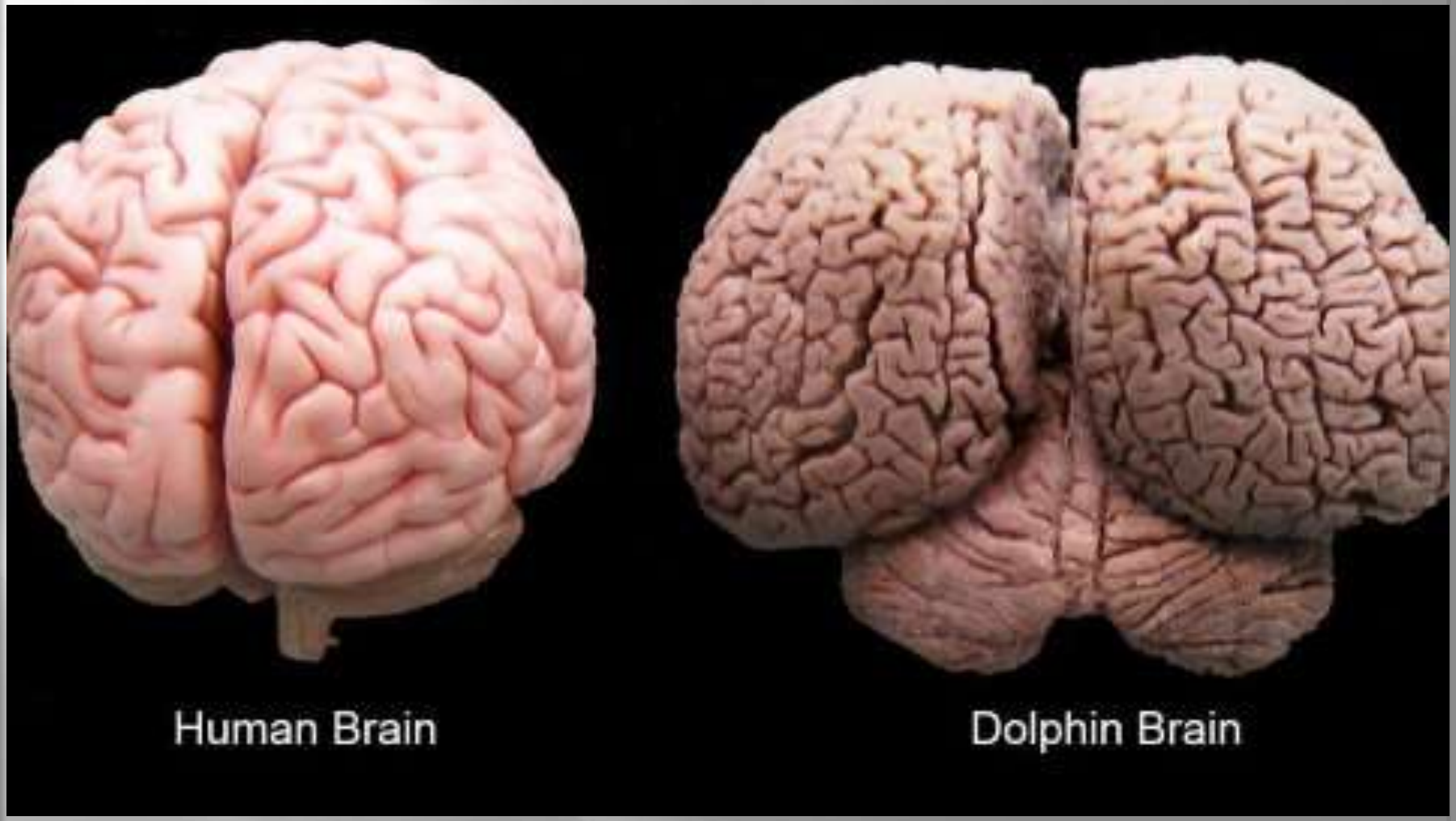
