



Attachment theory: what we can learn about the origins of social behavior from primates

**Studium
Generale**

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Studying primates to... study humans???



Source: Reddit / Captured at the LA Zoo

Some behaviors may have deep evolutionary roots, while others are more recent cultural developments:

- Comparison with the animal that shares the youngest common ancestor with us.

What is attachment?

What is social behavior?

Why should we be social?

How can we be social?



Photo: Benjamin Radzun/Flickr

Living in a group, travelling in a group,
and interacting daily with other group
members

→ **We bond**

Our peers are the most important to us.

- ❖ Most of what we know, we learn from others.
- ❖ Cooperation improves our life:
 - Finding a mate/partner
 - Caring for the young
 - Searching for food
 - Hunting for prey
 - Avoiding predators

→ **Driving our evolution and
our behavior**



Source: Pastwomen Project
(<https://www.pastwomen.net/gb/actividades>)
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Crowd by Espen Sandve, CC BY 2.0

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Photo: Benjamin Radzun/Flickr

Types of (pro)social behavior

Cooperation
Coalitions
Coordination
Altruism
Social learning
Targeted helping
Consolation
Reconciliation
Babysitting & cooperative breeding
(...)
Social bonding
Attachment

TO do it, one needs to:

- Recognize other individuals
- Remember who is who
- Evaluate their rank and the benefits from that exchange
- Plan to get the most of it
- Come back to it (delayed reciprocity)

>>And this is where ≠ species have ≠ combinations and levels of complexity



To be social, we need to...

Complexity 1.0 Understand that the other is $\neq$ from me, recognizing it

Complexity 2.0 Understand what others see and think differently from me.

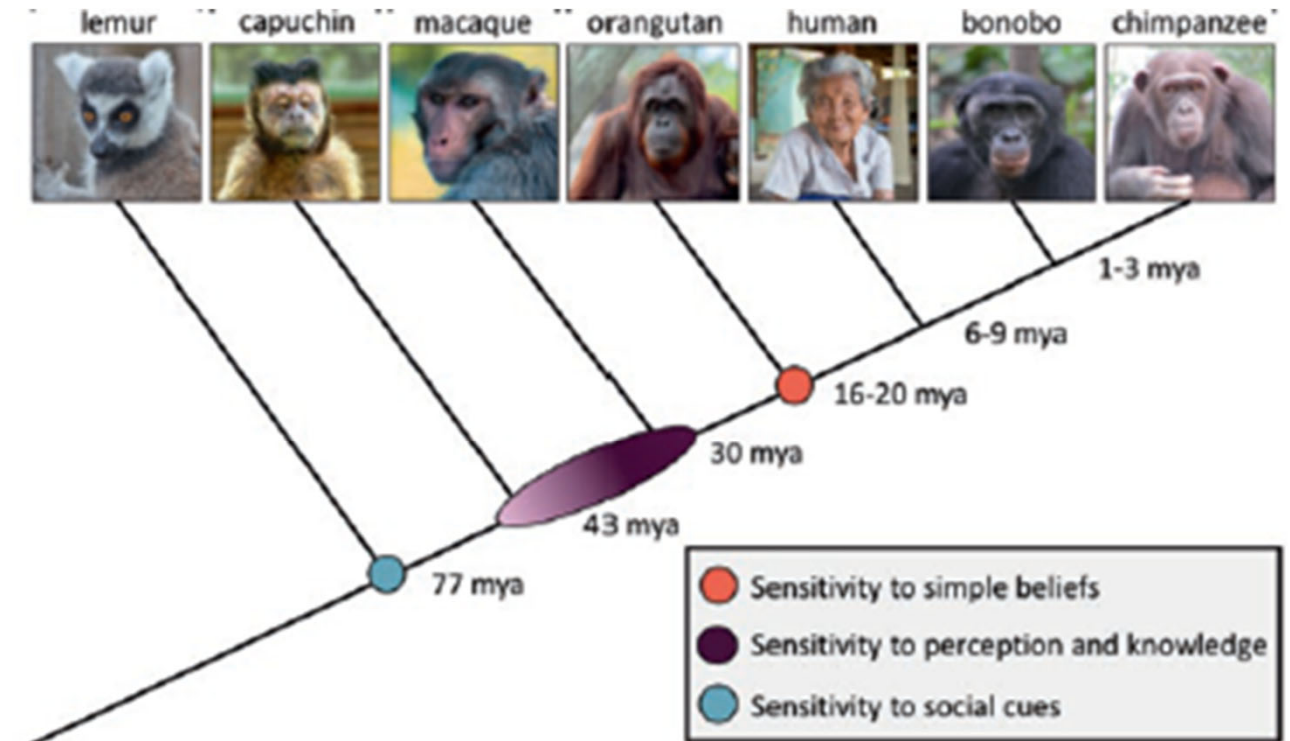


Fig. 1 Phylogeny of primate theory of mind. Comparative research suggests that the roots of human mentalizing extend deep into primate phylogeny

When the game is played on repeat, the best strategy is cooperation (**tit-for-tat***):

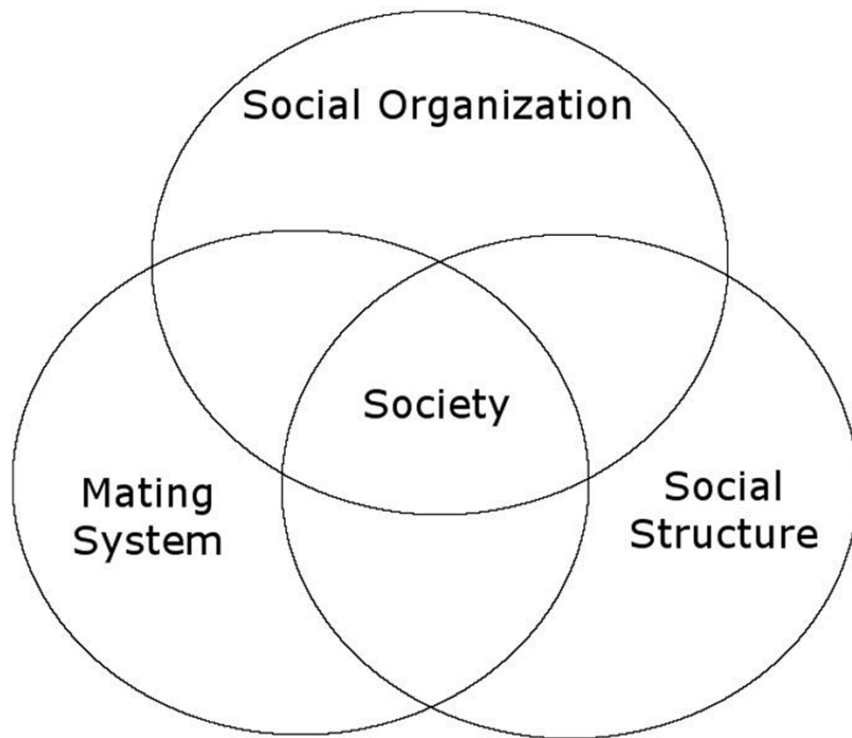
- Cooperate
- Retaliate when someone betrays you
- Go back to cooperate when the other cooperates

Reading social clues and “knowing” the social context

Prisoner Dilemma

	Y chooses to cooperate	Y chooses to defect
X chooses to cooperate	+10 +10	+20 -10
X chooses to defect	-10 +20	0 0

The “how” we are social turned into complex societies!



