Functional Diversity of the Intraparietal Sulcus: Evidence Against a Number Module

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Abstract: There is debate over whether the horizontal segment of the intraparietal sulcus (HIPS) houses a domain-specific number module (Ansari, 2008). Here, we address the debate in two ways. First, using cross-domain modeling (Penner-Wilger & Anderson, 2011) we show that bilaterally the HIPS shows activation across a wide range of non-numerical tasks in diverse domains including perception, action, cognition and emotion. Second, using methods similar to those used in Anderson, Kinnison and Pessoa (2013), we compared the functional diversity of the HIPS and domain-general ROIs that contribute to number processing – the left AG and PSPL bilaterally. We show that the functional diversity of all five of these ROIs is near or above the whole-brain average. Moreover, right and left HIPS and left PSPL are significantly more diverse than the whole-brain average (>2 SD). Thus, our results support the view that the HIPS does not house a domain-specific number module.