

Spatial separation impedes encoding of the whole

Amritpal Singh

Rutgers University, New Brunswick, Piscataway, New Jersey, United States

Paige Dadika

Rutgers University, Piscataway, New Jersey, United States

Jake Quilty-Dunn

Rutgers University, New Brunswick, New Jersey, United States

Michelle Hurst

Rutgers University, New Brunswick, Piscataway, New Jersey, United States

Abstract

Proportional reasoning is a ubiquitous part of human experience. Despite this ubiquity, proportion appears to be more difficult to think about in some contexts than others. Specifically, people seem to struggle more with proportional information represented by visually separated parts versus parts integrated into a whole. Why is this? One possibility is that spatial separation deters people from treating the whole as a singular unit that they can use in reasoning about a proportion. Here, we report the results of a study that tested this hypothesis by probing participants' ensemble perception of the wholes that they are exposed to in a concurrent proportion comparison task. Study results support the hypothesis that spatial separation impedes encoding of the whole.