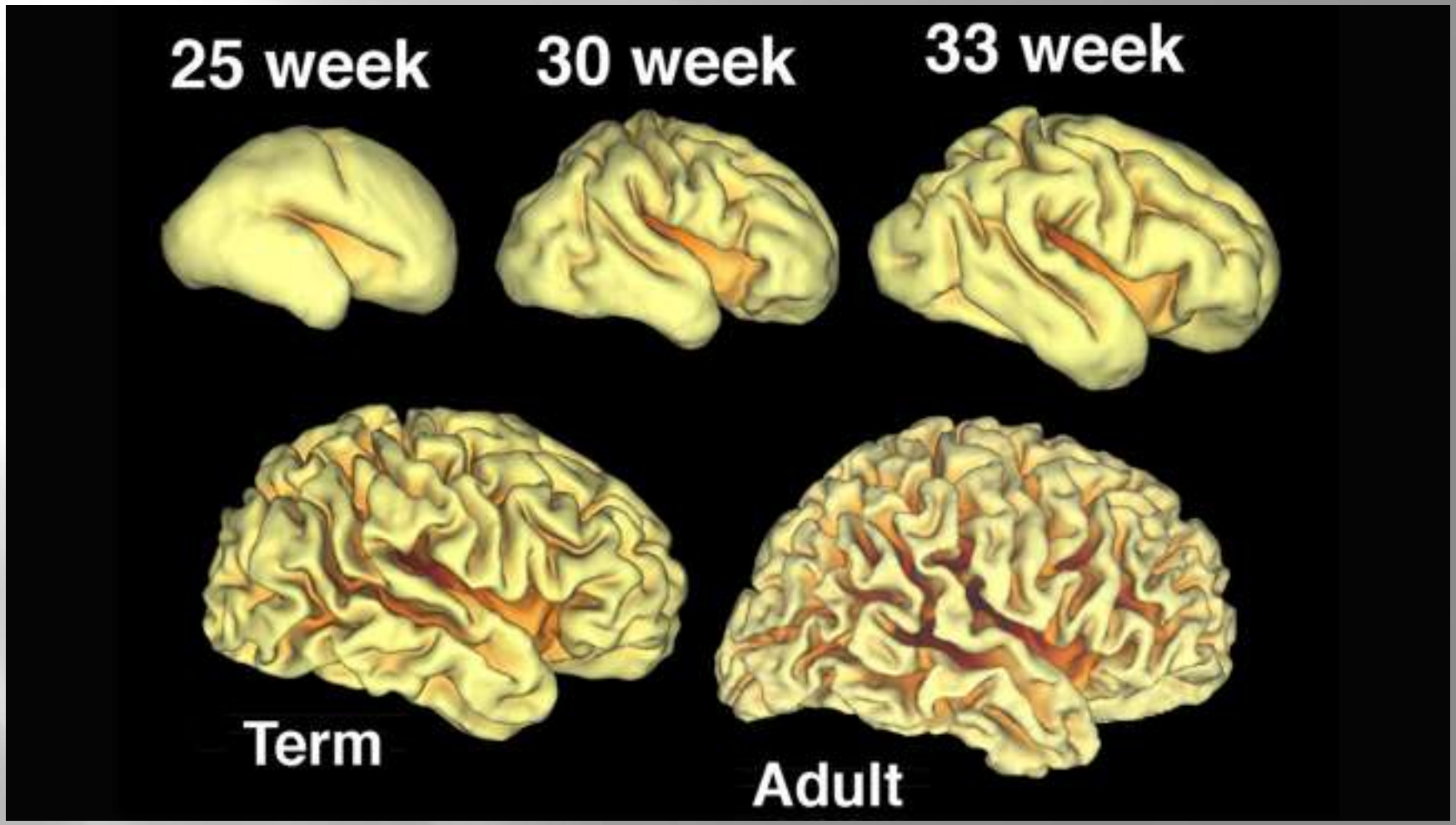
The Sources of Who We Are

