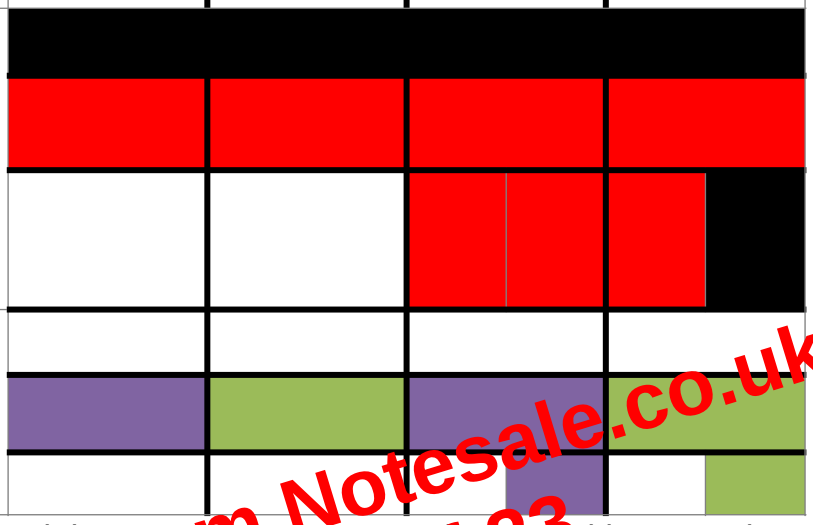
Parental random mating	Parental assortative mating
• On average, 50% of genes in common.	• On average, > 50% of genes in common. • Non-identical twins, > 50% genes in common. • … or < 50% in common if DISassortative mating! • Upsets heritability calculations. • Note! This is simply a demonstrative schematic: gist is correct, but exact details are more complicated!

Another problem with heritability estimates: gene interactions

Individuals		Genes		Behaviour	
Child 1	Child 2	Child 1	Child 2	Child 1	Child 2
					

Heritability estimates are much lower with non-twin samples, probably in part because effects of genes are interactive and multiplicative, rather than additive.
Note! Again, this is simply a demonstrative schematic: gist is correct, but the exact details are more complicated.
Certainty over identical vs non-identical twins

- But >90% accurate categorisation

Generalisability?

- BUT most psychology studies generalise beyond the study population… probably fine if done with caution!

Lots of criticisms: but triangulation of different studies with different methods

'Nature-Nurture' Interactions

Genes influence the kinds of environments that we're likely to experience.
These different environments in turn can shape the individual.

- Active: individual's genes cause them to seek out specific environments.
- Evocative: individual's genes evoke different responses from the environment http://www.youtube.com/watch?feature=endscreen&NR=1&v=MMldVZOxW64.
- Passive: individual's genes influence how the environment shapes their personality.

Genes predispose ongoing series of behavioural choices..
..which shape scope of later choices.. Etc
So our 'nature' might cause our 'nurture' to shape us

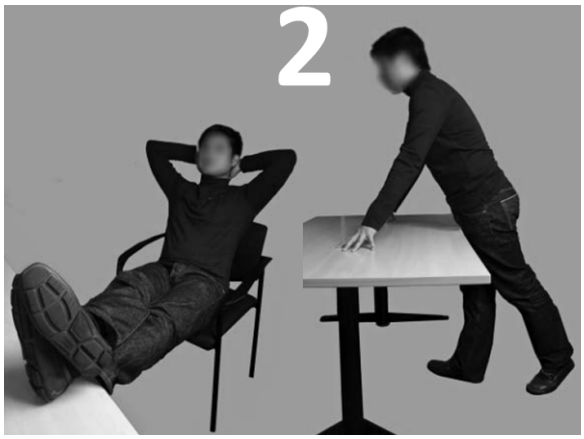
Within-family and outside-family influences on personality

- Parental upbringing/shared family environment: limited influences on personality…
  - Some notable exceptions: e.g. anti-social behaviour, anxiety, depression.

Possible links between personality and appearance

- Personality influences appearance?
  - George Orwell: “at fifty, everyone has the face he deserves”
  - Dorian Gray - portrait ages and warps when he’s a dick.
- Appearance influences personality?
  - Self-fulfilling prophecy.
  - Self-defeating prophecy.
  - Environmental factor underlying both?
  - Biological factor underlying both?