*Human cooperation is guided by **social norms** (rules, culture, morals).

I hope I have convinced you that...

1) Primates are great model species

2) We use social behavior'

- Mating
- Parenting
- Helping
- Survival

Question: How do we maintain positive and balanced social life in large groups?

Think about it for a minute, turn to your neighbors and share!

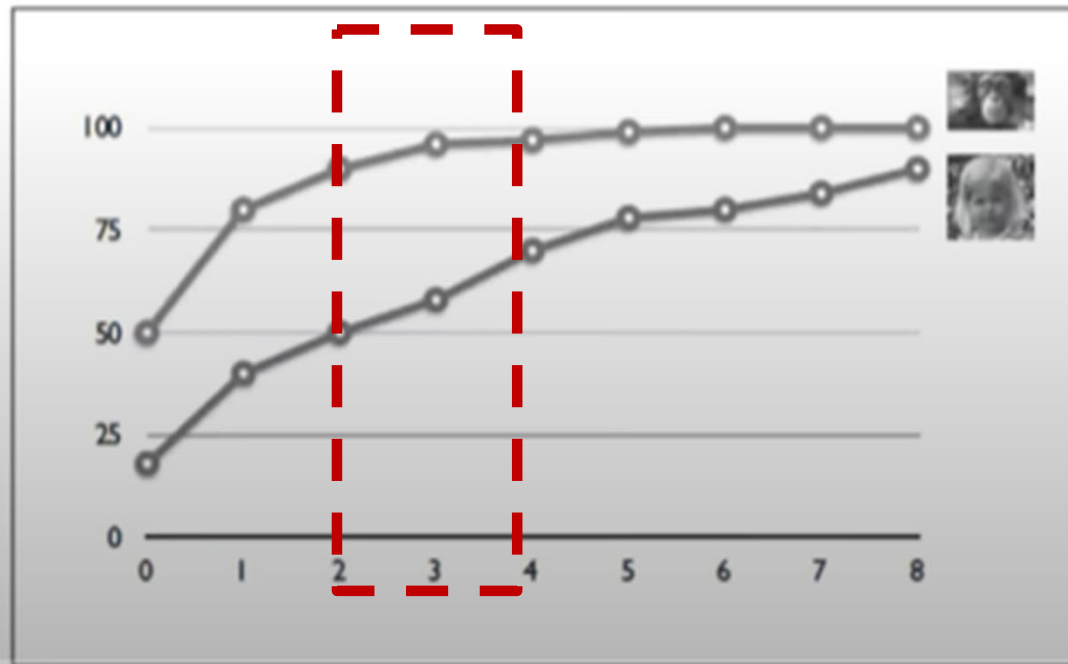
(10 min)



Humans and chimpanzees share >98% of DNA, meaning that everything that distinguishes us from chimpanzees must be encoded in the very small amount of uniquely human DNA

2 yo are perfect chimps!

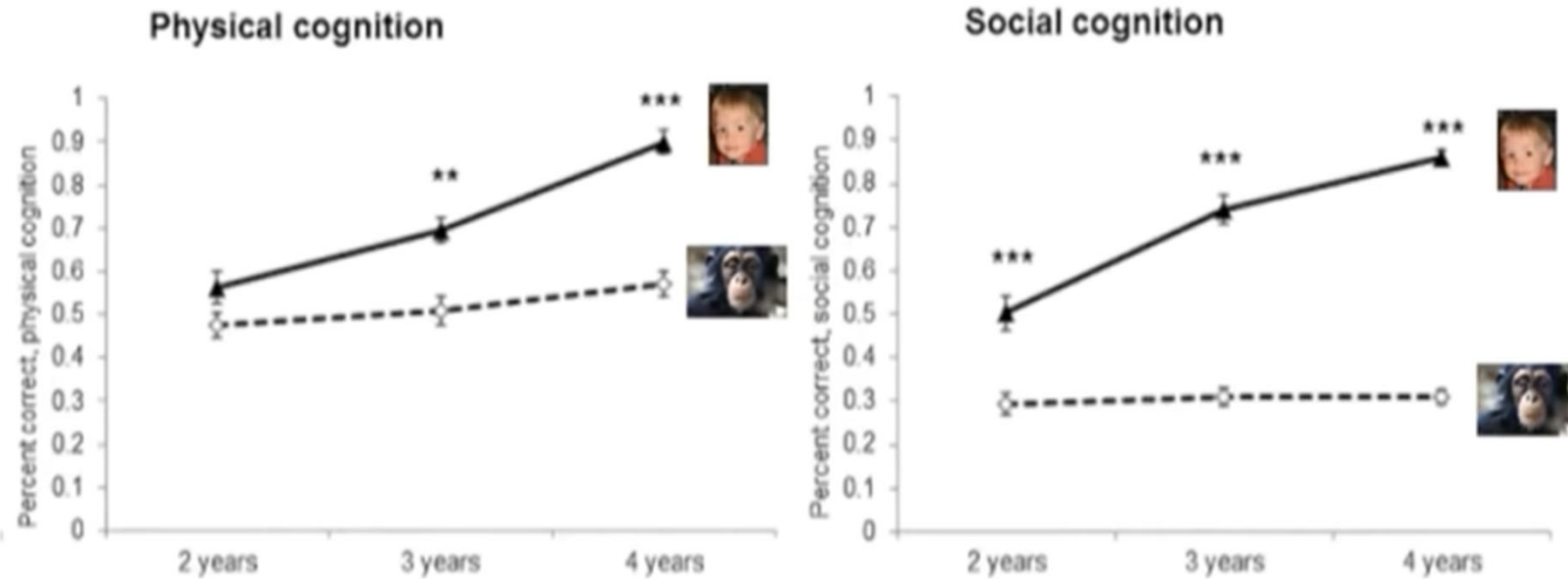




relative
brain growth

Wobber et al., 2013

Apes are neurologically much more mature by age 2-4 (reaching ~90-100% of adult brain size), while human children are still undergoing massive brain growth during this period (from ~50% to ~75% of adult size).