Priniples of Human Development

What is so special about human brain?

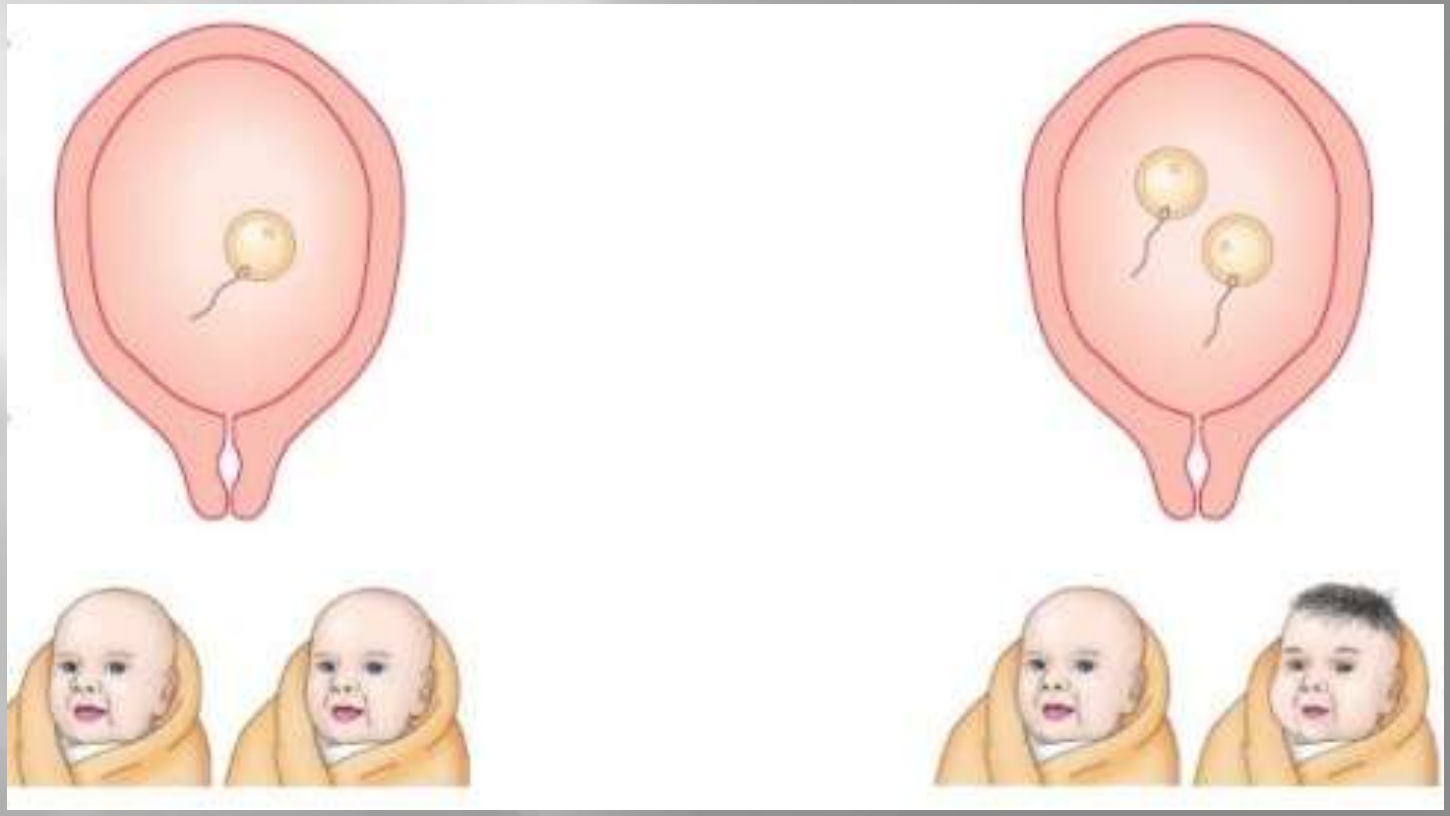



25 week
30 week
33 week
Term
Adult

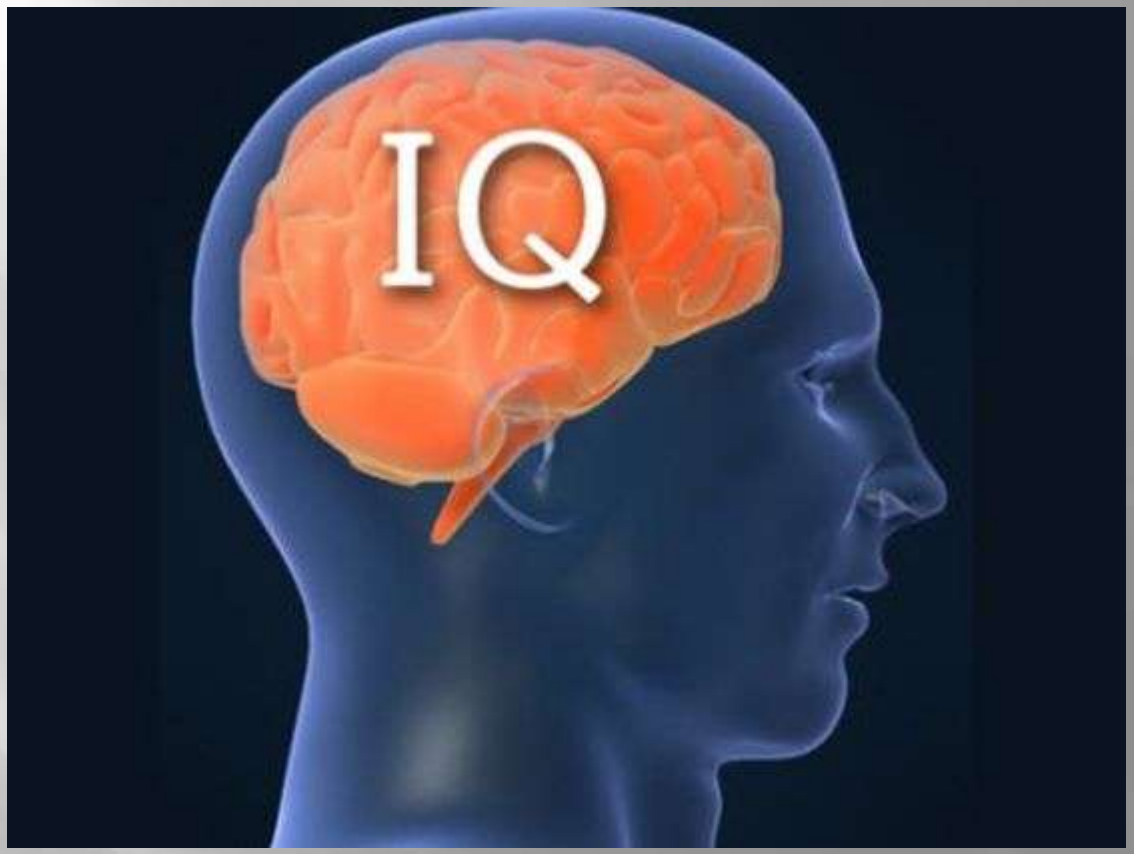
How do we differentiate…?

