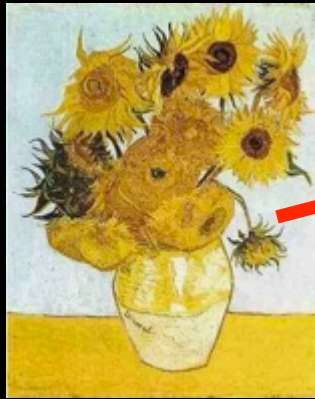
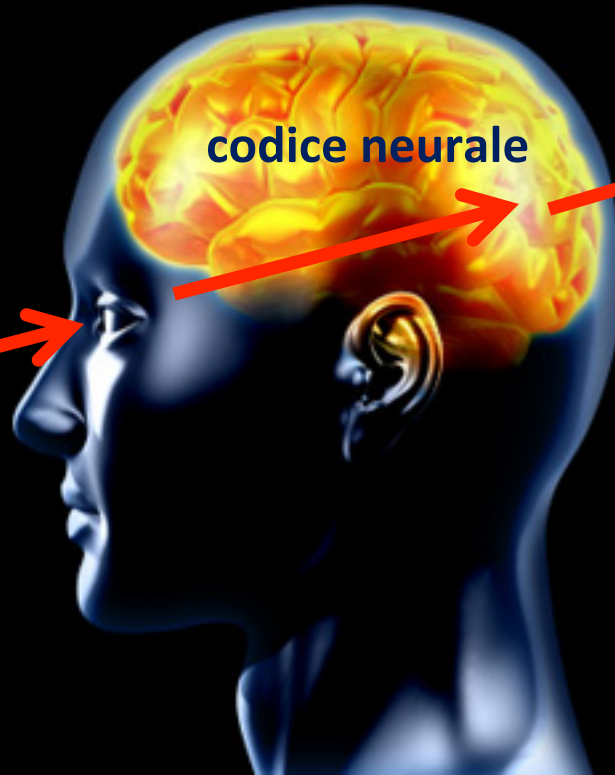


# Rappresentazione mentale dell'universo

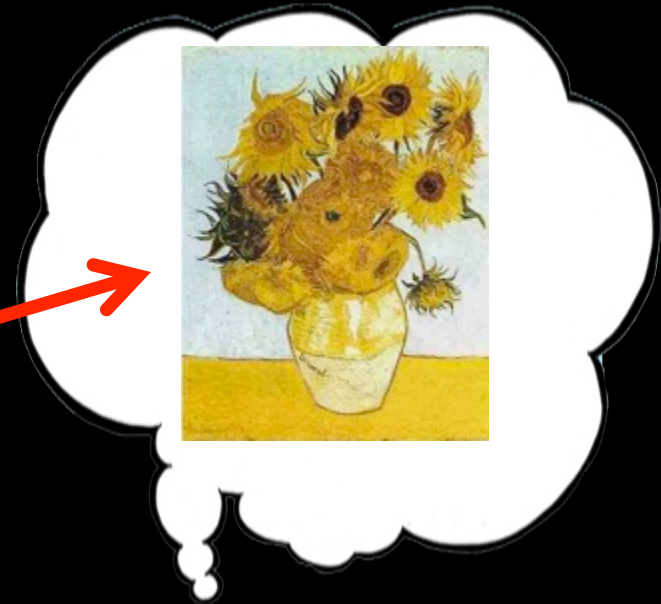




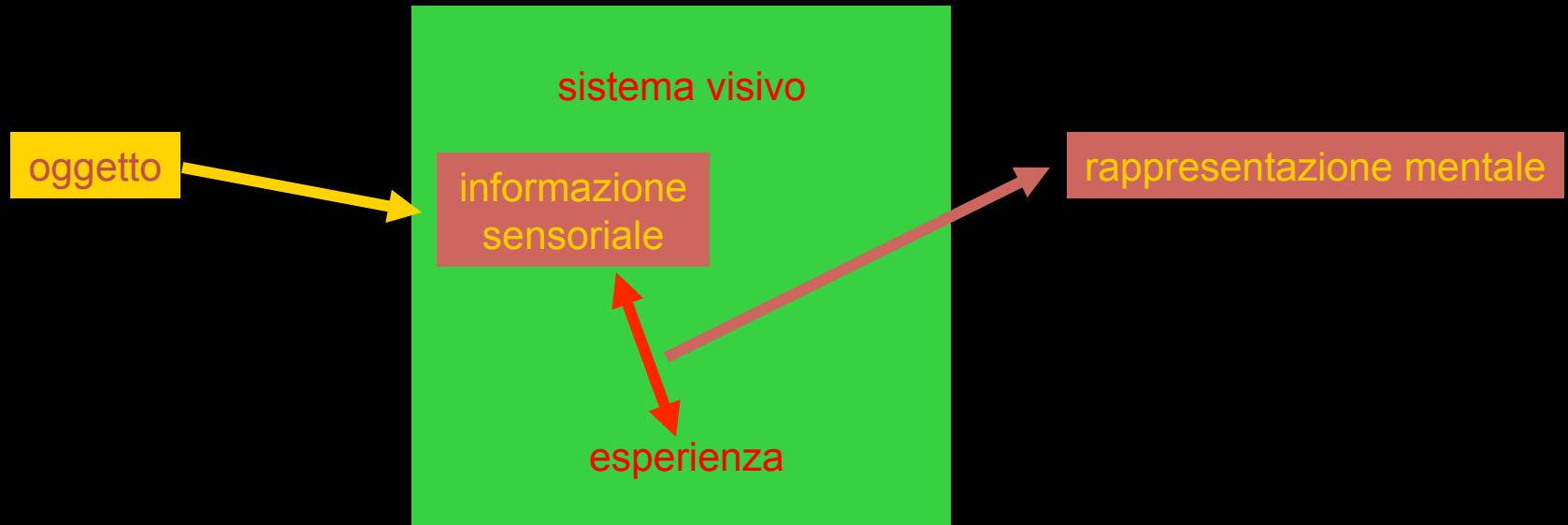
**oggetto/stimolo**



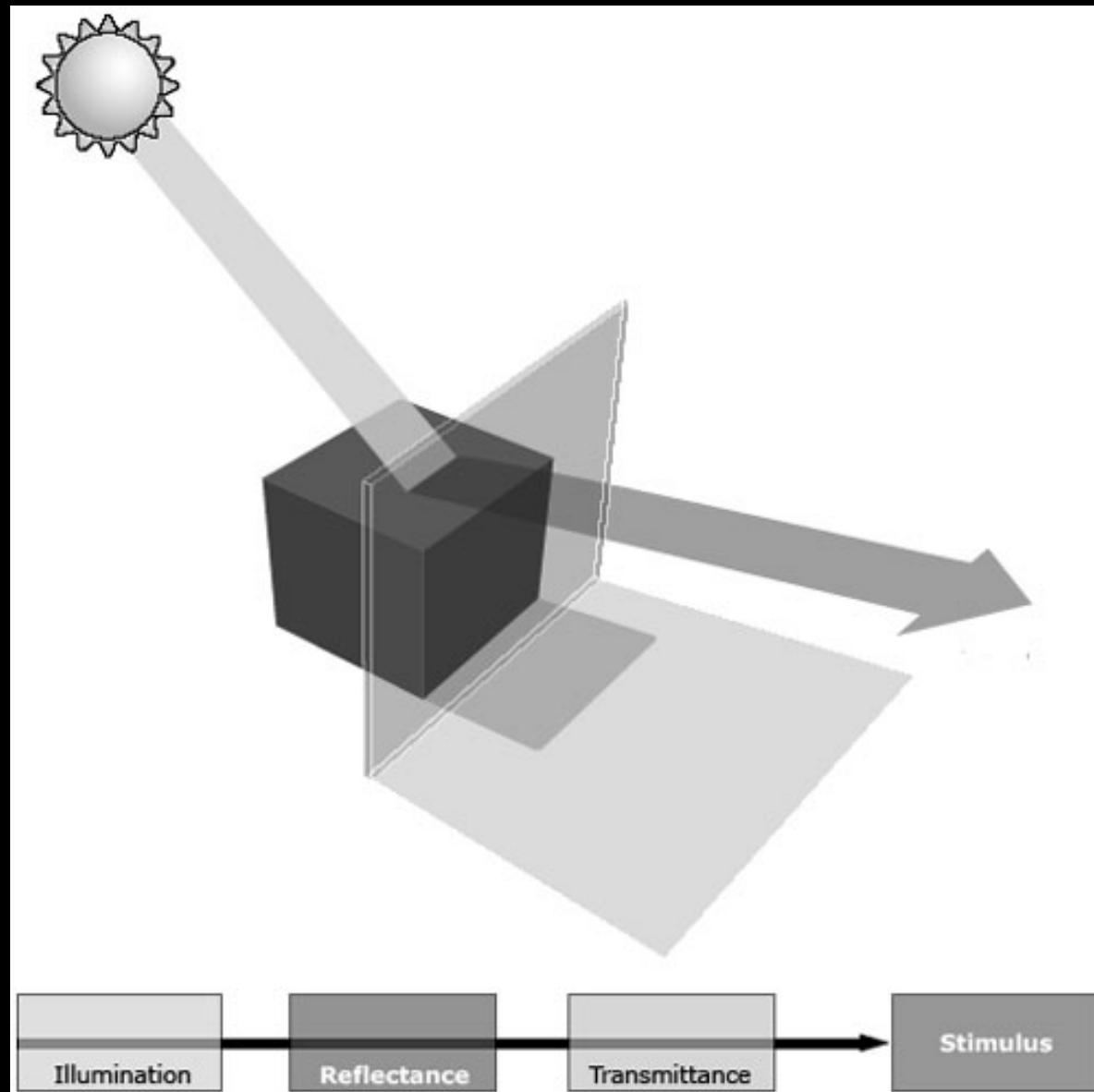
**codice neurale**



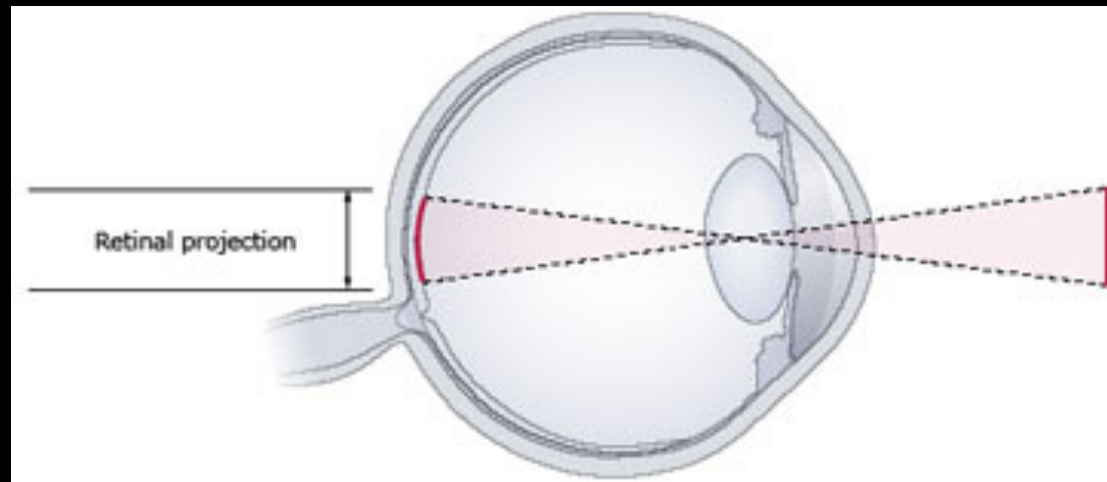
**rappresentazione  
mentale**



# L'informazione sensoriale visiva è ambigua - 1



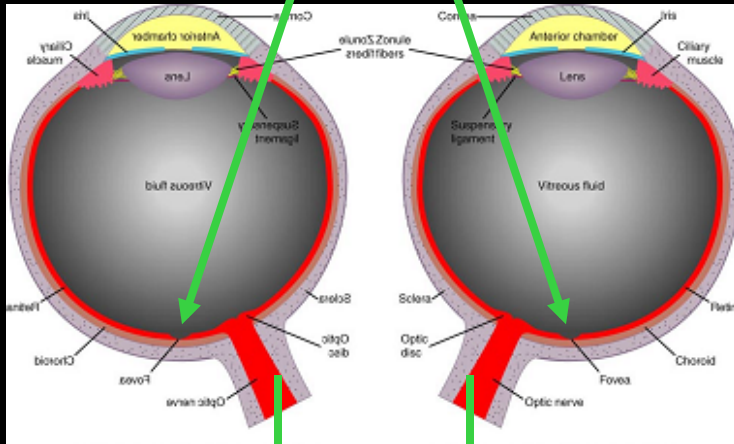
# L'informazione sensoriale visiva è ambigua - 2



# L'informazione sensoriale visiva è ambigua - 3



l'immagine dell'oggetto raccolta dalla retina è:



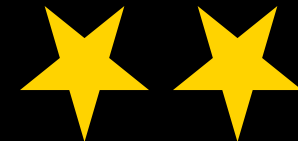
doppia



capovolta

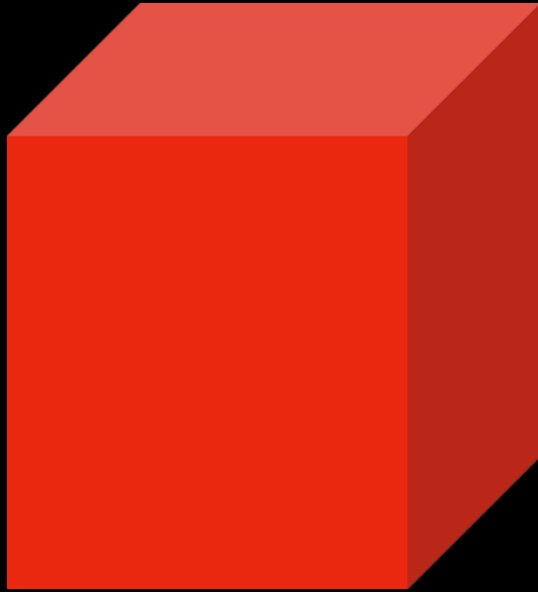


bidimensionale



sistema visivo





*qualia*

**Forma (cubo)**

**Colore (rosso)**

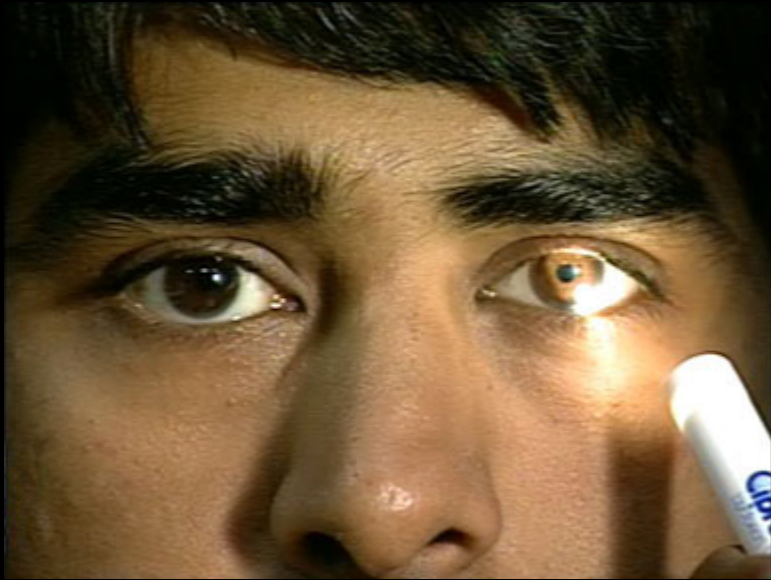
**Irrevocabilità dell'input**

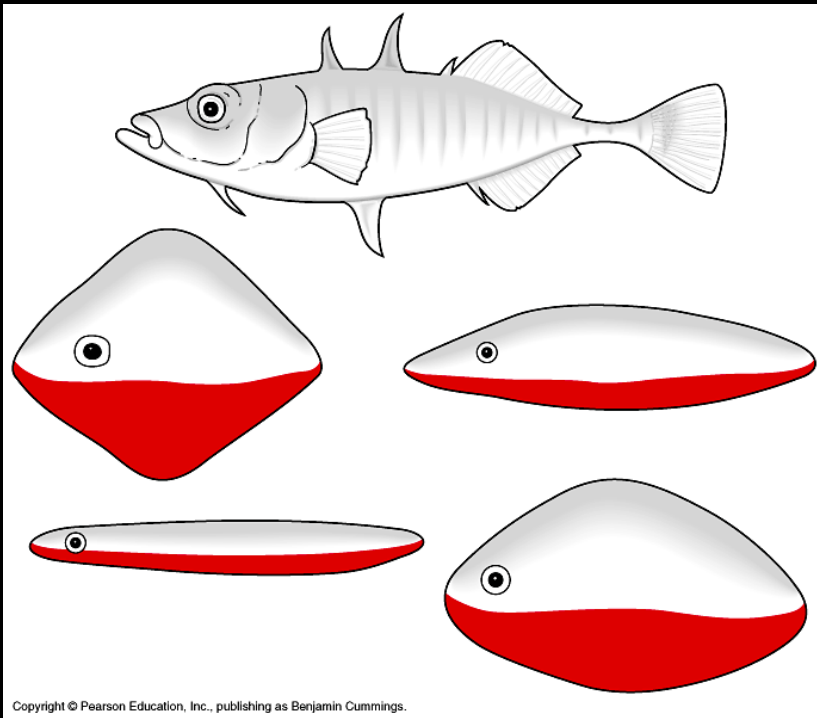
**Flessibilità dell'output**

**Rappresentazione mantenuta nella memoria di lavoro**

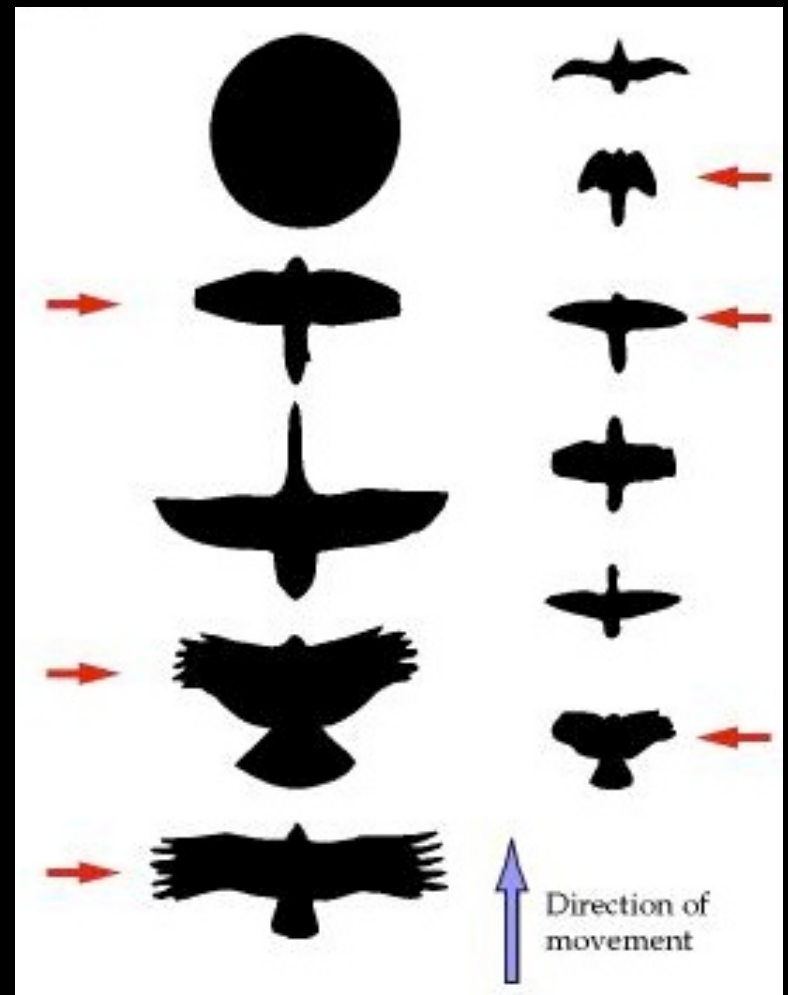








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Actual colour & shape	Male stickleback: red belly, bluish-white back	Female stickleback: greyish-green body, swollen silvery belly
Model characteristics	Red belly 	Swollen belly 
Reaction of males to model	<b>Attack</b>	<b>Court</b>

**Niko Tinbergen**



## FAP (Fixed Action Pattern)



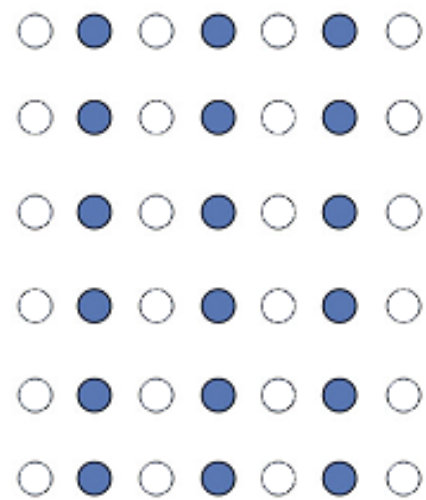
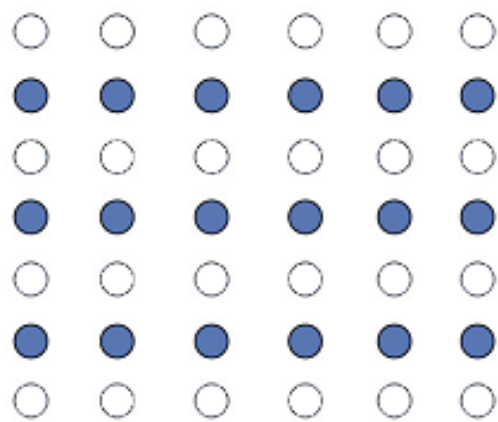
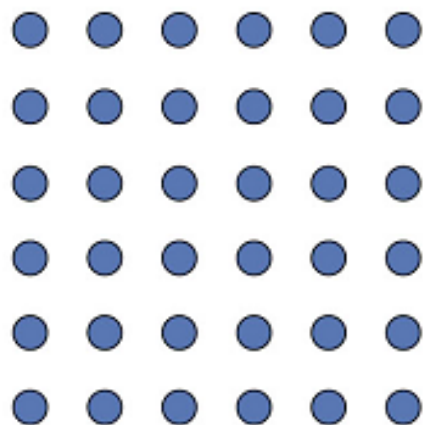
*“if you smile at me I will understand ‘cause that is something everybody everywhere does in the same language”*

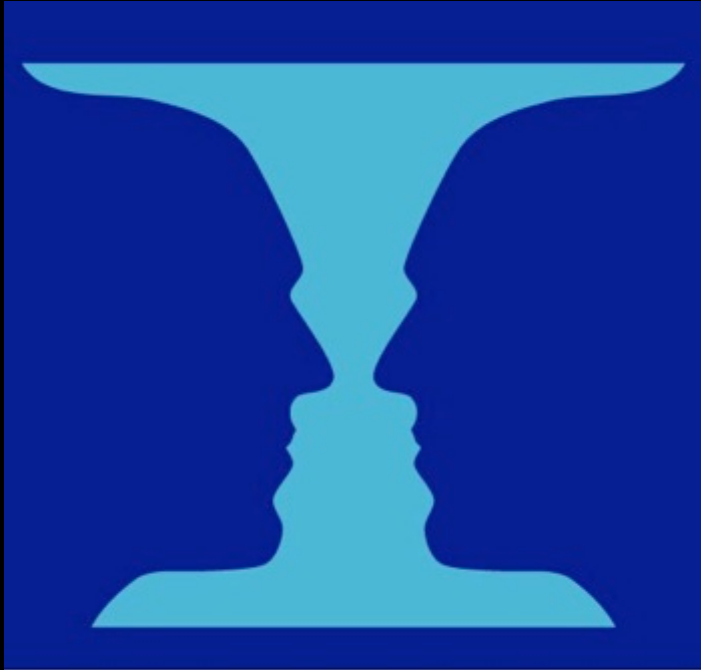
**Irenäus Eibl Eibesfeldt**

## Vedere le forme

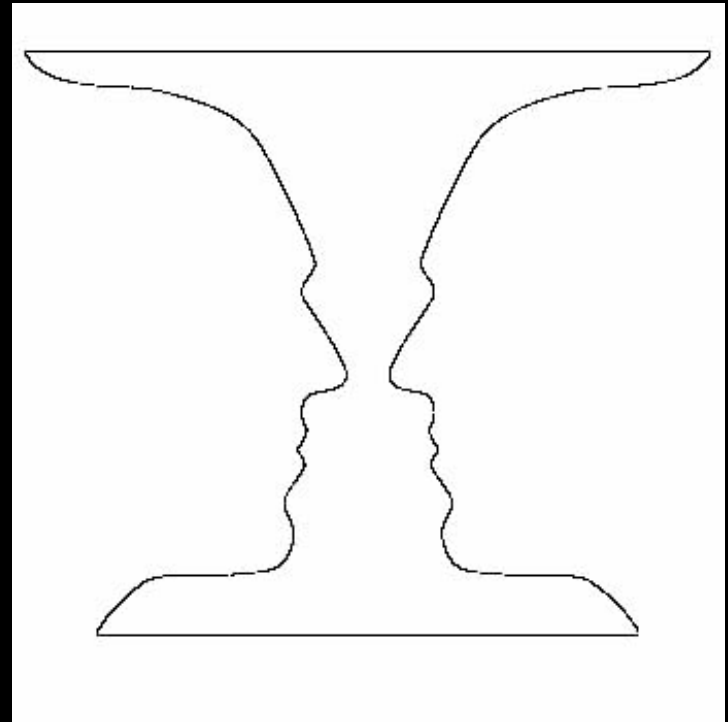




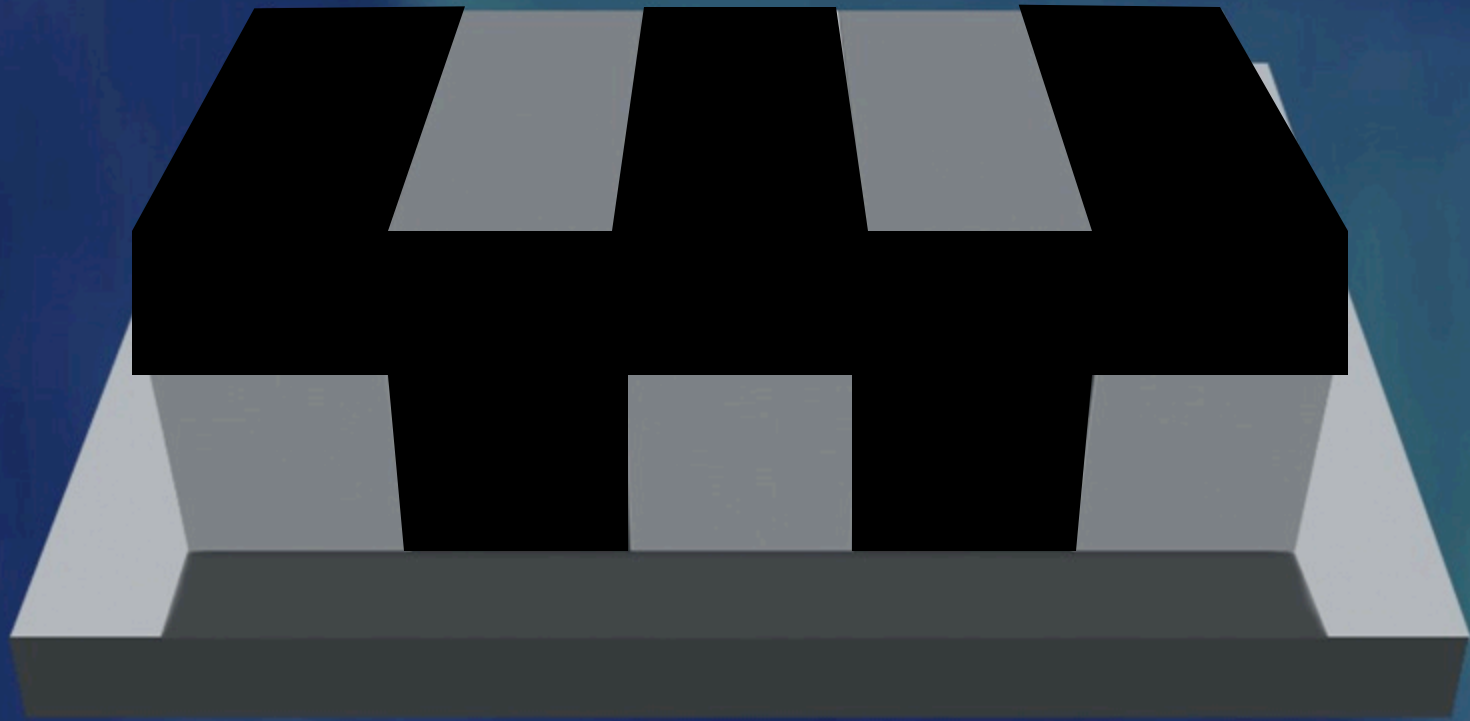




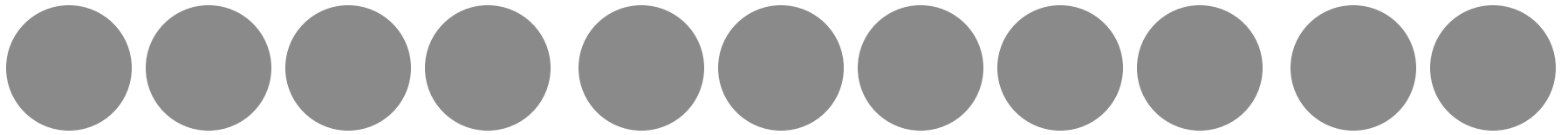
Copyright © 2002, Elsevier Science (USA). All rights reserved.

