

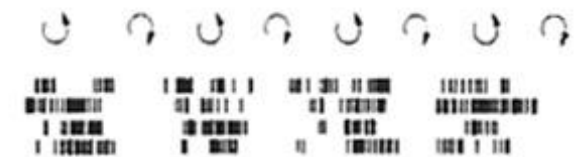
A



Neurone mirror congruente
in senso stretto



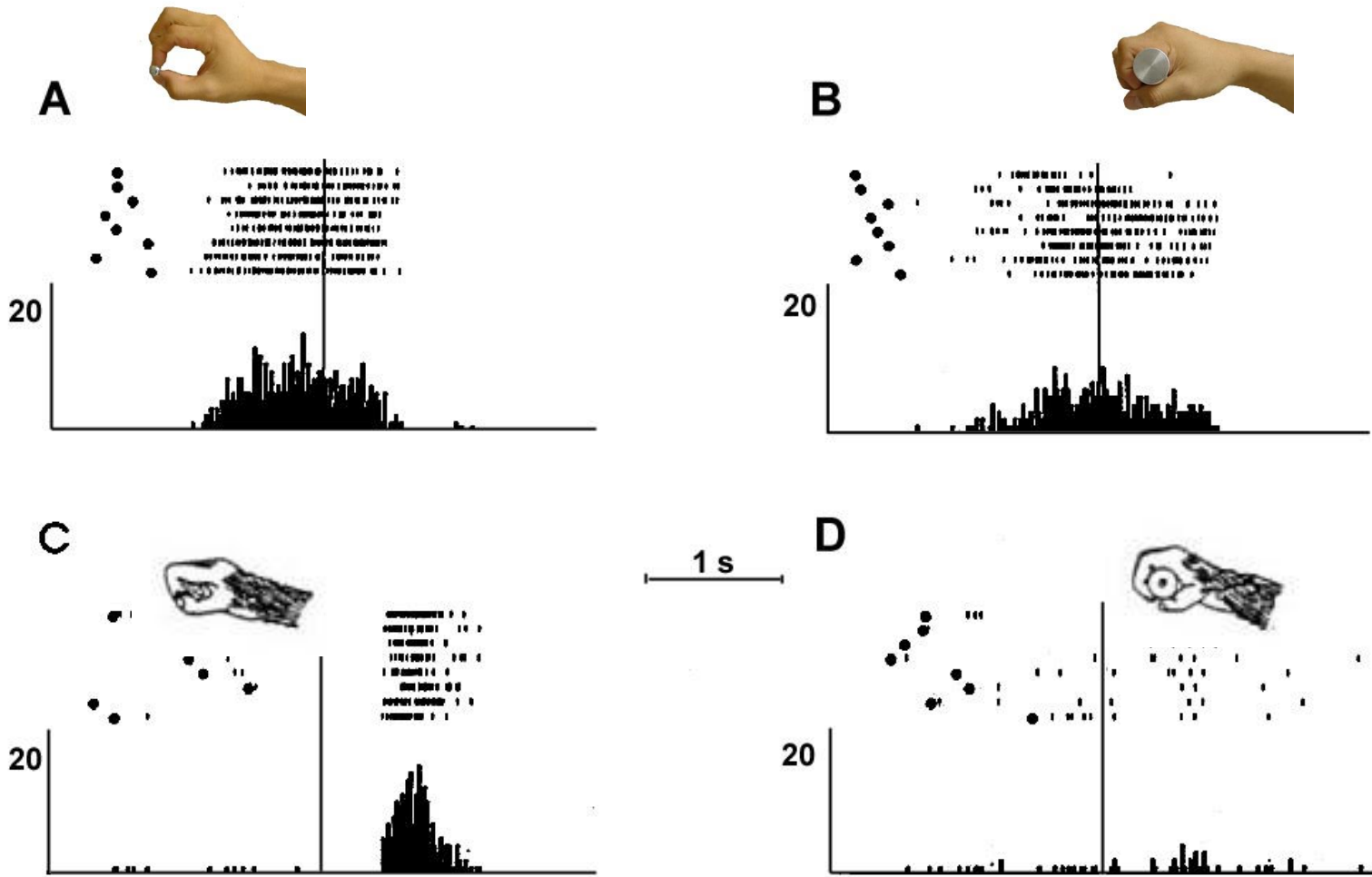
B



C



Neurone mirror congruente in senso lato

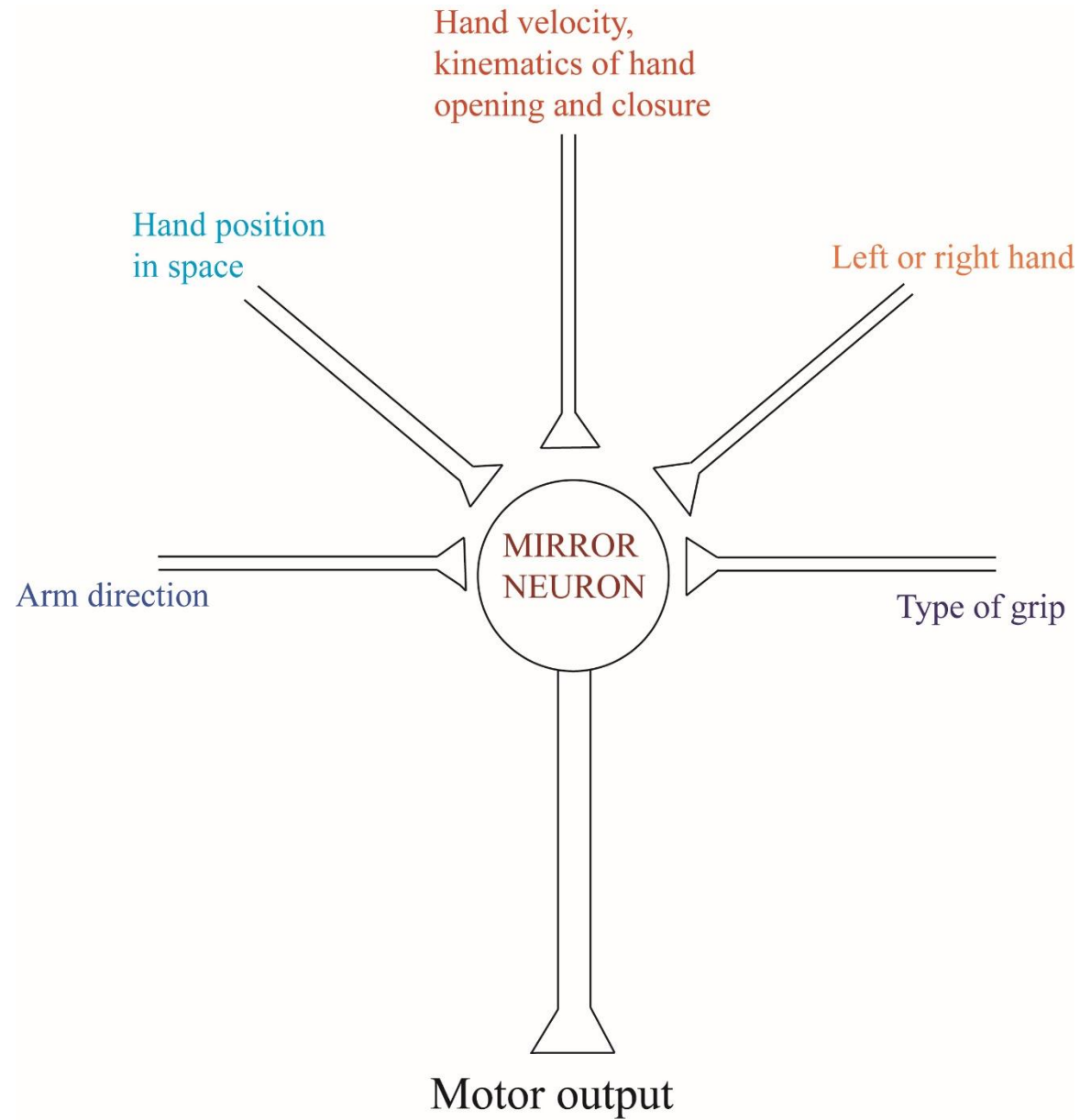


Il “matching system”

I neuroni mirror comparano l’atto motorio osservato con quello eseguito (matching system).

L’atto motorio osservato fa risuonare il circuito motorio che è coinvolto nell’esecuzione di quell’atto motorio