Behavioural genetics

- *% of common variance in traits explained by environemtal and genetic influeces* **(monozygotic vs. dizygotic twins)**



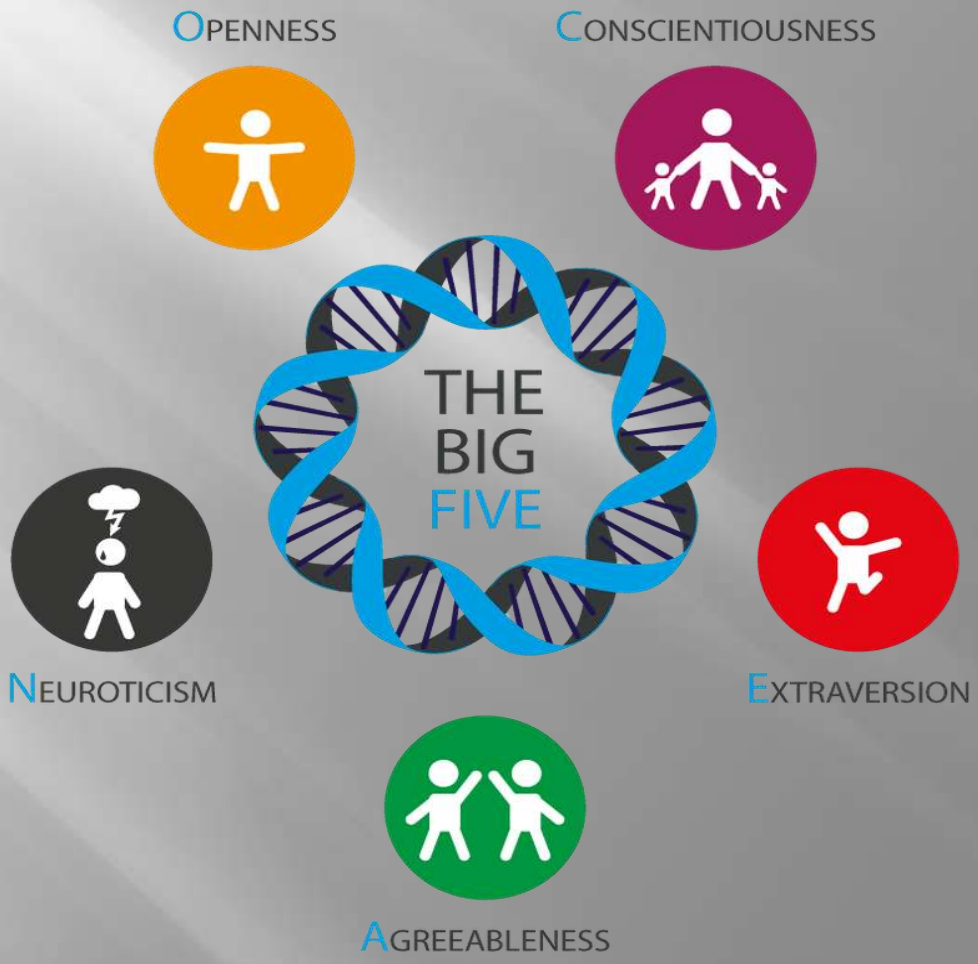
Heritability of… intelligence



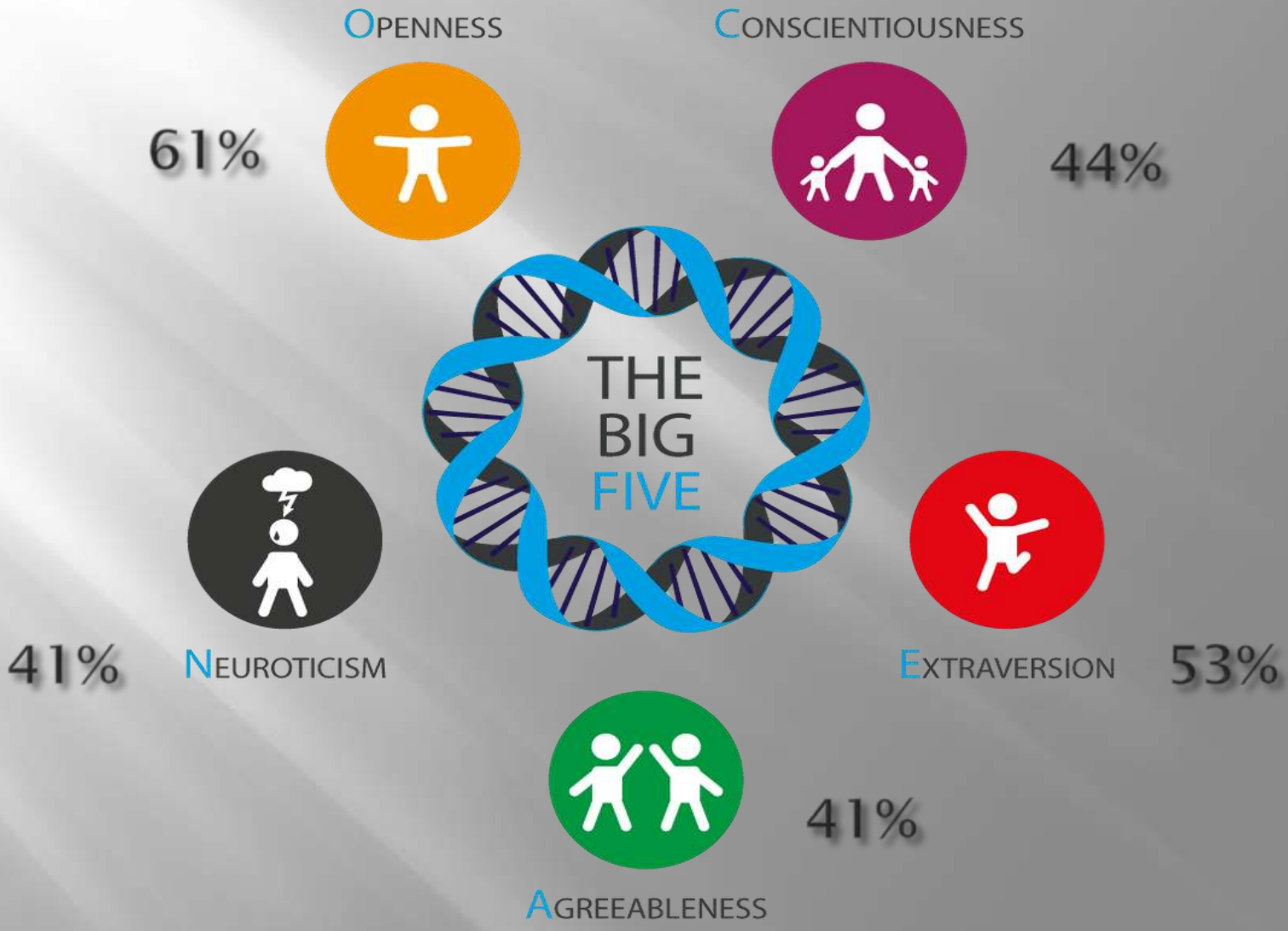
Infancy: ca. 20%