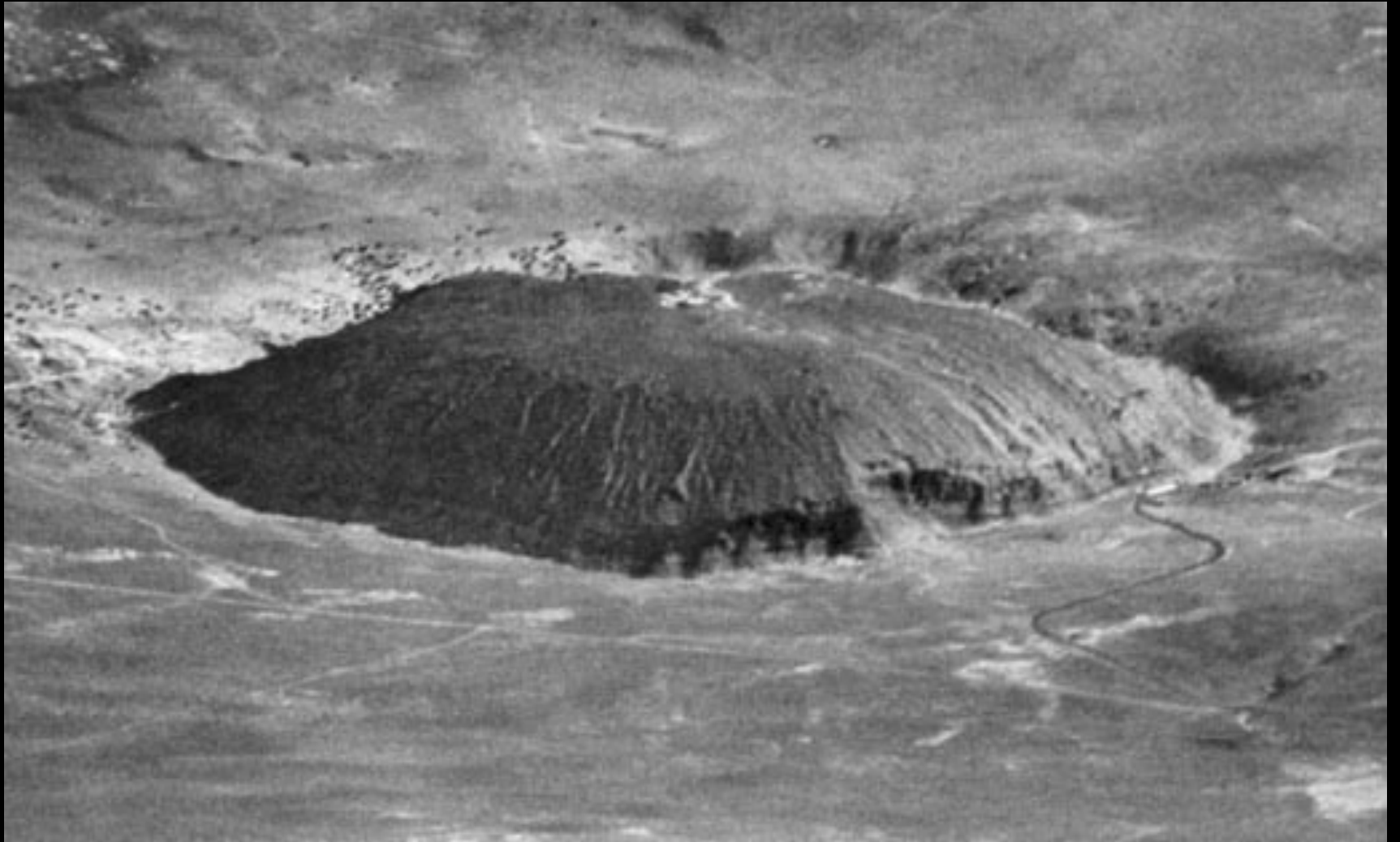


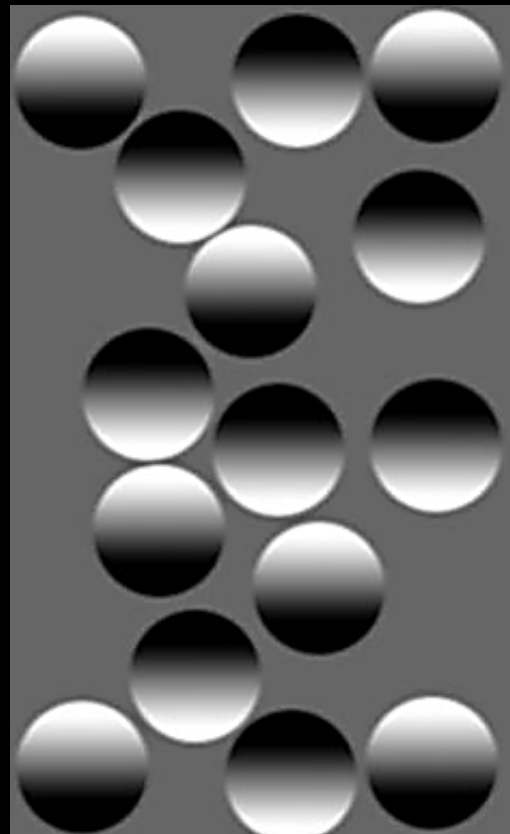
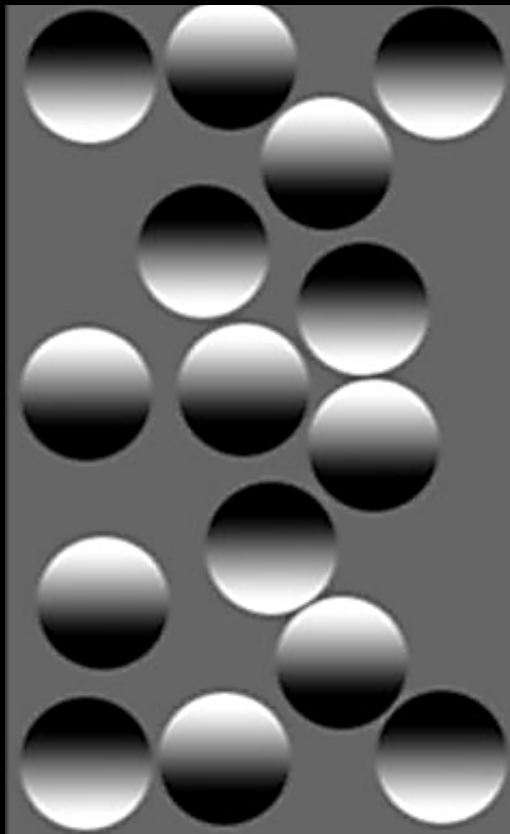




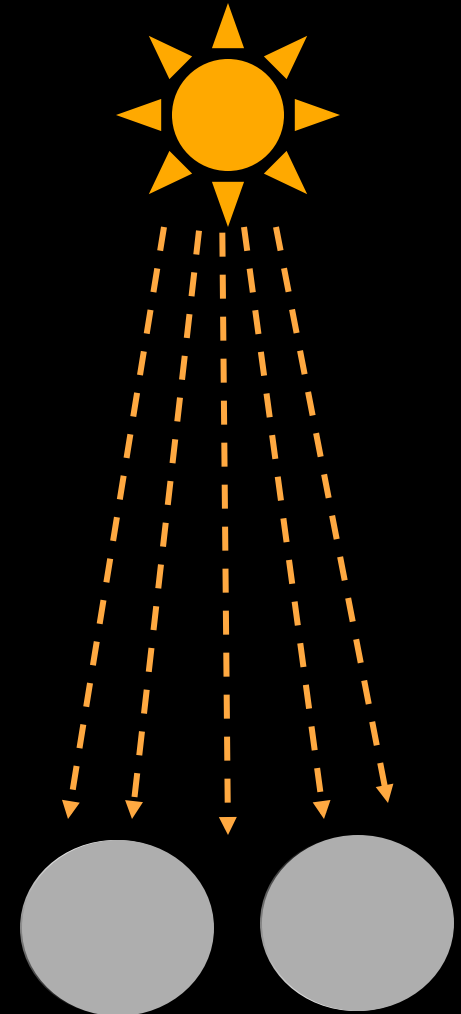
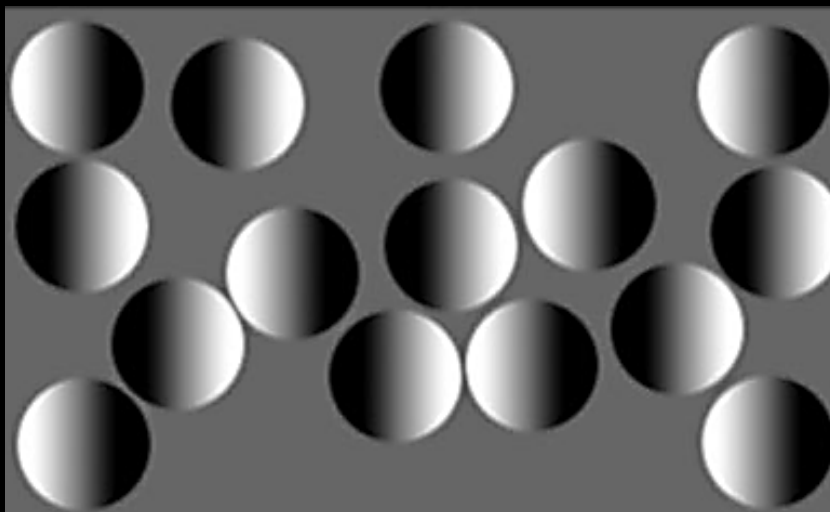




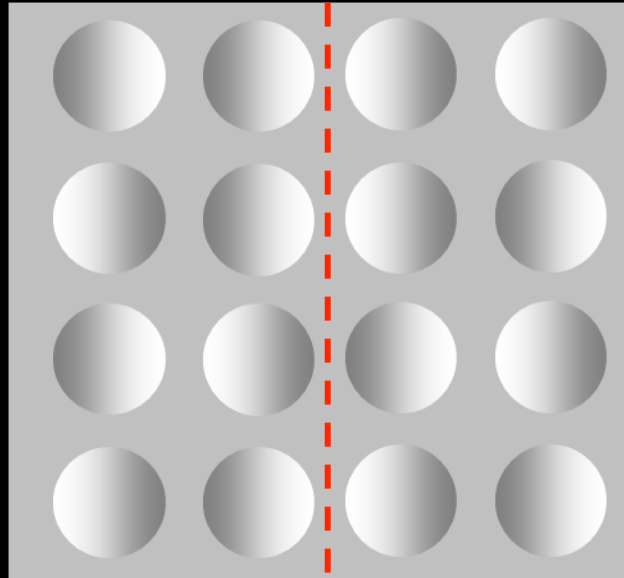
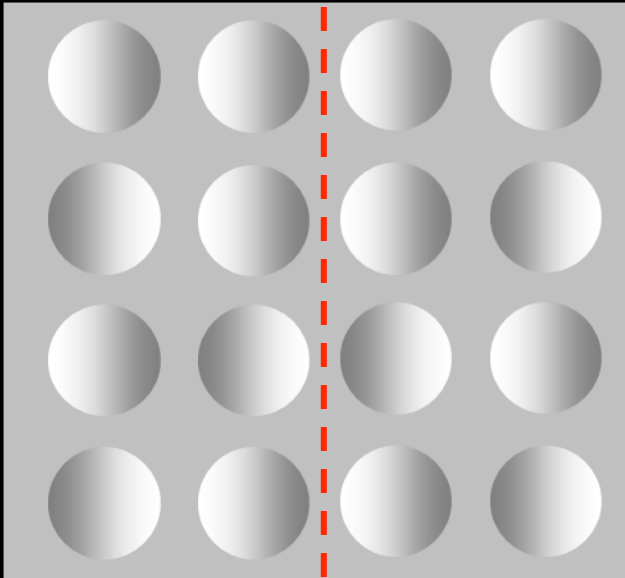
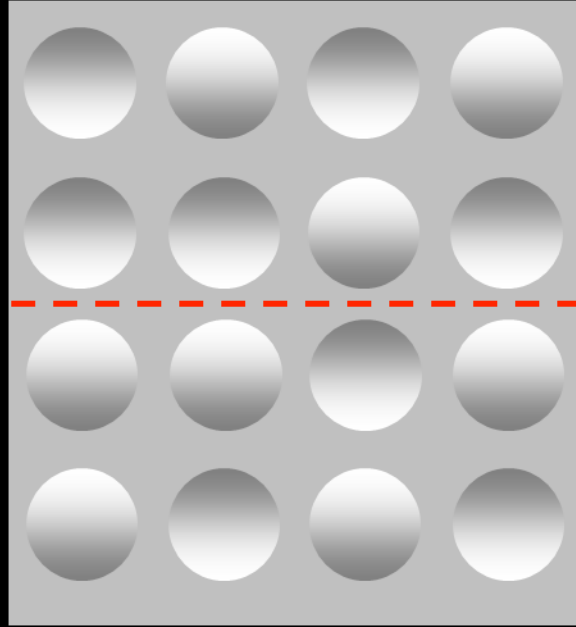
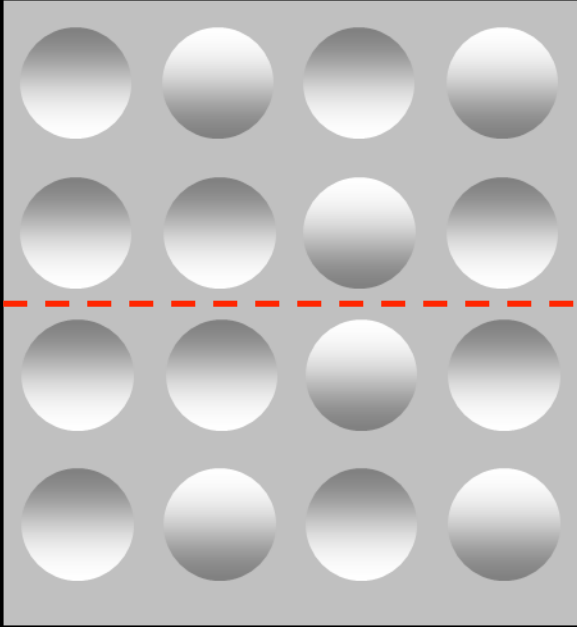