Appearance influences personality?



- ‘Power pose’: expansive pose, relative to compressed pose, increases feelings of power.
- ‘Interviewers’ rate competence higher in mock interview.

Carney, D. R., Cuddy, A. J., & Yap, A. J. (2010). Power posing brief nonverbal displays affect neuroendocrine levels and risk tolerance. *Psychological Science*, *21*(10), 1363-1368. http://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are?language=en

Biological factor

Men’s facial masculinity

- Premise: linked to testosterone
- Perceptions:
  - More attractive in some contexts?
  - Dominance, coldness, dishonesty (Perrett et al, 1998).
- High testosterone,
  - Dominance & status.
- Low testosterone,
  - Marriage, marital harmony, lower divorce.
  - Fatherhood.

The ‘attractiveness halo’: outcomes?

- Attractive vs. unattractive babies.
- Punishment & crime.
- Receive more help.
- Meta-analysis:
  - Mental health.
  - Popularity.
  - Sexual activity.
  - Intelligence.
  - Social anxiety. Feingold 1992: Good-looking people are not what we think. Psychological Bulletin 111, 304-311.

How long does it take to form judgments?

- Individual differences in wariness are heritable.

Exploratory Behaviour in Great tits

Bird personality test: number of flights/hops to explore new trees in lab. Fast vs. slow explorers. Exploration style -

- Consistent across time in individuals.
- Heritable at about same levels as human personality.

Consequences for survival and reproduction? Dingelmanse et al. (2002). Repeatability and heritability of exploratory behaviour in great tits from the wild. *PNAS 99*, 309-14.

- 2000: beech trees seeded heavily: lots food
- 1999, 2001: less food

	Females	Males
Food-poor	'Fast' style best	'Slow' style best
Food-rich	'Slow' style best	'Fast' style best

Females need food. Fast = compete when food scarce, but waste energy when lots of food. Males need to defend territory. Fast = compete when competitors plentiful, but waste energy when not.

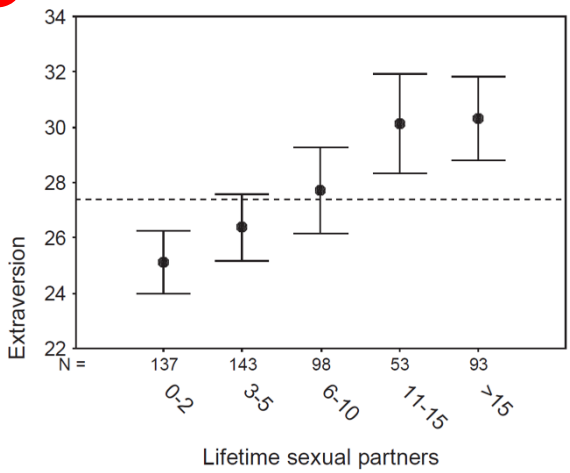
Variation in Big Five traits: implications for 'survival and reproduction'?

- Under what circumstances might human survival and/or reproduction be enhanced by…
  - **high levels** of extraversion?
  - **low levels** of extraversion?
- ONE theory (there are others!) is that individual differences in personality may arise (in part?) from fluctuating selection, or at least different costs and benefits associated with different levels of traits.

Extraversion, survival and reproduction:

545 adults. Personality questionnaire.

- 'Reproduction' questions: number of relationships and children.
- 'Survival' questions: accidents and illnesses. Nettle, D. (2005). An evolutionary approach to the extraversion continuum. *Evolution and Human Behavior*, *26*(4), 363-373.



Extraverts more likely to have been hospitalised due to illness or accident. Extraverts had more doctor visits. Higher extraversion = more accidents among bus drivers (Furnham, A., & Heaven, P. (1999). *Personality and Social Behaviour* (London: Arnold)).

'Termites': youthful optimism predicts early death (Friedman, H.S., *et al.* (1993). Psychosocial and behavioural predictors of longevity: The aging and death of the 'Termites'. *American Psychologist, 50,* 69-78.)

"safer environment": high extraversion does well

"harsh environment": low extraversion does well

Adaptive function of neuroticism?

High neuroticism: increased depression, anxiety disorders, heart disease, etc. Smoke alarm principle.

Low neuroticism: more risks?

High neuroticism: increased striving? increased realism?