Childhood: ca. 40%
Adulthood: > 70% … WHY???

Heritability of… personality

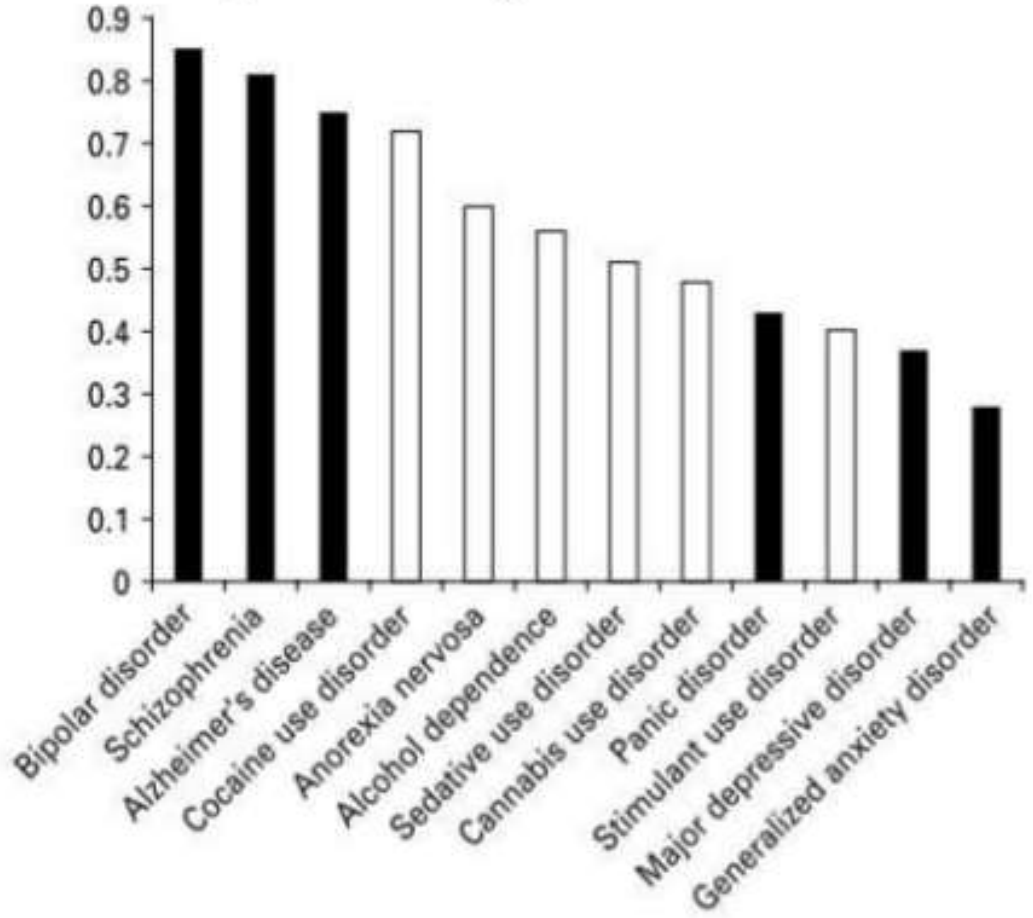
Jang, K. L., Livesley, W. J., & Vemon, P. A. (1996). Heritability of the Big Five personality dimensions and their facets: A twin study. Journal of Personality, 64(3), 577-592.



