

Dal cervello sociale all'emergere della società

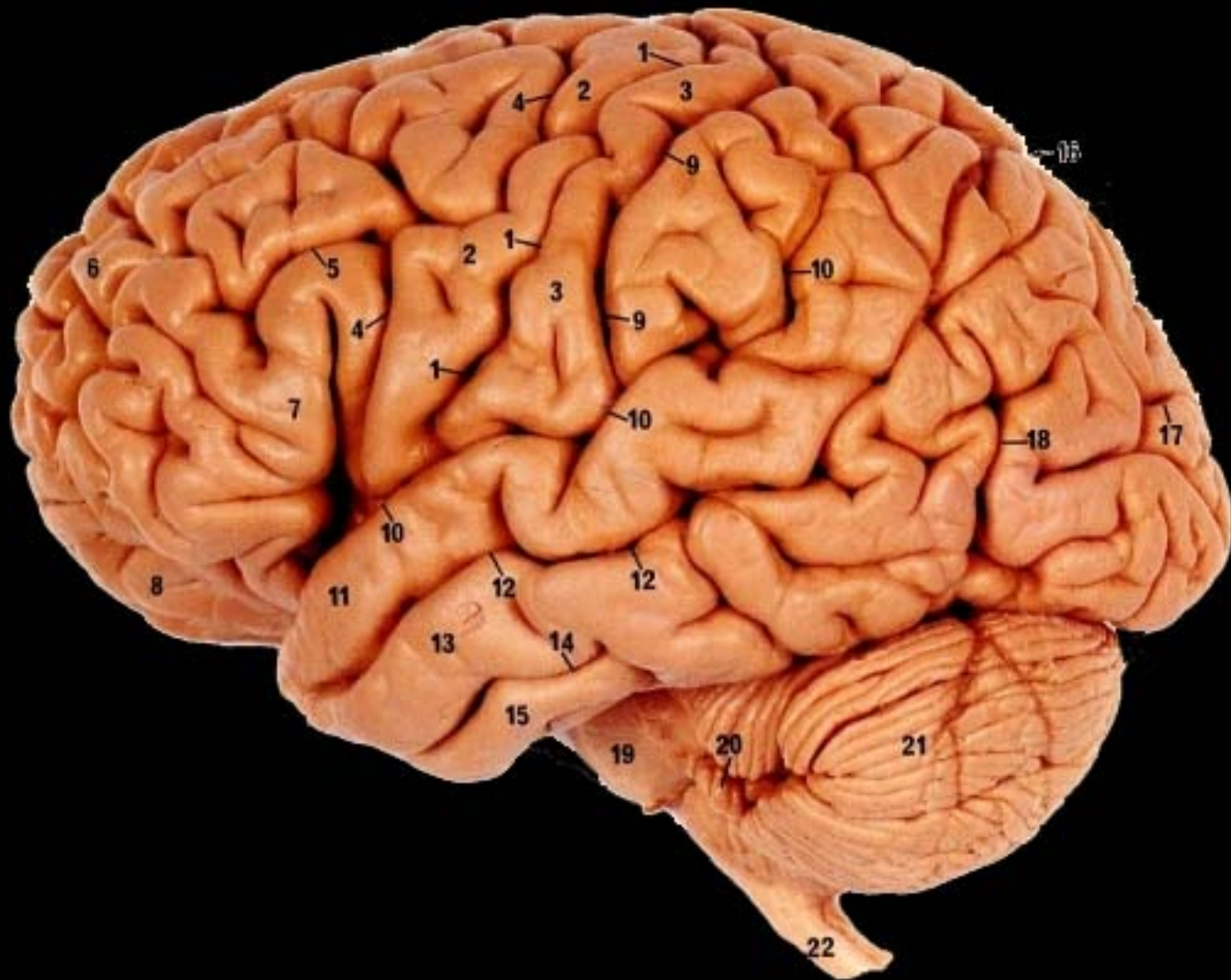
- *Neurobiologia del comportamento sociale (Ferdinando Rossi)*
- *Dalla psicologia dell'individuo alla psicologia dell'interazione sociale (Mauro Adenzato)*
- *Organizzazione e funzionamento delle società animali (Cristina Giacoma, Sergio Castellano, Marco Gamba)*
- *Cultura, antro-poiesi, creatività (Francesco Remotti, Stefano Allovio, Adriano Favole)*
- *Meccanismi di decisione nelle società umane complesse (Pietro Terna, Simona Cantono, Riccardo Boero)*

Neurobiologia del comportamento sociale

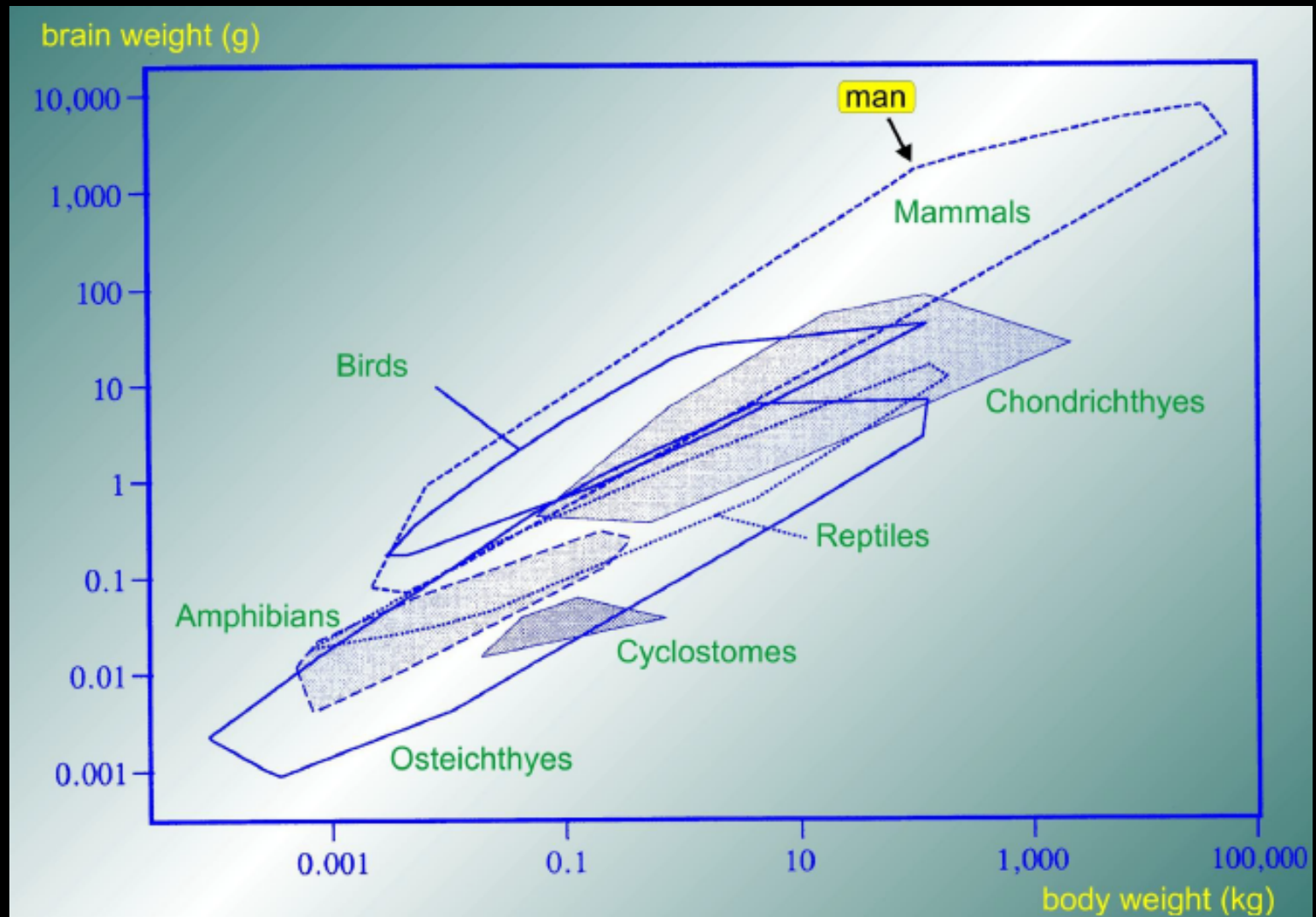
- *L'evoluzione del cervello ominide e comparsa del cervello sociale*
- *Pair bonding e comportamento sessuale*
- *Rappresentazione mentale dell'universo*
- *I sistemi mirror e le basi neurali dell'intersoggettività*

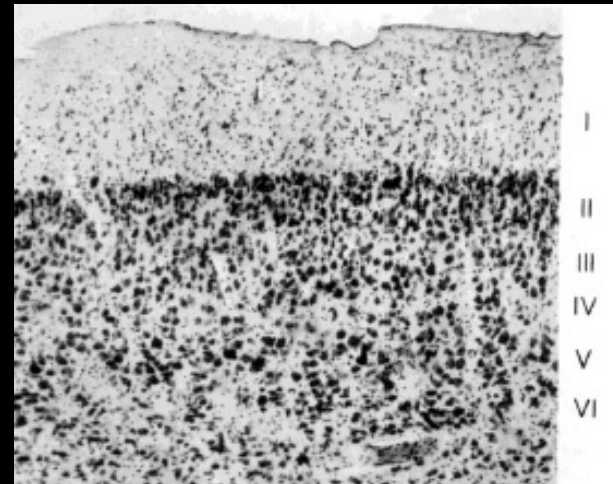
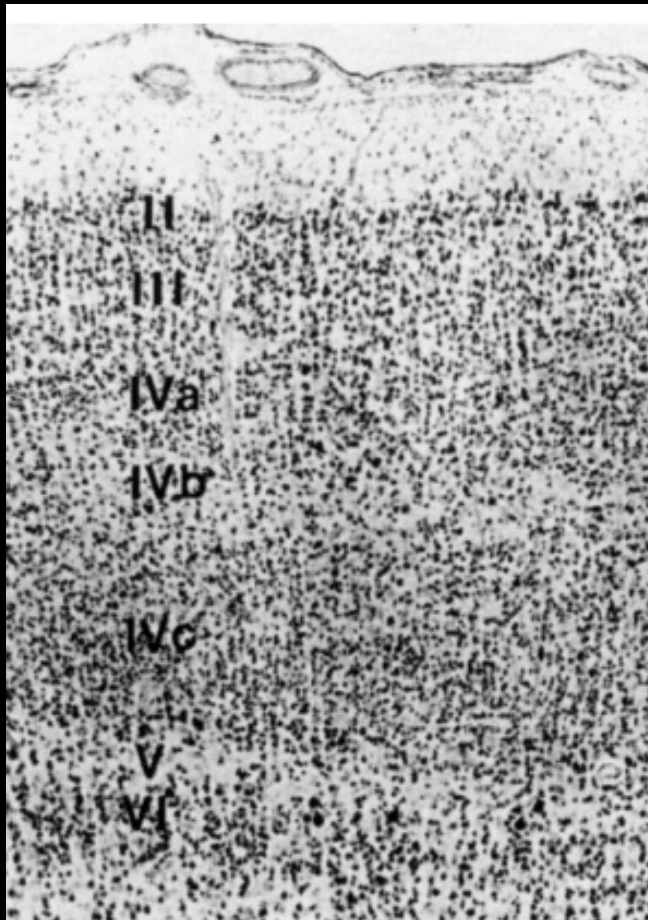
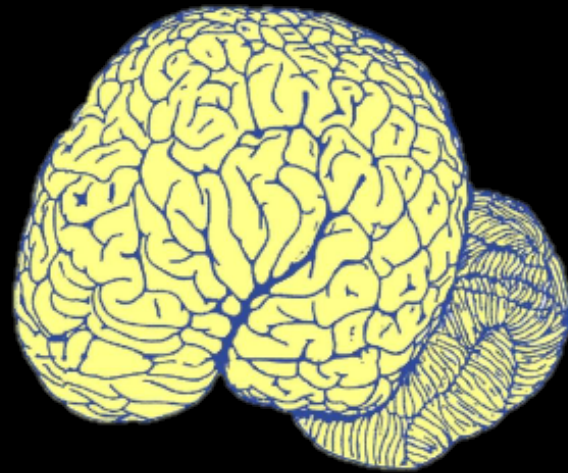
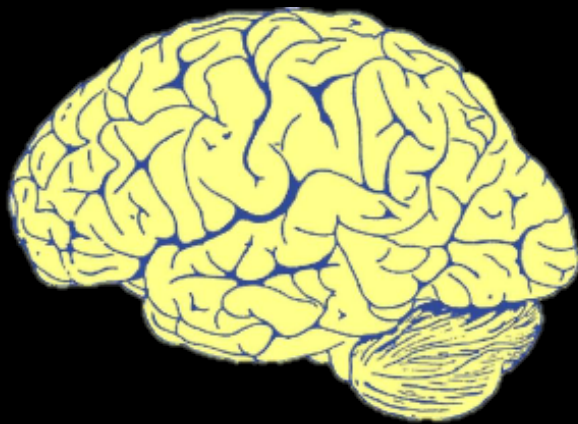
L'evoluzione del cervello ominide e comparsa del cervello sociale





