Parallel Enumeration of Multiple Spatially-Overlapping Sets in Infancy

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Abstract
Infants, like adults, can perform multiple parallel enumerations operating over both subsets and supersets. These representations are subject to the 3-item limit of WM.

Introduction
Previous studies show that by 6-months, infants successfully enumerate 1 set. Most adults can enumerate up to 3 sets in parallel (enumerating two subsets and the superset)

The Current Experiments
Experiments 1-3: Can infants enumerate multiple subsets in parallel?
Experiments 4-6: Do infants also enumerate the superset of an array, regardless of the number of subsets?

Design & Results
Experiments 1-3 – Subset enumeration
- Infants simultaneously enumerated 2 color subsets (red dots and yellow dots), but failed with 3 or 4 color subsets.

Experiment 4-6 – Superset enumeration
- Infants always enumerated the superset of all the dots, regardless of the number of color subsets presented (e.g., red, yellow, blue, purple).

Conclusions
- Infants, like adults, can enumerate multiple sets in parallel
- Additionally, working memory limits constrain the number of enumerations they can perform, just as they constrain the number of individual objects they can represent.

References