Vilayanur  
Ramachandran











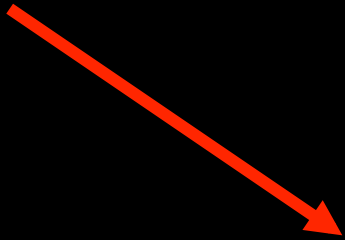
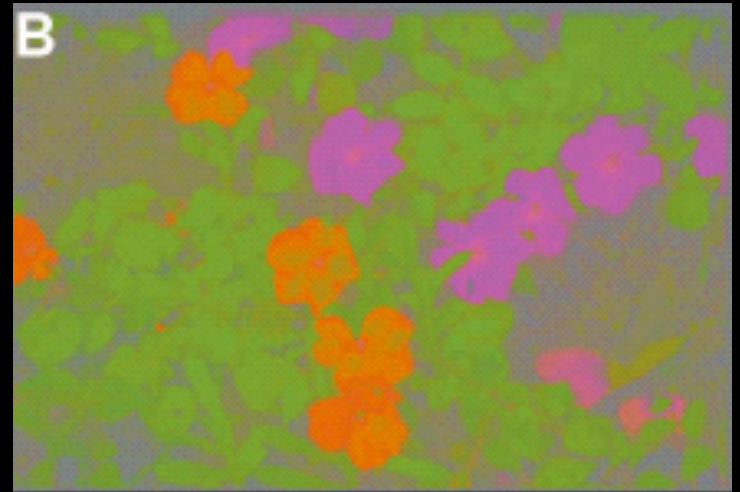
Vedere i colori



quantità di luce

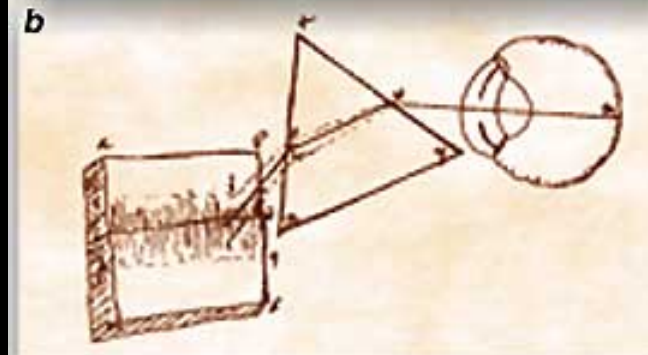
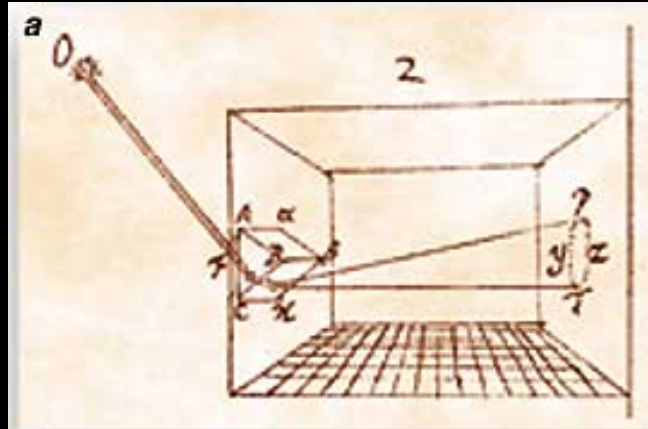
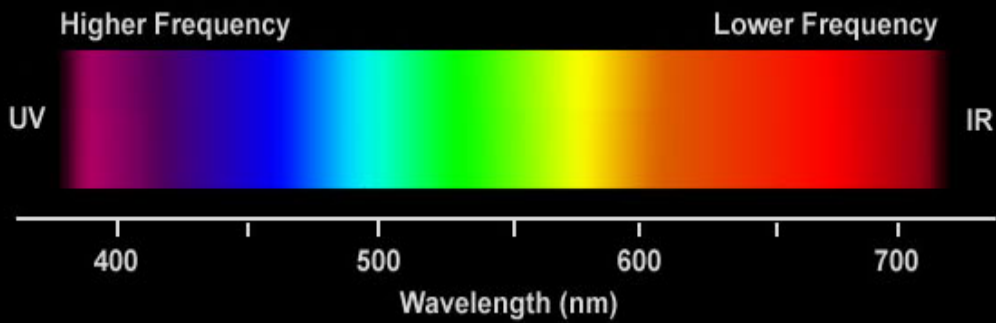


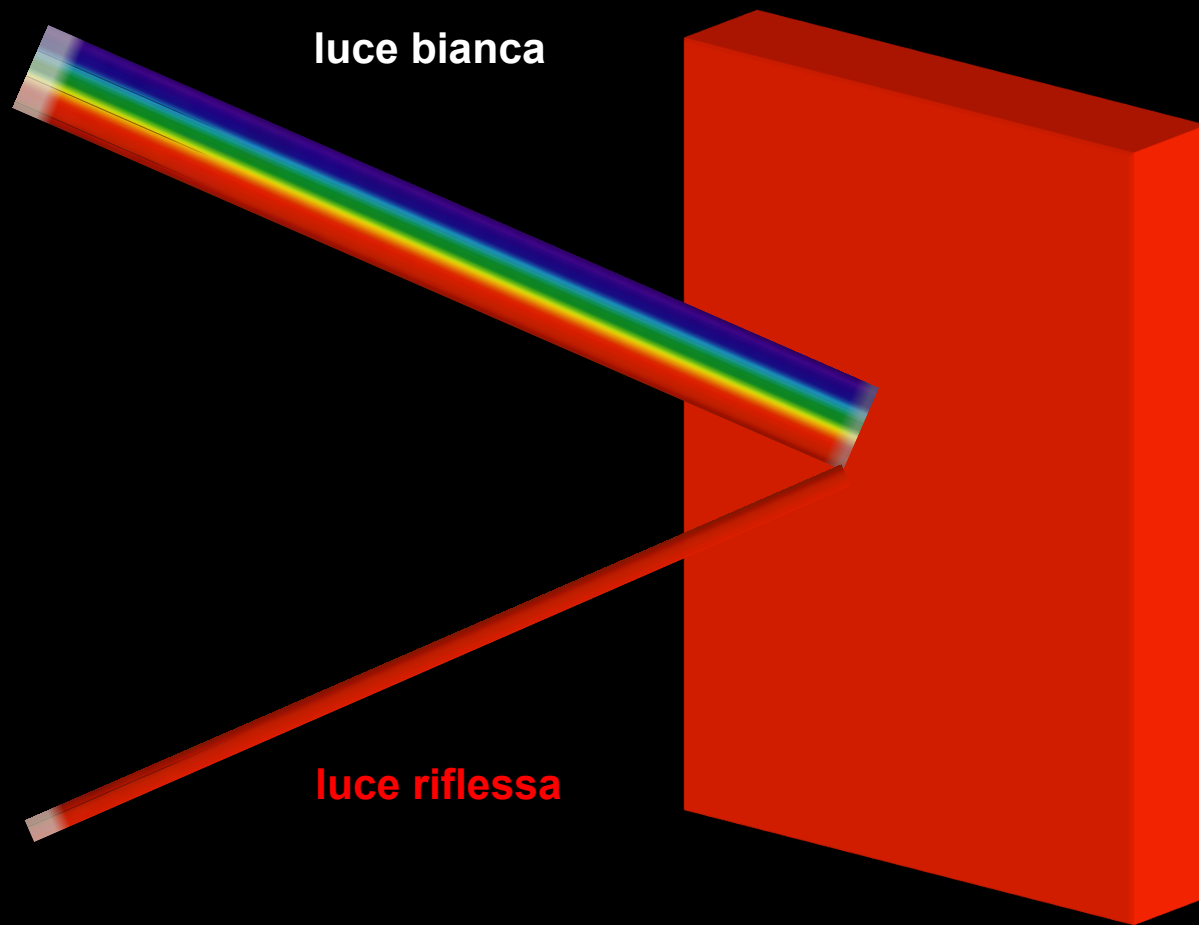
qualità della luce



Visione dei colori







**luce bianca**

**luce riflessa**

# The Color of Light

## *DAYLIGHT FILM*



Tungsten Light  
(uncorrected)



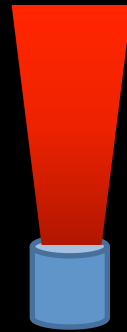
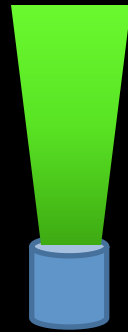
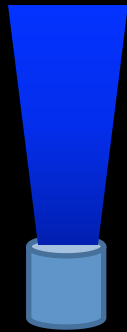
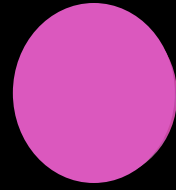
Normal



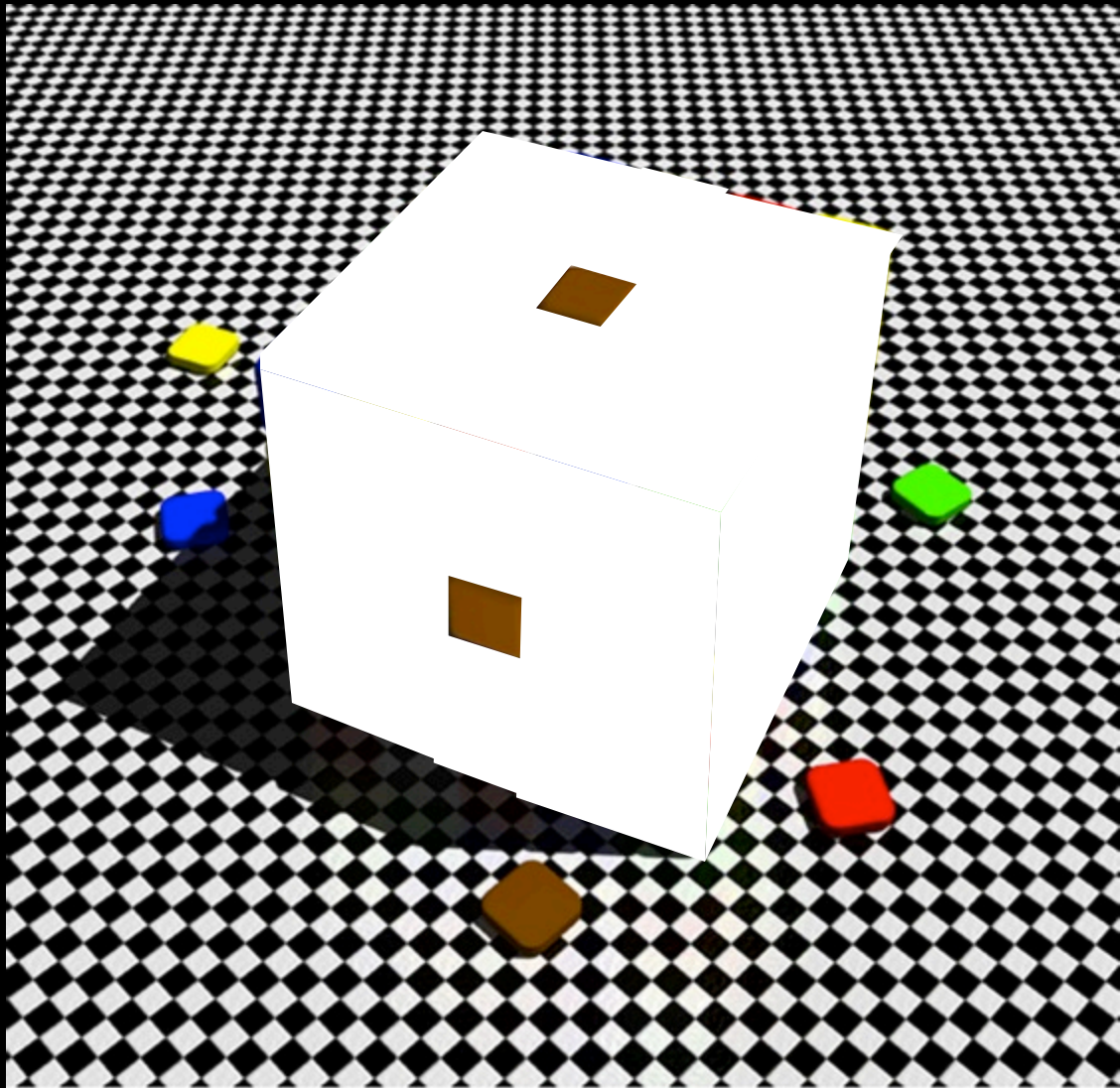
Fluorescent Light  
(uncorrected)

