

New Research published on Journal of Numerical Cognition!

Congratulation to [Giovanni](#) , [Marco](#) , [Antonella](#) and [David](#) who just published a new paper on Journal of Numerical Cognition! A special congratulation to [Antonella](#) for her first publication!

Anobile, G., Cicchini, G. M., Pomè, A. & Burr, D. (2017). Connecting Visual Objects Reduces Perceived Numerosity and Density for Sparse but not Dense Patterns, Journal of Numerical Cognition, 4 (3), [PDF](#)

How is numerosity encoded by the visual system? – directly, or derived indirectly from texture density? We recently suggested that the numerosity of sparse patterns is encoded directly by dedicated mechanisms (which have been described as the “Approximate Number System” ANS). However, at high dot densities, where items become “crowded” and difficult to segregate, “texture-density” mechanisms come into play. Here we tested the importance of item segmentation on numerosity and density perception at various stimulus densities, by measuring the effect of connecting visual objects with thin lines. The results confirmed many previous studies showing that connecting items robustly reduces the apparent numerosity of patterns of moderate density. We further showed that the apparent density of moderate-density patterns is also reduced by connecting the dots. Crucially, we found that both these effects are strongly reduced at higher numerosities. Indeed for density judgments, the effect reverses, so connecting dots in dense patterns increases the apparent density (as expected from the physical characteristics). The results provide clear support for the three-regime framework of number perception, and suggest that for moderately sparse stimuli, numerosity – but not texture-density – is perceived directly.

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