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Poster title: Task Switching Differentially Perturbs Neural Geometry in the Human Frontal and Temporal Lobes

Abstract: Supernormal stimuli (SNS) are artificial objects that contain exaggerated levels of desired properties that are present in natural objects. Early experiments showed that non-human animals would exhibit preferences toward SNS which were biologically inferior to natural objects. No conclusive evidence for human choice of SNS has been established yet. We focus on the case in which human SNS are preferred to similar natural objects but are potentially inferior as choices alternatives to those natural objects. One theory about why organisms prefer SNS over natural objects is that imperfect perception leads organisms to prefer stimuli that are subjectively perceived as close to high-value objects and far from low-value objects. This is called a ``peak-shift'' effect because maximal preference is shifted away from the most valued object (the objective ``peak''), further away from low-valued objects, and towards subjectively perceived high-value objects, but that provide objectively lower value to the organism. We first show that the peak-shift preference for SNS can be generated by rational inattention (RI) when it is more costly to distinguish objects that are perceptually similar using an information cost function that incorporates ``neighborhood costs'' (``LLR costs''). We then show new experimental data which extends animal paradigms to test whether the RI neighborhood costs model can explain what humans choose concerning stimuli varying in warmth and competence. The paradigm we designed has extensions in multiple domains, including in the financial space.