Relazione fra la massa cerebrale e la massa corporea i diverse classi di vertebrati

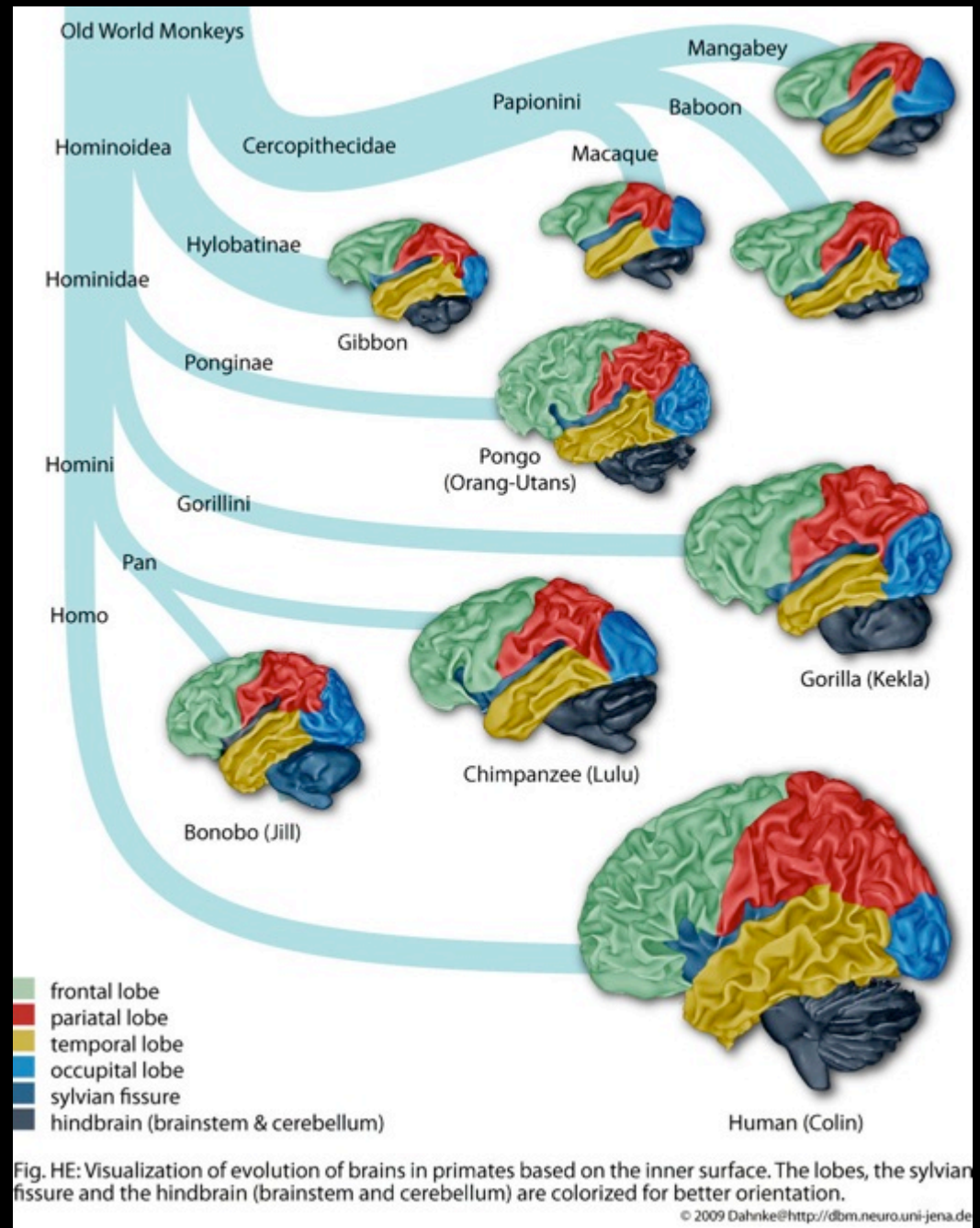




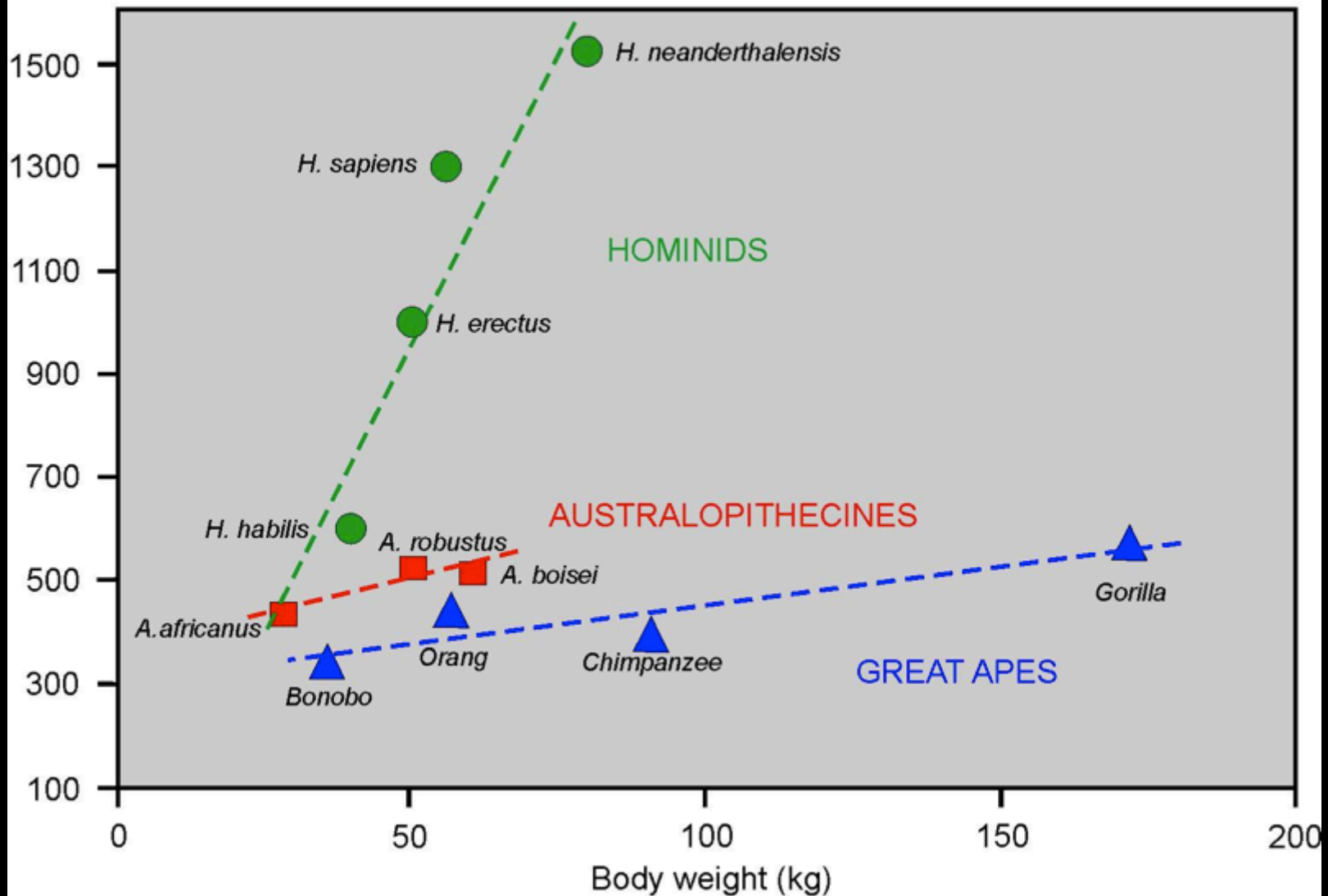
Whale

Human

Evoluzione della corteccia cerebrale nelle scimmie e nei primati



Endocranial/brain volume (cm³)



che cosa ha determinato l'espansione della corteccia cerebrale nella nostra evoluzione?