Il “matching system” permette di accedere al *significato* dell’atto motorio, cioè alla sua comprensione



Codifica dei dettagli dell'atto motorio osservato

Risposta dei neuroni specchio agli atti motori filmati

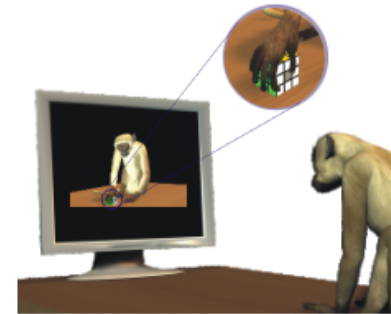
Motor



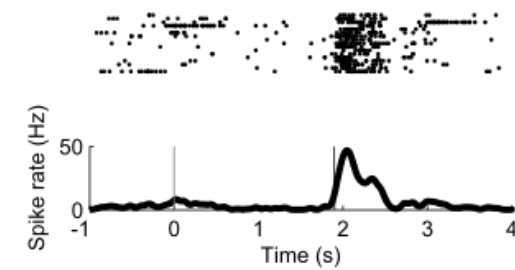
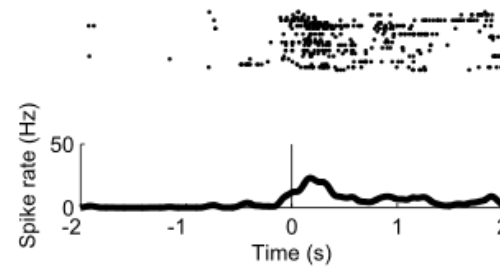
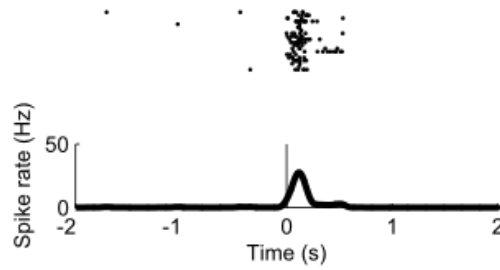
Naturalistic