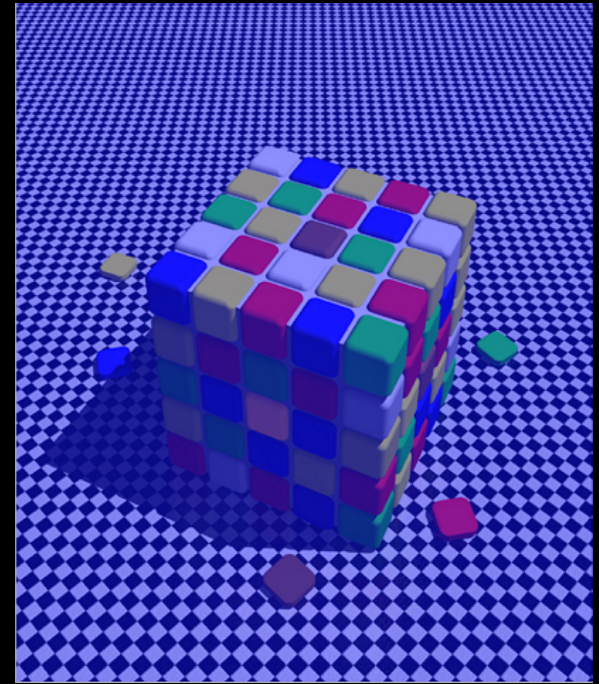
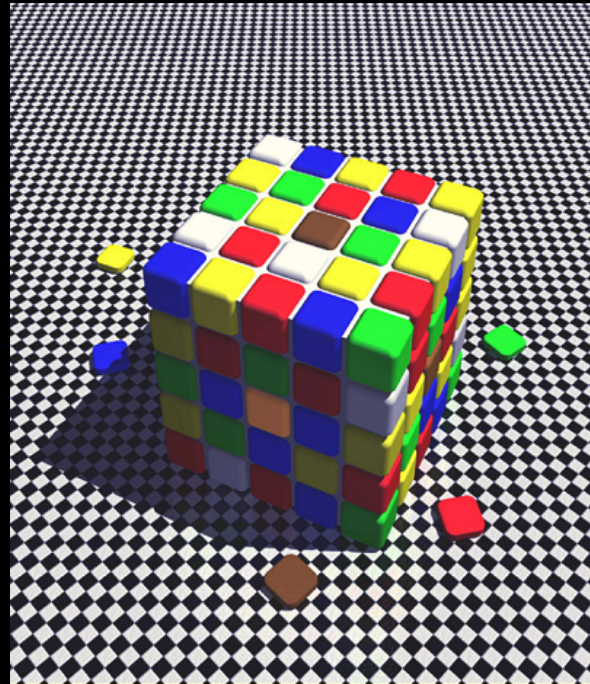
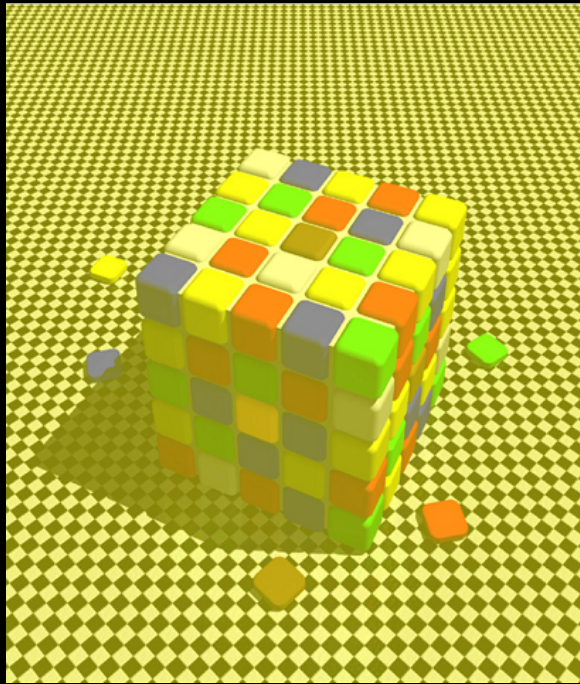
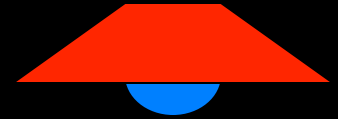
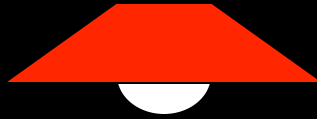
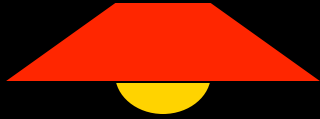


**Edwin Land**

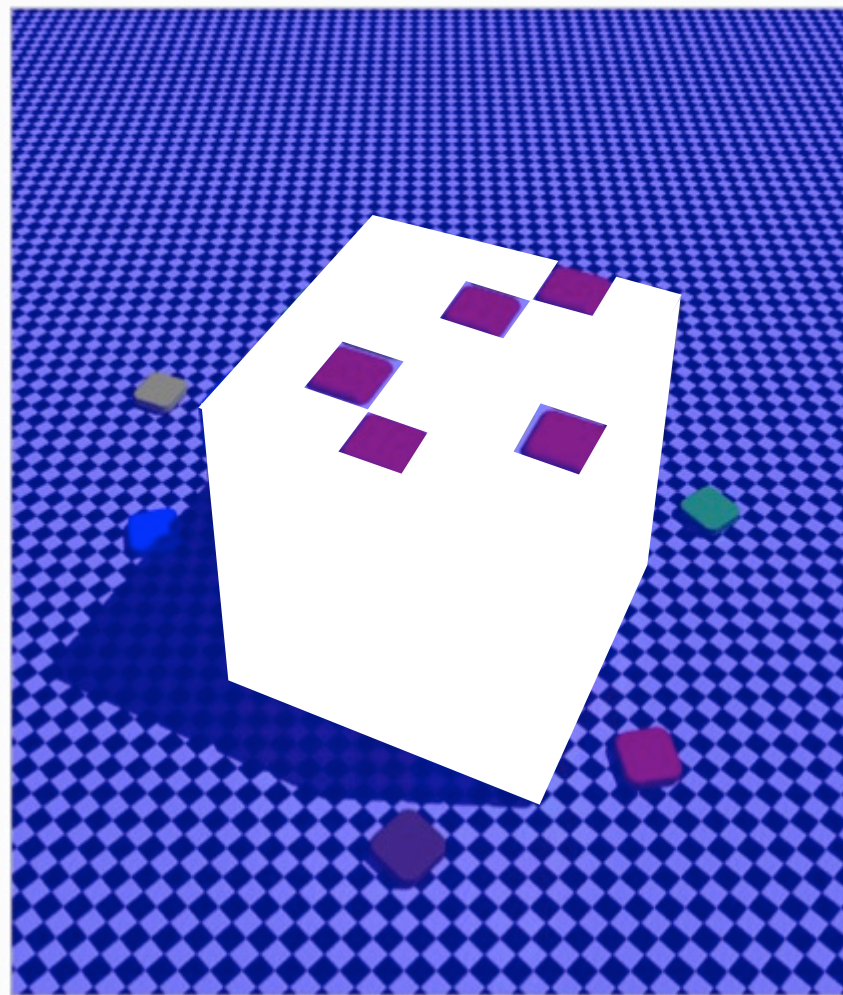
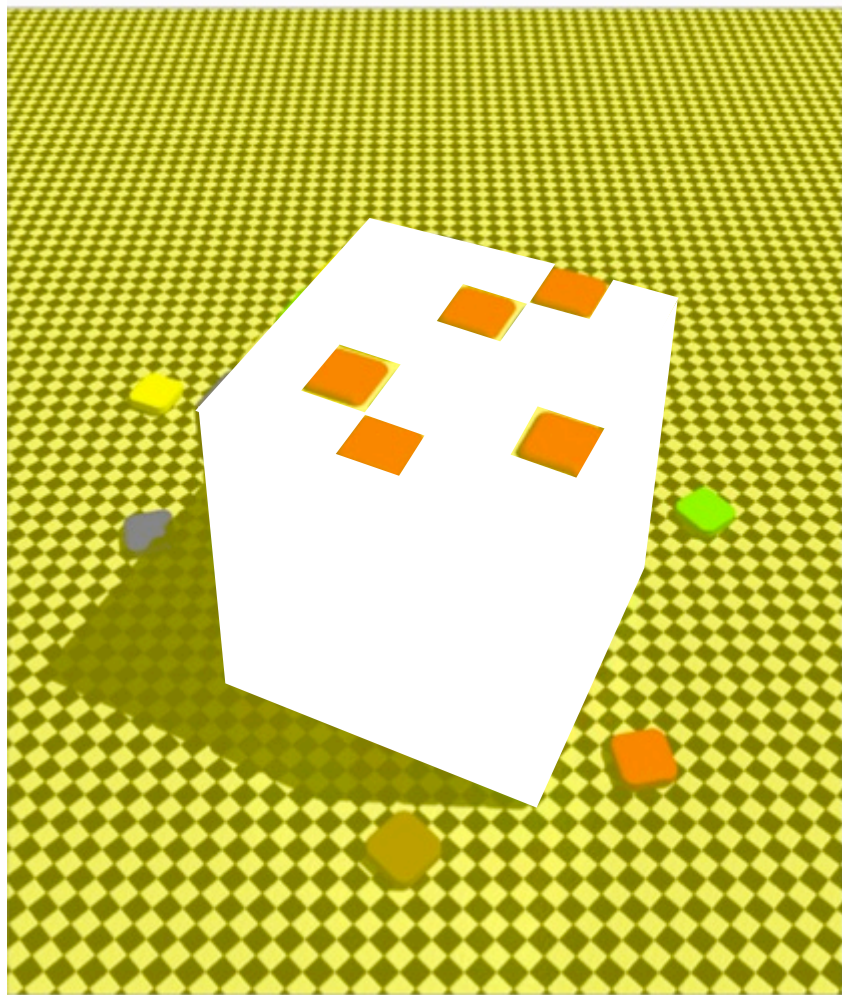




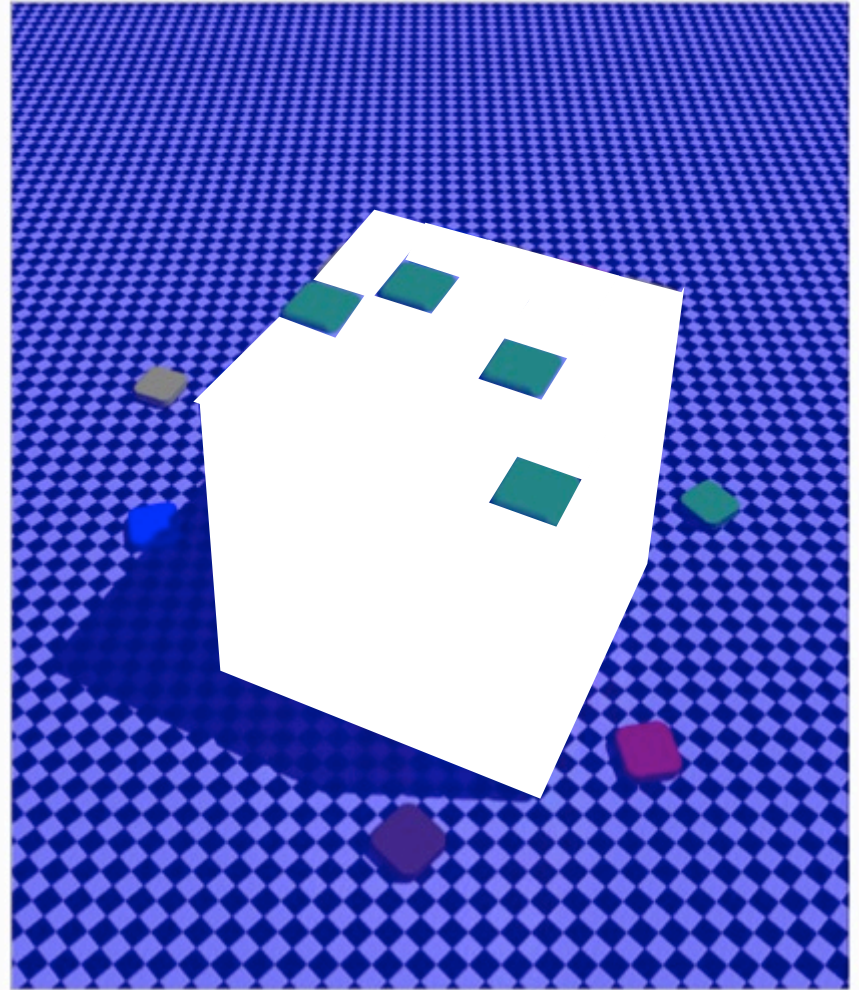
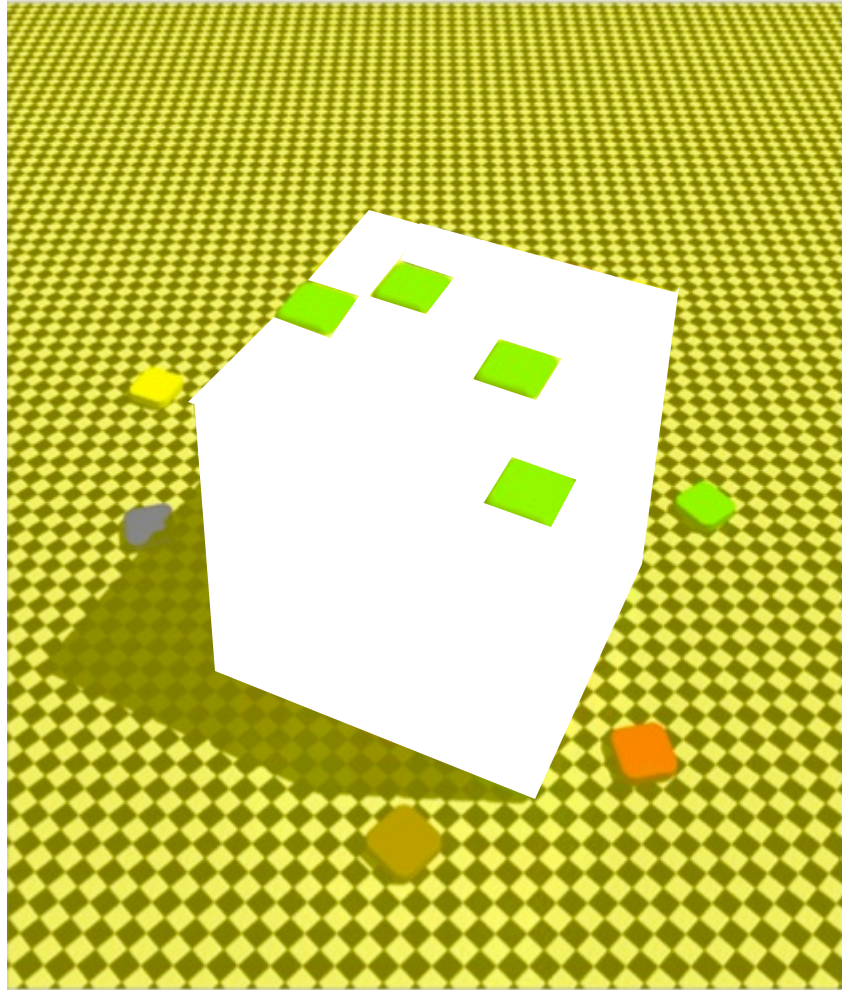