By 2.5 years old, young children think about objects and physical problems at about the same level as adult apes. But when it comes to understanding people (reading social cues, communicating, and figuring out what others are thinking), children are 2x more than apes.

Collaboration entails:

Showing>>

Joint attention>>

Deciding!

***Other primates can't**

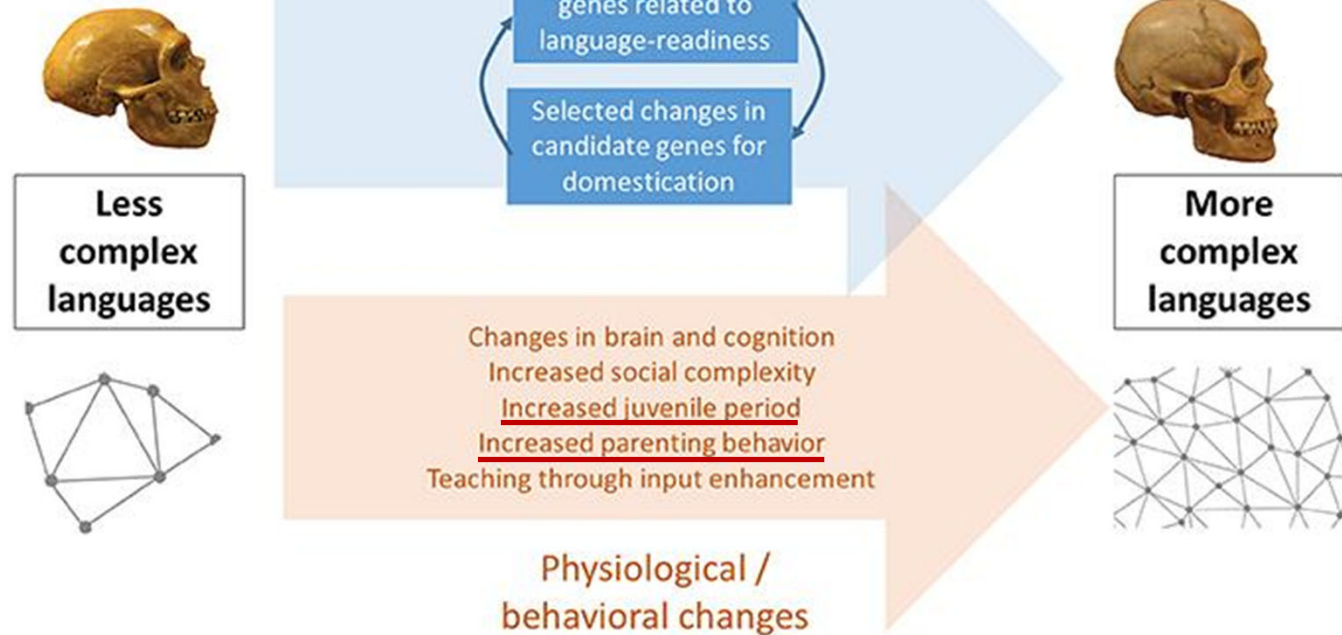




Banksy, Trolley Hunters (2006)



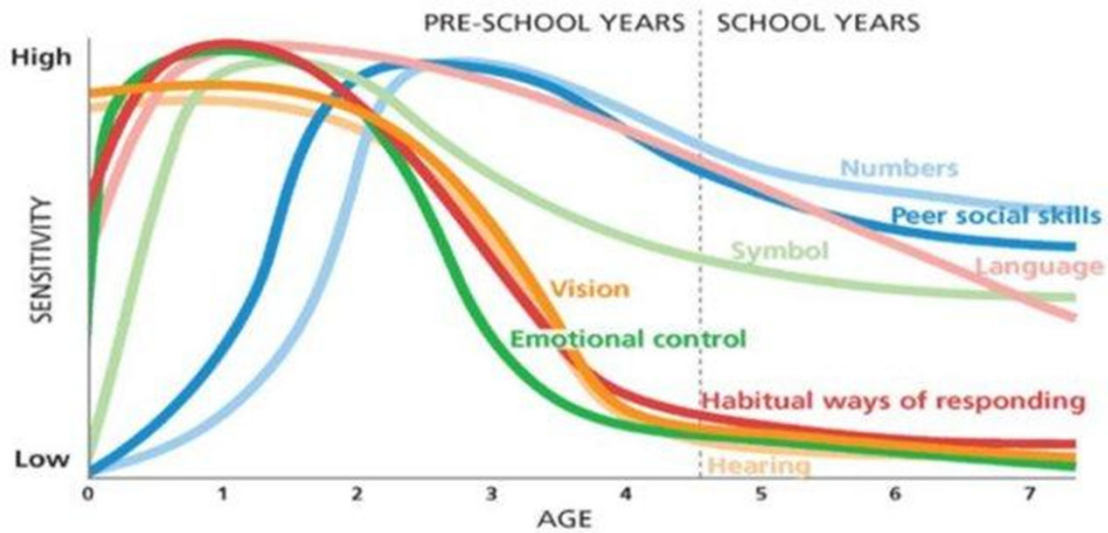
Source: Pastwomen Project (<https://www.pastwomen.net/gb/actividades>)
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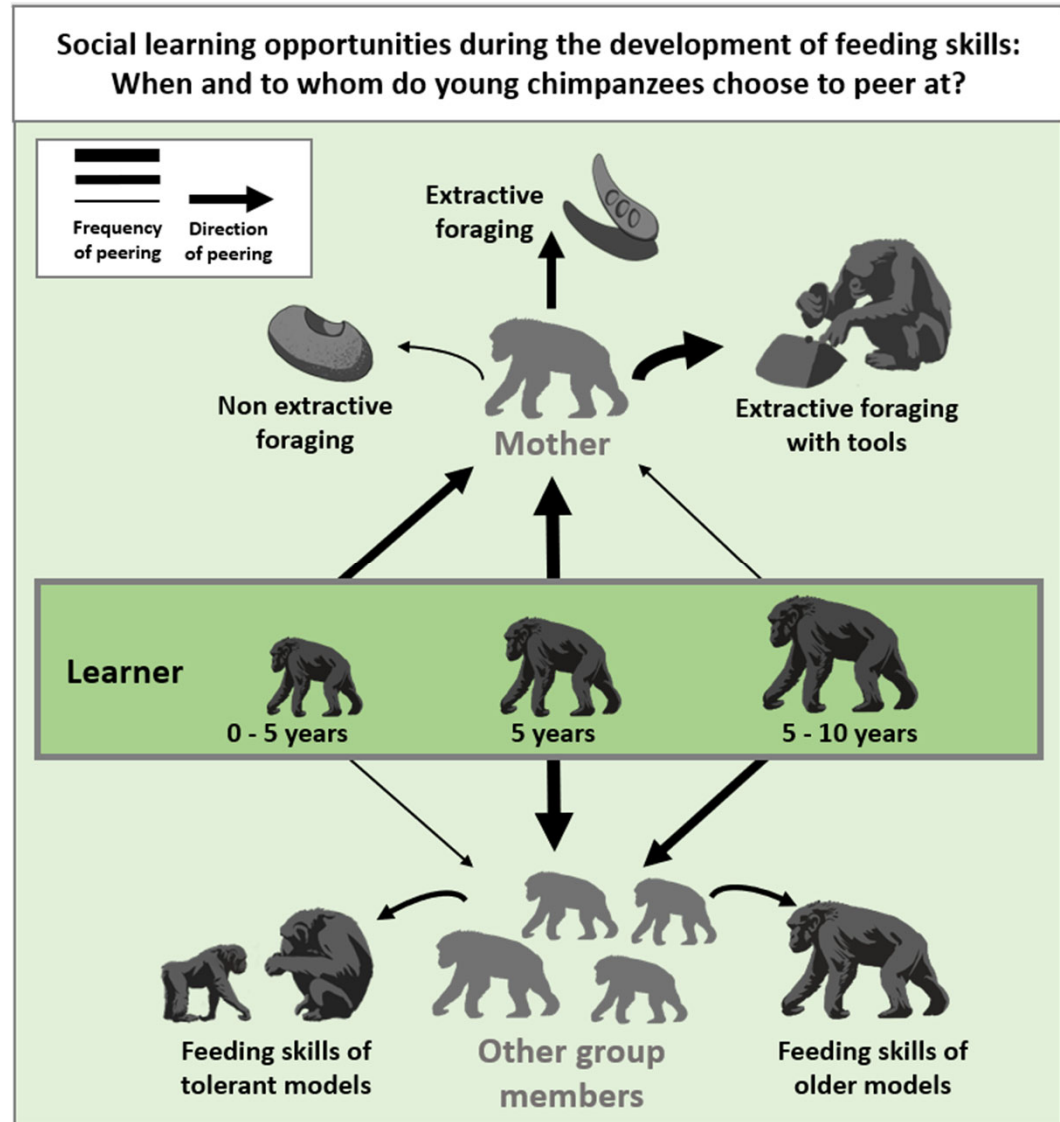
emergence of shared intentionality