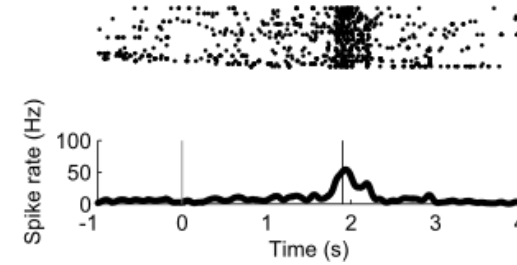
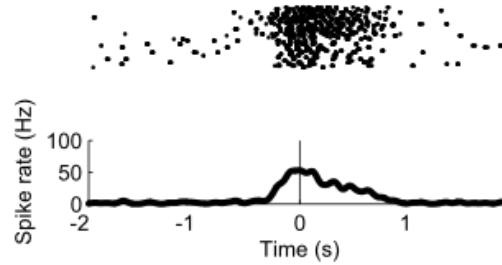
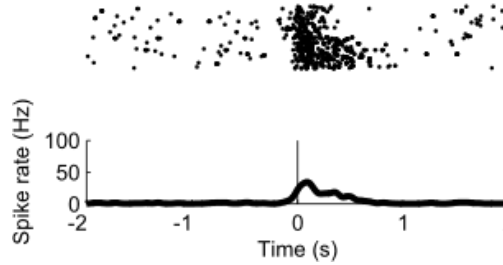
Filmed action



Neuron 1



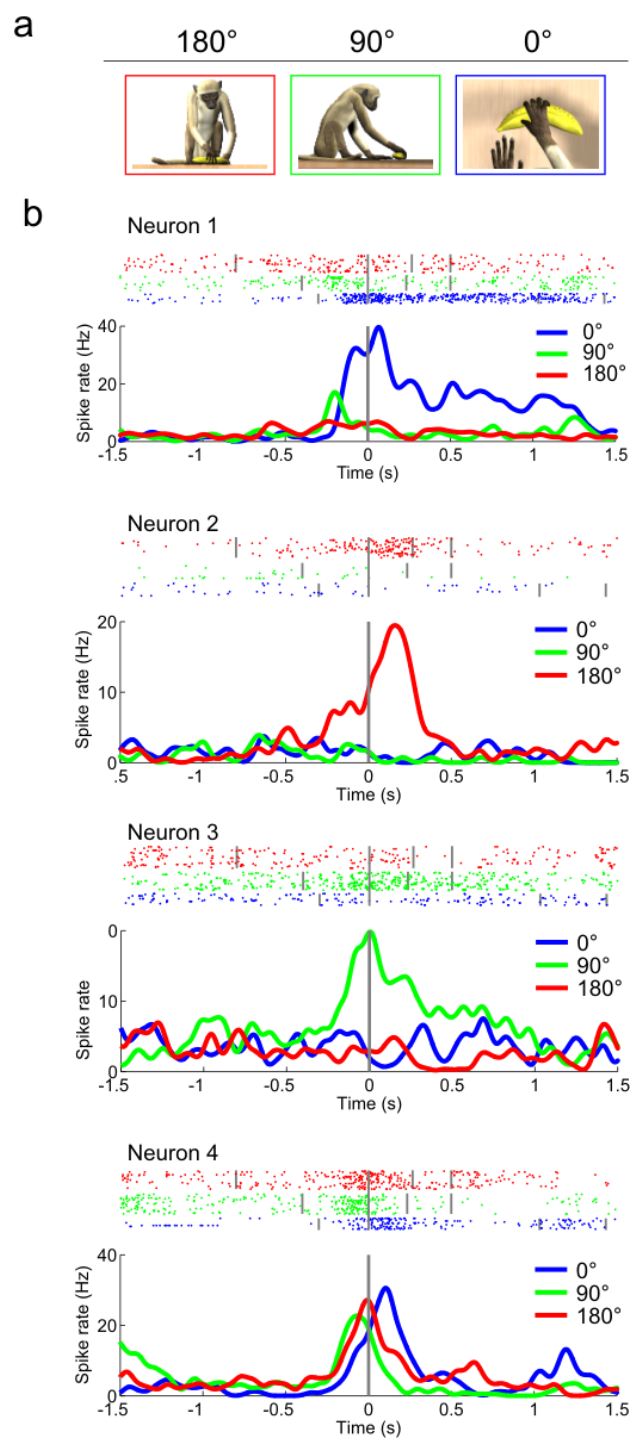
Neuron 2



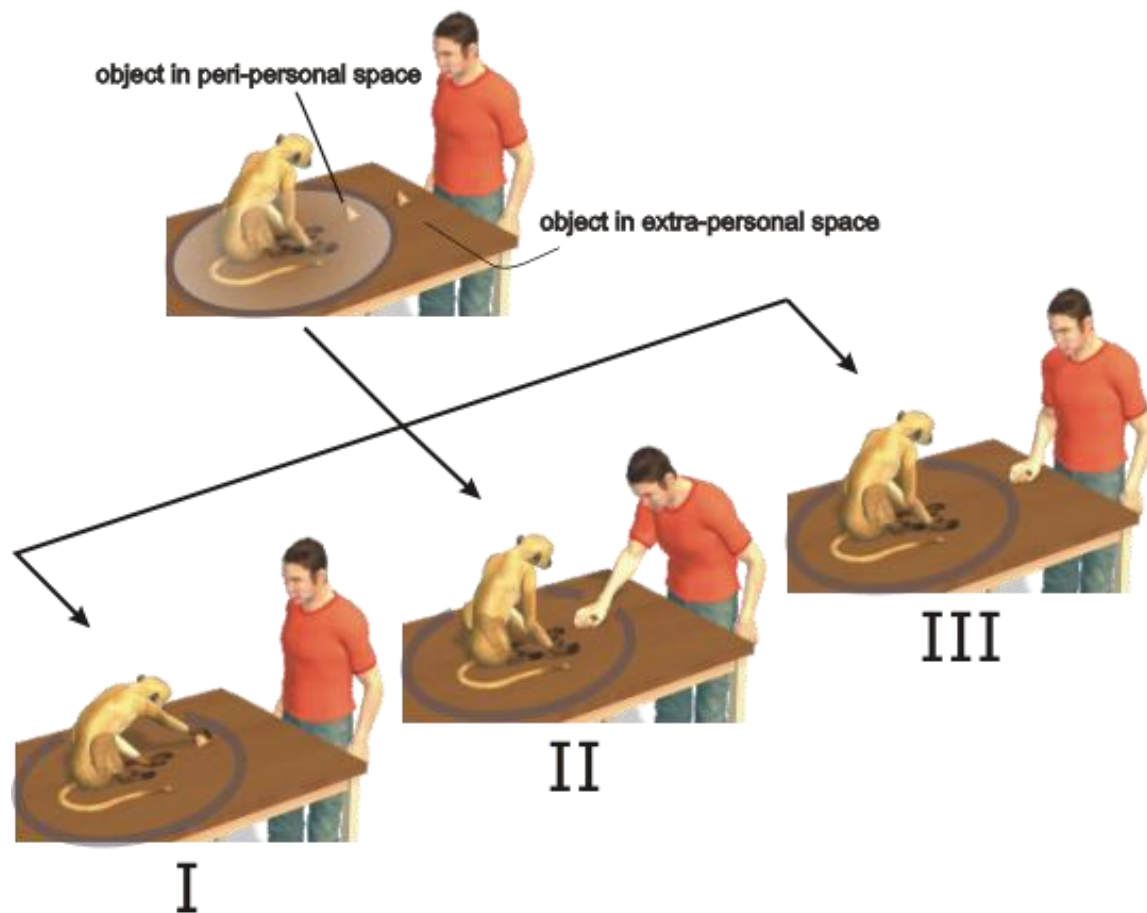
Neuroni specchio selettivi per la prospettiva di osservazione