Heritability of… personality



Heritability of… mental disorders



Bienvenu et al. Psychiatric 'diseases' versus behavioral disorders and degree of genetic influence. Psychological Medicine 2011;41;33–40.

What is actually inherited?

- *Biological factors in the brain (e.g. neurotransmitter production and sensitivity* → **Temperament***)*
- **Biology sets limits to the efficiency of learning (environment-induced change)**

What is NOT inherited?

- **Motivation** *(sensitivity to positive/negative experiences vs. specific objects and situations associated with these emotions|*
- *Beliefs and representations*
- *Skills and competencies*
- *Character strengths*

What is NOT inherited?

- *Motivation*
- **Beliefs and representations** *(flexibility in thought operations vs. specific "ingedients")*
- *Skills and competencies*
- *Character strengths*

What is NOT inherited?

- *Motivation*
- *Beliefs and representations*
- **Skills and competencies** *(baseline limits in processing efficiency vs. learned behavioural patterns, e.g.* **critical thinking skill***)*
- *Character strengths*

What is NOT inherited?

- *Motivation*
- *Beliefs and representations*
- *Skills and competencies*
- **Character strengths** *("formal" aspects of spontanous behaviour vs. global "guides" in decision-making, e.g.* **agreeableness vs. compassion; shyness vs. humility; inhibition vs. temperance***)*

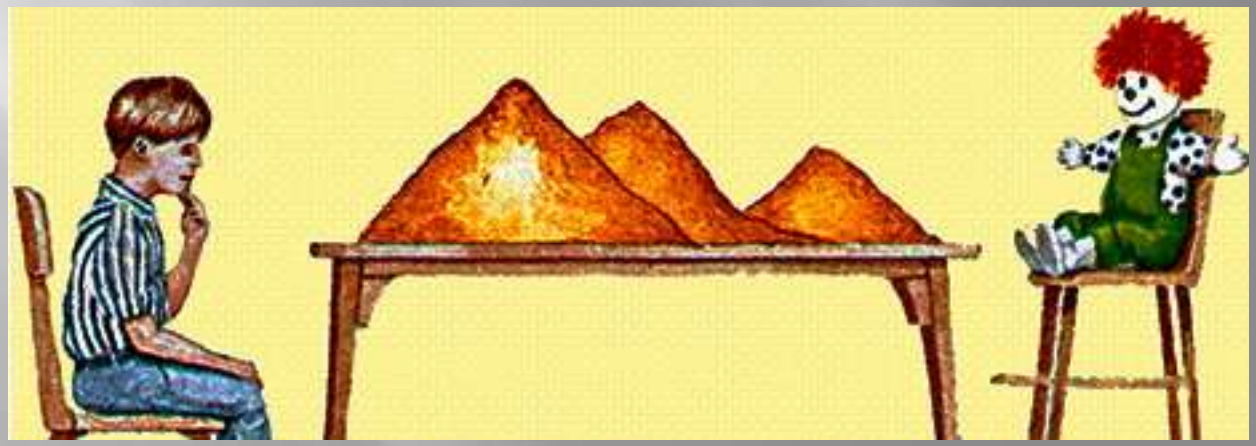
What is actually inherited?

- **Biological maturation** – some types of learning cannot be expected of children at certain age

Cognitive maturation

Jean Piaget

Cognitive maturation



High heritability ≠ Small role of environment

- *Even an inherited trait may need specific environmental triggers to be fully expressed = heritability is % of* **variance**, *not amount!!!*

Is vision learned??