Is early social experience all-important?





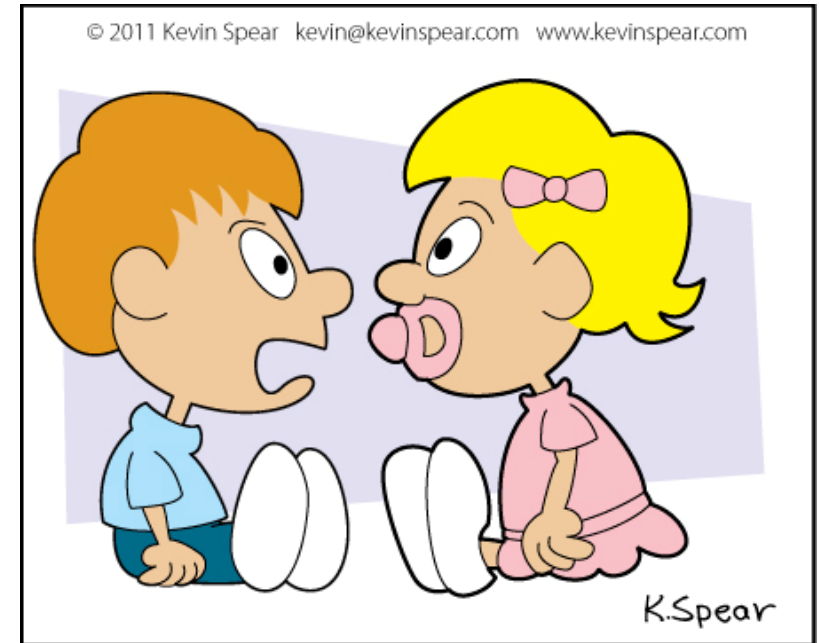
Udayanga et al., 2021



(Illustration credit: Oscar Nodé-Langlois, Taï Chimpanzee Project)
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Question

- 1) Imagine if human children became fully independent at age 7 (like chimps). What would our society look like?
- 2) Human parents invest 18+ years in each child and can only have a few offspring. Other primates have many babies that become independent much faster. Why would evolution favor having **FEWER children who need MORE care**, instead of **MANY children who need LESS**?



"My first birthday is next week. Talk about pressure!"

Think about it for a minute, turn to your neighbors and share!
(10 min)

Start on the right foot



What is attachment?

What is social behavior?

Why should we be social?

How can we be social?



Photo: Benjamin Radzun/Flickr

Attachment

Dyadic relationship between the infant and primary caregiver (the person who provides most of the infant's care, typically a parent)

"Cupboard Theory" (Freud): mother seen primarily as a provider of physical sustenance.

Attachment Theory (Bowlby): Infants are innately motivated to seek social connection, not just food.

✓ It's the quality of care—not merely the act of caregiving—that shapes attachment style.

Michael Rutter challenged Bowlby's attachment theory, establishing that multiple attachments were important for children rather than sole attachment to the mother.



Image source: University of Wisconsin-Madison Archives



<https://www.youtube.com/watch?v=hlu3ghTsZT0>

The effects of social deprivation

Early social isolation has a drastic effect on behaviour
E.g., Monkeys reared in isolation



"The effects of 6 months of total social isolation were so devastating and debilitating that we had assumed initially that 12 months of isolation would not produce any additional decrement".

This assumption proved to be false; 12-months of isolation almost obliterated the animals socially.."