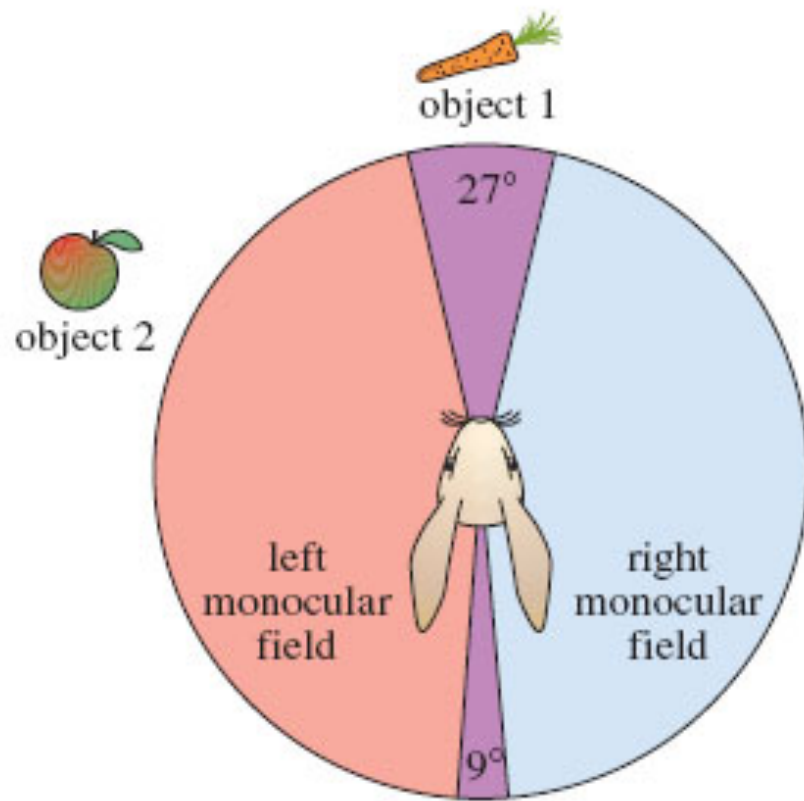


Rispetto agli altri primati, la nostra specie ha

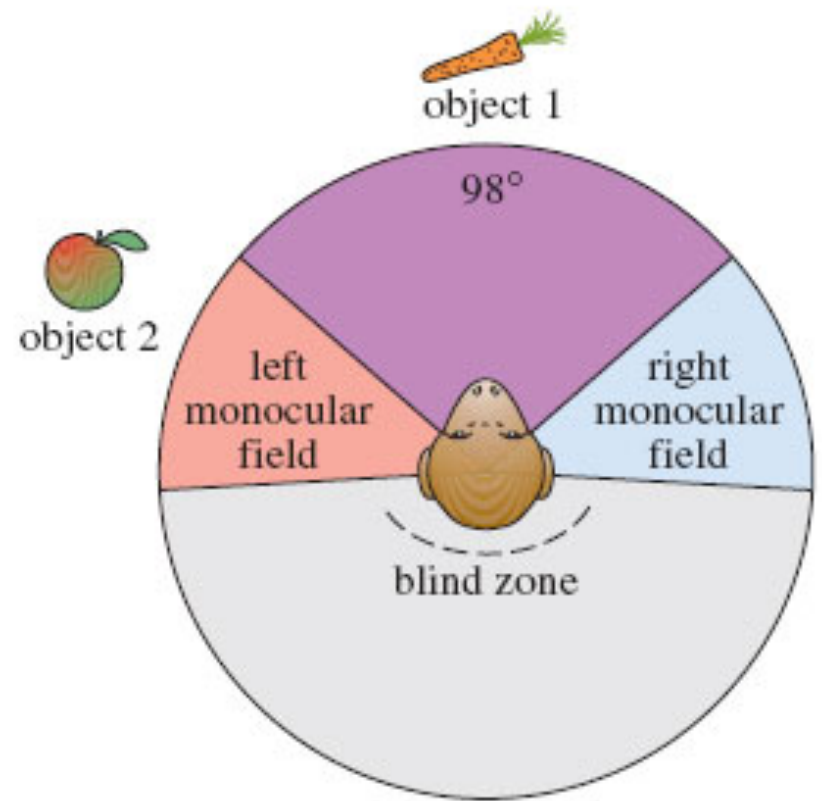
- **il cervello più grande (la neocorteccia più estesa)**
- **un periodo di sviluppo più prolungato**
- **Il cervello più immaturo alla nascita**

Che relazione c'è fra questi fatti?

Qual è la spinta evoluzionistica che ha indotto l'espansione della corteccia cerebrale?



(a) rabbit



(b) monkey

Primati primitivi

Arboricoli nella foresta

Mangiano insetti, frutta

Movimento fine (reaching-grasping) guidato dalla visione:

involuzione del sistema olfattivo

sviluppo visione frontale (tridimensionale)

evoluzione del sistema visivo

pollice opponente

dita coperte da unghie



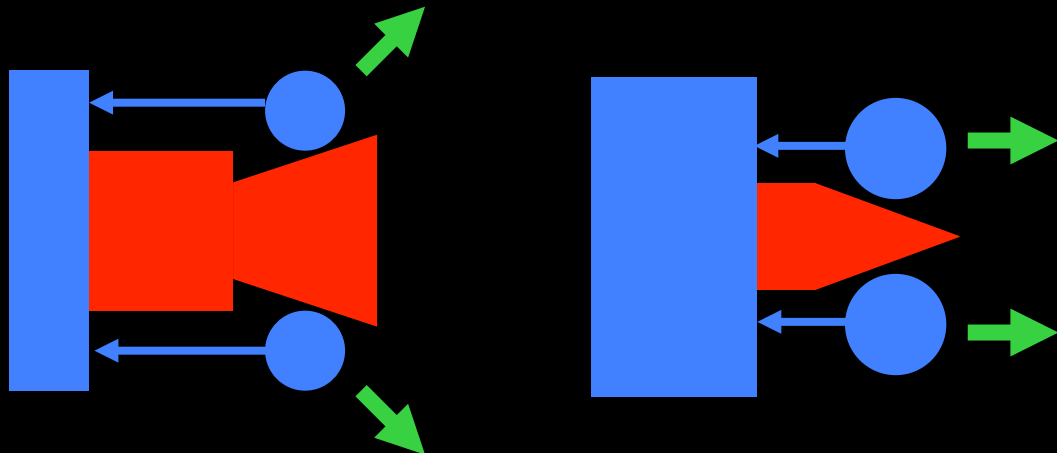
Inizialmente notturni, poi diurni (vita nella savana)

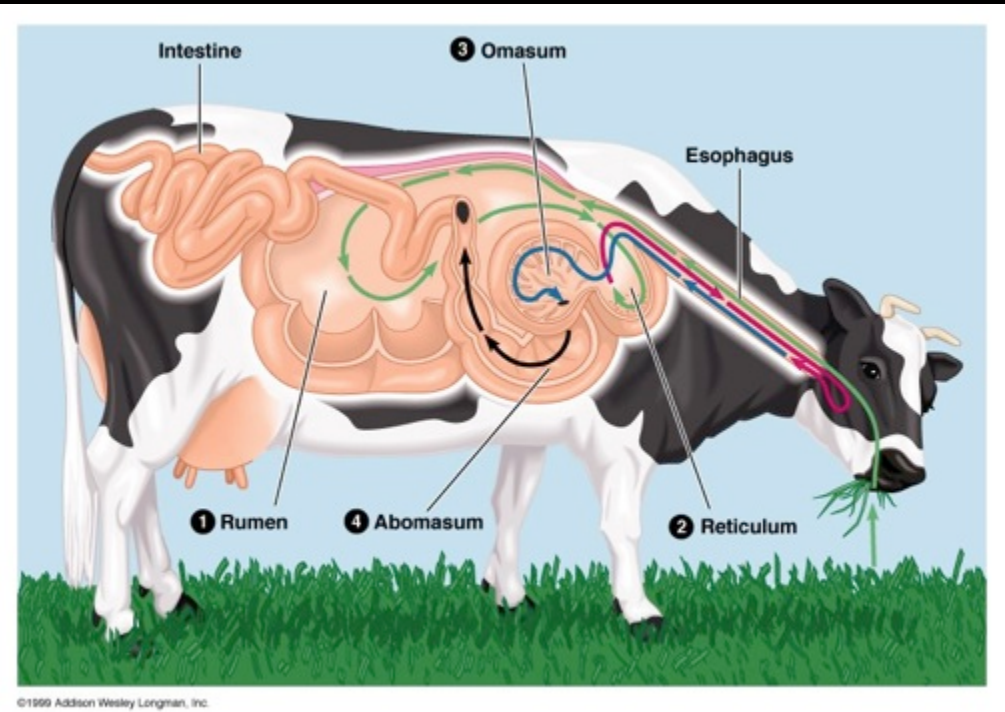
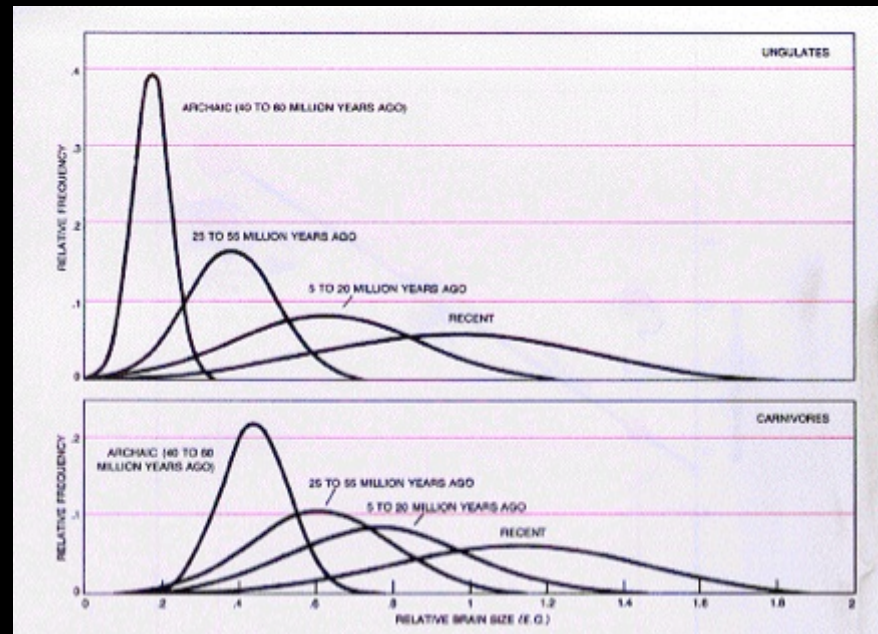
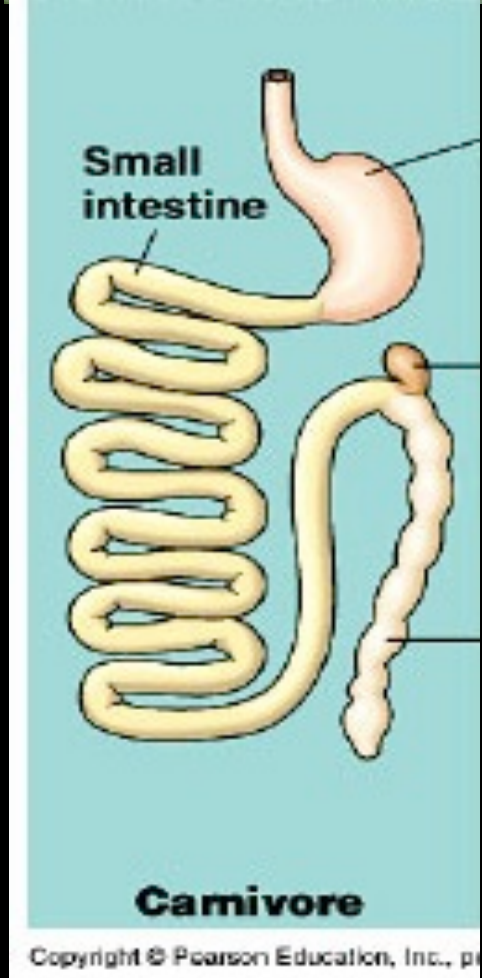
visione foveale, predominanza dei coni (acuità)

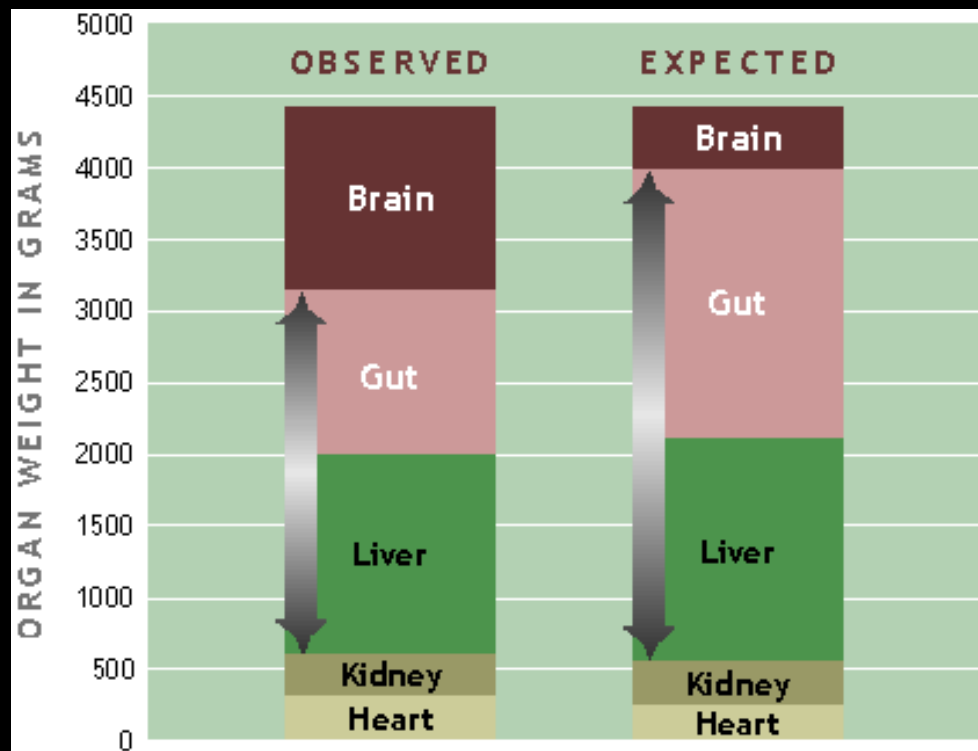
visione cromatica (dicromatica poi tricromatica)

