



CEITEC

Central European Institute of Technology
BRNO | CZECH REPUBLIC

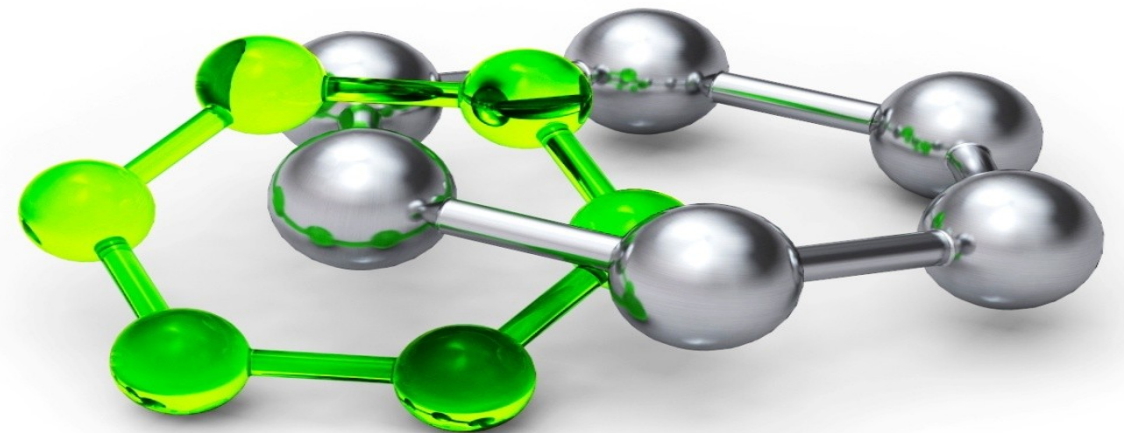
Inhibition in neuroscience



EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTING IN YOUR FUTURE



**OP Research and
Development for Innovation**