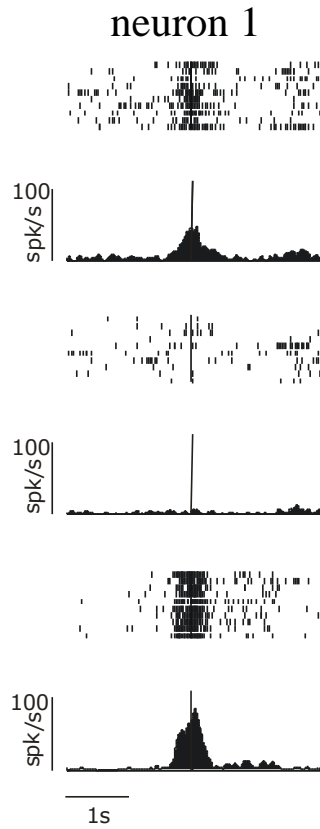
26% invarianti
74% prospettiva-dipendenti
30% selettivi per un solo punto
di vista

Caggiano et al. 2011

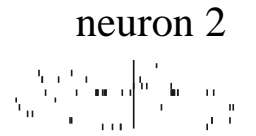
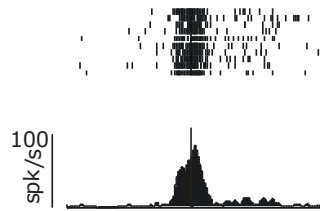
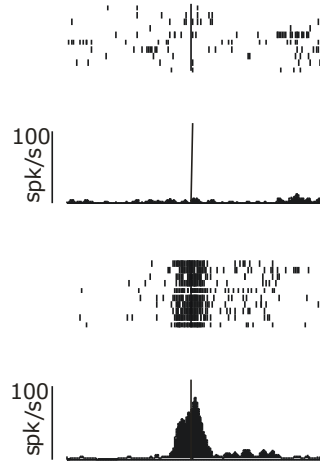


Risposta mirror ad atti motori svolti a distanze differenti

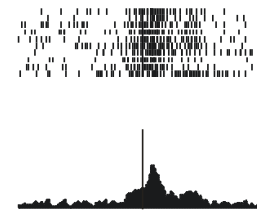
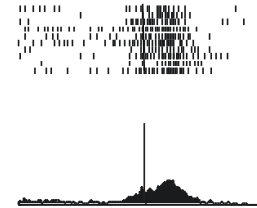
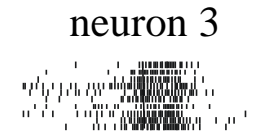