Vita diurna: sviluppo attività sociali (protezione, ricerca del cibo)

Sistema olfattivo
Sistema visivo

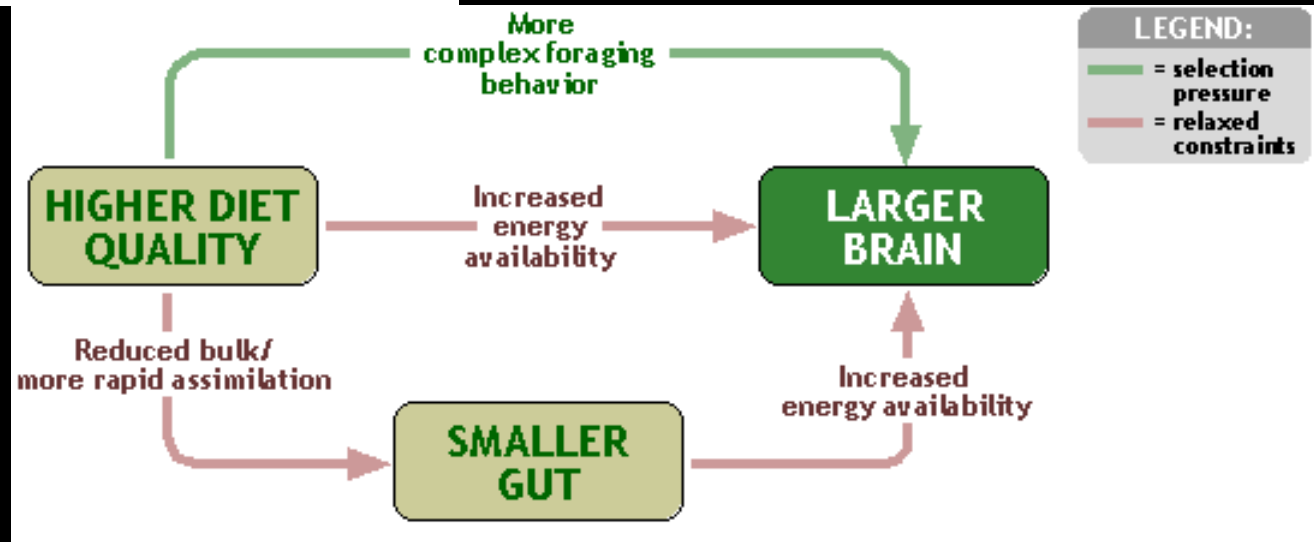




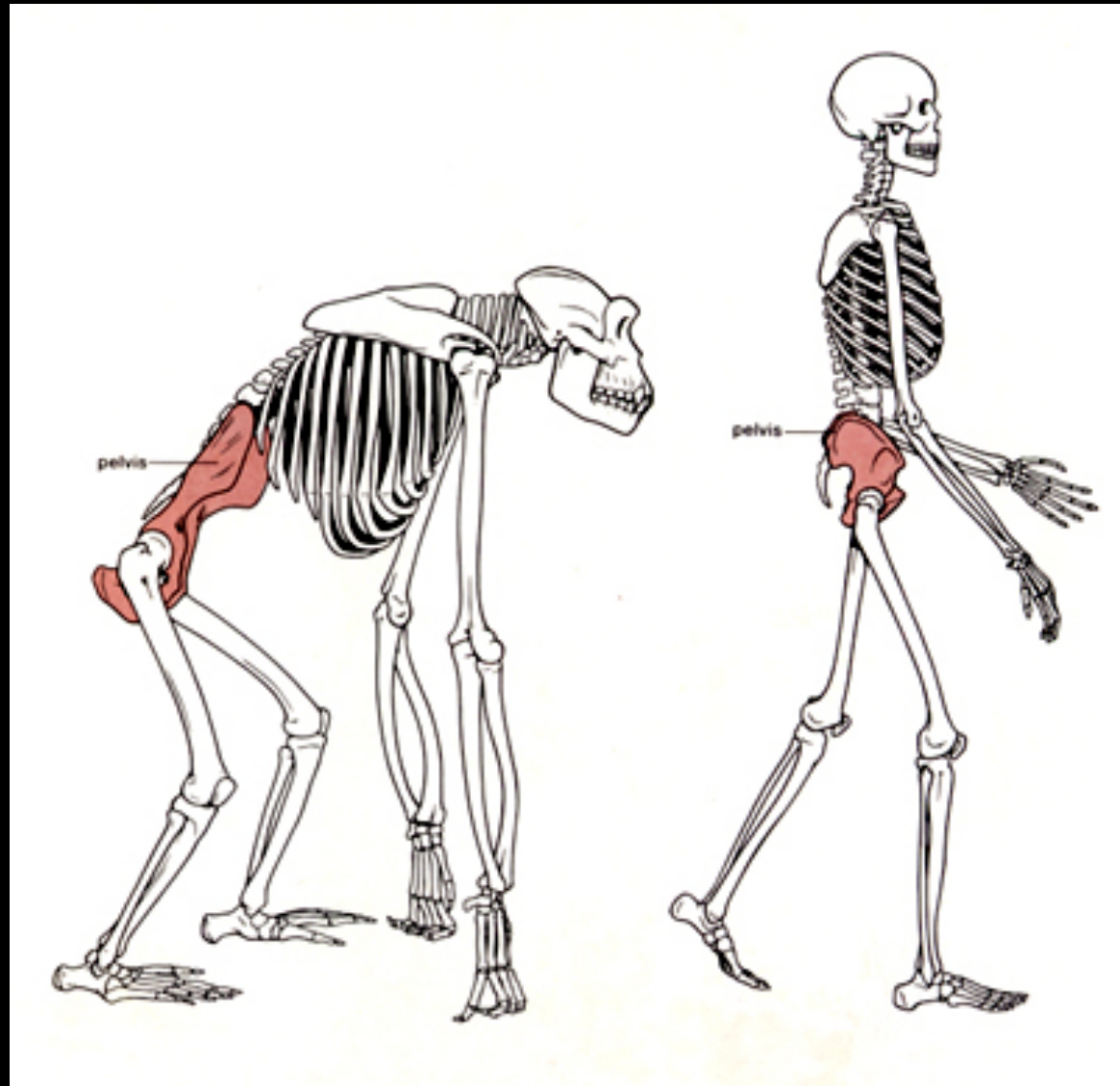


Observed and expected organ masses for a "standard" 65-kg human.

Una nuova dieta



bipedismo

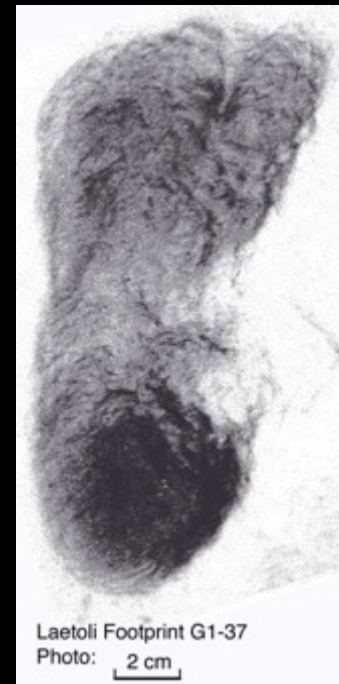
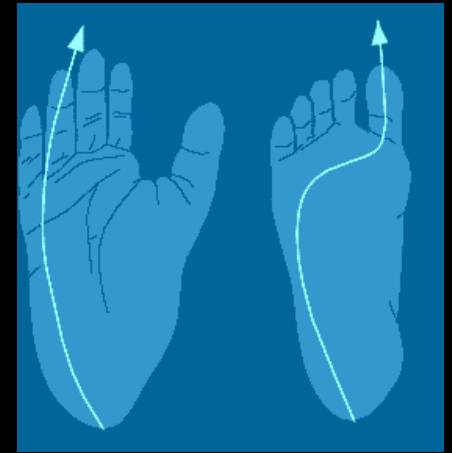


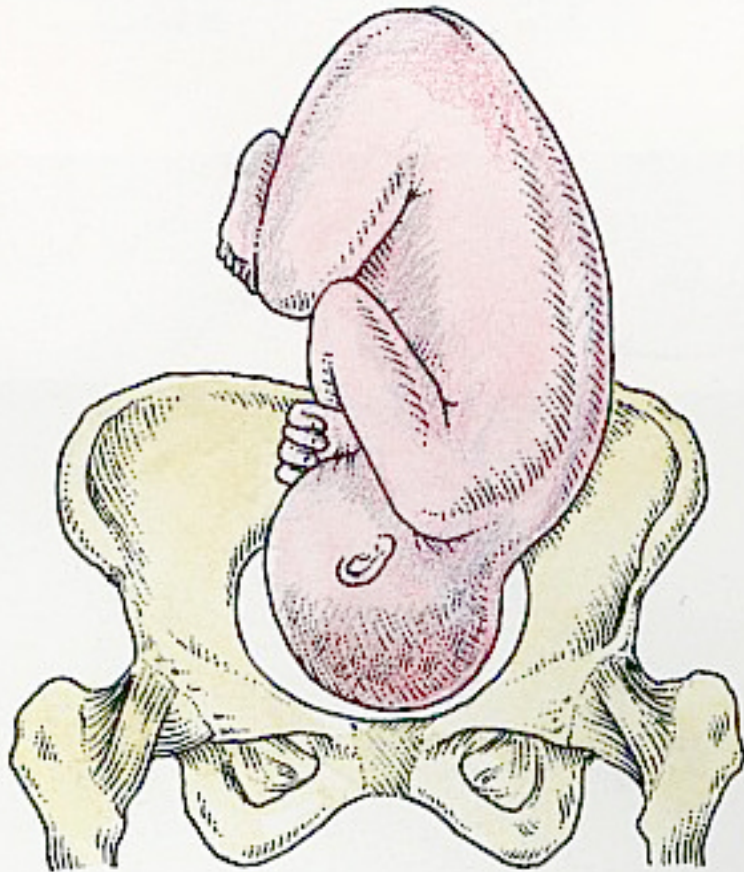
Il bipedismo ha senso solo se gli arti liberati dal compito di sostenere il corpo assumono una nuova funzione



e437041 [RM] © www.visualphotos.com

Laetoli footprints





Skull clearance
at birth

Brain size
at birth

Adult
brain size



128 cc



390 cc



162 cc
(estimate)