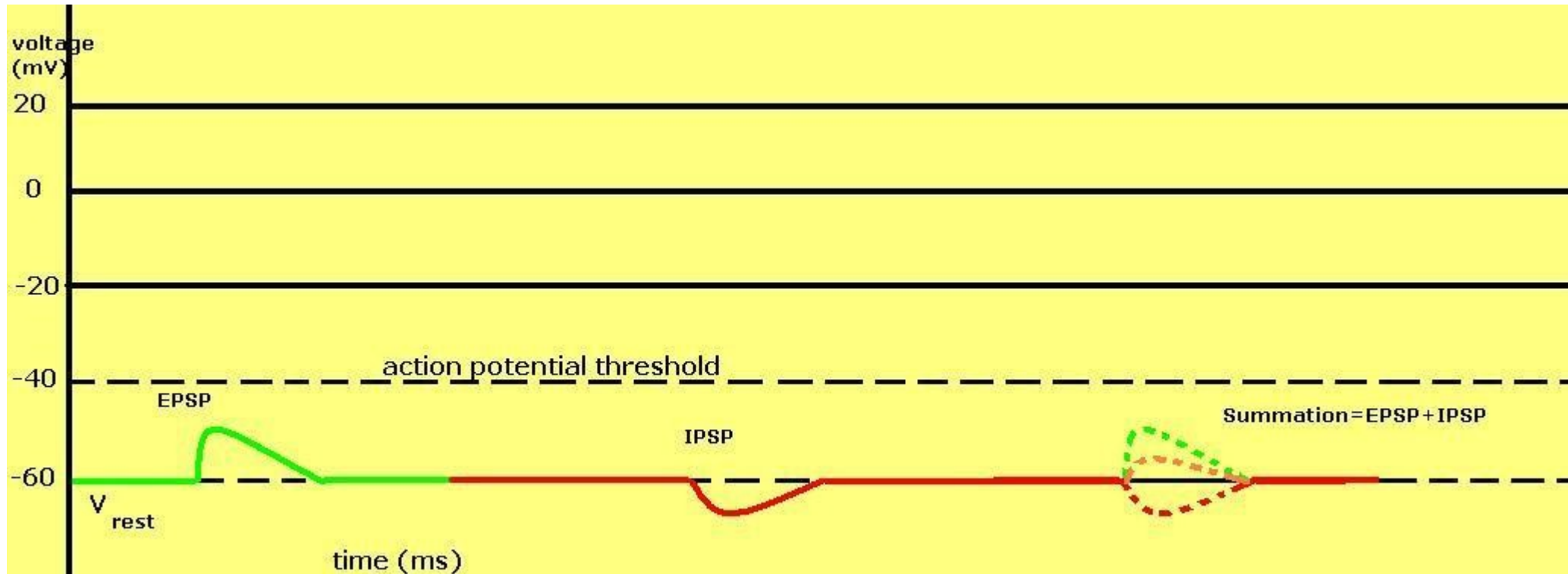
Outline



At the neural level



- Tuning responses of excitatory networks
- Stabilize network activity levels (feedback)
- Avoid saturation

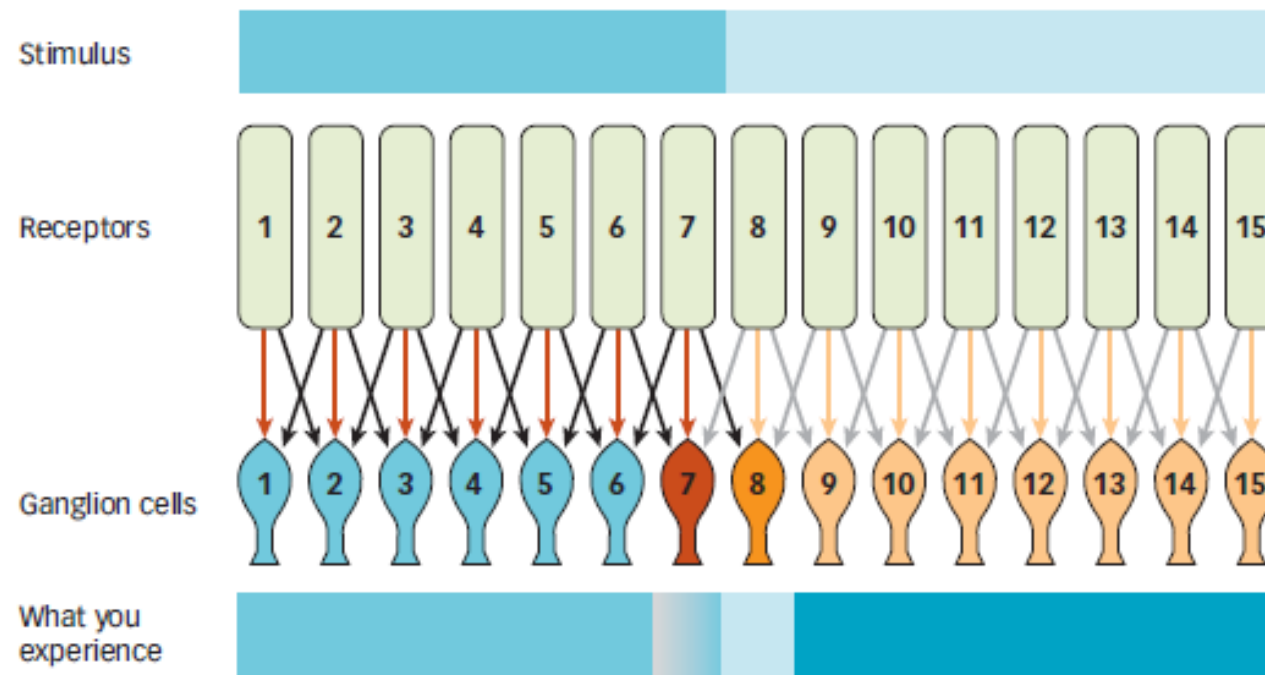


Ernst Mach





Mach bands
Das, Krishanu. (2017).