Mirror neuron
selective for the
extra-personal
space

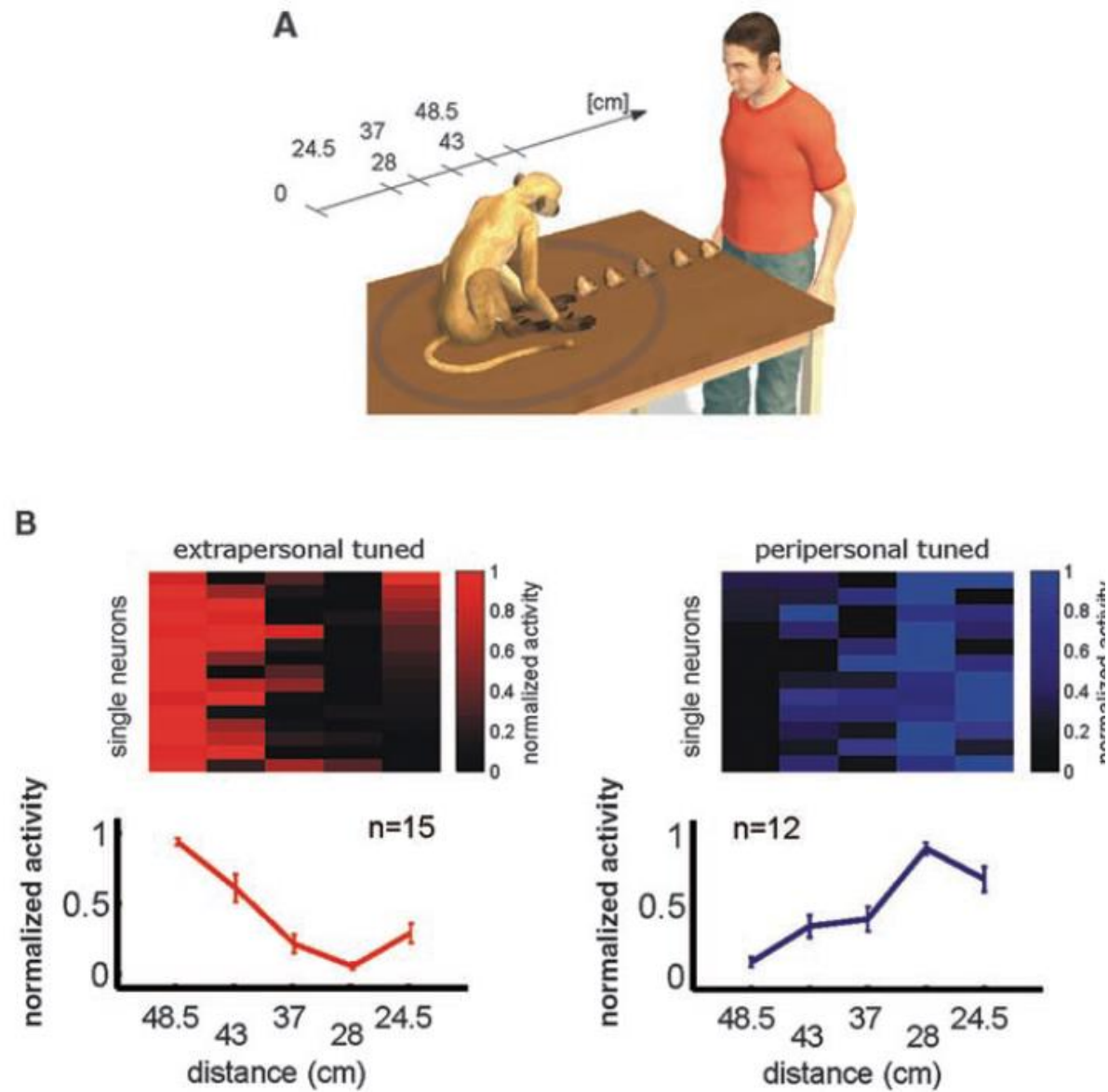


Mirror neuron
selective for the
peri-personal
space



„classic“
mirror neuron

Gradiente di modulazione in base alla distanza



Formato della risposta



metric	extra-personal	peri-personal	peri-personal
operational	extra-personal	peri-personal	extra-personal

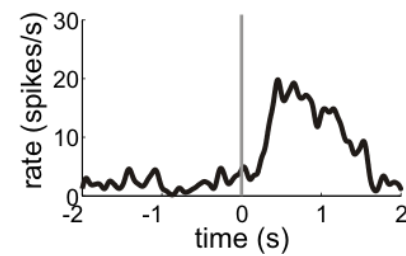
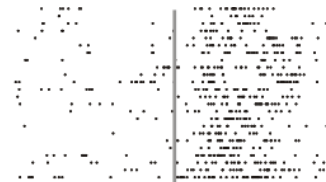
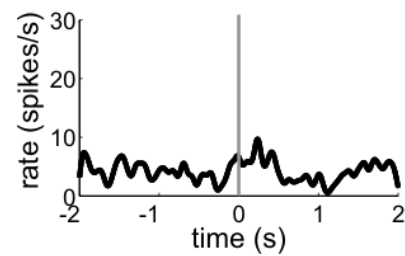
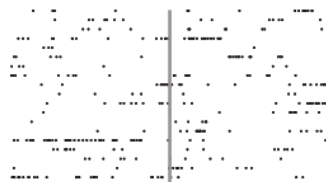
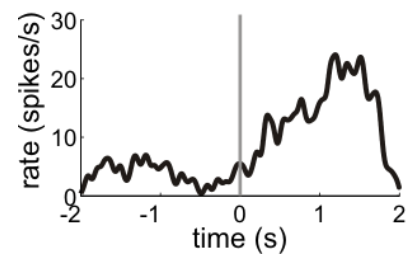
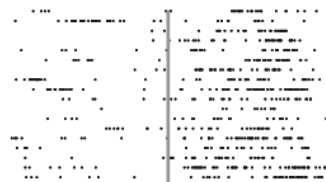
extra-personal space