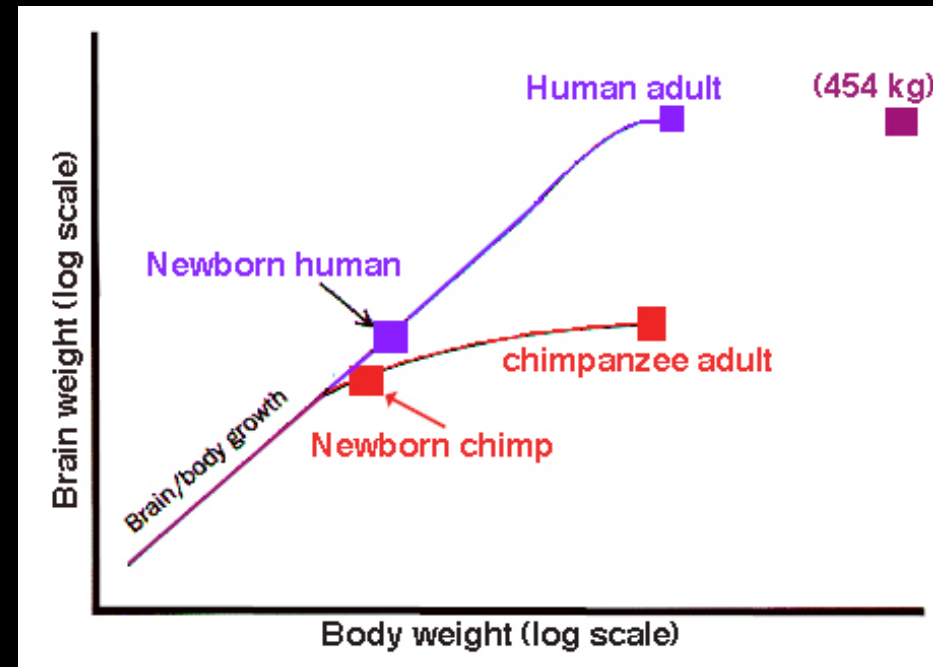
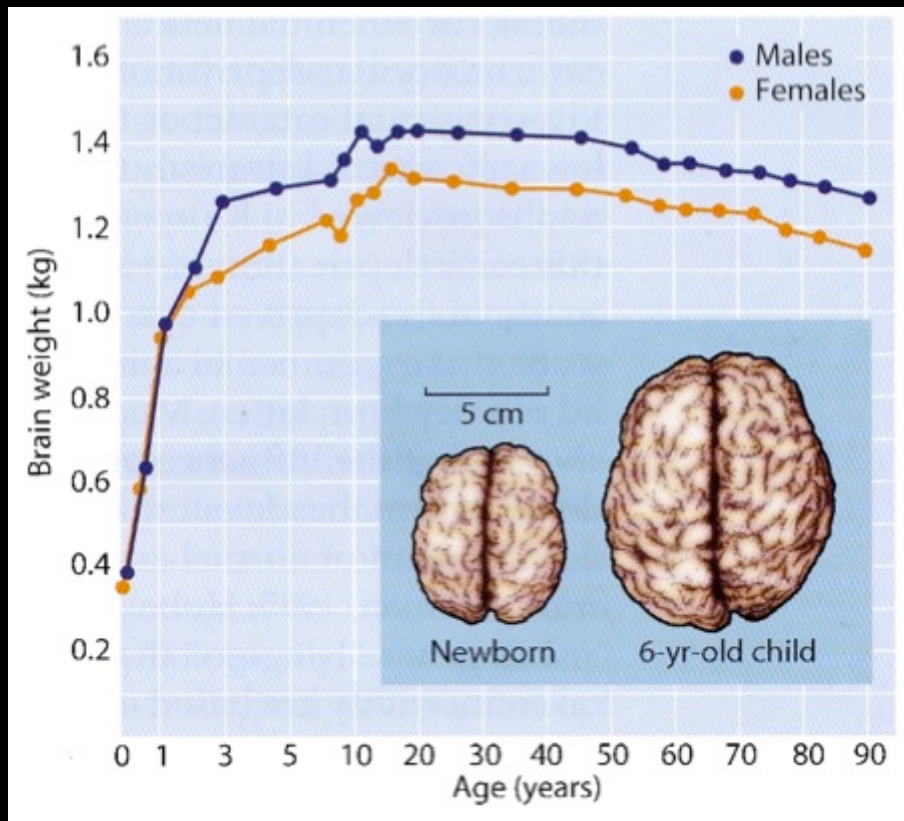
415 cc



384 cc



1,350 cc



Comparison of Primate Hands

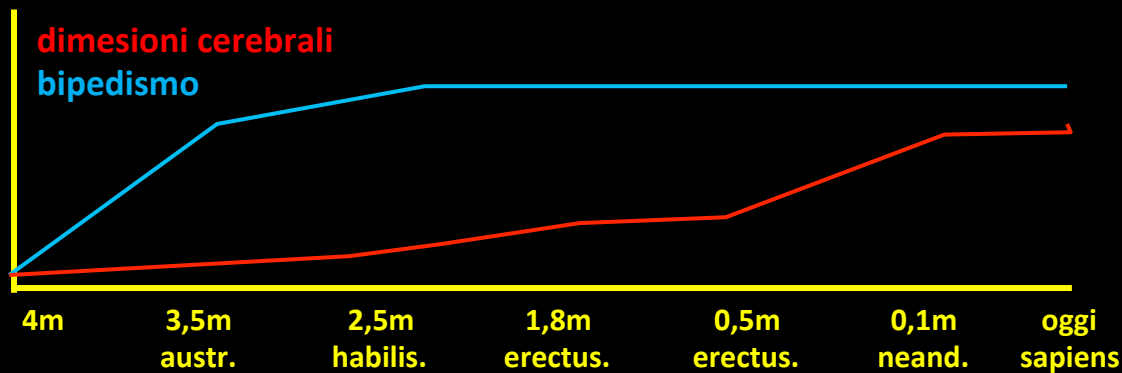


bipedismo

mani libere

controllo motorio

crescita cerebrale



Il bipedismo lascia le mani libere

Le mani libere permettono

La produzione di strumenti

La comunicazione gestuale

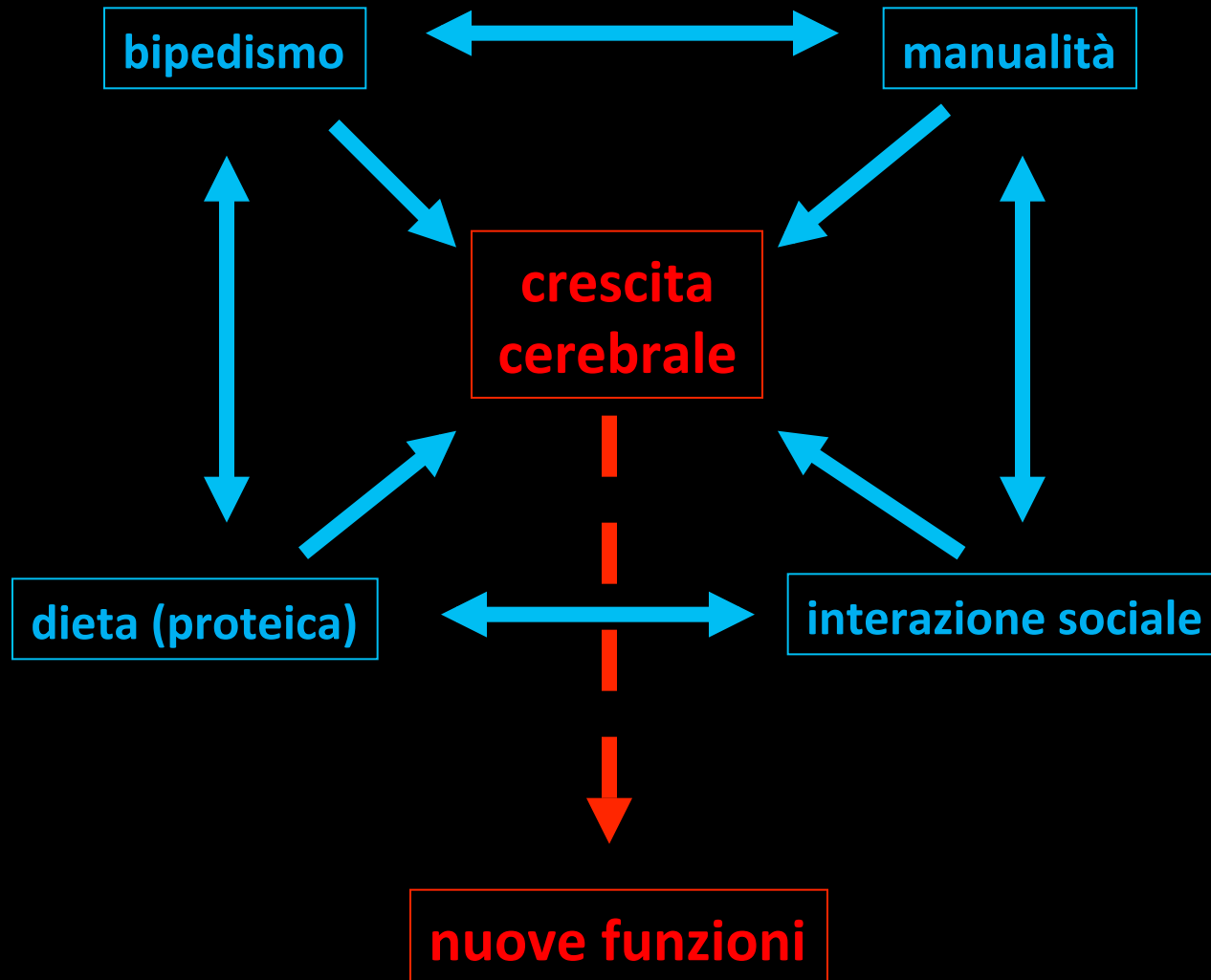


Costruire ed utilizzare strumenti



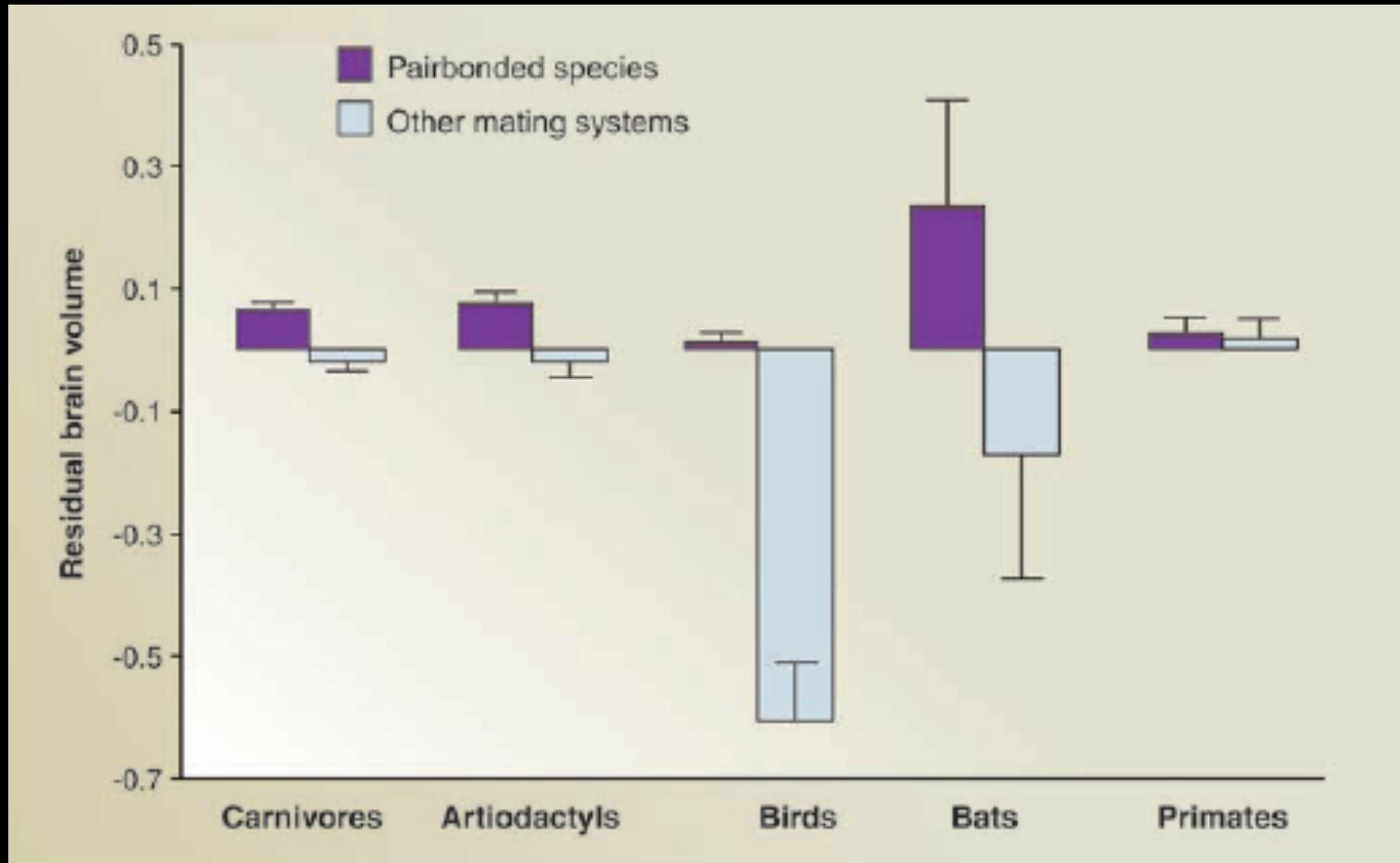
Caratteristiche distintive dell' uso di strumenti negli ominidi

