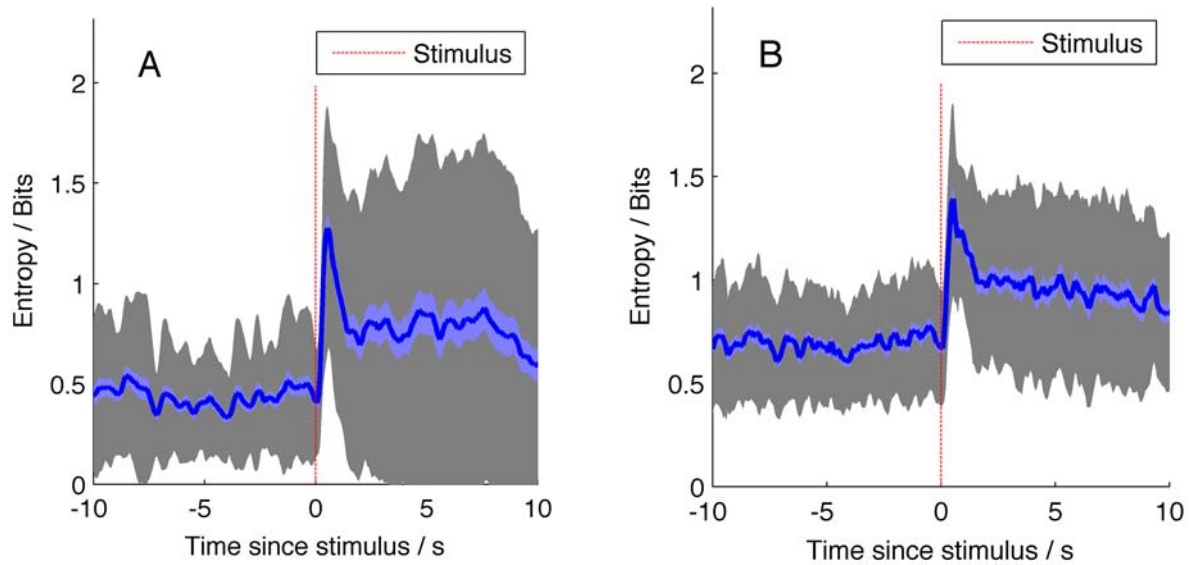


Fig. S3. Path complexity of turning rate (A) or speed (B) components of the velocity vectors for the 71 trials, before and after the stimulus, showing mean (blue line), standard error (blue shade) and standard deviation (grey shade). In both plots, the path complexity rises sharply at the moment of the stimulus as the fish flees, and then remains elevated for at least ten seconds afterwards.

