

~bodily response induced by an illusion in the sense of body~

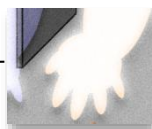
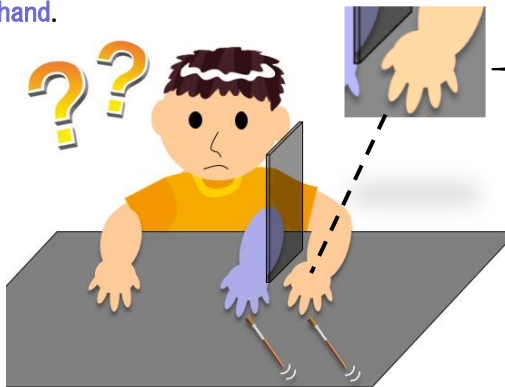
Abstract

In the nature of things, my body is regarded as “me”, while other objects are not. This matter of course, however, is the result of computation among sensory modalities in the brain. A failure in that process results in a breakdown of the sense of “my body” as the rubber hand illusion suggests. In this illusion, participants feel as if the rubber hand in front of them is their own hand as they watch the rubber hand being stroked for a short time while their own unseen hand is also stroked. In addition to this subjective feeling, the body also exhibits some bodily responses as if the rubber hand is their own. You can try this illusion at our booth, where we will explain how the sense of “my body” is constructed in the brain.

What happens when the rubber hand becomes my hand?

Bodily response induced by rubber hand illusion

When **your hand** and a **rubber hand** are brushed synchronously, you will feel as if the **rubber hand is your own hand**.



Your hand is “mislocalized”

• • • The reported location of your hand without vision is shifted toward the rubber hand.
※[2] (Botvinick+, 1998)



Your hand “gets numb”

• • • As the illusion proceeds, skin temperature becomes lower and lower.
※[3] (Moseley+, 2008)



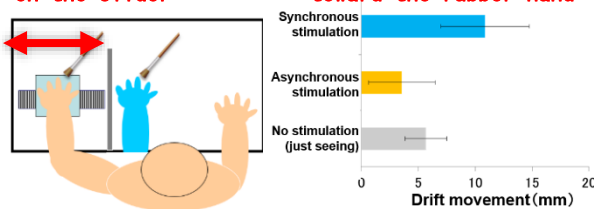
Your hand “moves”

• • • As the illusion proceeds, your hand automatically moves toward the rubber hand.

Found!

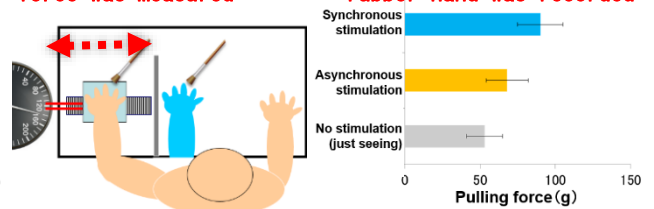
Experiment 1

● When the hand was on the slider . . . → The hand moved toward the rubber hand



Experiment 2

● When the pulling force was measured . . . → Force toward the rubber hand was recorded



Related works

- [1] T. Asai, “Illusory body-ownership entails automatic compensative movement: for the unified representation between body and action,” *Experimental Brain Research*, Vol. 233, pp. 777-785, 2015.
- ※[2] M. Botvinick, J. Cohen, “Rubber hands ‘feel’ touch that eyes see,” *Nature*, Vol. 391, pp. 756, 1998.
- ※[3] G.L. Moseley, N. Olthof, A. Venema, S. Don, M. Wijers, A. Gallace, C. Spence, “Psychologically induced cooling of a specific body part caused by the illusory ownership of an artificial counterpart,” *Proc. Natl. Acad. Sci. USA*, Vol. 105, pp. 13169-13173, 2008.

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