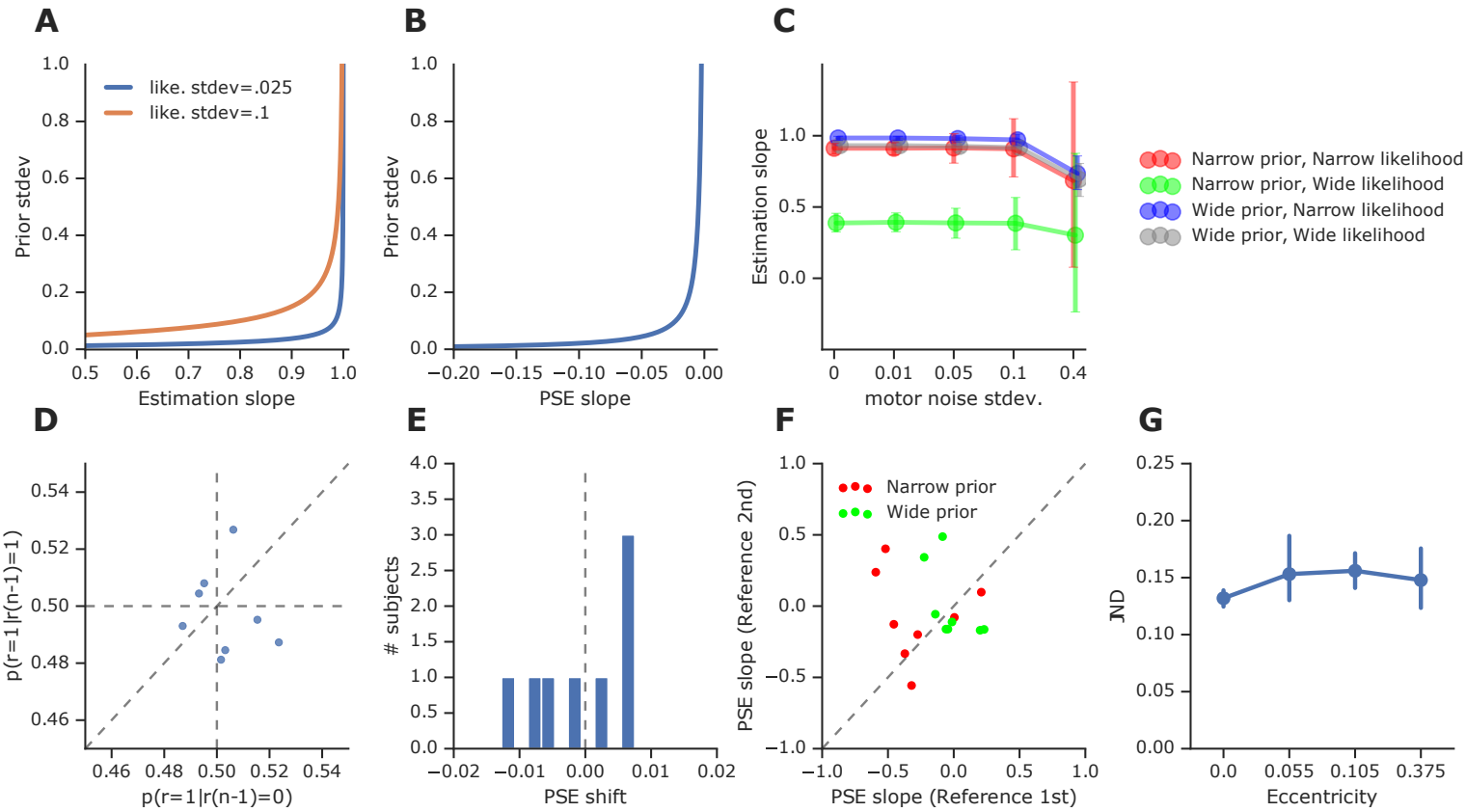


Supplemental Figure S1. (A, B) Relationship between slope values and prior width. (A) The relationship between the estimation slope and the prior standard deviation for the experimental values of the narrow likelihood (like. stdev. = .025) and the wide likelihood (like. stdev. = .1). (B) The relationship between the PSE slope of the 2-Afc task and the prior standard deviation for the experimental likelihood values. (C) Effect of motor noise on sensorimotor estimates for different prior and likelihood widths. We simulated estimation data from ideal Bayesian observers with different amounts of motor noise added to estimates. Motor noise does not systematically bias slope estimates for realistic amounts of motor noise of less than 10% screen width. (D, E) Trial history effects. (D) The probability of a response in the current trial, given the response in the previous trial. On the x-axis, we show the probability that the current response is 1, given that the previous response is 0. On the y-axis, we show the probability that the current response is 1, given that the previous response is 1. Repeating the same response would lead to points above the diagonal. Alternating between responses would lead to points below the diagonal. Trial history effects are low in magnitude and inconsistent. (E) Distribution of shifts in the PSE based on the previous response, estimated from the same variance condition (PSE shift = PSE(response n-1 = 0) – PSE(response n-1 = 1)). If subjects repeat responses, the PSE shift should be positive. If subjects alternate, the PSE shift should be negative. PSE shifts are small in magnitude and inconsistent across subjects. (F) Effect of stimulus order within trial on PSE slope. If the prior influences the second stimulus only, the PSE slope should be lower when the wide likelihood stimulus (Reference) is second. We display the PSE slope as a function of the order of narrow and wide likelihood stimuli in the trial (Reference 1st, Reference 2nd). The PSE slope is not systematically lower when the Reference stimulus is second. (G) Effect of eccentricity on the JND. Using same variance trials, we fit the psychometric curve (Equation 3) and display the JND as a function of stimulus eccentricity. Eccentricity does not have a substantial effect on JND.