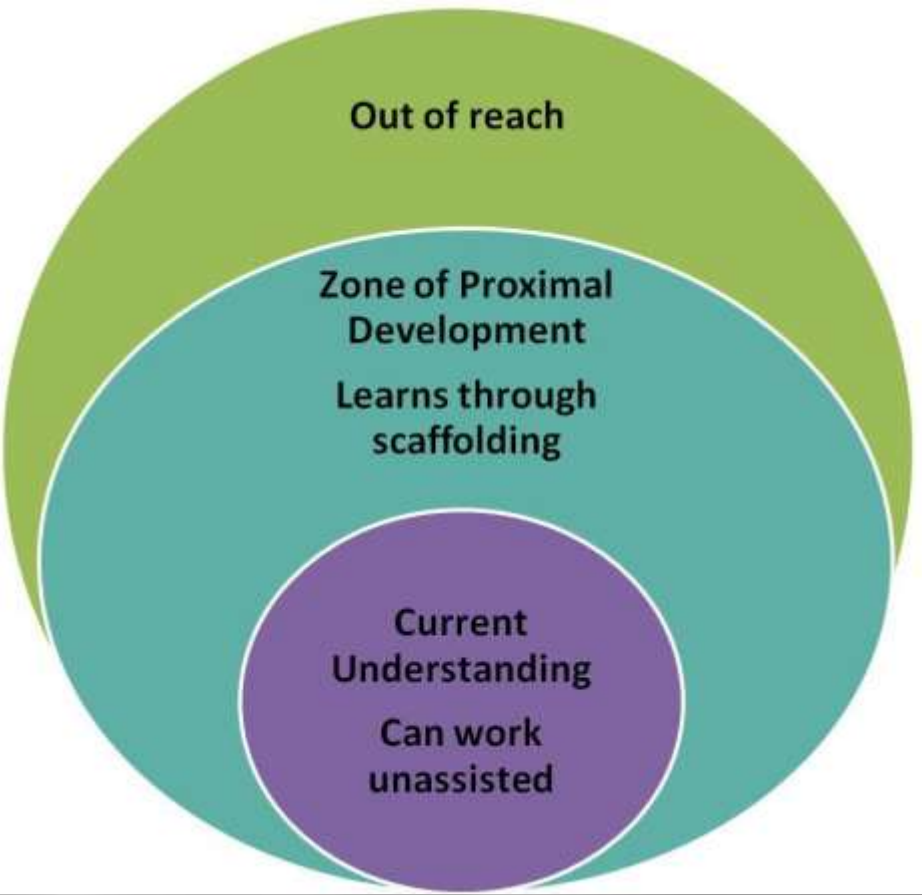
Blakemore, C., & Cooper, G. F. (1970). Development of the brain depends on the visual environment. Nature, 228(5270), 477-478.

Critical period = time when specific stimulation is needed for healthy development of a specific function

Do we need the help of others to develop?

“Scaffolding” the development

“Scaffolding” the development



Lev Vygotsky

Zone of proximal development

Radical "environmentalist" view of development: Behaviourism

Learning theories of development

"Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. I am going beyond my facts and I admit it, but so have the advocates of the contrary and they have been doing it for many thousands of years."

(John B. Watson, *Behaviorism*, 1930)

Little Albert Experiment

Learned helplessness

Seligman, M. E., & Maier, S. F. (1967). Failure to escape traumatic shock. Journal of Experimental Psychology, 74(1), 1-9.

Learned helplessness

Seligman, M. E., & Maier, S. F. (1967). Failure to escape traumatic shock. Journal of Experimental Psychology, 74(1), 1-9.

Three groups of dogs:

	Time to learn escape in phase 2	Successful escape
Control (no initial learning)	**< 27 s**	**88%**
Escape condition (Phase 1)	**< 27 s**	**100%**
No escape condition (Phase 1)	**48 s**	**25%**

What does learned helplessness do?

- Learning that there is no link between one's behaviour and the outcome of the situation
- Learning through further conditioning severely impaired in other situations, too
- Symptoms of depression

Is verbal reinforcement a better/worse educational tool than tangible reiforcement?

Negative effect of criticism

“Monster Study” (1939)

W. Johnson & M. Tudor

https://en.wikipedia.org/wiki/Monster_Study

Negative effect of criticism

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- **Stuttering experiment** = *children who were criticized for the quality of their speech developed serious speech problems even when their speech was actually normal*
- **Effect of negative criticism on performance through increased self-consciousness**
- *Considered highly unethical by both present and past standards + unclear mechanism*

Is direct reinforcement the only way to learn new behaviours?

Does one learn to be violent through imitation?

Learning by observation

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. The Journal of Abnormal and Social Psychology, 63(3), 575-582.

The "Bobo Doll Experiment"

Albert Bandura

The "Bobo Doll Experiment"