H. Harlow (1965).

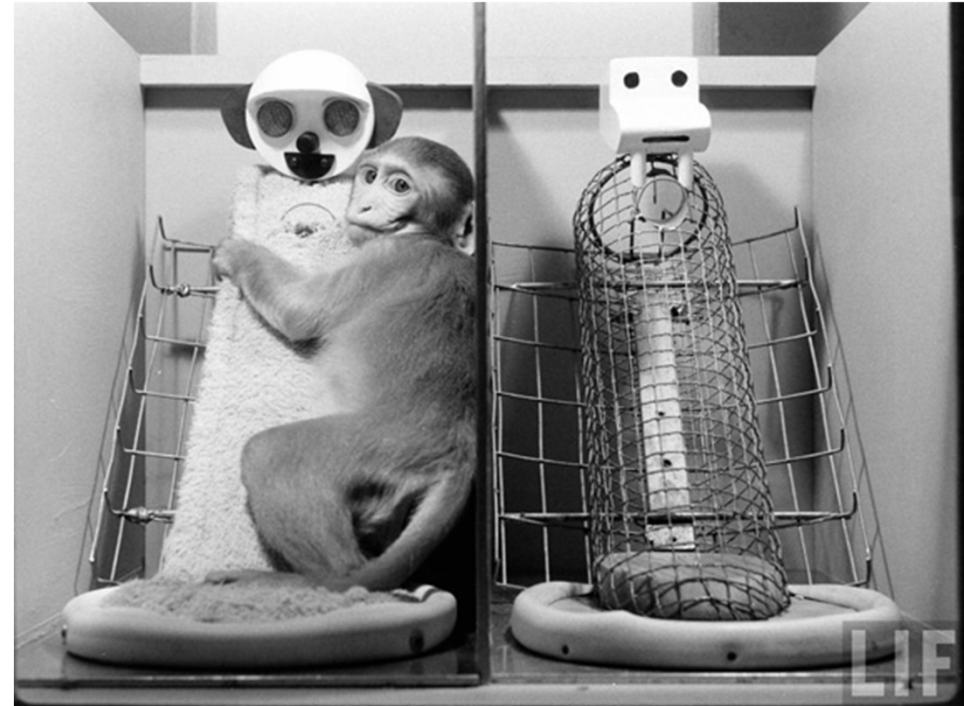
Image source: University of Wisconsin-Madison Archives

Biological basis of attachment

Harlow raised newborn rhesus macaques without their mothers:

- each monkey lived alone in a cage that contained two stationary mothers
- one was built of wire, the other soft terry cloth
- the wire figure was equipped with a nipple that yielded milk, the cloth one did not
- infants spent much more time with the cloth mother, especially when frightened

Opposition with Freud's ideas: the infant monkey seeks its mother not because she provides food, but because she provides **comfort**.



Is contact comfort
equally
important to
human babies?



Image source: University of Wisconsin-Madison Archives

The effects of social deprivation



https://youtu.be/VCeWr8OFuEs?si=zNmh1yhC9E_OhOZZ

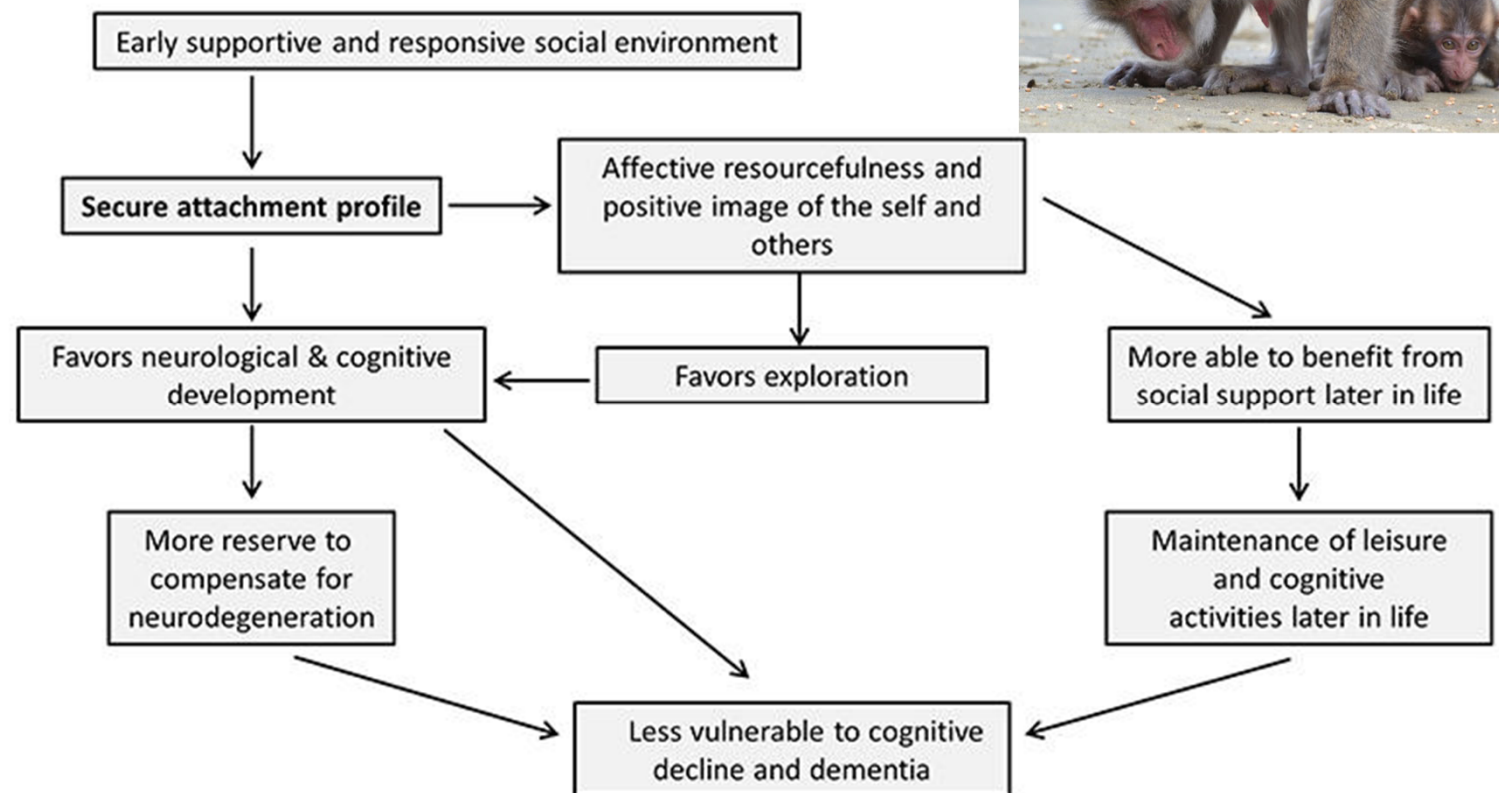
Parallel to Harlow's findings, children reared in orphanages provided little social stimulation (Vorria et al. 2003; Chisholm, 1998).

Early institutionalization and foster care impact long-term brain white-matter development (Bick, J., et al. 2015)

Infants with more secure attachment show greater gray matter volume in key social-brain regions by late childhood, even after controlling for age, sex, and other factors (Leblanc et al., 2017)

Nurturing early care
→ secure attachment
→ fosters self-worth,
trust in others,
confidence to explore,
and healthy brain
development

These (early) advantages
build the brain's
resilience to diseases
later in life, and a
positive social
orientation that
supports lifelong
engagement in mentally
stimulating activities.