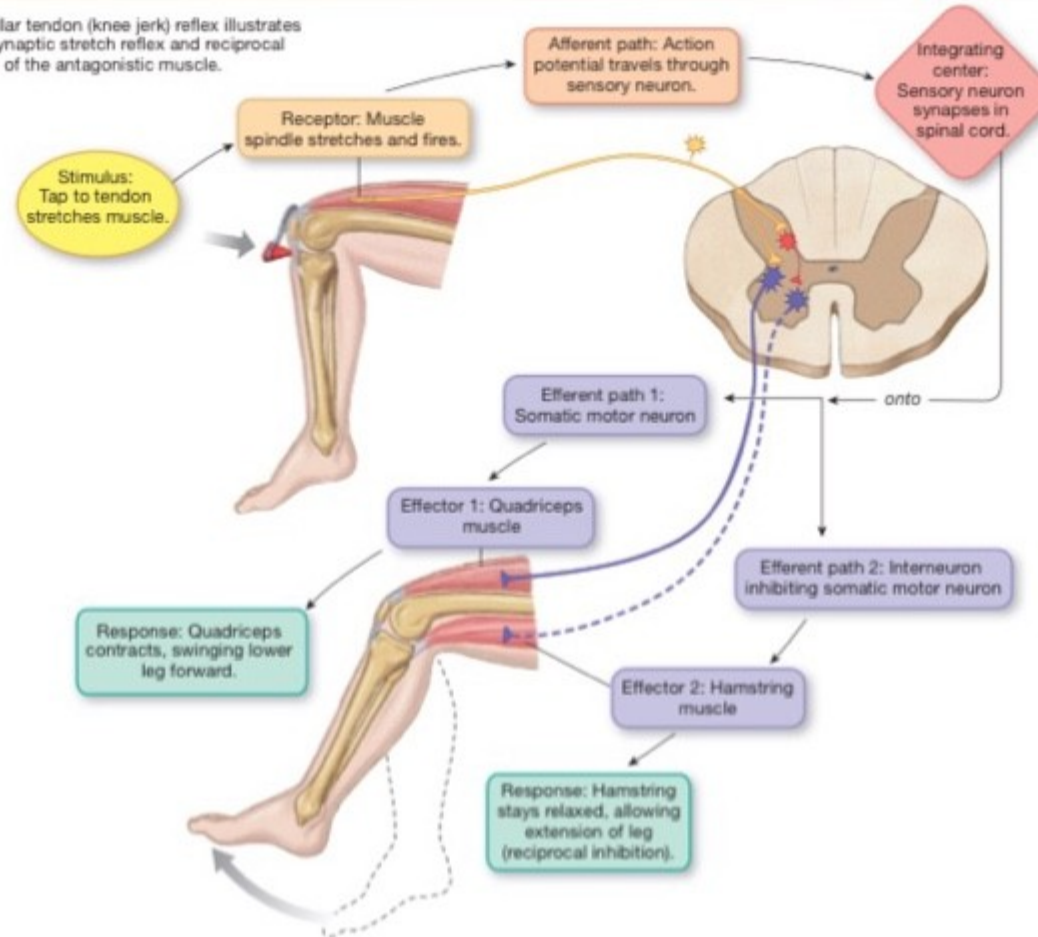


■ **FIGURE 3.23** Mach bands.

Each bar in this picture is uniform in lightness. However, we see a different level of lightness in each bar from left to right. For each bar, the left edge looks more black than the right edge, which looks lighter or whiter. This illusion is the result of processes of edge detection, such as lateral inhibition. When cells with receptive fields that straddle the bars detect the lightness contrast, they act to enhance the edges.