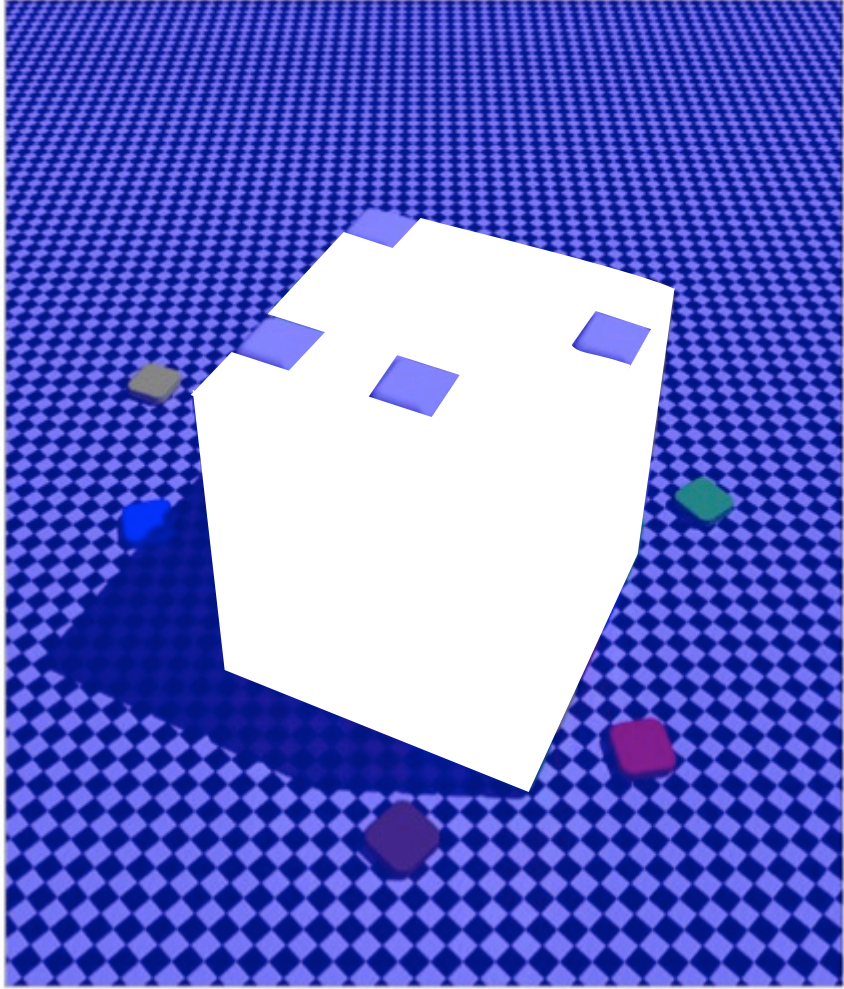
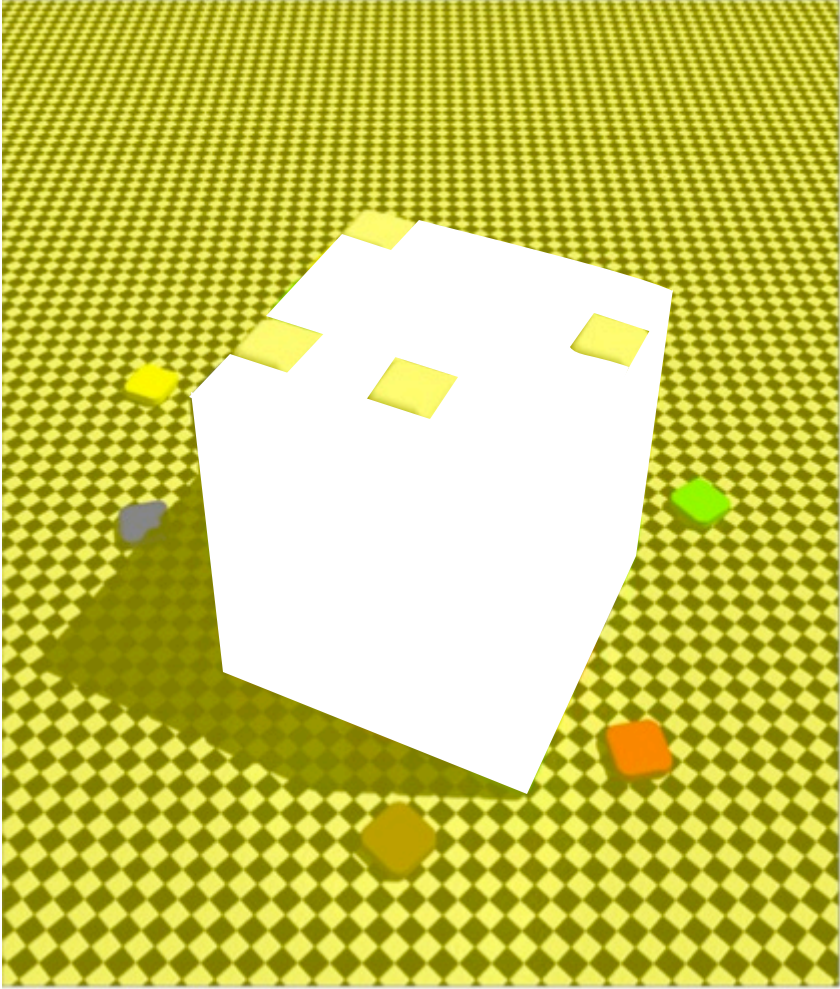




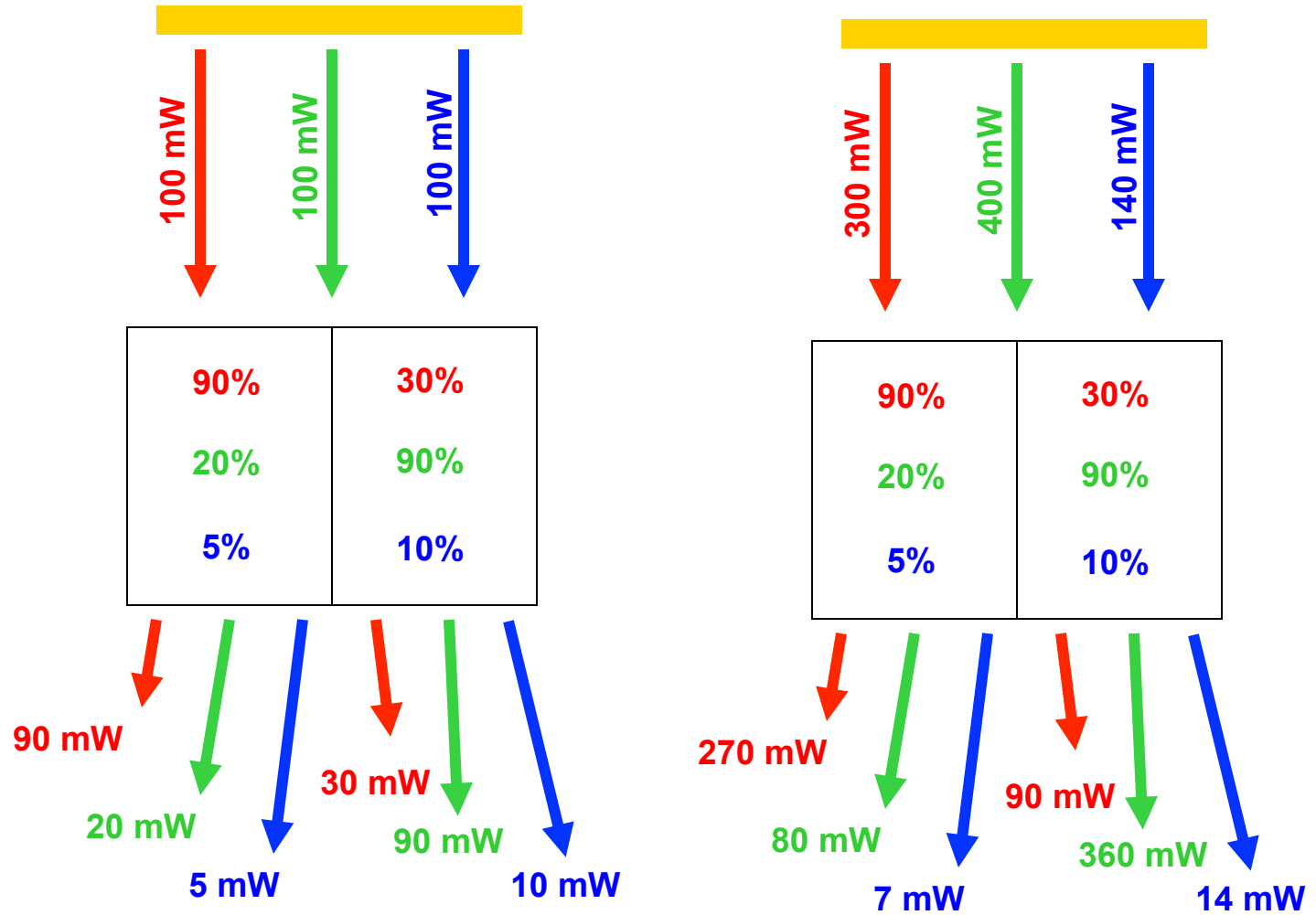








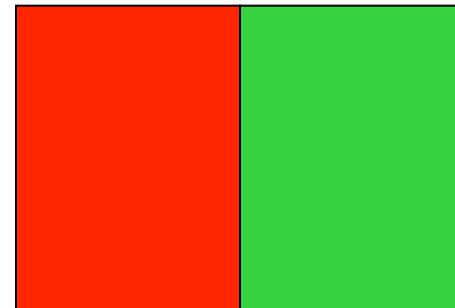
# sorgente luminosa

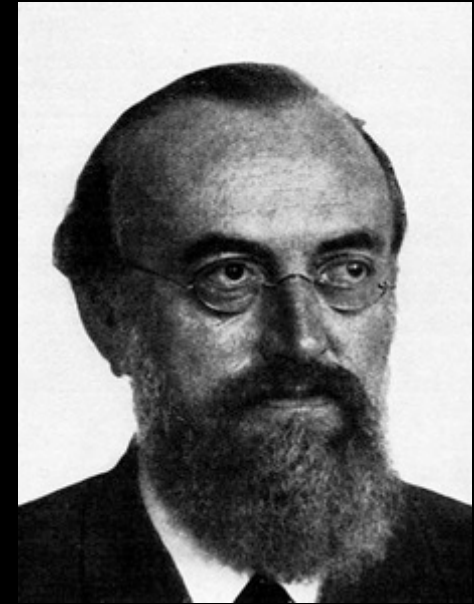


$$90:30 = 270:90 = 3:1$$

$$20:90 = 80:360 = 2:9$$

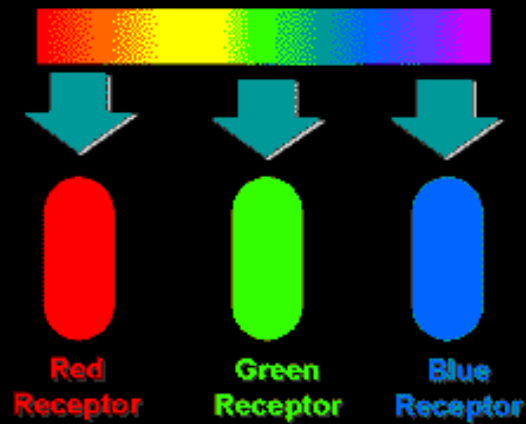
$$5:10 = 7:14 = 1:2$$





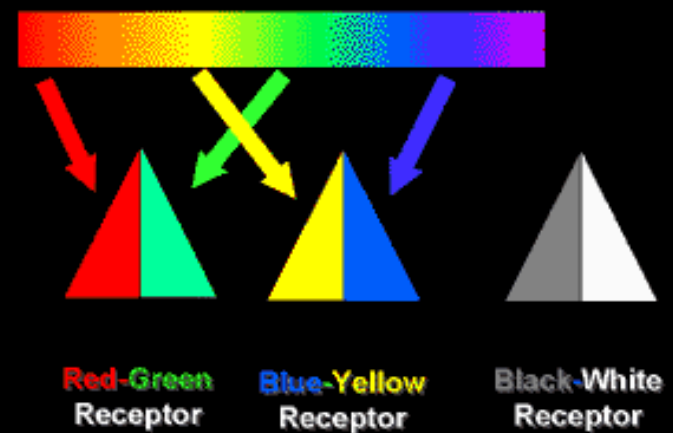
### Young-Helmholtz (Trichromatic) Theory

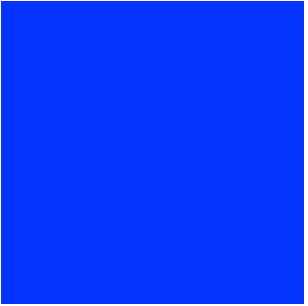
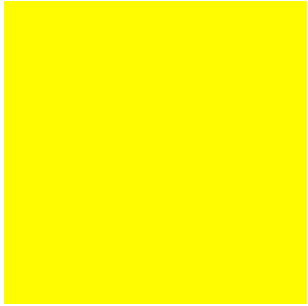
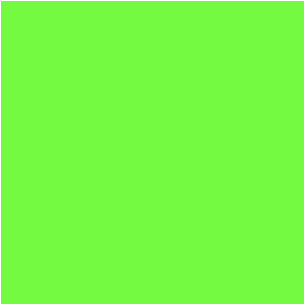
---