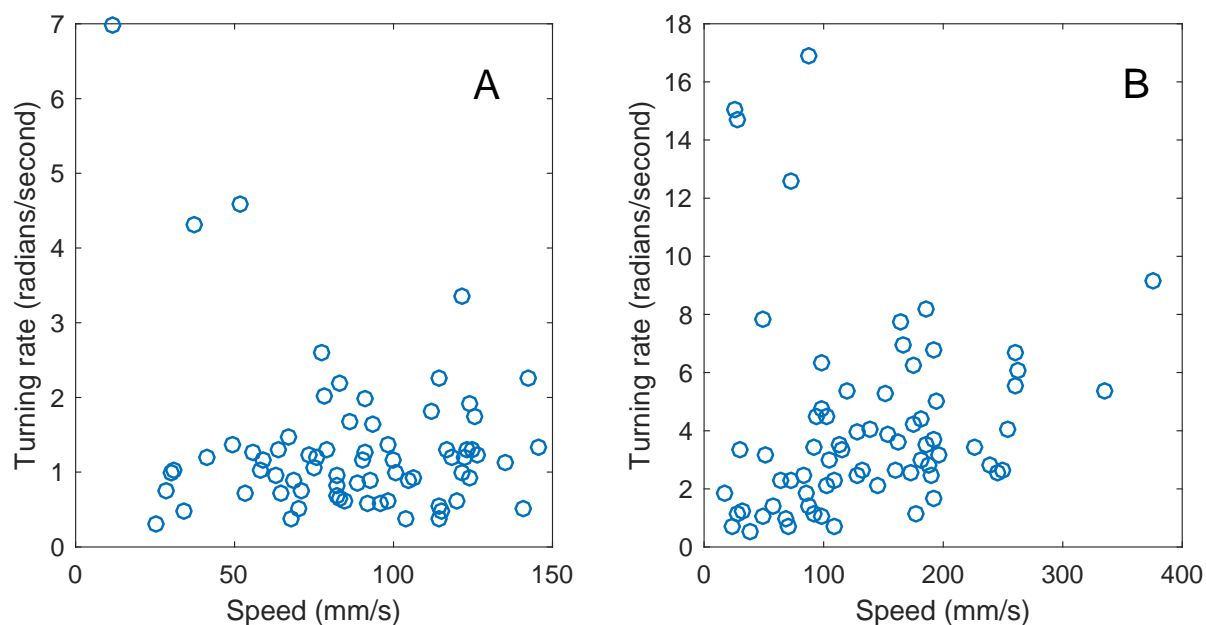


Fig. S4. No relationship between mean speed and mean turning rate (calculated as the number of radians turned per frame multiplied by 15 to convert to radians per second) in the second before (A) and the second after (B) the stimulus had entered the arena. At this temporal and spatial resolution, there was no significant correlation between these two variables either before (Pearson's $R = -0.20$, $n = 71$, $p = 0.10$) or after (Pearson's $R = 0.09$, $n = 71$, $p = 0.47$) the stimulus entered the arena.

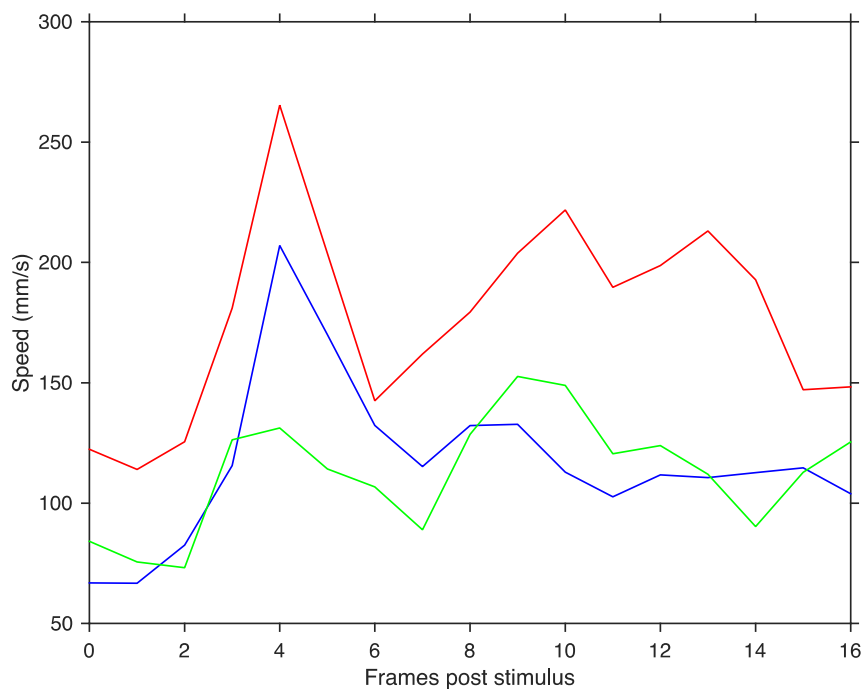


Fig. S5. Latency to increase in speed following an attack depending on distance to the stimulus. Fish were placed into three categories depending on their distance to the stimulus at the time it entered the arena; less than 100 mm (red), between 100 – 200 mm (blue) or more than 200 mm (green). The time to increase in speed occurs for the first two categories after 1 frame, whereas after 2 frames for the third category. This 1 frame difference, therefore, is unlikely to have affected the measure of path complexity during this time window (1 second = 15 frames).