Are we talking only about the mothers or specific caregivers?



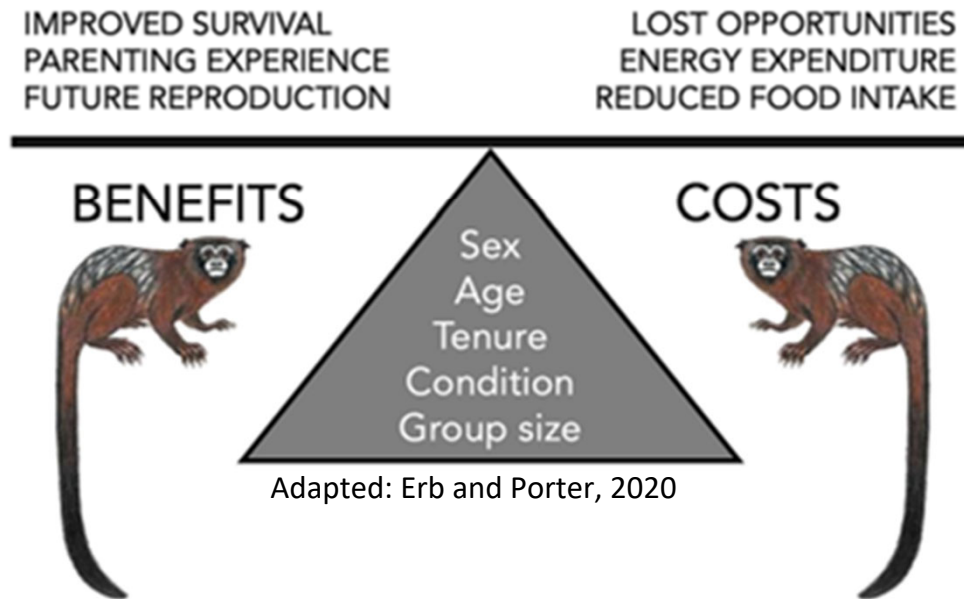
Elephants

Infants growing up with adult males that were poached during the “Ivory Wars” (1970s and 1980s) become much more aggressive to the point of killing other animals and humans.

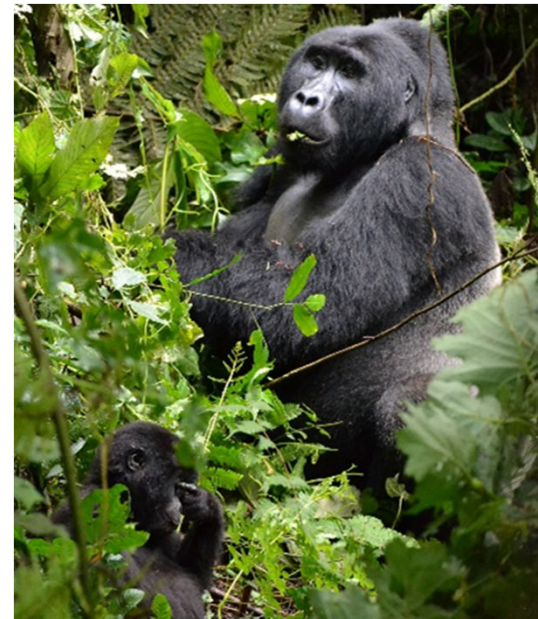
Finding babysitters

Universal in humans and **callitrichids**;
rare in other primates

COOPERATIVE INFANT CARE



“Helpers” participate in various forms of care, including grooming, provisioning, protecting, and carrying infants



Silverback mountain gorillas often “take care” of infants who have lost their mothers.

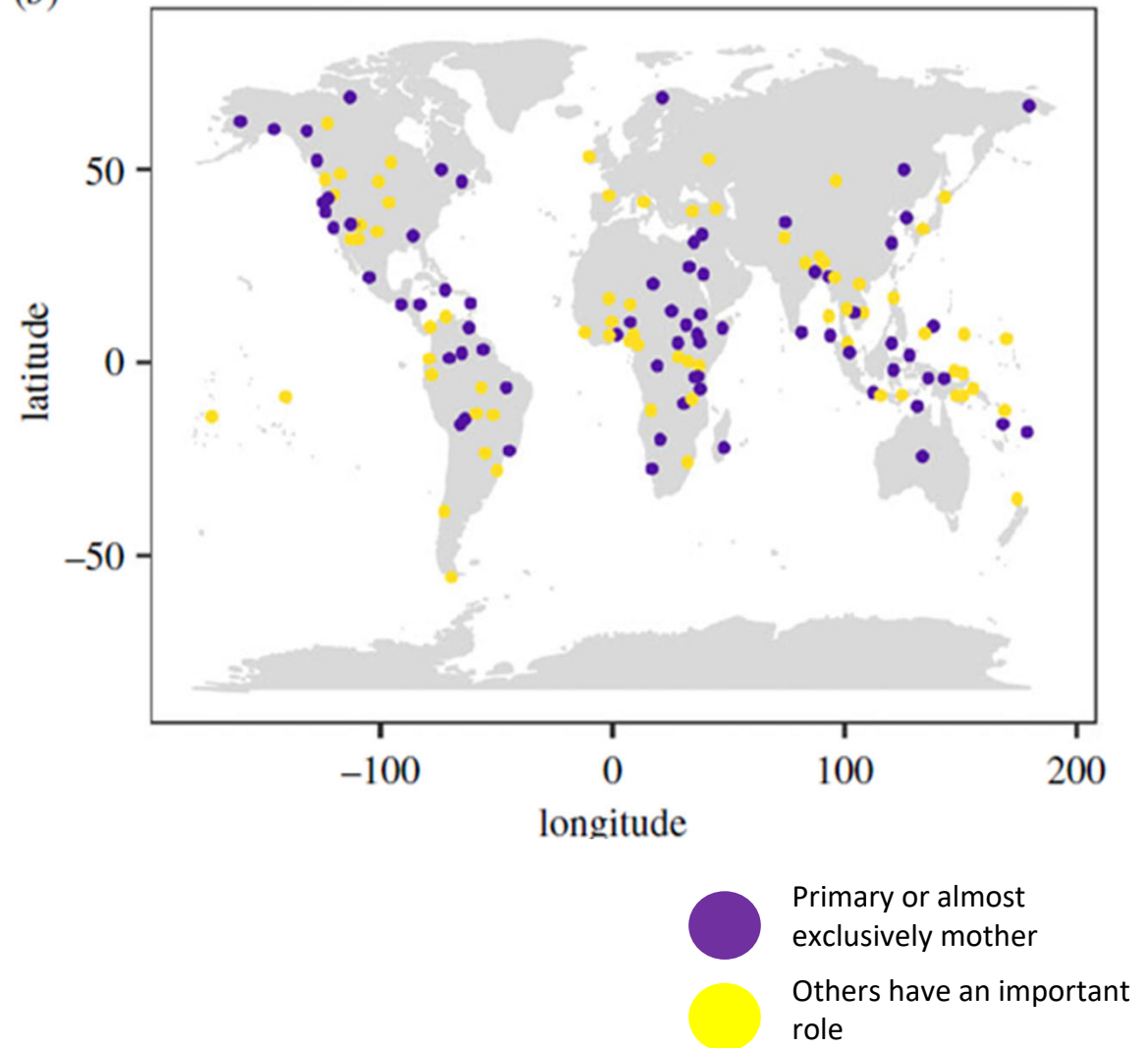
Finding babysitters ("it takes a village to raise a child")