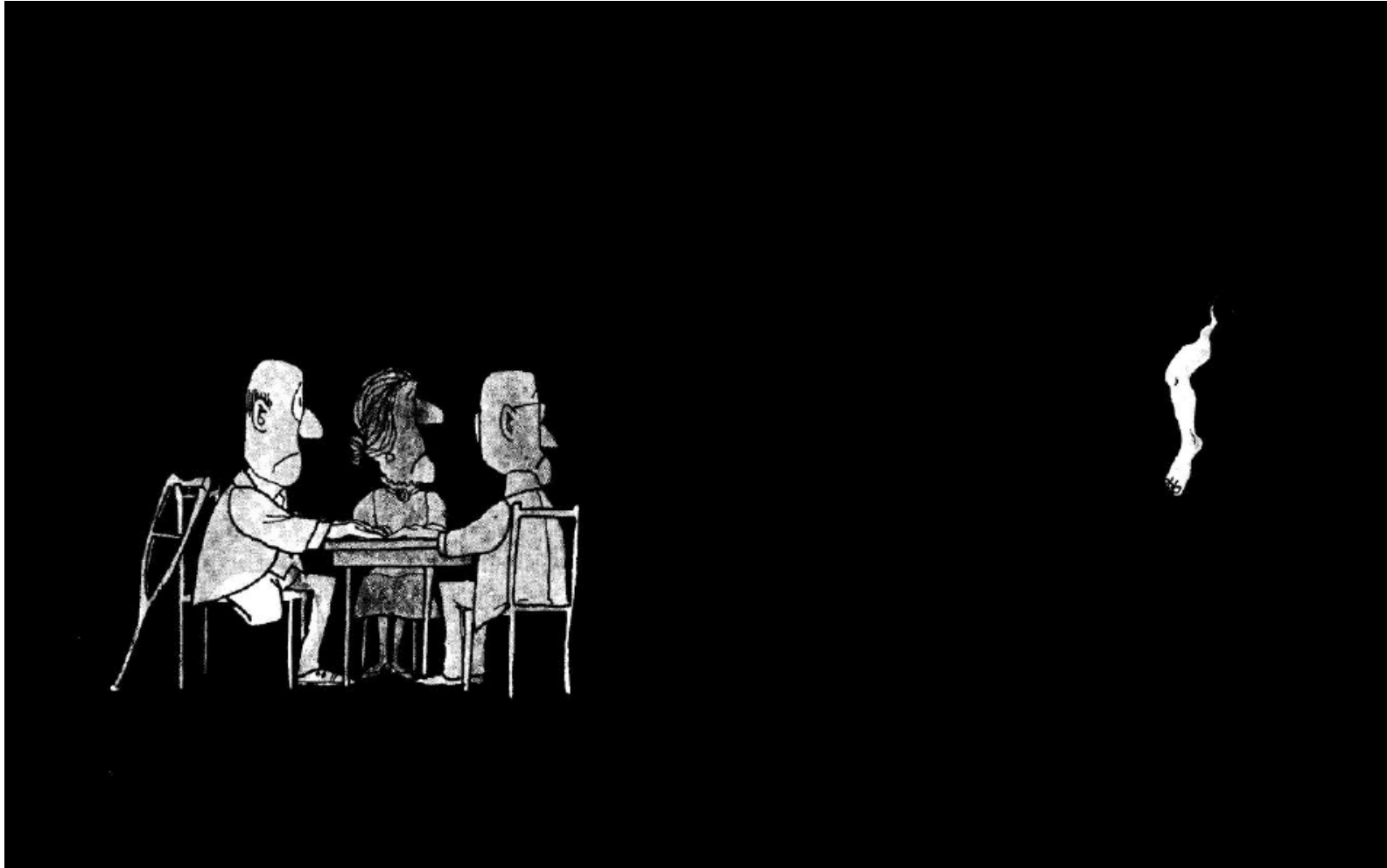
THE PATELLAR TENDON (KNEE JERK) REFLEX

The patellar tendon (knee jerk) reflex illustrates a monosynaptic stretch reflex and reciprocal inhibition of the antagonistic muscle.