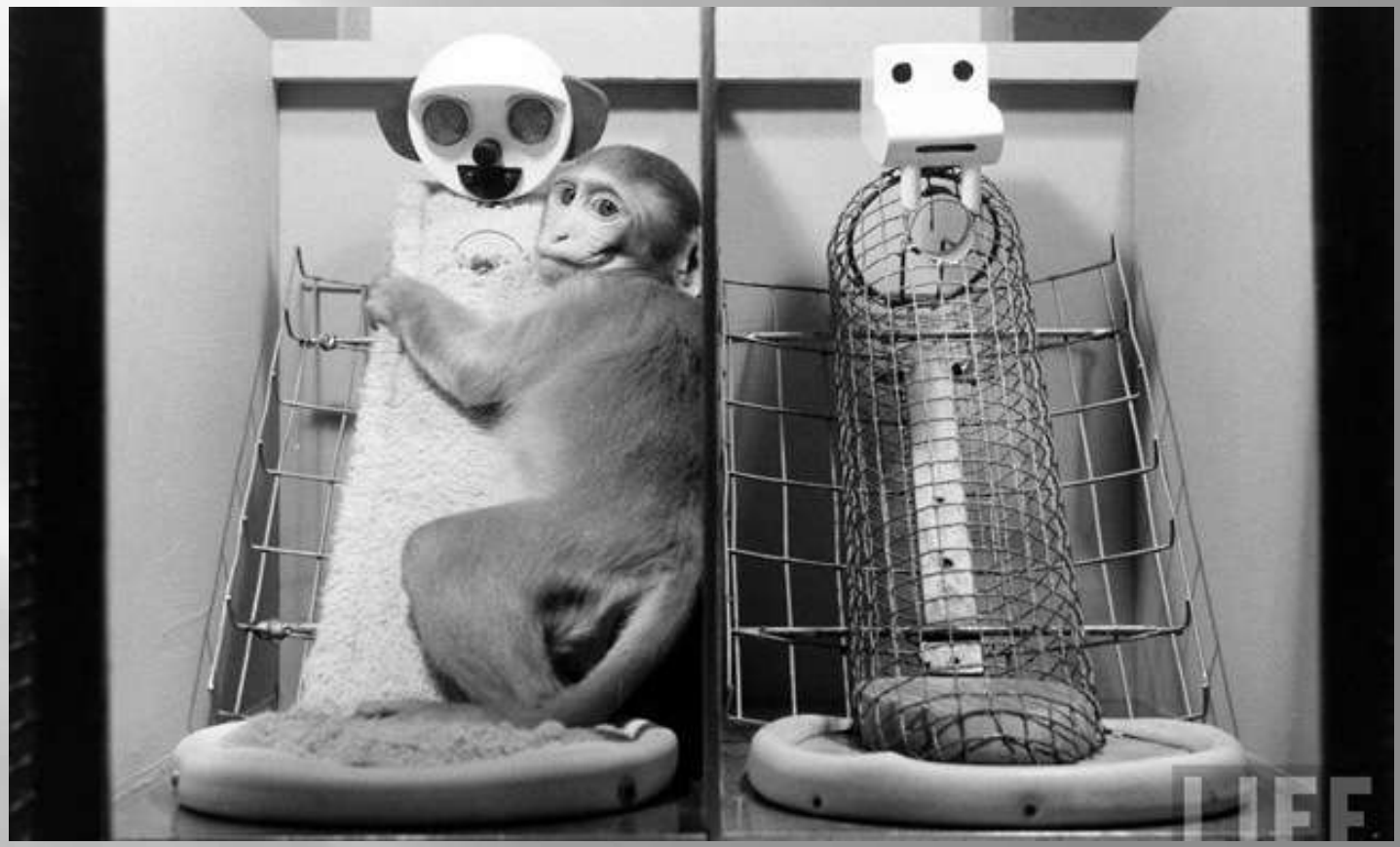
- **Children imitated aggressive behaviour of an adult model (boys more than girls)**
- **Even non-imitative aggressive behaviour increased (e.g. pointing a toy shotgun on the Bobo)**
- **Effect of gender of the model (social stereotypes) – men expected to show more aggressive behaviour**
- **Problems with the study:** *no measure of long-term effects; low ecological validity – unusual situation; generalization of violent behaviour on other situations?*
- **The effect of vicarious reinforcement – behaviour will be imitated if reinforced and if the model is similar – The Social Learning Theory**

Is affection also learned?

(a response to Watson)

Is affection learned?

Harlow, H. F. (1959). Love in infant monkeys. Scientific American, 200, 68-74.



Affection in rhesus monkeys

The Harlow monkey experiment

- Baby monkeys clung to the cloth "mother" even when it provided no food
- They ran to the cloth "mother" when scared or run to it for "reattachment" in a strange situation
- They opened a window to look at the "cloth" mother as often as they did at real monkeys but treated the food-providing wire mother as any other inanimate object
- Inspired research on attachment (John Bowlby)

All highly intelligent animals are highly social. Why?

All highly intelligent animals are highly social.

- Instincitve and intuitive positive responses to social stimuli
- Specialized brain area for face recognition
- Child-protective and child-responsive instincts in adults

- Emotional and social deprivation impairs development in general
- Our brains are wired for and dependent on specific types of interactions with the environment

Cognitive deprivation

Blakemore, C., & Cooper, G. F. (1970). Development of the brain depends on the visual environment. Nature, 228(5270), 477-478.

Emotional and social deprivation

Effects of abuse and neglect

- *Inappropriate social responses and interactions*
- *Inability to form healthy relationships*
- *Pathological self-concept*
- *Impaired moral reasoning – lack of empathy and conscience*
- *Lack of interaction with the environment = imparied cognitive development*
- *Impaired self-regulation*
- **Development of personality disorders (psychodynamic theories = based on psychoanalysis)**

Additional materials

- Before attempting the second quiz, watch the videos on the research and theory mentioned in this lecture and the video on the effects of neglect

The Sources of Who We Are

Thank you!