Common neural substrate for distributing attentional resources across space and separable visual elements ?

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Résumé

Following bilateral posterior parietal damage, Balint historical description of a " reduced functional field of view, such that only one object was seen at a time, whatever its size " reveals the theoretical remaining issue of whether this deficit of global visual processing, now called simultanagnosia, emerges from impaired object- versus spatial- attention. Our hypothesis is that common attentional resources of simultaneous visual processing are shared for distributing attentional resources across space and across what the visual system considers separable visual elements. This sharing would involve the superior parietal lobules (SPL) as common neural substrate. Arguments for this hypothesis come from several studies performed in healthy participants, patient with bilateral SPL damage and dyslexic children. These studies consisted in measuring the attentional field during visual searches involving stimuli of different visual complexity (plain versus outline shapes, symbols made up of separable features). The size (space) of the attentional field and the number of elements (span) it contains appeared to result from an interaction between object and spatial attention. These results suggest common SPL-based ressources for the spatial binding of letter-like symbols made up of separable visual features and for extending the attentional spotlight.

Mots-Clés: perceptual grouping, gaze, contingent moving window paradigm, dorsal attentional network

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