Moreover, it might be the case that body-in-space and gravity perceptions share common neural resources located in the temporo-parietal junction (TPJ). This area is known to receive graviceptive inputs stemming from the vestibular system (Lopez et al., 2012).

Prism adaptation has been proved to bias space perception in the horizontal dimension, toward the direction opposed to the optical shift induced by the prisms. Prism wearing induces an optical shift (generally from 8 to 17°) in order to trigger an error signal during pointing task. This induced discrepancy between the visual and proprioceptive sensory coordinates is resolve in few trials thanks to sensori-motor adaptation, the ability to correct motor movements by using sensory feedbacks (Bastian, 2008). After prism removal, pointing toward a target without visual feedback (during the open-loop pointing task) are biased in the direction opposite to the optical shift. This bias is referred to as “after-effects” (Prablanc et al., 2020).

Of interest, this sensori-motor adaptation is known to bias egocentric and allocentric spatial tasks, such as straight ahead pointing, perceptual line bisection, navigation, or mental imagery, in healthy and right-brain damaged subjects (Colent et al., 2000; Glize et al., 2017; Rode et al., 2001; Rossetti et al., 1998; Striemer et al., 2016; Striemer & Danckert, 2010).

At the one hand, SSA translation might stem from a compression of the left hemi-body representation (Rousseaux et al., 2014). This hypothesis stressed a lack of somatosensory input integration following right hemisphere lesions (Rousseaux et al., 2014).

At the other hand, SSA rotation might result from a constant error in the integration of proprioceptive neck and vestibular signals of the head, presumably essential to map visual stimuli from head to trunk coordinates. Then, visual inputs would be coded relative to a rightward-rotated body midline, explaining why the most leftward visual stimuli are no longer perceived (Karnath & Dieterich, 2006).

. These two networks might interact at the level of the intra parietal sulcus (IPS). This region is indeed involved in endogenous attention (Corbetta & Shulman, 2002) and object-orientation coding relative to gravity (Rosenberg & Angelaki, 2014)