Contribution ID: **512** Type: **Poster**

Exploring the influence of number magnitude on walking direction: Evidence for spatial-numerical associations with a free response task in a virtual reality setting

Thursday, September 11, 2025 2:10 PM (20 minutes)

The Spatial-Numerical Associations of Response Codes (SNARC) effect describes the spatial relationship between number magnitude and response side, with small numbers associated with the left space and large numbers with the right space (Dehaene et al., 1993). Typically, the SNARC effect is studied on simple movements, and it is revealed by spatial response tasks through response time differences. The present study investigates whether similar spatial biases also occur for decisions on complex movements, specifically walking, using a free response task in a virtual reality environment. Each trial (N=90) begins with a virtual screen displaying a number (1–9). Participants are required to: a) process the number's magnitude, b) retain it in working memory, and c) walk towards a target area represented as an arc that runs symmetrically left and right of the central screen. Upon crossing the target, they verbally report whether the number was smaller/larger than or equal to 5. The results showed: a) a significant difference in left/right response frequency between small and large numbers, with more left vs. right responses for small numbers and more right vs. left responses for large numbers; b) that response angle increased with number magnitude. This study highlights that the decision underlying walking direction is influenced by number magnitude, when using a free response task requiring explicit number magnitude processing.

Funding: European Union –Next Generation EU: 1) PNRR PhD scholarship; 2) PRIN 2022 - Project Prot. 20227N2Y73 - Numbers and the Undisclosed MEchanisms of their Representation ALong Space (NUMERALS) - CUPJ53D23007870006.

If you're submitting a symposium talk, what's the symposium title?

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

Primary author: IELO, Angelica (Università degli studi di Trieste)

Co-authors: Dr SORS, Fabrizio (Università degli studi di Trieste); Dr PILEGGI, Stefano (Università degli studi di Trieste); Dr PRPIC, Valter (Univeristà eCampus); Prof. AGOSTINI, Tiziano (Università degli studi di Trieste); Prof. CRAIG, Cathy (Ulster University); Prof. MURGIA, Mauro (Università degli studi di Trieste)

Presenter: IELO, Angelica (Università degli studi di Trieste)

Session Classification: Lunch and poster 1

Track Classification: Space, time and number