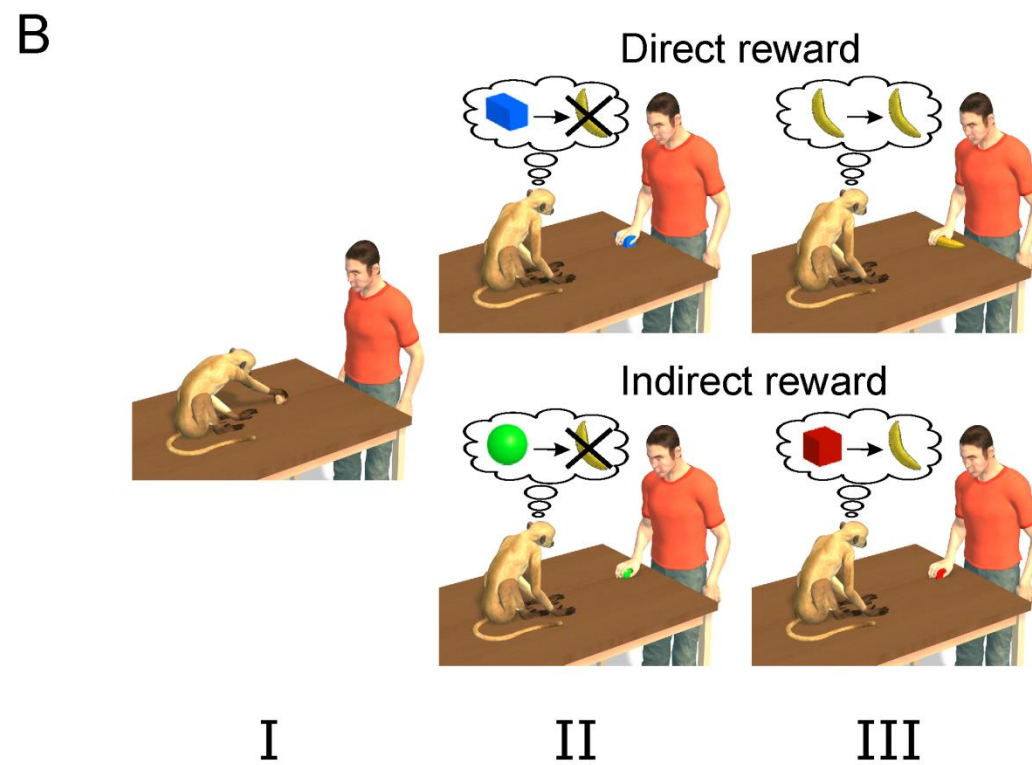
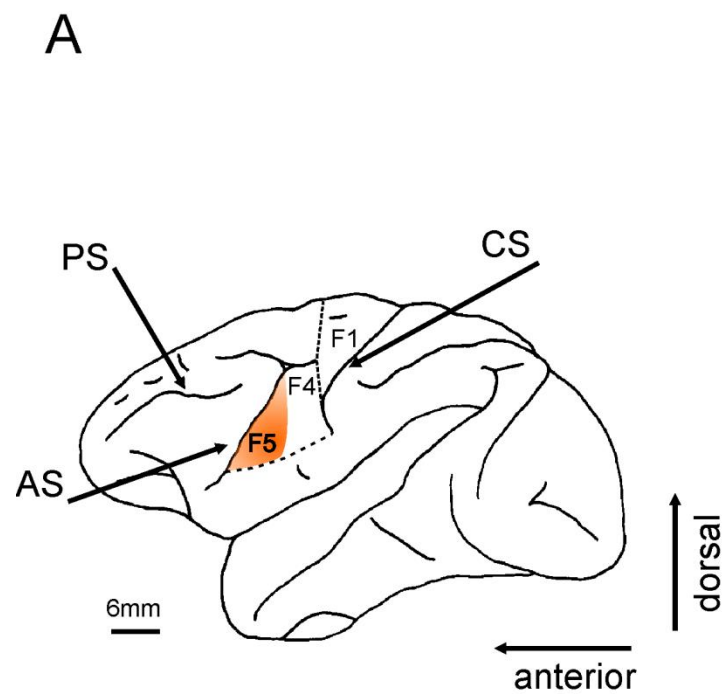