- Capacità di prevedere le potenzialità dello strumento
- Capacità di progettare lo strumento per uno scopo preciso

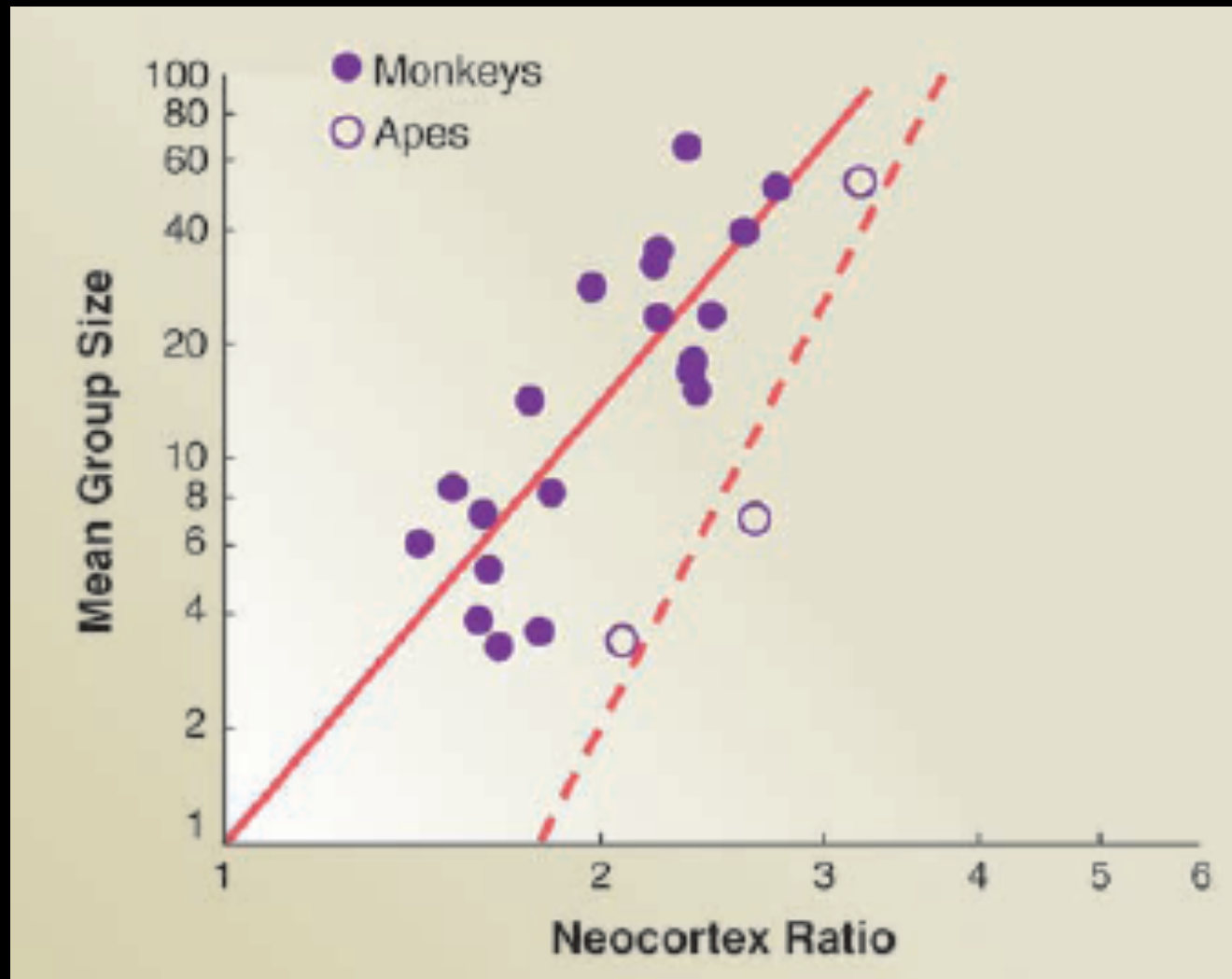


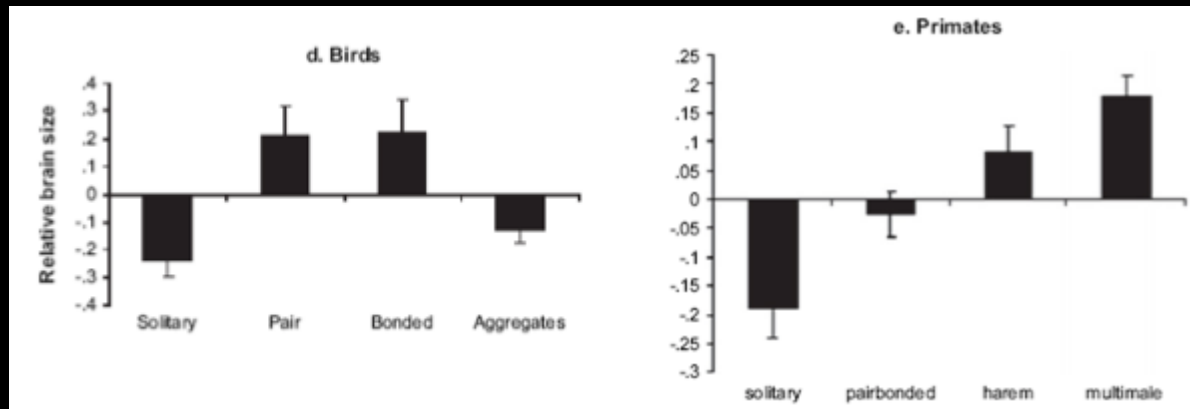
fine dell'evoluzione biologica, inizio dell'evoluzione culturale

Dimensione cerebrale e modalità di accoppiamento



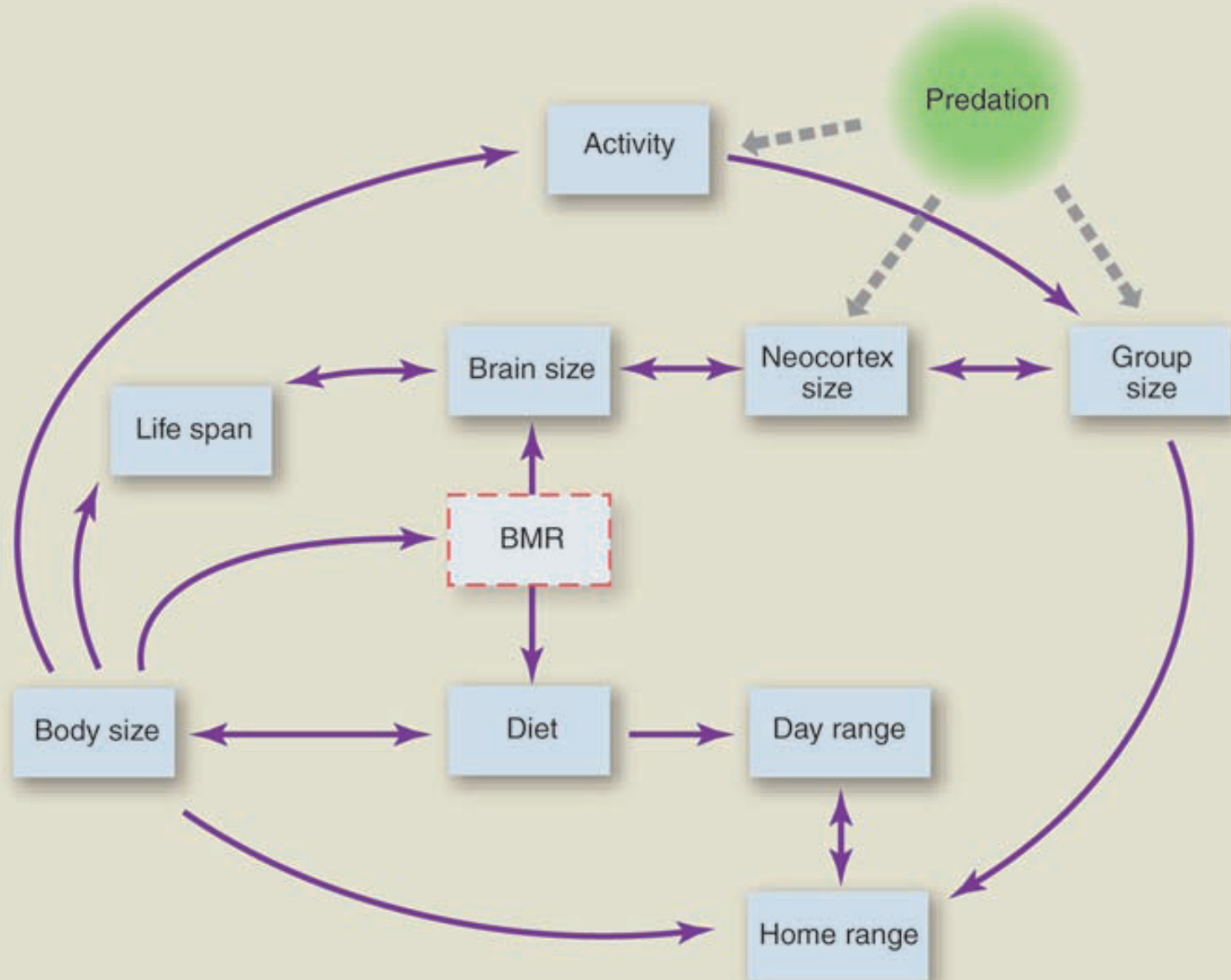
Dimensione cerebrale e dimensione del gruppo sociale