### Hering-Hurvich (Opponent-Process) Theory

---

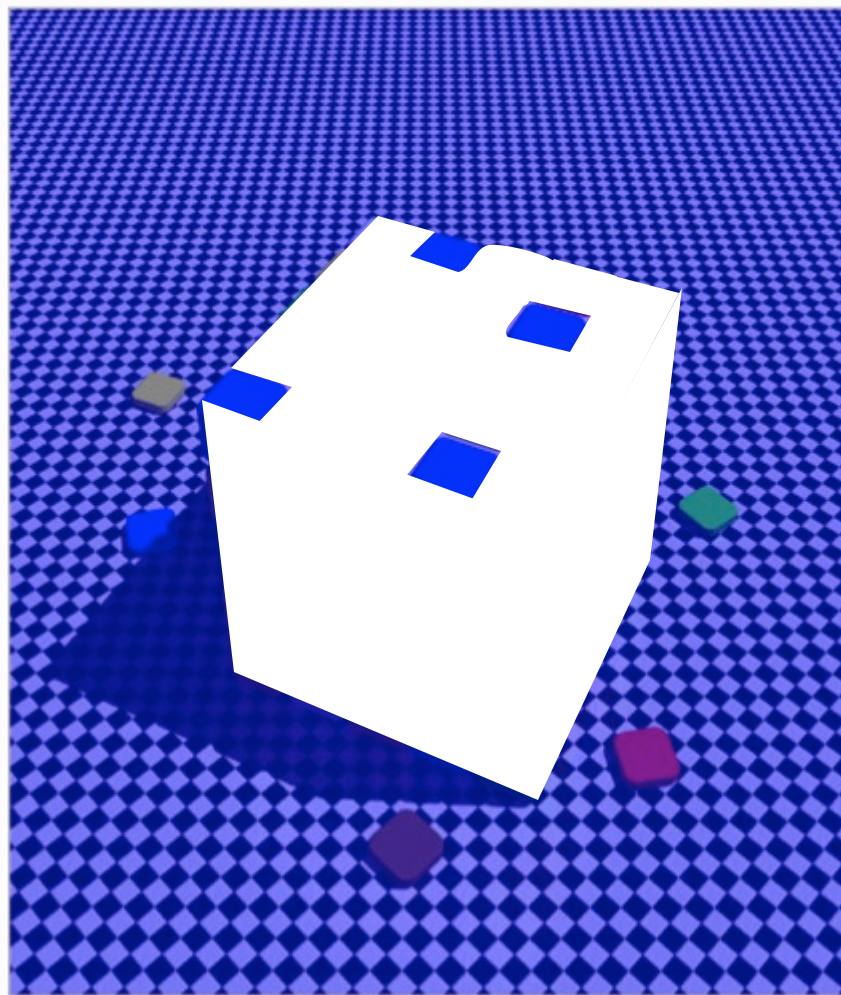
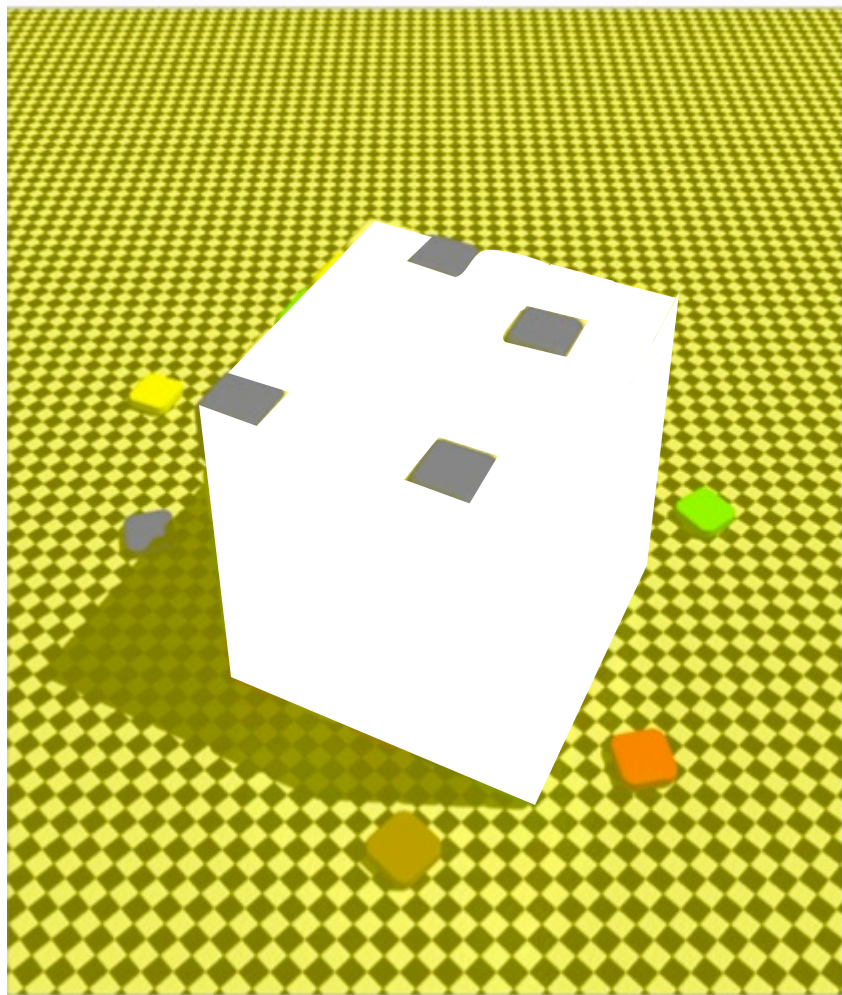




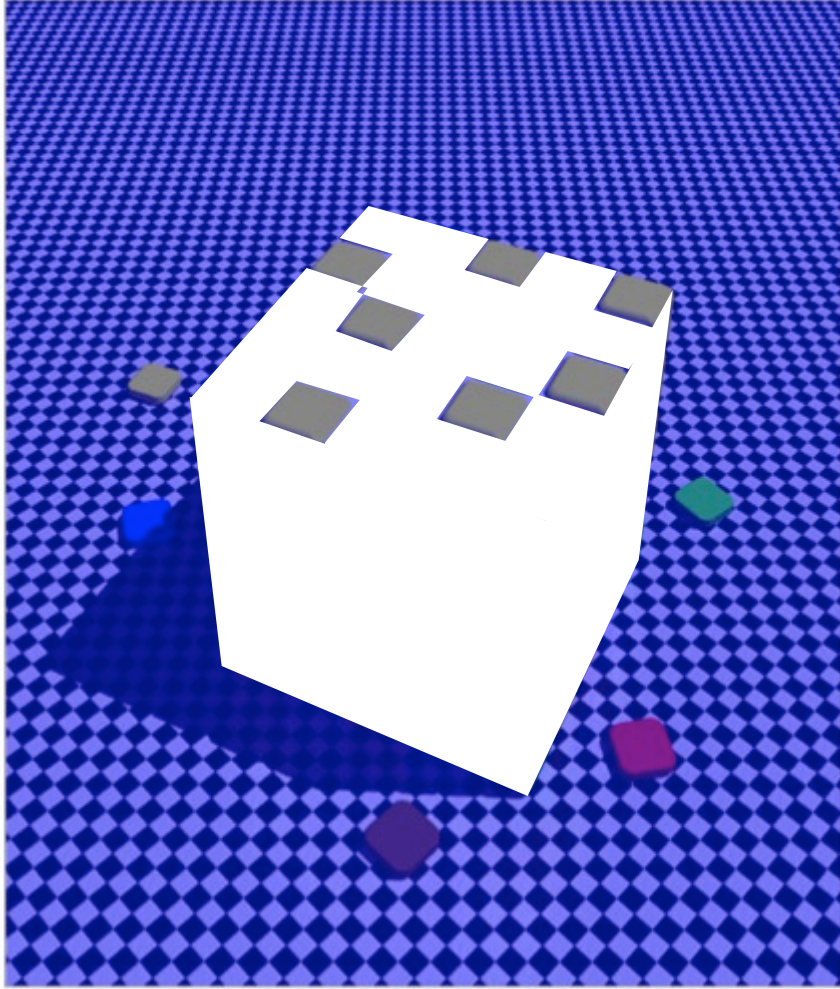
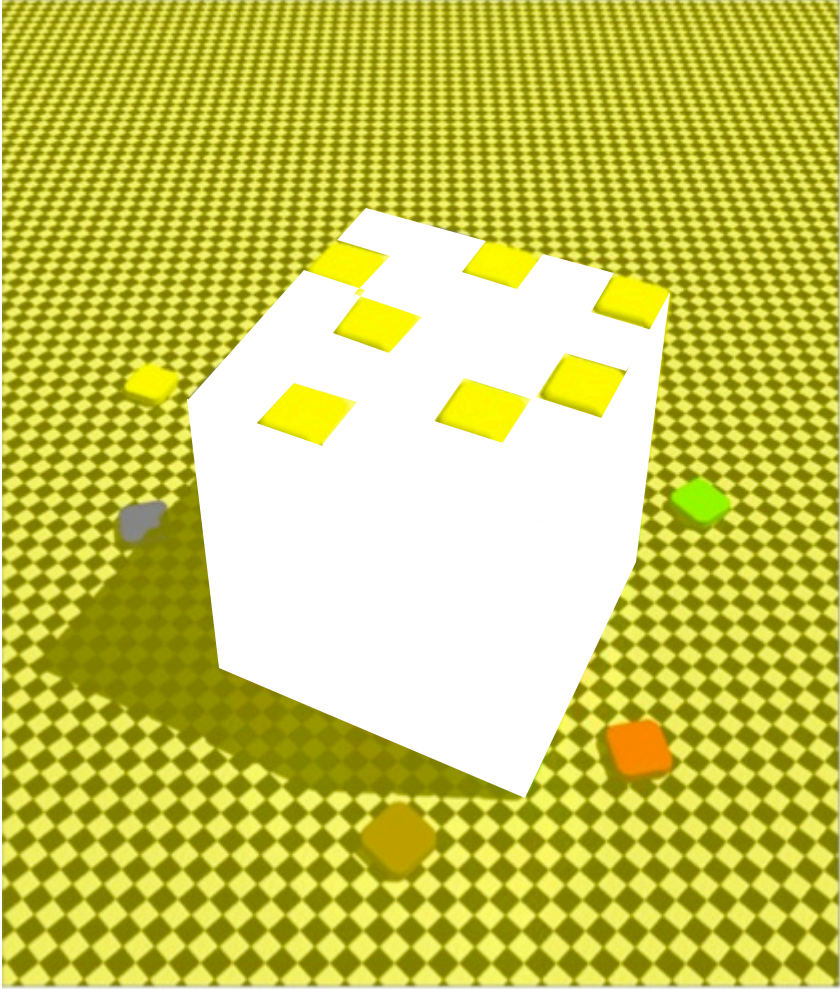






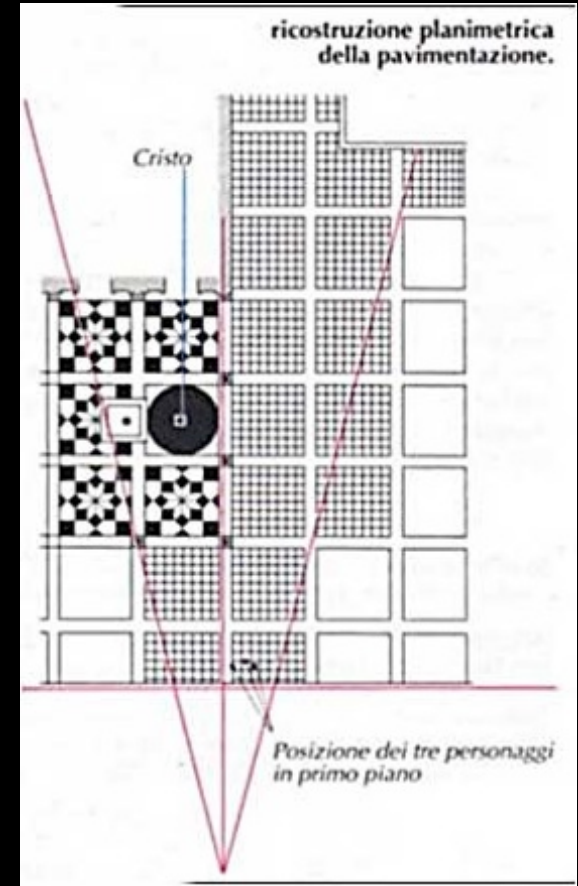


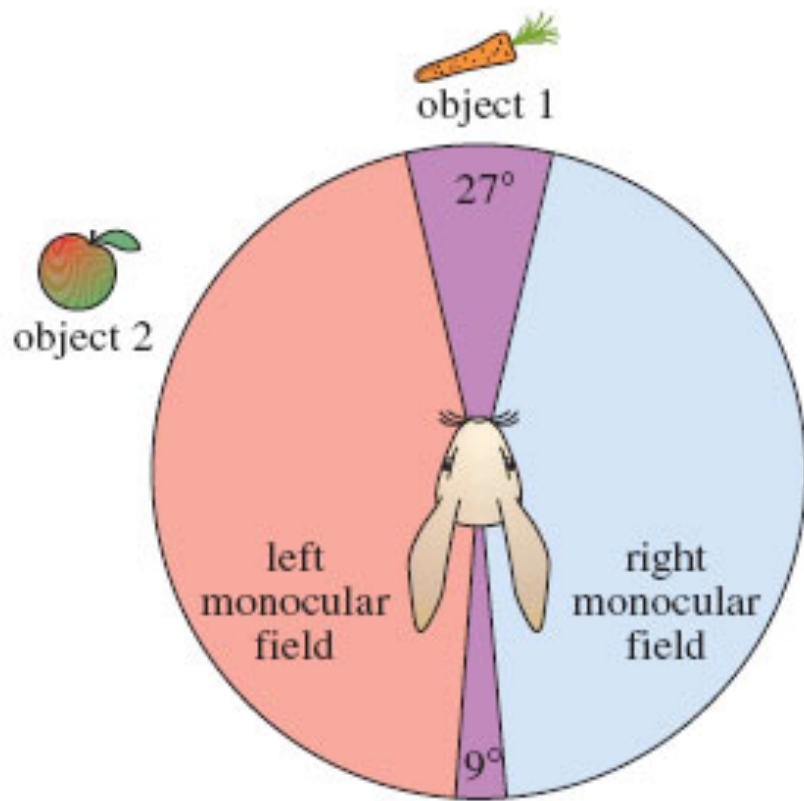




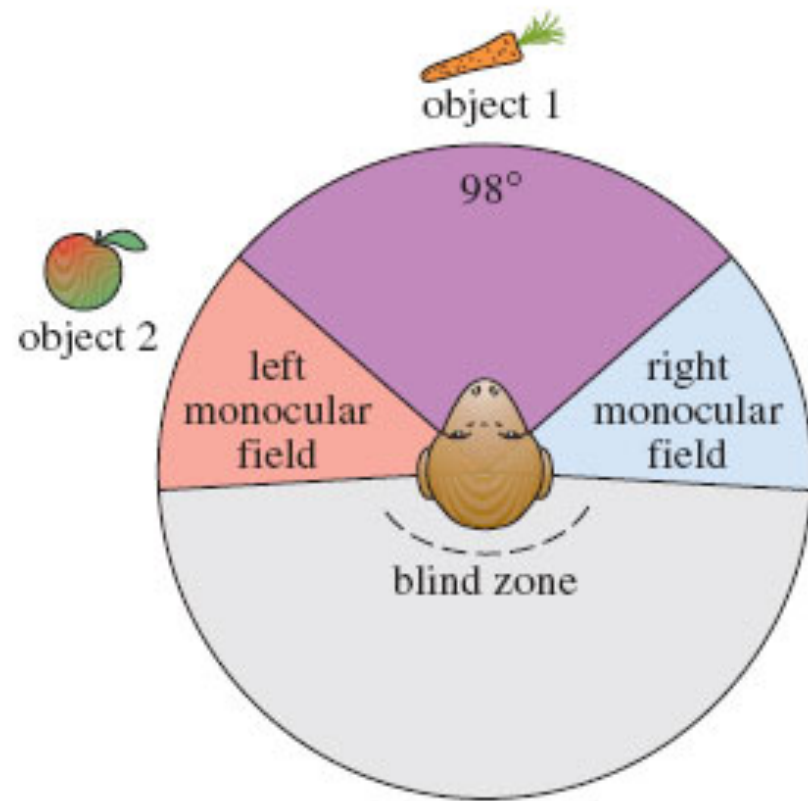


# Vedere a tre dimensioni

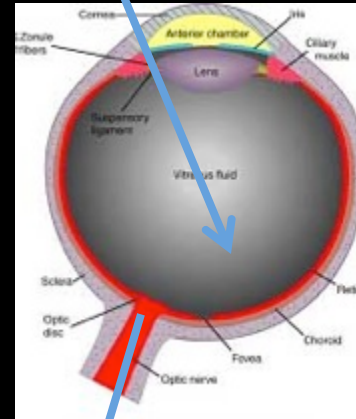
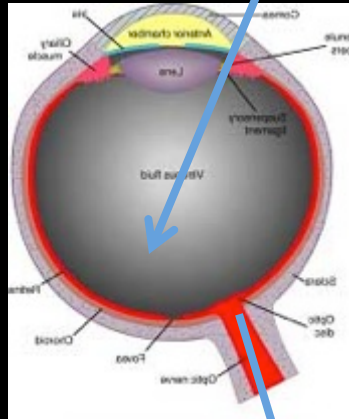