■ Fig. 13.6

Phantom limbs



Inhibition in depression



Tourette's syndrome



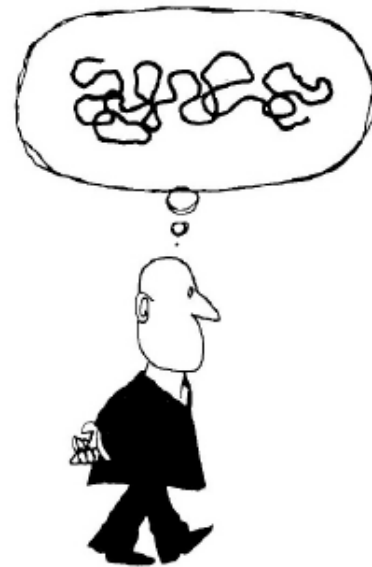
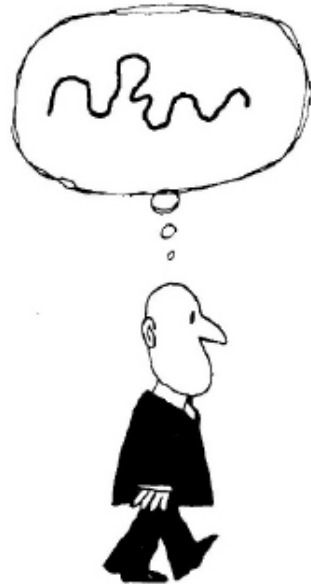
OCD



Inhibition in everyday life



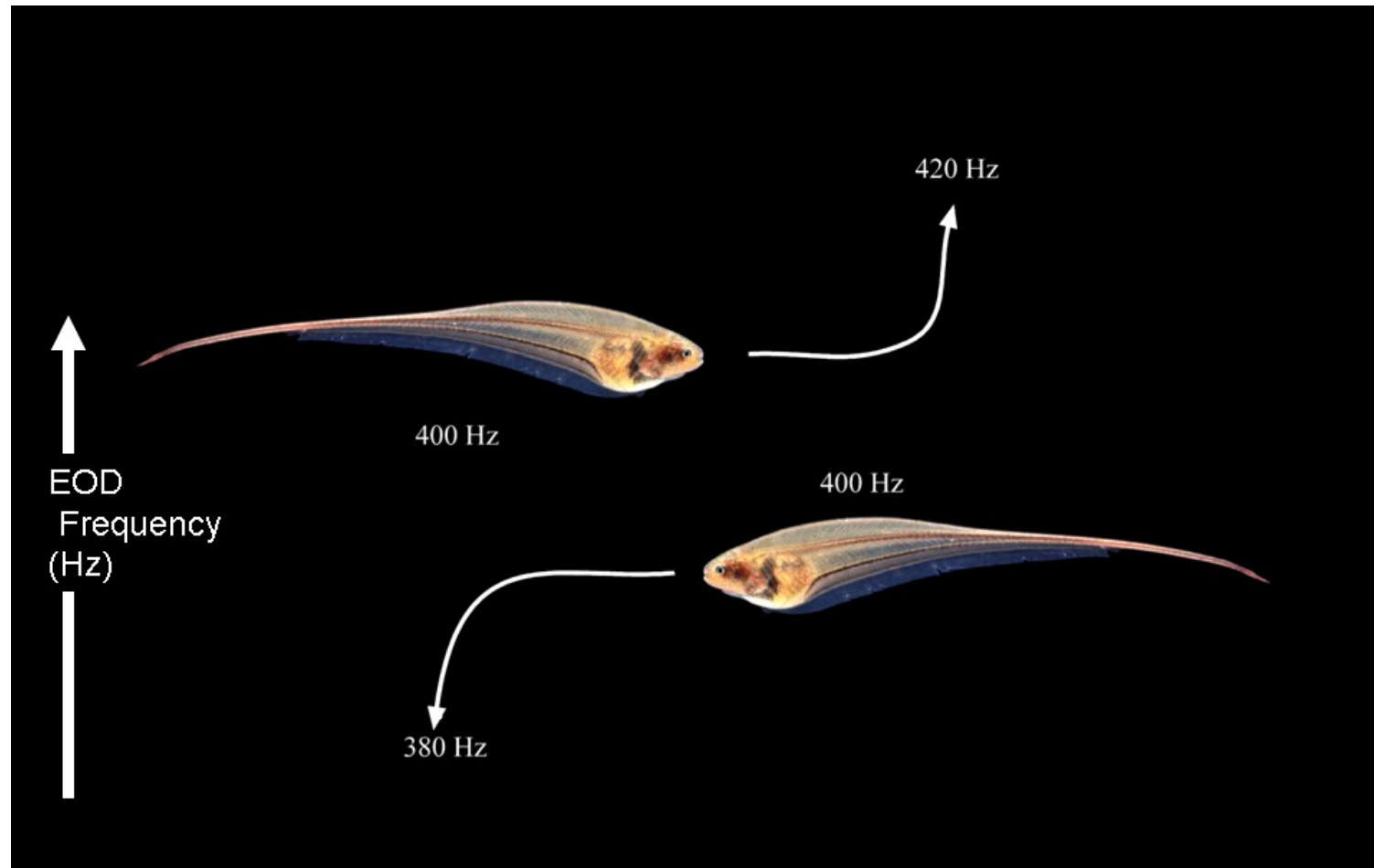
The social “you” is an inhibited “you”



