ORAL PAPER

# The "misprojection" hypothesis

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### Background

The "anisometry" hypothesis has been proposed to explain a number of deficits shown by neglect patients on tasks of metric estimation. The hypothesis states that space extensions are misperceived along the horizontal axis so that physically equal segments appear different in length—namely, the contralesional segment would look shorter. The aim of this work is to propose a complementary account, i.e. the "misprojection" hypothesis.

#### Methods

GL, a right-hemisphere patient with neglect, as well as another 10 neglect patients and 27 controls, were tested on a variety of metric judgement tasks. In one task (DJT) the subject has to judge the relative position of a dot presented somewhere along a horizontal (fixed) reference space. In another task (LJT) the subject is asked to judge the apparent length of a horizontal line with respect to a fixed reference line. Finally, patient GL was administered the Endpoints task, i.e., she was required to set the two endpoints of a virtual horizontal line given its midpoint.

#### Results

GL showed relative LEFT overestimation of space on both the DJT and the LJT, while she showed the opposite pattern, relative RIGHT overestimation, on the Endpoints task. The other 10 neglect patients showed, on the LJT, relative left overestimation in two cases, and relative right overestimation in another four instances.

## Discussion

GL's "contradiction" across tasks is a serious difficulty for the anisometry hypothesis. I propose an alternative possibility, the "misprojection" account, according to which patient GL misperceived left-sided stimuli as more to the left than they really were, as a consequence of deafferentation of her spatial representation from visual input. Further insights are proposed as to the nature and predictions of this hypothesis.

Keywords Anisometry · Spatial neglect · Hemianopia