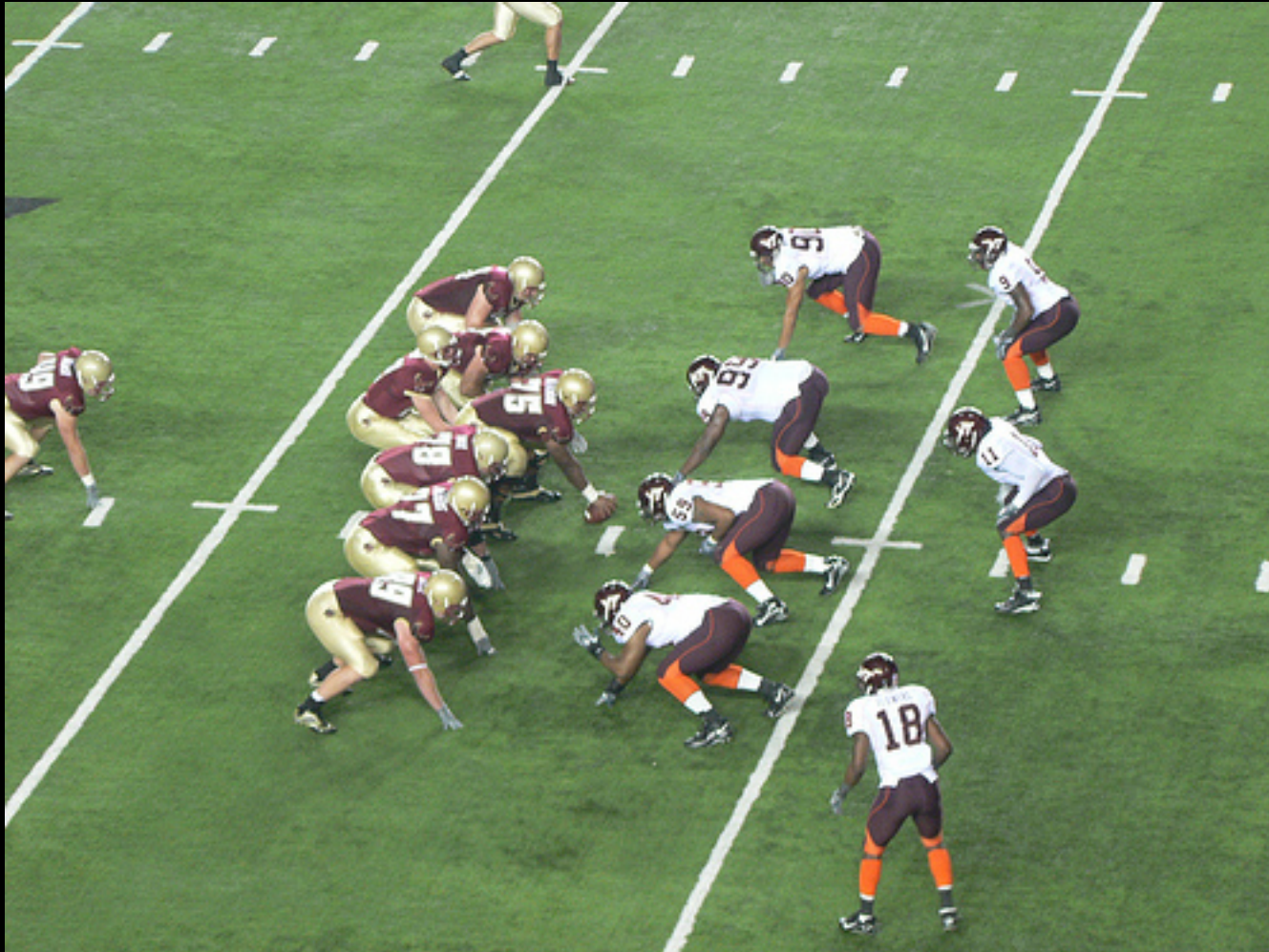


Uccelli/mammiferi = relazione *qualitativa* fra dimensione cerebrale e modalità di accoppiamento

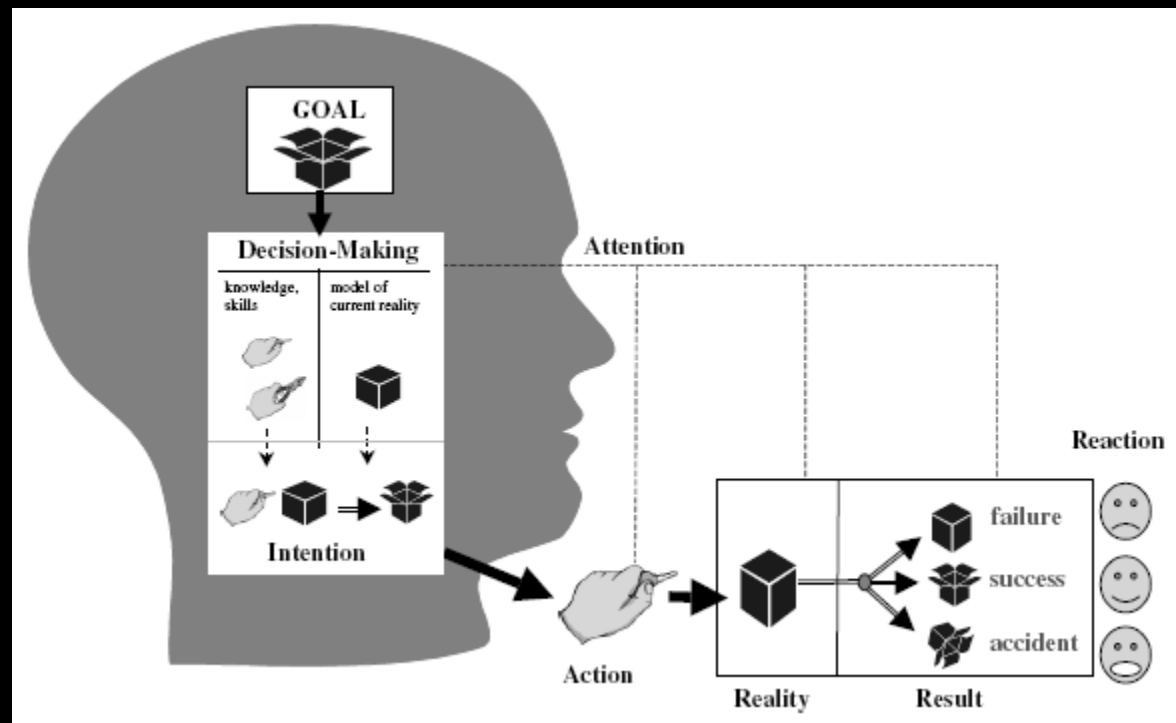
Primati = relazione *quantitativa* fra dimensione cerebrale e dimensione del gruppo sociale



Interazione sociale: competizione vs cooperazione

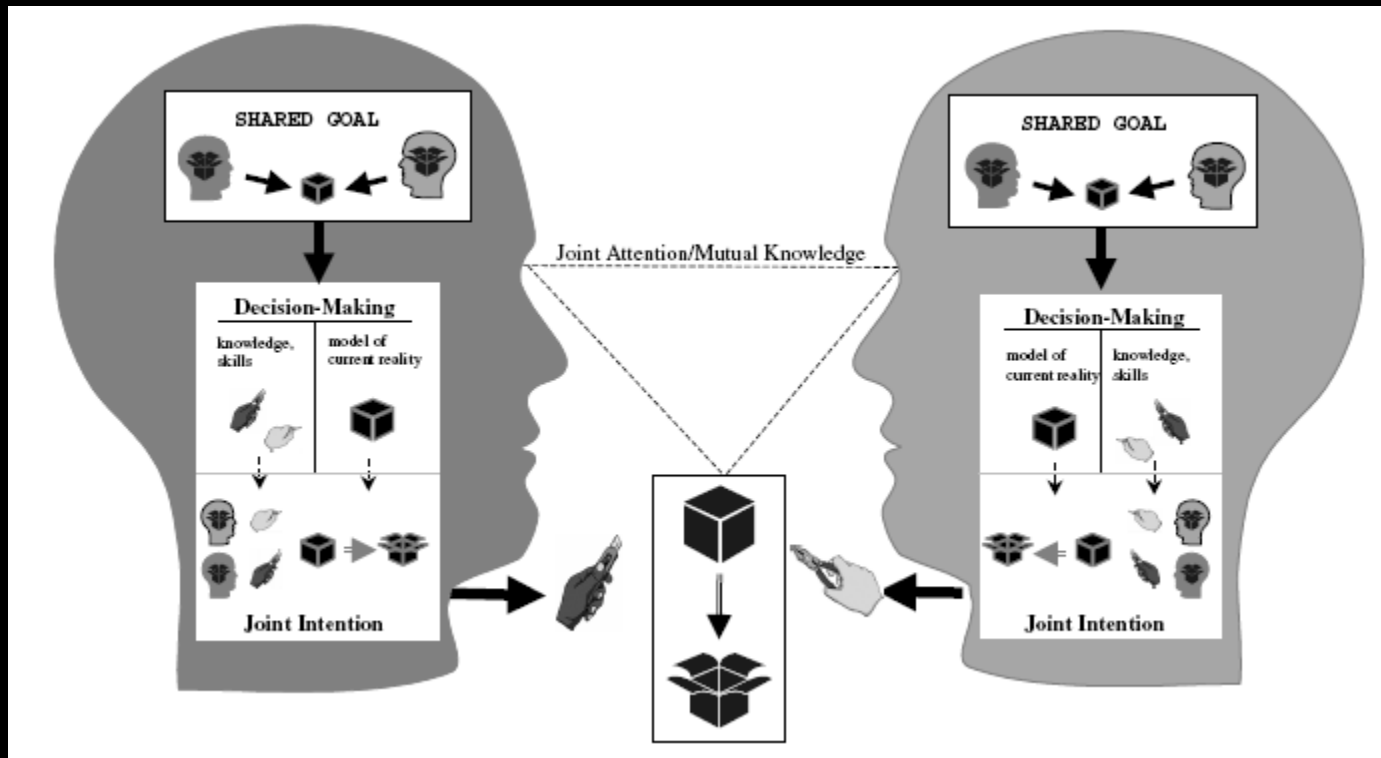


Intenzionalità e pianificazione



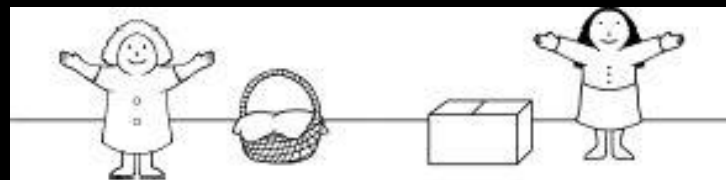
intenzionalità condivisa

pianificazione collaborativa



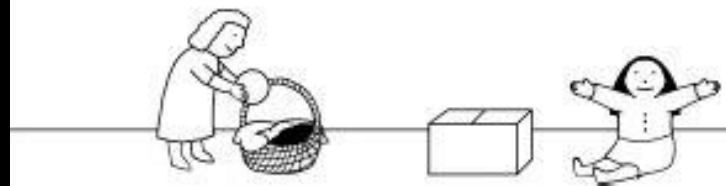


So quel che pensi: la teoria della mente

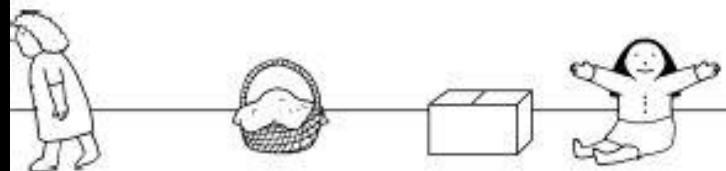


This is Sally.

This is Ann.



Sally has a ball. She puts it into her basket.



Sally goes out for a walk.
Ann takes the ball out of the basket.



