



Moving a rubber hand: Ownership and agency in body self recognition

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Mechanisms of self-recognition: Ownership and agency

*“...self - ownership –
the sense that it is my body that is
moving...”*



*“...self - agency –
the sense that I am the initiator or
source of the action...”*

Reframing the philosophical question of self-recognition in cognitive neuroscience

- Multisensory integration of vision, touch, proprioception,..
- Movement control and action recognition

Thats my hand!

The rubber hand illusion



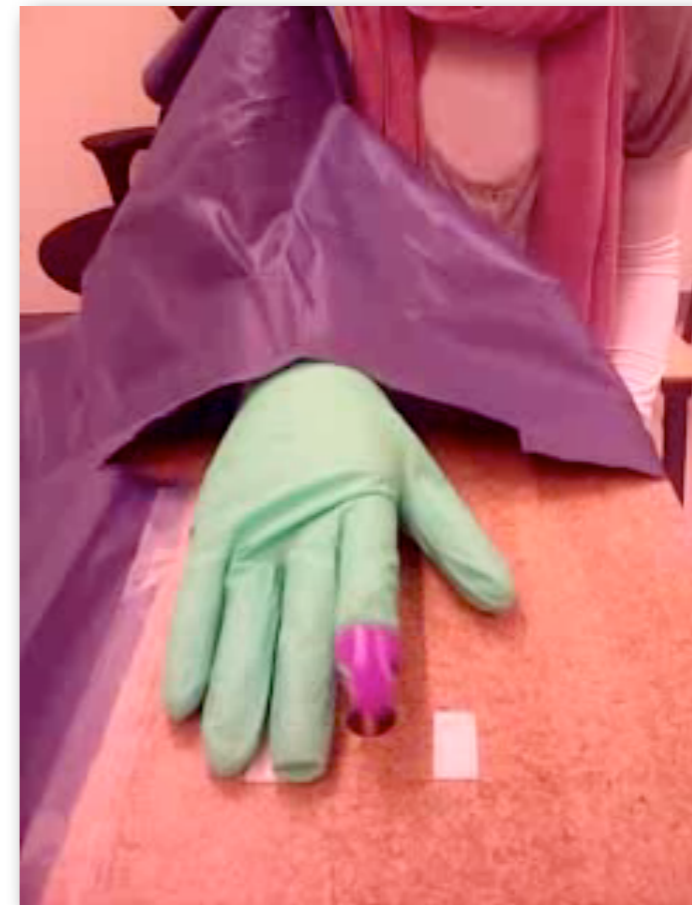
“sense of ownership”
**as a result of congruency between
visual and tactile information**

- Simultaneous stimulation of the subjects hand and a seen artificial rubber hand creates a feeling of ownership towards the rubber hand (Botvinick & Cohen 1998)
- Objective measures for the presence of the illusion:
 - Proprioceptive drift (Tsakiris 2005)
 - Skin conductance response after potential threat (Ehrsson 2007)

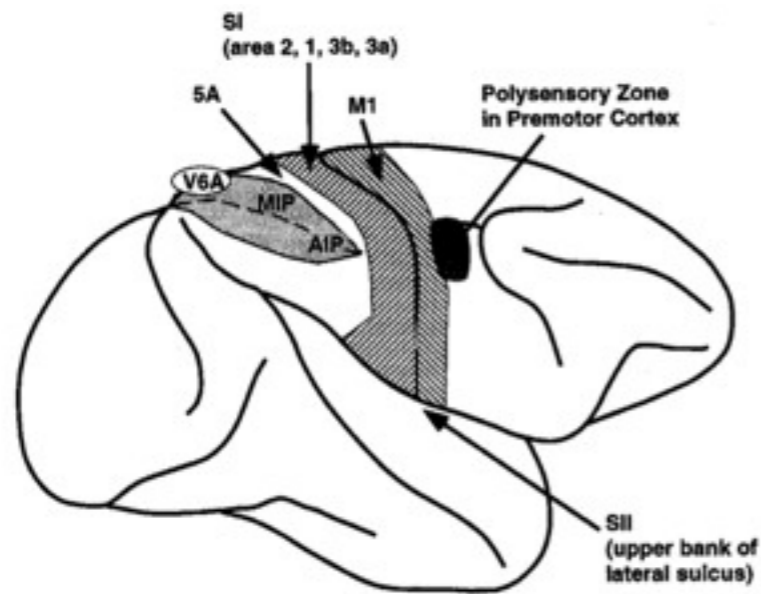


Experimental set-up

- a model hand with movable joints
- subjects made index finger movements at 1Hz



Neural substrates of body representation



Bimodal neurons
in the monkey brain

fMRI of the Rubber hand Illusion



Involvement of
the premotor
and parietal
cortex during
the illusory
feeling