

# Beyond bias: a registered examination of the validity of using line bisection to measure non-lateralised attention

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## Abstract

Line bisection is a task widely used to assess lateral asymmetries of attention, in which participants are asked to mark the midpoint of a horizontal line. The Directional Bisection Error (DBE) from the objective midpoint of the line is the traditional measure of performance. However, an alternative method of studying bisection behaviour, the end-point weightings method, has been proposed. This method produces two measures of performance, end-point weightings bias (EWB) and end-point weightings sum (EWS). Whilst EWB measures attentional asymmetry, it has been suggested that EWS quantifies the total (non-lateralised) attention allocated to the task. If EWS provides a valid index of non-lateralised attention, then changes in tonic and phasic alertness should systematically affect EWS. Here, we present an experiment that aims to formally test this prediction, using time on task to manipulate tonic alertness, and unpredictable auditory tones, presented simultaneously with line stimuli, to manipulate phasic alertness. If EWS is a valid measure of non-lateralised attention, then it should reduce with increased time-on-task (tonic) and increase on trials accompanied by an alerting tone (phasic). We will also test the effect of arousal and motivation on lateralised attention, as measured by EWB.

## 1. Introduction

- An alternative approach to the line bisection task