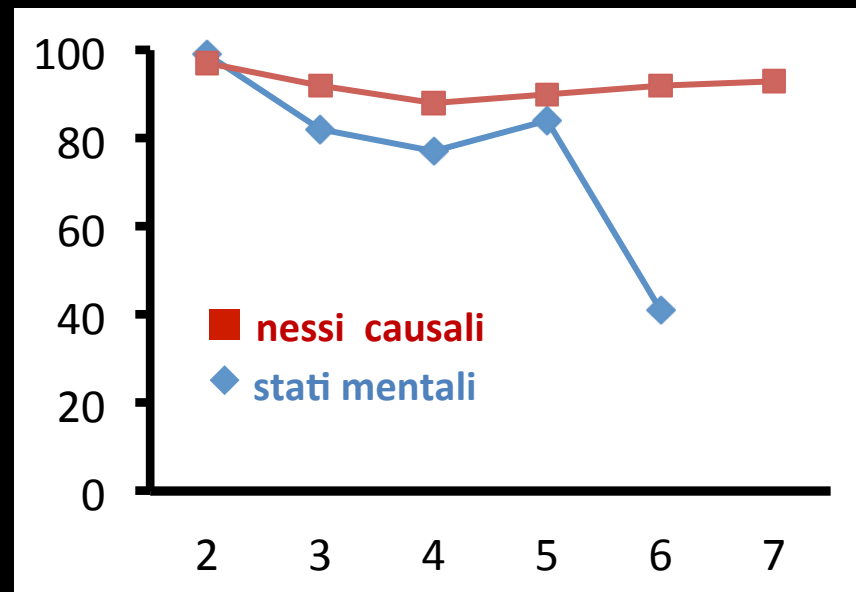
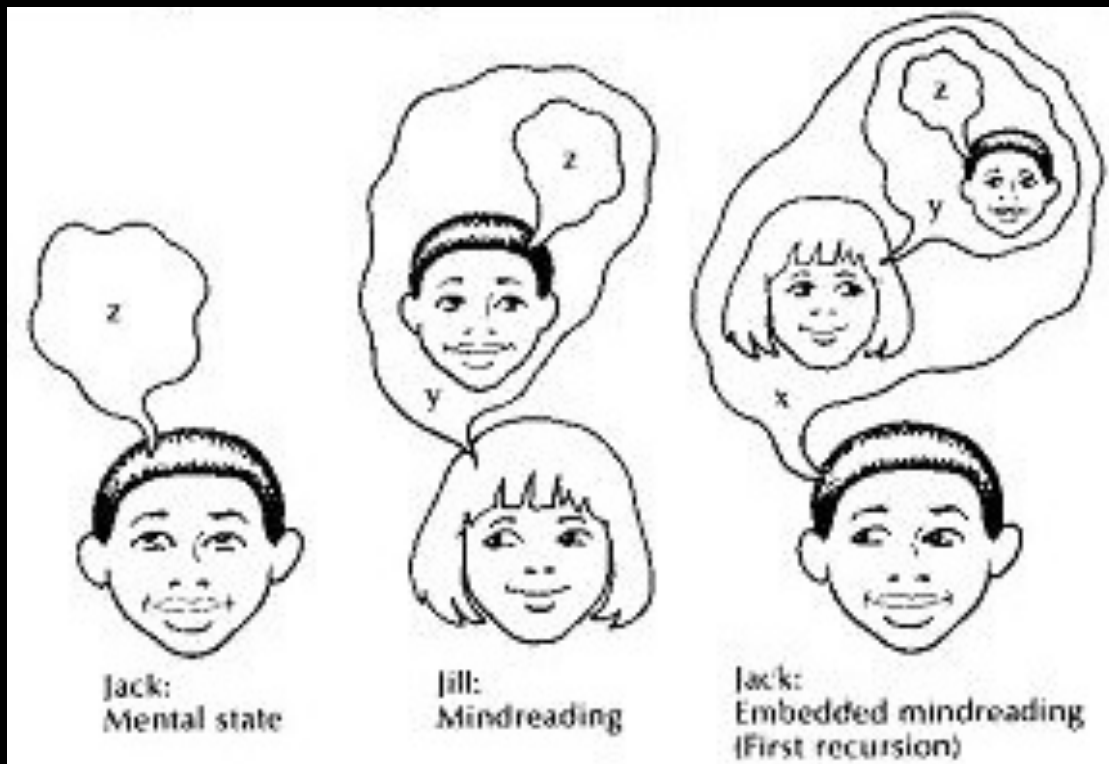
Ann then puts the ball in the box.

Now Sally
comes back.

She wants to play
with the ball.



Where will Sally look for the ball?





**Shakespeare vuole (1)
che il pubblico comprenda (2)
che Iago agisce (3)
in modo che Otello creda (4)
che Desdemona lo tradisce (5) con Cassio**



Aiutare gli altri a raggiungere il proprio scopo
(agendo in loro favore)

Condividere le risorse con gli altri

Informare gli altri su fatti o cose di loro interesse

Aiutare gli altri a raggiungere il proprio scopo (agendo in loro favore)

Out-of-reach



A person accidentally drops an object on the floor and unsuccessfully reaches for it.

Physical Obstacle



A person wants to put a pile of books into a cabinet, but she cannot open the closed doors because her hands are full.

Wrong Means



An object drops through a hole into a box and the person unsuccessfully tries to grasp it through the small hole, ignorant of a flap on the side of the box.

© Warneken & Tomasello

Tube with Handles



© Warneken, Chen & Tomasello (2006)

A photograph showing a man with glasses and a black t-shirt crouching on a grey carpeted floor, holding a blue trampoline. A young child with blonde hair, wearing a blue shirt and overalls, is sitting on the floor next to the trampoline. A small white ball is on the trampoline. In the background, there are cardboard boxes and a white wall. The word "Trampoline" is written in large white letters across the center of the image.

Trampoline

© Warneken, Chen & Tomasello (2006)





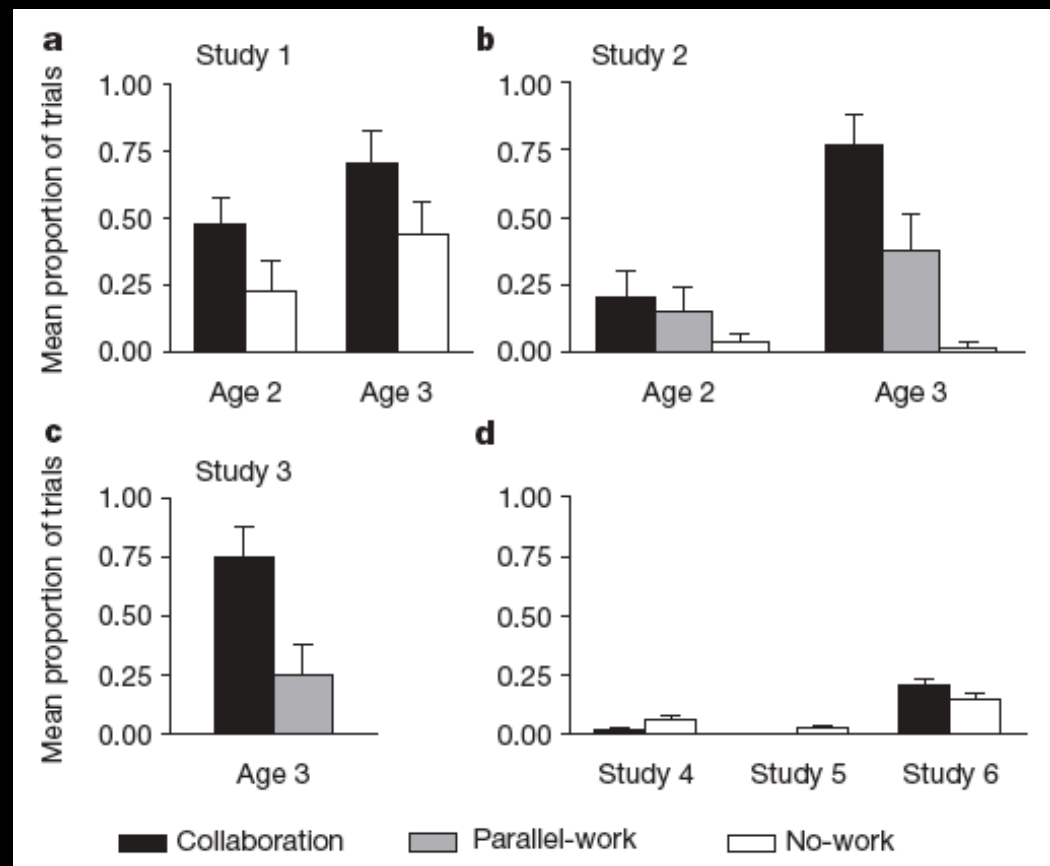
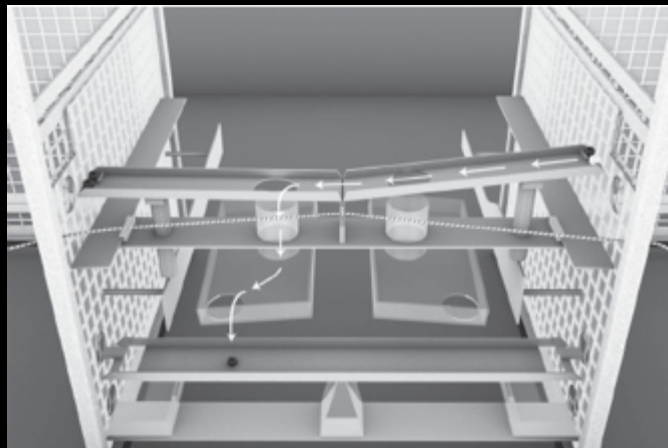
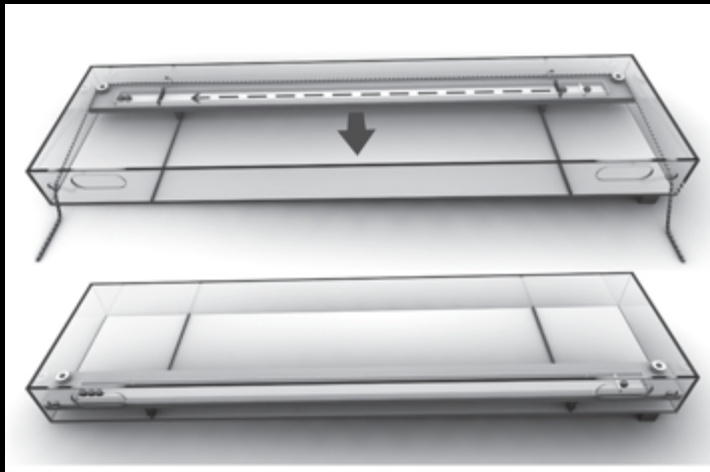
TIME CODE
0:22:41:14

Condividere le risorse con gli altri



Collaboration encourages equal sharing in children but not in chimpanzees

Katharina Hamann¹, Felix Warneken², Julia R. Greenberg³ & Michael Tomasello¹



Informare gli altri su fatti o cose di loro interesse



Of course humans are not cooperating angels; they also put their heads together to do all kinds of heinous deeds. But such deeds are not usually done to those inside *the group*. Indeed, recent evolutionary models have demonstrated what politicians have long known: the best way to motivate people to collaborate is to identify an enemy and charge that *they* threaten *us*. The remarkable human capacity for cooperation therefore seems to have evolved mainly for interaction within the local group: Such group mindedness in cooperation is, perhaps ironically, a major cause of strife and suffering in the world today. The solution – more easily described than attained – is to find new ways to define the group

Michael Tomasello (2009)

