

The visual system accurately perceives the numerosity (Dehaene et al., 1998; Feigenson et al., 2004), the average (Ariely, 2001; Chong & Treisman, 2003), and the sum (Barth, et al., 2008).

What is the relationship among these ensemble processes?

Participants (n=43) completed 3 tasks over the same set of stimulus arrays:

estimating the number of circles estimating the average size of circles estimating the total size of circles

Arithmetic estimation was calculated using the arithmetic model:

arithmetic numerosity = $\frac{\text{perceived sum}}{\text{perceived mean}}$

perceived sum perceived numerosity arithmetic mean = ____

arithmetic sum = perceived number x perceived mean

Comparison of numerosity, mean, and sum perception

Ru Qi Yu¹, Anna Xiao Luo¹, & Jiaying Zhao^{1,2}

¹Department of Psychology, ²Institute for Resources, Environment and Sustainability, University of British Columbia