In harsh environments, families and communities often share the work of caring for children. This cooperation helps both the young and the caregivers survive and thrive when resources are scarce.

(Martin et al., 2020)

(b)



- Close attachment facilitates the survival of highly **dependent human infants**, creating the emotional foundation for the future and allowing the **prolonged care** needed for large brain development

- **Large brains take longer to develop** (longer pregnancy, babies need care for more time, longer gaps between children), so parents end up having fewer children overall.

- **Finding food while caring for helpless babies** means people need to work together and share what they find.

- **Human babies learn to connect with people very early**, not just to learn from them, but to get attention and care from many different adults—not just their parents.

Attachment & Cooperative Breeding helped our evolution!

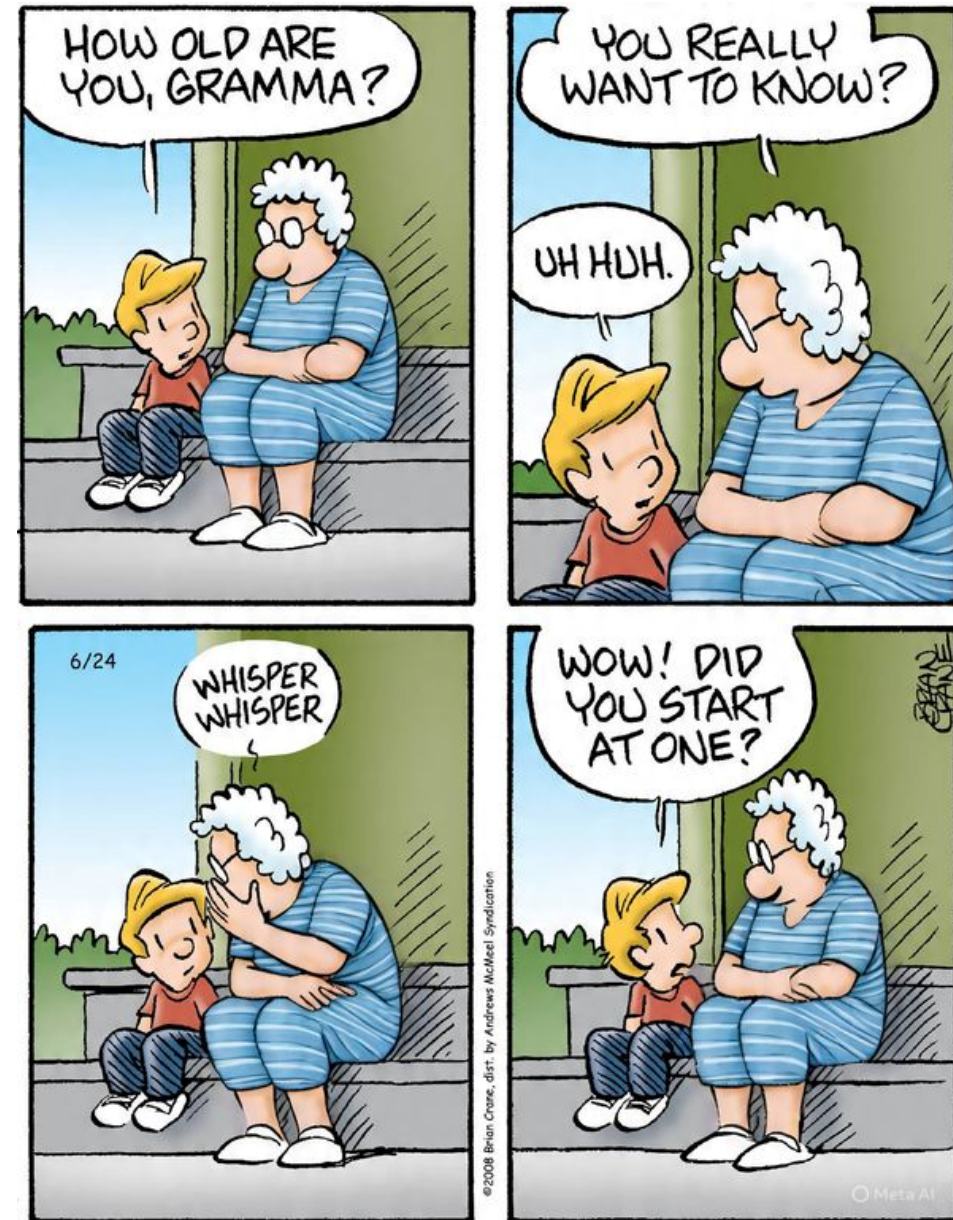


Sharing is caring:

Who was in your village?
who were all the people who helped
care for you as a child (parents,
grandparents, siblings, teachers,
neighbors, coaches, etc.)

Think about it for a minute, turn
to your neighbors and share!

(5 min)



The mother/caregiver's side of the attachment

Caregiving behaviors we share with other animals:

Insecure Attachment → Higher PPD/PTSD Symptoms
→ Lower confidence in caregiving abilities

In humans, a caregiver's past influences their child's outcomes, but doesn't dictate them. Change is possible.

In species like baboons or macaques, a mother's rank and behavior largely determine her infant's survival and social standing.

In humans, addressing mental health, reducing stress, and building their ability to understand their child's needs, creating **positive ripple effects** for the children.
>> Account for cultural, economic, and social circumstances. Context matters.