Sidewalk waltz



Jamming Avoidance Response

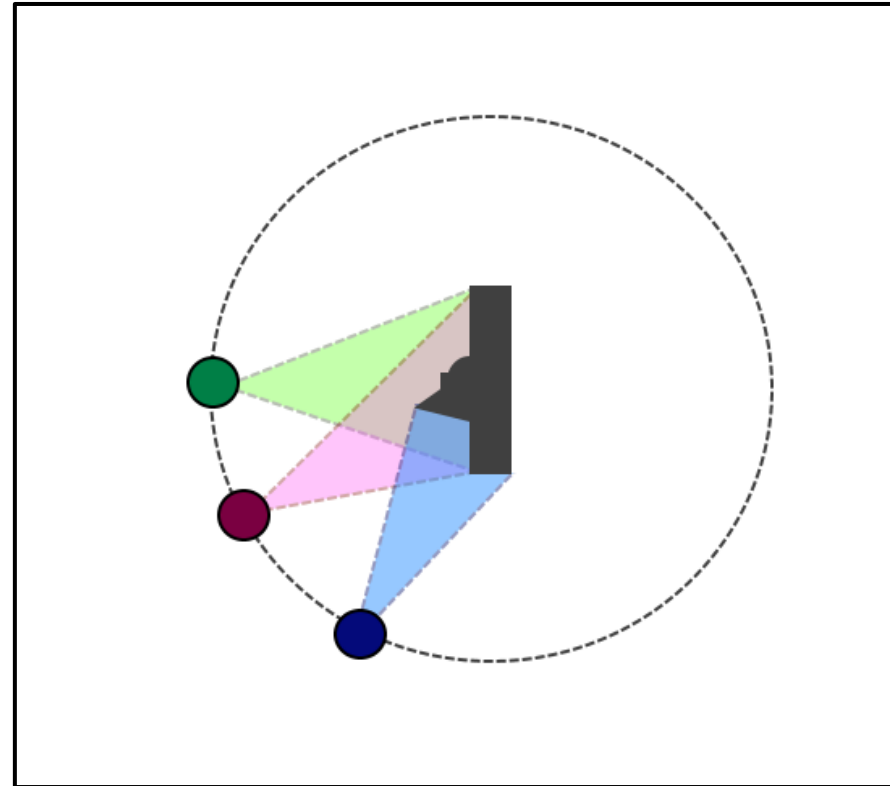


Say the same thing

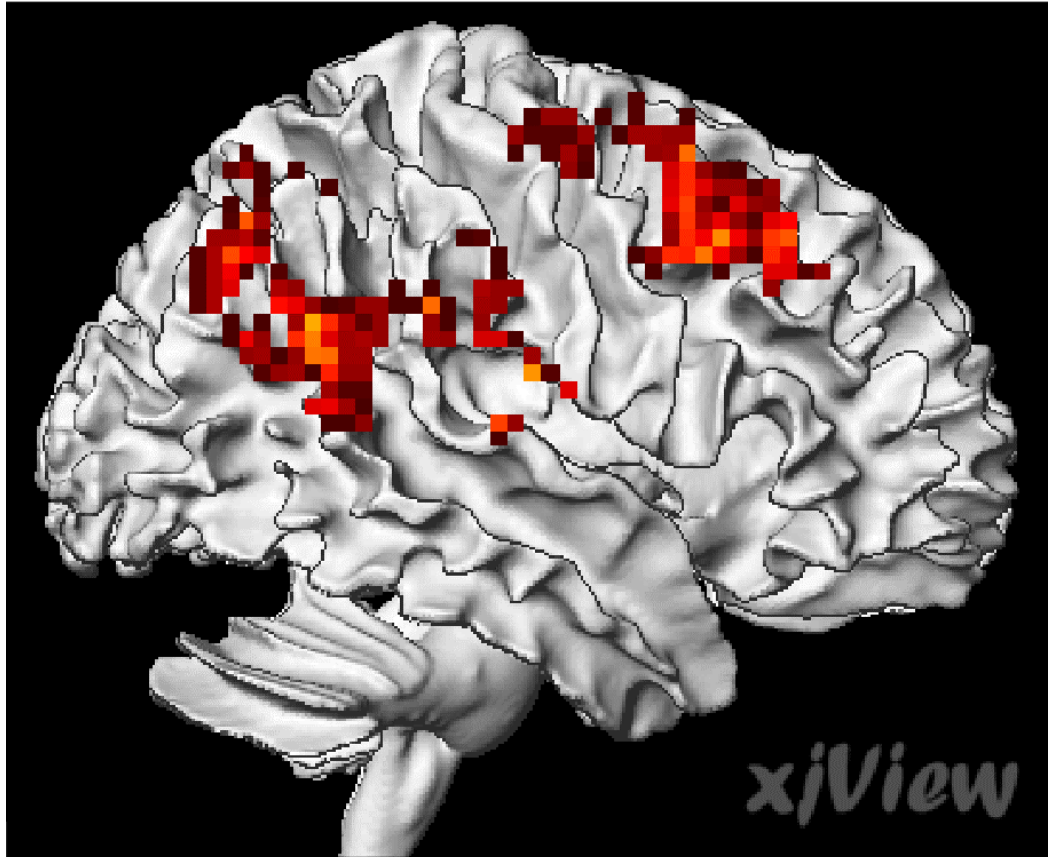


Short demo

What's going on?



Schematic of shared perspectives/representations. A and C's perspectives overlap only partially. As the overlap grows, as in A and B's case, A's own perspective becomes a better and less effortful model of their partner's perspective.



Consciousness and Cognition 35 (2015) 66–77

The Elsevier logo, consisting of a tree with a figure sitting under it, and the word "ELSEVIER" in orange capital letters below it.

Contents lists available at [ScienceDirect](#)

Consciousness and Cognition

journal homepage: www.elsevier.com/locate/concog

A small thumbnail image of the journal cover for "Consciousness and Cognition", showing a blue and white design with the journal title and a list of articles.

Tunes stuck in your brain: The frequency and affective evaluation of involuntary musical imagery correlate with cortical structure



Nicolas Farrugia^{a,*}, Kelly Jakubowski^{a,c}, Rhodri Cusack^b, Lauren Stewart^a

^a Goldsmiths, University of London, New Cross, London SE14 6NW, UK

^b Brain and Mind Institute, Western University, London, Ontario N6A 5B7, Canada

^c Medical Research Council, Cognition and Brain Sciences Unit, Cambridge CB2 7EF, UK

- It's possible to observe the differences in the response to stress in men and women in decision making, however, the contributions of the gonadal steroid hormones are rather complex and we'll need a lot of brainpower to get to the bottom of this

References



Das, Krishanu. (2017). Role of Pre-embedded Associated Memory in Generation of Optical Illusions. 3. 37-49.