peri-personal space
object inside
workspace

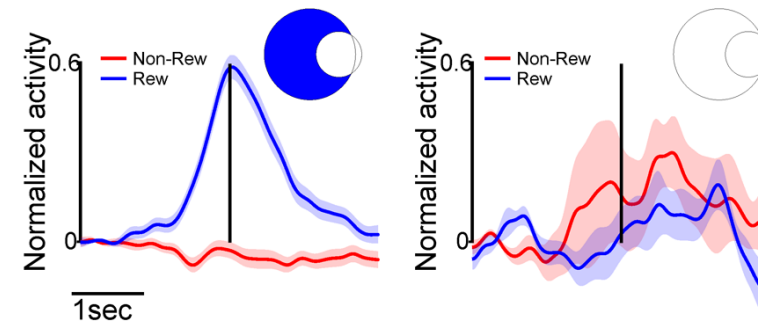
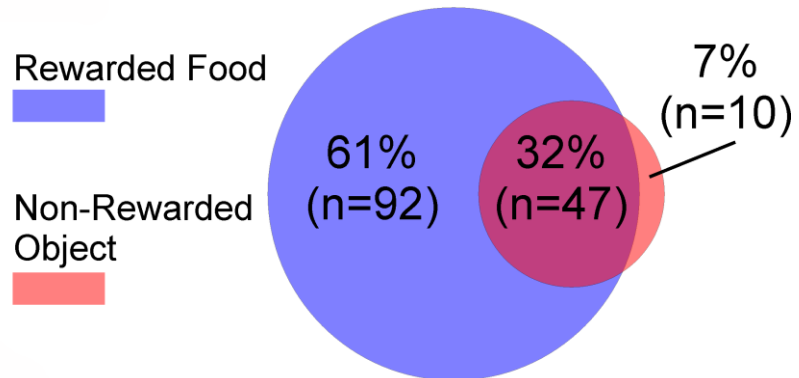
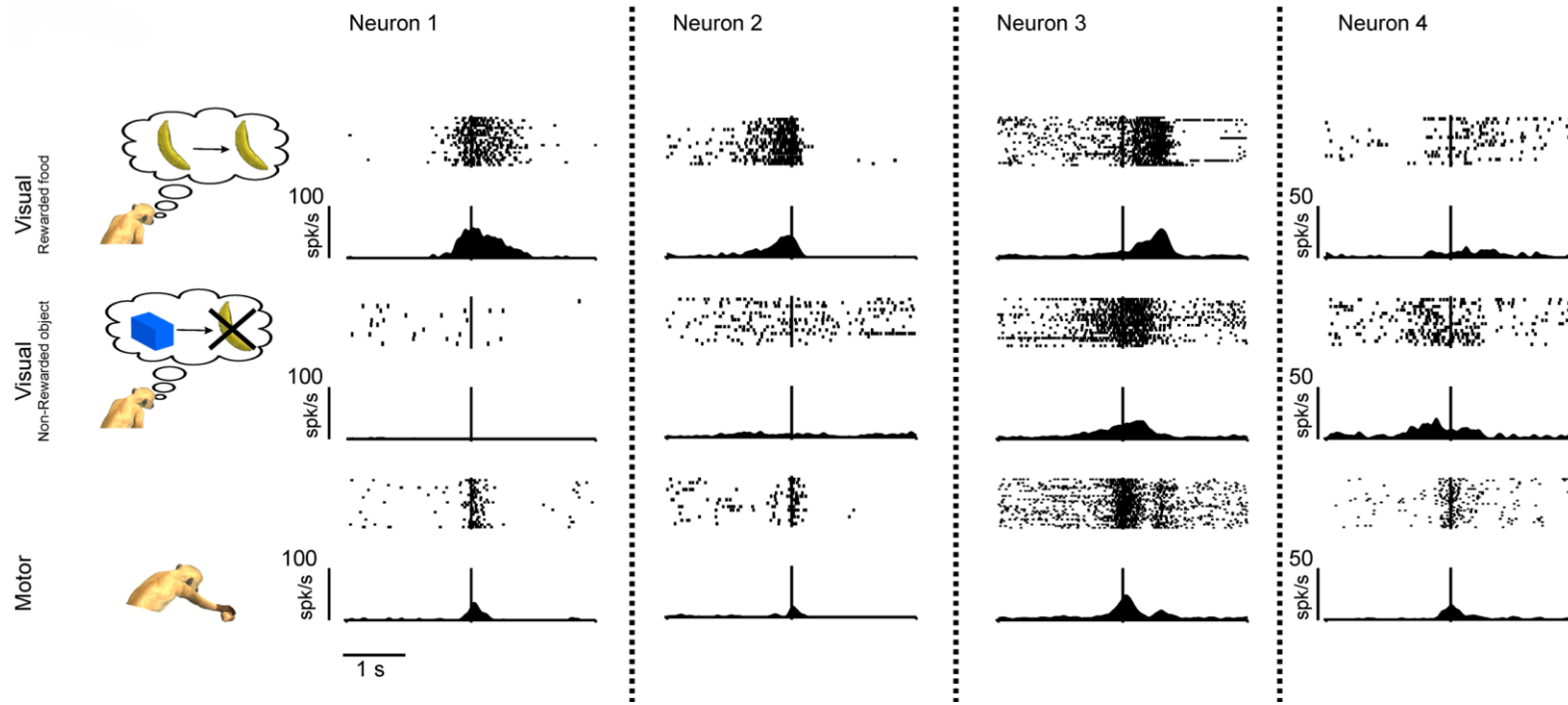


peri-personal space
object outside
workspace

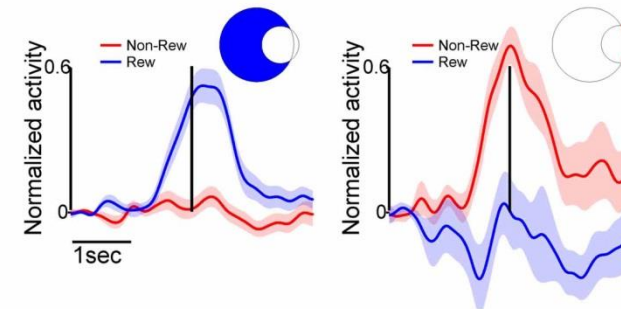
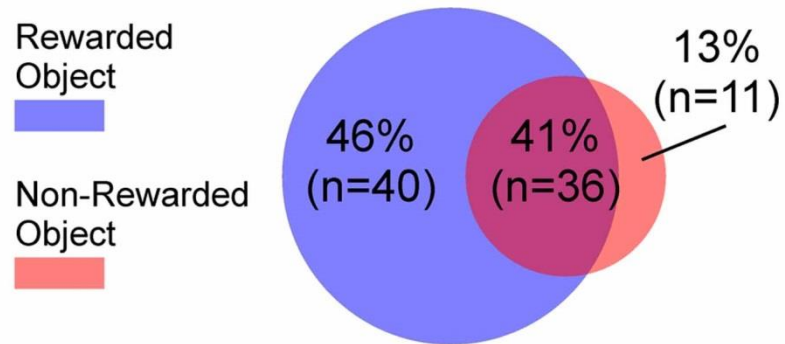
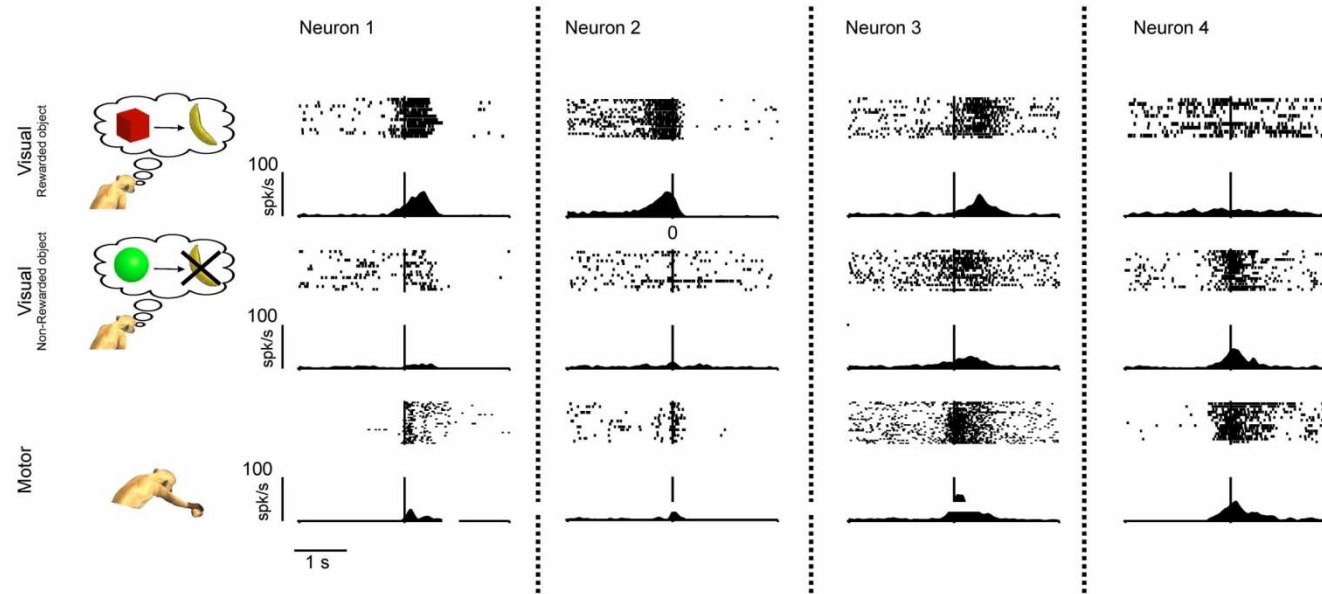