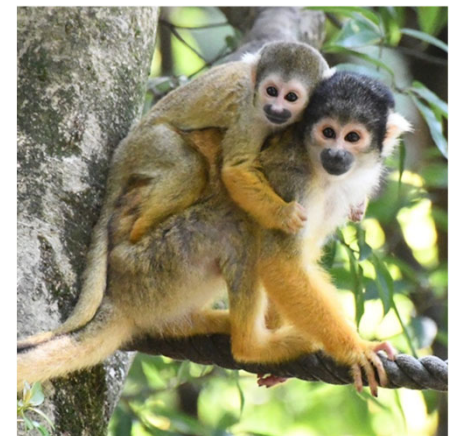
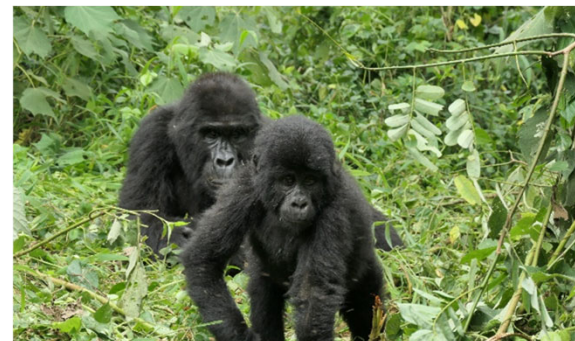


Ventro-ventral contact

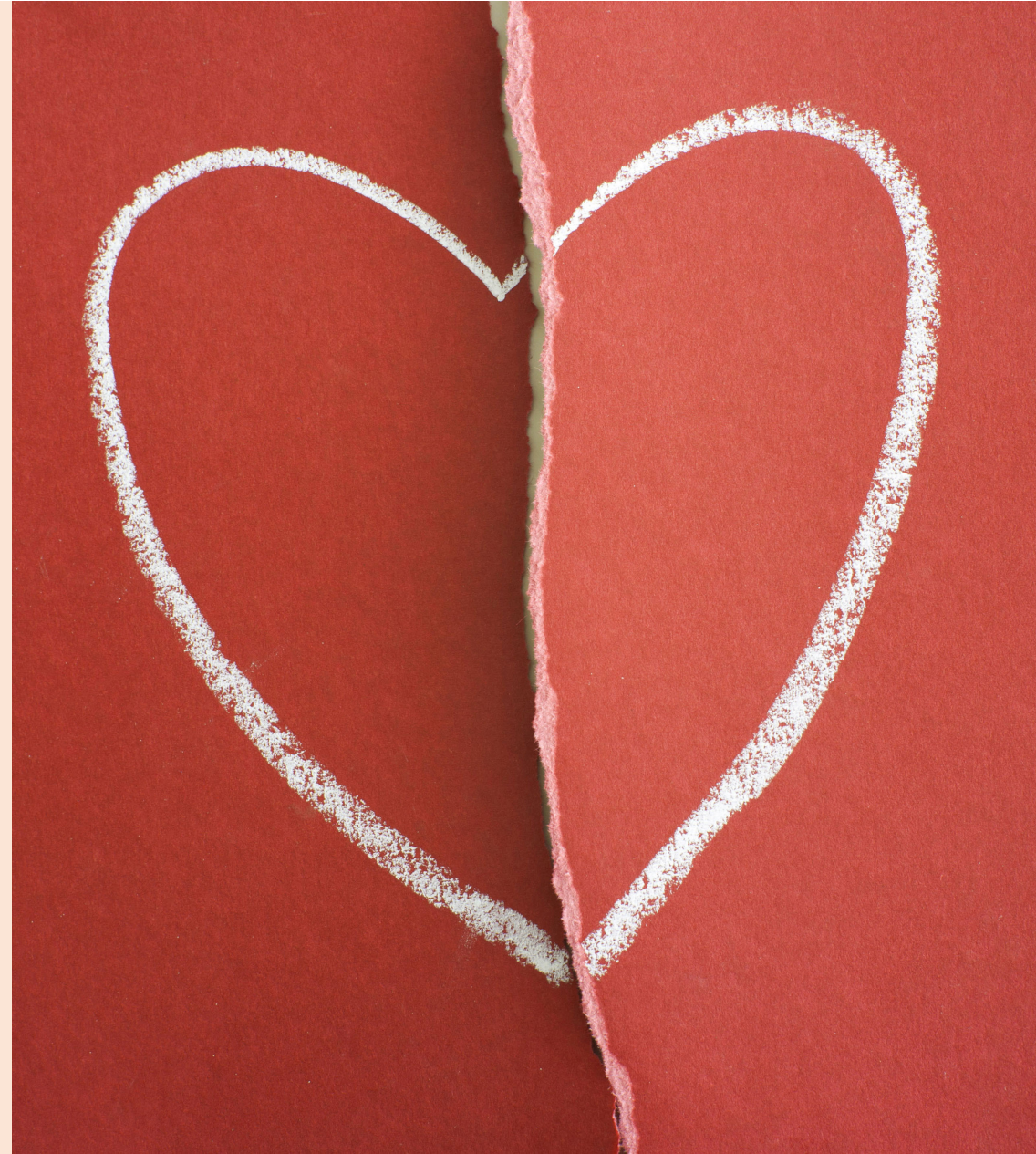
Intense contact comfort and Proximity maintenance

Separation distress

Co-sleeping



Attachment Styles and How They Affect Adult Relationships





Which of the following best describes your feelings?

- (1) *"I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me."*
- (2) *"I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being."*
- (3) *"I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away."*

Think about it for a minute, turn to your
neighbors and share!
(5 min)

Figure: Four-Category Model with the Two- Dimensions of Attachment
(Fraley, et al., 2015)

Hazan, C., & Shaver, P. (1987)

(1) Secure (56%) Easy to get close to others; comfortable depending on others; comfortable having them depend on me; don't worry about being abandoned or about someone getting too close to me

(2) Avoidant (25%) Uncomfortable being close to others; difficult to trust them completely, difficult to depend on them; nervous when anyone gets too close: partner wants me to be more intimate than I feel comfortable being

(3) Resistant (19%) Others are reluctant to get as close as I would like; often worry that my partner doesn't really love me or won't want to stay with me; want to merge completely with another person; this desire sometimes scares people away

Waters et al. 2000: 72% of the infants received the same secure versus insecure attachment classification in early adulthood



© Phil Selby (2007)



Summary

As humans evolved to rely more on each other (for foraging, childcare, etc.), we developed stronger bonds of mutual support. Attachment became the **emotional "glue"** holding these networks together. In humans and other socially complex primates, attachment isn't just about infant-caregiver bonds; it's a system that enables stable, trusting relationships across the group. Feeling safe and supported gives individuals the confidence to explore, learn from others, and maintain cooperation, even under stress. In short, needing each other more made us naturally inclined to care, connect, and collaborate.