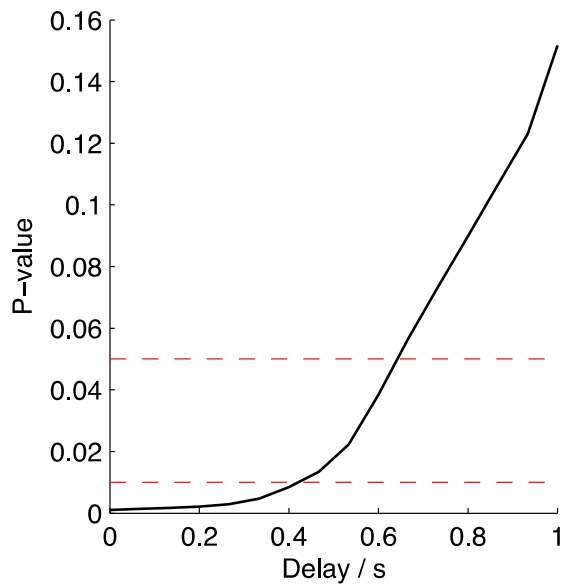


Fig. S6. Significance of the context-specific effect of proximity-to-stimulus on subsequent path-entropy, accounting for possible delays in response. We re-performed the linear model analysis for effect of proximity on path-entropy after the stimulus, introducing a variable delay before measuring the entropy (which is calculated over an interval of 1/2 second as before). This figure shows the significance of the proximity effect, as measured by the p-value under the linear model, for different values of that delay. The p-value remains below 0.01 for delays of up to 0.4 seconds (6 frames), and below 0.05 for delays of up to 0.6 seconds (9 frames). Therefore, the context dependent result is unlikely to be due to late-reacting fish.

Table S1. Full model description for individual's path complexities. The GLM modeled each complexity (see below) as: complexity ~ const + distance to stimulus + angle to stimulus + distance to nearest wall

Full complexity (before stimulus)	coefficient	st.err	p-value
Constant	0.8331	1.09E-01	1.01E-10
Dist. to stimulus / mm	-0.0003	0.0004	0.4402
Angle to stimulus (-1 directly toward to 1 directly away)	-0.0344	0.0645	0.5956
Distance to nearest wall / mm	0.0007	0.0012	0.5422
Full complexity (after stimulus)	coefficient	st.err	p-value
Constant	1.4986	1.15E-01	4.30E-20
Dist. to stimulus / mm	-0.0016	0.0005	0.0011
Angle to stimulus (-1 directly toward to 1 directly away)	-0.103	0.068	0.1346
Distance to nearest wall / mm	0.0007	0.0013	0.5878
Speed complexity (before stimulus)	coefficient	st.err	p-value
Constant	0.7285	1.01E-01	6.57E-10
Dist. to stimulus / mm	-0.0005	0.0004	0.2798
Angle to stimulus (-1 directly toward to 1 directly away)	-0.02	0.0599	0.7393
Distance to nearest wall / mm	0.0012	0.0011	0.287
Speed complexity (after stimulus)	coefficient	st.err	p-value
Constant	1.3105	9.53E-02	3.55E-21
Dist. to stimulus / mm	-0.0014	0.0004	0.0005
Angle to stimulus (-1 directly toward to 1 directly away)	-0.0676	0.0565	0.236
Distance to nearest wall / mm	0.0002	0.001	0.8463
Direction complexity (before stimulus)	coefficient	st.err	p-value
Constant	0.4032	1.15E-01	7.98E-04
Dist. to stimulus / mm	0.0004	0.0005	0.3818
Angle to stimulus(-1 directly toward to 1 directly away)	-0.0623	0.068	0.3633
Distance to nearest wall / mm	-0.001	0.0013	0.4258
Direction complexity (after stimulus)	coefficient	st.err	p-value
Constant	1.0463	1.58E-01	7.30E-09
Dist. to stimulus / mm	-0.0015	0.0006	0.02
Angle to stimulus (-1 directly toward to 1 directly away)	-0.0557	0.0937	0.5543
Distance to nearest wall / mm	0.0026	0.0018	0.1442



Movie 1. Movie showing the escape behaviour of a solitary fish (*Pseudomugil signifer*). The trajectory of the individual is shown as the coloured red line in the preceding 8 frames of its current position.