

The role of body orientation and motion verbs in visual memory

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How does our understanding of motion verbs such as jump, run, or hurl influence our perceptions and memories of objects and actions in space? Work in cognitive psychology has emphasized studying perception and memory independent of any linguistic considerations. However, research in cognitive linguistics has extensively investigated how language modulates our understanding of motion (e.g., Matlock, 2004) and our perception of agency and time (e.g., Matlock, Ramscar, & Boroditsky, 2005; Nunez & Sweetser, 2005). One area in cognitive linguistics yet to be explored is the relation between language and visual memory. In one empirical study on visual memory, participants were asked to indicate the perceived location of objects in space previously presented as static images that represented implied motion, e.g. an image of a man falling off a ledge. Participants indicated the object's position to be further along its future trajectory, compared to static images of objects that did not represent implied motion, e.g. an image of a man standing on a ledge. This finding, an example of what is known as Representational Momentum (Freyd, 1983), suggests that our memory of static images takes into account physical information such as the object's implied velocity (Freyd & Finke, 1985) and gravity (Freyd, Pantzer, & Cheng, 1988). Importantly, this suggests that *implied* but not presently observed physical forces influence visual memory. Given that implied features present within a scene influence visual memory, might linguistic information implying the underlying cause and future state of an observed scene influence visual memory?

Our presentation will focus on current findings addressing visual memory's sensitivity to linguistic and social information. In the present experiment, 349 participants were shown an implied motion image of a man who seemed to either fell or jumped from a cliff. The man was oriented to either be looking upward (i.e., having left the cliff edge in a backward-facing manner) or looking downward (i.e., having left the cliff edge in a forward-facing manner). After studying the image, participants were shown the same scene with the man removed and were asked to indicate where they perceived the man to have been in the previous image. Crucially, participants observed the visual stimuli of the man paired with one of three language conditions: (1) A condition with just the visual stimuli, (2) a linguistic prime condition where the visual stimuli was paired with the written phrase "THE MAN FELL OFF THE CLIFF", or (3) a linguistic prime condition where the visual stimuli was paired with the written phrase "THE MAN JUMPED OFF THE CLIFF".

We show that visual memory of the man's location is influenced by: (1) physically represented forces – a replication of the Representational Momentum effect, (2) motion verbs – the remembered man's location was dependent upon the observer's language condition, and (3) social cues such as bodily orientation – the man's remembered location was dependent on his gaze orientation (Friesen & Kingstone, 1998). We will focus on the above findings and their support for the conclusion that lower-order processes such as visual memory can be influenced by higher-order cognitive and social information such as motion verbs and gaze direction.