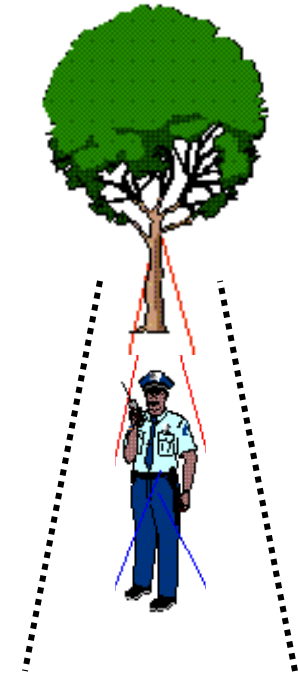
(a) rabbit



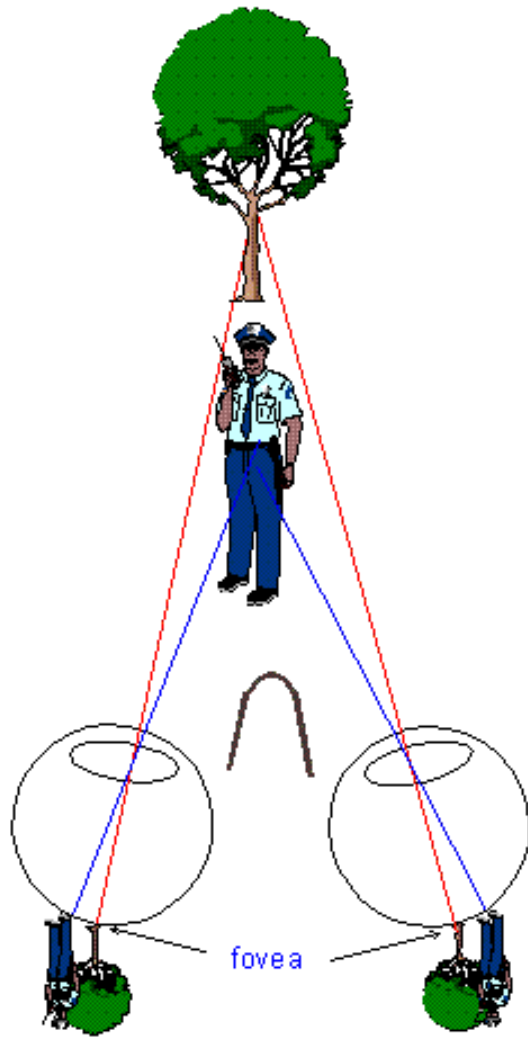
(b) monkey



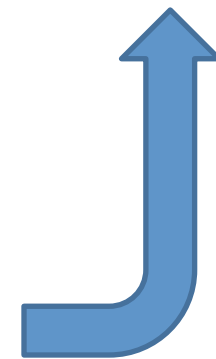
**rappresentazione mentale**



**disparità  
binoculare**



**informazione sensoriale**







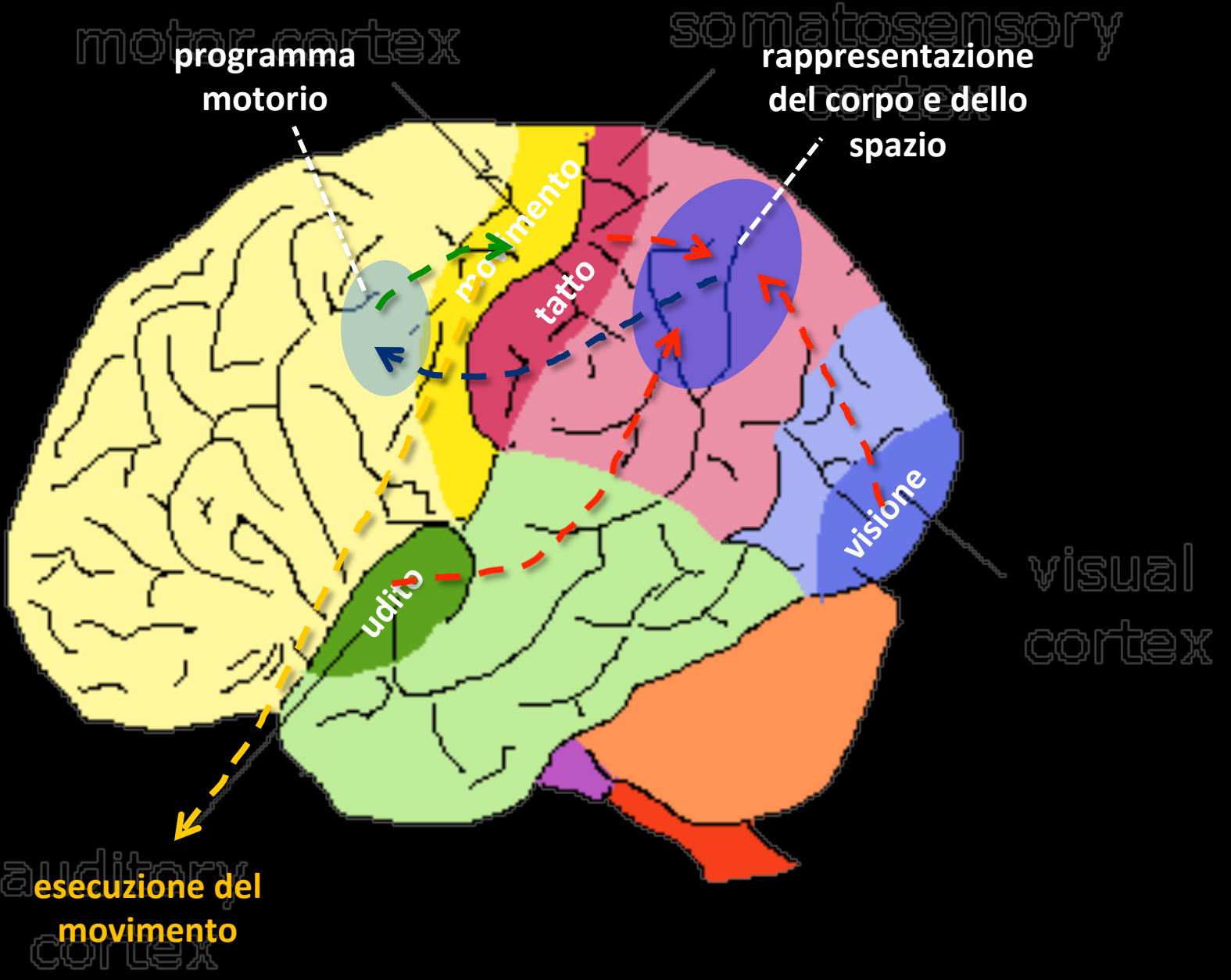




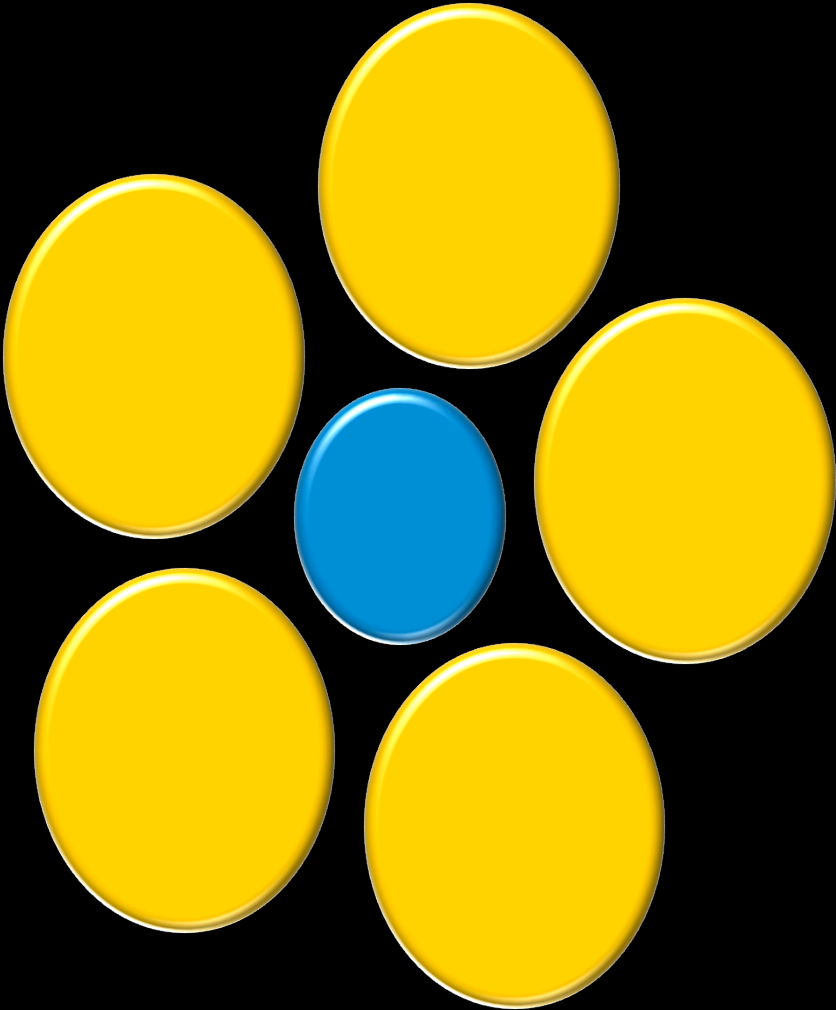
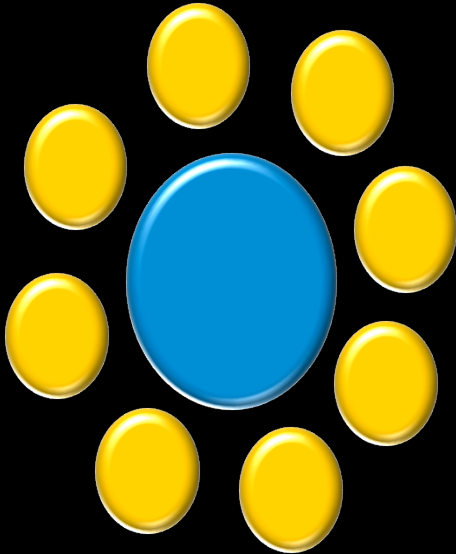


Vedere per interagire











via dorsale  
*come?*

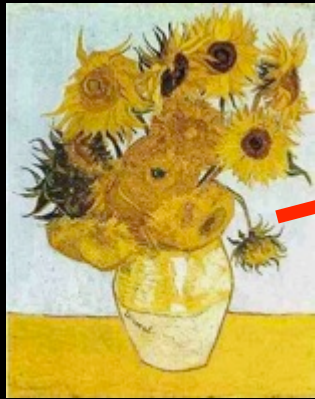


**corteccia  
visiva**

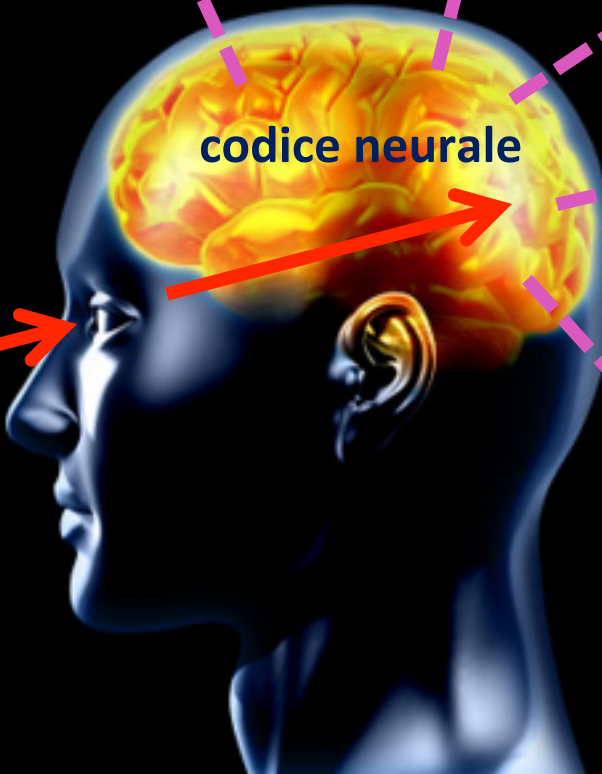
via ventrale  
*cosa?*







oggetto/stimolo



codice neurale



rappresentazioni  
mentali  
multiple

## **La rappresentazione cosciente della realtà è**

- **Obbligatoria**
- **Derivata da un numero limitato di informazioni sensoriali**
- **Costruita decodificando le informazioni sensoriali attraverso parametri (preconoscenze) interne**
- **Costruita su base probabilistica**
- **Mantenuta nella memoria di lavoro per permettere la scelta di una risposta non automatica e variabile**
- **Multipla per rispondere a diverse necessità funzionali**

That the goal of behaviour is maximizing genetic fitness does not mean to say that the origins of that behaviour (in terms of its development in the individual) are genetic. The capacity to make the decision to behave in a certain way may be genetic, but that does not mean that the decision to act in a particular way is itself genetically determined. It is the capacity (to all intents and purposes, the brain) that allows the organism to evaluate the costs and benefits of alternative behavioural possibilities, and so to make its choice on the basis of a free decision after weighing up its options.

*Robin Dunbar (2004) The Human Story*