Continuous-outcome tasks, in which responses are made on a continuous scale, have been widely used in the visual working memory literature (Wilken & Ma, 2004). [Strictly speaking, not developed there. Blake et al. (1997) and Prinzmetal al. (1998) predated them.]

Instead of proportions, we can consider precision.

Source responses made on a continuous domain allow for an objective, direct measurement of the precision of the retrieved information, as opposed to relying on different ratings of confidence in a two-alternative forced choice as a proxy that is compromised by the variability in what each level of confidence means across participants, and even across trials for one participant. It’s not always the case that all items rated 5 are consistently and reliably better represented than items rated 4. As a result, the continuous-report paradigm allows for a more direct test of whether a response is graded or thresholded.

Continuous-outcome tasks offer a range of advantages over traditional two-choice tasks, but one drawback to using them is that until recently, there were no models of RT and decision-making, as existed for two-choice tasks. In the next section, I outline why we need to model decision-making and what RT buys us, and the development of decision-making in continuous-outcome tasks such as the Smith (2016) circular diffusion model.

This approach to measuring the sensitivity of perception can be contrasted with methods which elicit binary responses, such as showing a progression of stimuli on a graduated scale until the stimulus is no longer perceived (the method of limits) or showing stimuli in a random order so that the stimulus that is detected half of the time reflects the value of the threshold (the method of constant stimuli). The issue identified with the method of adjustment, which lead researchers to instead favour binary alternatives like the methods of limits or constants, is that the motor action of the subject providing a continuous response (e.g. rotating a dial) introduces variability that can be confounded with sensory variability, which is the variable of interest.

Method of constant stimuli, predecessor to 2AFC tasks which came to dominate cognitive psychology. The disadvantage of continuous measures of report, and why method of adjustment fell out of favour with psychologists, is that it is subject to motor variability, or “uncertainty of the hand” (Green & Swets, 1966). But it has advantages in that it allows for direct measurement of sensitivity, rather than making inferences about sensitivity through subjects’ performance in choosing correctly between binary outcomes.