



## Presentation Abstract

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Title: Implicit redundant target effect across the vertical meridian, but not horizontal, in a stroke patient with an inferior left quadrantanopia

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Abstract: Patients who suffer damage in early visual cortex classically present with permanent blindness in the contralesional visual field. Paradoxically, unconscious visual processing has been shown in some of these blind patients through an interaction between stimuli presented simultaneously to the blind and normal hemifield. These and other examples of visual processing without awareness have collectively been termed 'blindsight'.

In the present study, we investigated the behaviour of an 82-year old patient with a right occipital lobe intracerebral hemorrhage. At the time of testing (app. 8 months after stroke), she presented an inferior left quadrantanopia, but showed no evidence of visual neglect or extinction to bilaterally presented visual or tactile stimuli. The patient was aware of her vision deficit and denied any positive visual phenomena in her blind field (such as flashes or color). Using the redundant target approach, we investigated whether or not she would react more quickly to two simultaneously presented visual stimuli even when one of them was presented in her blind left inferior quadrant. Squares were presented on a black background for 100 ms. They varied in number (single, double or none) and location in the visual field (single targets: upper left, upper right, lower left, lower right quadrants; redundant targets: upper, lower, left or right hemifields) and were presented at 5 degrees of eccentricity from a central fixation cross.

As expected the patient did not react to single stimuli presented in the left lower quadrant. Surprisingly, however she showed faster reaction times when double stimuli were presented vertically within the left visual field (lower left, upper left) when compared to trials with single targets presented only in the upper left quadrant. We

argue, that such an effect cannot be simply explained by light diffusion onto the sighted field since it was not present when stimuli were positioned horizontally (lower left, lower right). Moreover, the implicit redundancy gain of the patient was found to fit a neural coactivation rather than a probabilistic model, as evidenced by the distributions of single- versus double stimulus reaction times. We suggest that the ‘blindsight’ abilities of our patient do not seem to require processing taking place in early visual cortex.

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