Experiment 1

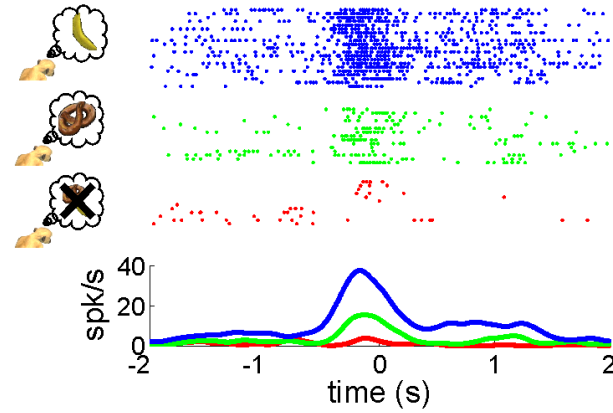


Experiment 2

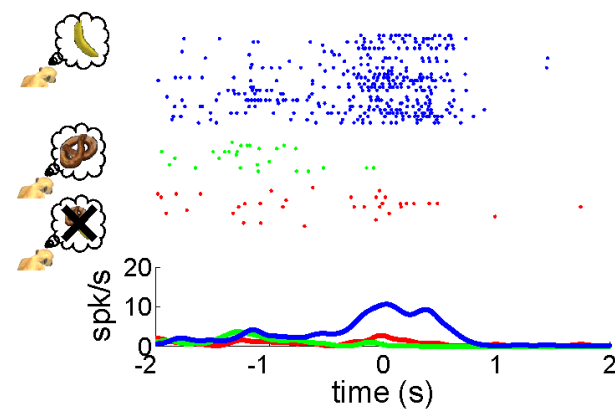


Experiment 3

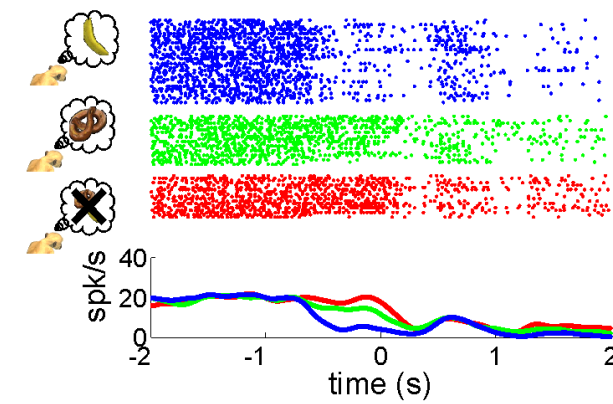
Neuron 1



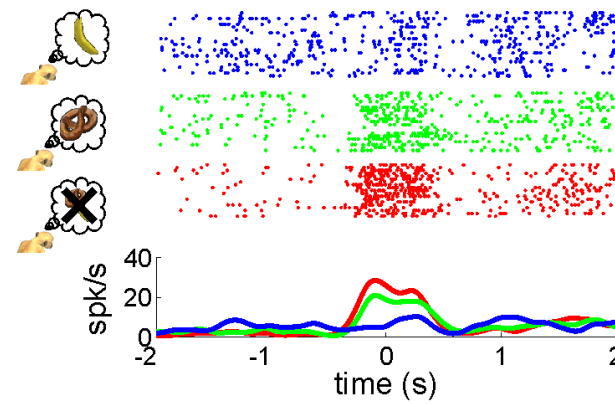
Neuron 2



Neuron 3



Neuron 4



Comportamento dei neuroni visuomotori nei
paradigmi di go-nogo

