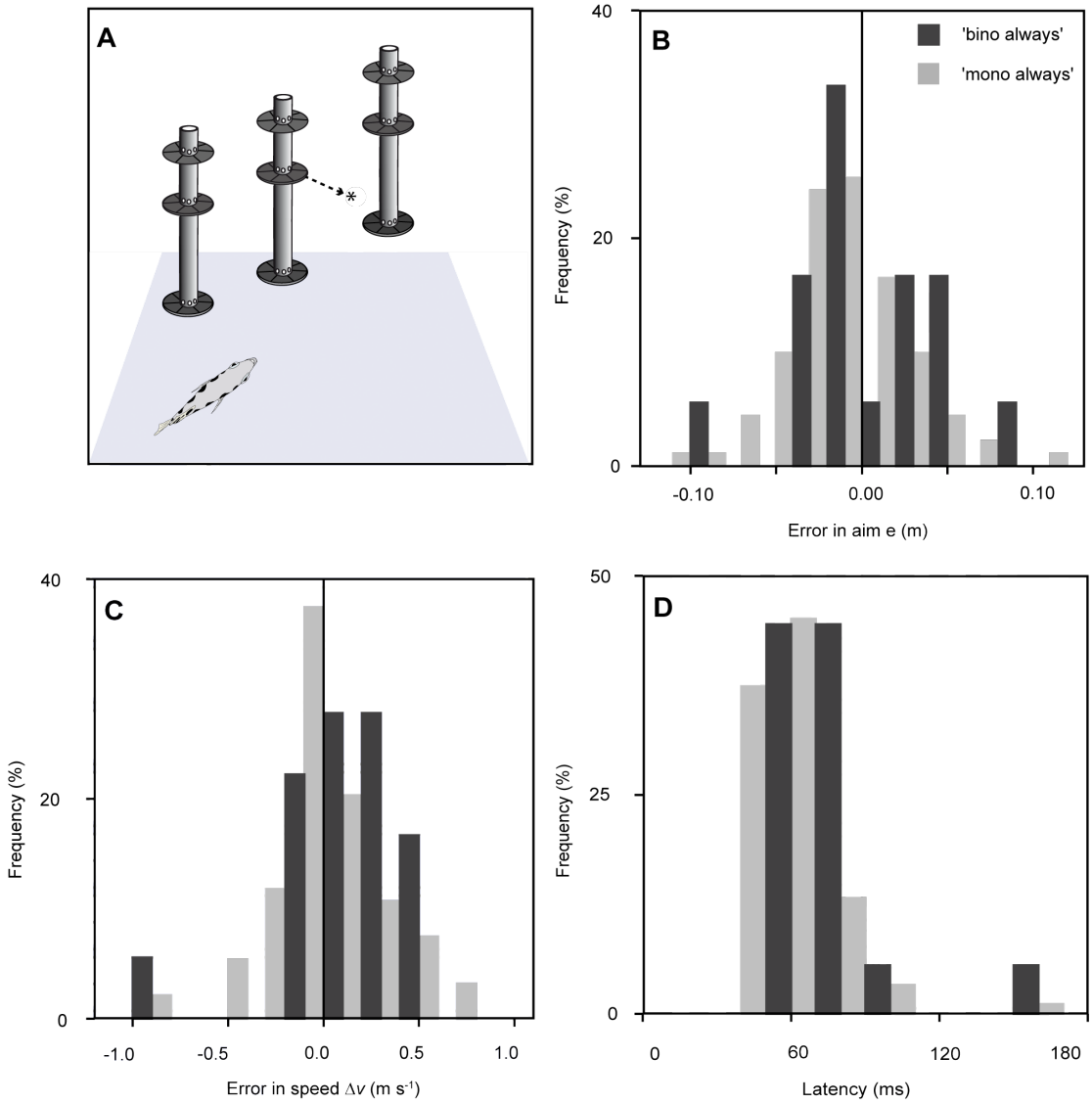

Fig. S1: Analysis of cases in which we could be certain that flies were seen monocularly or binocularly during the decision time.
Analysis as in Fig. 3 but for cases in which we could be certain, that flies had remained in the 'binocular always' or the 'monocular always' region for at least 40 ms after they started to fall. Most of these cases were obtained in experiments with initial height h=55 cm (illustrated in A) and these cases are analysed in diagrams B-C. (B) Distribution of the error in aim e (at the end of the C-start) when binocular cues would have either been available (dark grey) or not (light grey). Accuracy in aim did not differ in the two conditions (t-test: P=0.733) and errors scatter around zero mean (one-sample t-test: P>0.758). (C) Distribution of the error in speed Δv directly taken after the fish took off. Accuracy in setting the appropriate level of take-off speed did also not differ between monocular or binocular conditions (Mann-Witney: P=0.321). (D) Response latency did also not differ (Mann-Whitney: P=0.704). Histograms are based on n=91 ('mono always') and n=18 ('bino always') responses. Bin widths are 2 cm (error in aim), 0.2 m s^{-1} (error in speed) and 20 ms (latencies).