

Studyguide 2: Complete

Gene-environment interactions: video, Ridley, and class

- What is the epigenome? (The link to the 5-minute video is still on the homepage, if you want a second look).
- While some epigenetic changes induced by environmental factors (e.g., from diet or experience) can be passed on to children and even grandchildren, the speaker in the video says this is more like “super duper early exposure” than something likely to result in evolutionary change. What does he mean by that?
- In lecture, I discussed two examples of how environmental factors affected the offspring via epigenetic changes, one involving diet, the other maternal behavior (what maternal behavior?). Are these epigenetic changes potentially reversible?
- Ridley: How do montane and prairie voles differ behaviorally, and what does this have to do with vasopressin receptors? (This is a very big behavioral difference from a single mutation!). But nothing happens to vasopressin production in the prairie vole unless he... what?
- Variation in the promotor region of the MAOA gene affects the likelihood of males becoming antisocial, but only under certain conditions. Explain this gene-environment interaction (Ridley and lecture).

Evolutionary psychology, ch. 2

- What is the EEA?
- Evolutionary Psychologists are sometimes accused of assuming that everything is an adaptation. Note Buss’s distinction between adaptations, by-products, and noise. Give an example.
- Do evolutionary psychologists assume evolutionary theory or do they test it? (p. 37). Buss gives examples of lower-level theories that are tested by EP, and points out that hypotheses derived from them can be falsified without it threatening the validity of the higher-level theories (fig 2.1)
- Understand what evolutionary psychologists mean by “evolved psychological mechanism,” and how you can recognize one. As noted in lecture and in the text, the claim that the mind consists solely of domain specific mechanisms was an early assertion by Leda Cosmides and John Tooby, two founders of the field. Others think there are “domain general” mechanisms in addition. Why do they think so?
- The discussion of learning, culture, and evolved psychological mechanisms (pp 50-51) is something we also stressed in class. Many learning mechanisms are specific.
- The rest of the chapter is skimmable: get the gist and appreciate the wide range of methods and data sources used by Evolutionary Psychology. It is truly a multi-disciplinary field.

Problems of survival: Food

NOTE: Quiz #2 will cover only the sections in chapter 3 that we have discussed in class thus far (food and evolutionary medicine). Fear and spatial ability will be in the next quiz.

- Life in a foraging group differs from our own in many ways, some of which are likely to be important for our evolved psychology. We discussed diet and causes of death briefly in lecture – what are those differences? See also Nesse and Williams.
- Bushmen (foragers in southern Africa) had a life expectancy at birth of 32. Does that mean that there aren't many old people in the population? What can we infer instead? (lecture)
- Buss, in the beginning of ch. 3, discusses the importance of food, both in its cultural role and our use of food metaphors. In lecture we stressed its importance to human foragers by pointing to evidence of seasonal food shortage - what was that evidence?
- from Buss: What kinds of habitats do people like? Why? Do you share the responses to different environments that are described in the text? (83-84)
- What is the “omnivore’s dilemma”? What evolved food preferences do we have, and what problem does each one solve? p. 71 and lecture.
- We also solve the omnivore’s dilemma by learning, but our learning is guided by evolved adaptations. Review neophobia (p 70), taste aversion learning, and material given in lecture: Do babies pay more attention to some people than others when learning about food? To some kinds of cues more than others? When in development does that learning start?
- What elicits a disgust expression in infants? What things evoke disgust at later ages? (lecture and text, pp 71-72). Why? The text gives a lot of evidence that disgust is adaptive – review it. (We discussed it also, in lecture #4 on the behavioral immune system).
- Women in early pregnancy often feel nauseated by some foods, and have heightened disgust sensitivity (lecture #4 and text p. 73-4). Why might this be adaptive? Review.
- Why do we use spices (according to Sherman and Billig)? How does spice use vary geographically, and why?
- Why do men hunt? A pattern found cross-culturally among foragers is that men do more hunting, especially of large mobile game, and women gather, and the food is shared. Anthropologists actively debate the reasons for food sharing. What is the show-off hypothesis? The provisioning hypothesis? As Buss notes, men can gain benefits from both showing off and provisioning—they are not mutually exclusive. (text)

Evolutionary medicine

- The Nesse and Williams article outlines various evolutionary explanations for why we get sick (also reviewed in lecture). The article provides examples of all of the following. Be able to recognize, if given an example, what it illustrates.

- constraints
 - trade-offs
 - conflicts with other organisms
 - evolved defenses
 - the “smoke-detector” principle
 - novel environments
- How might disease virulence be affected by the mode of transmission? (Nesse and Williams and lecture).
 - Is senescence an adaptation? How does the force of selection change with age, and why? Explain the antagonistic pleiotropic theory of senescence (text, article, and lecture).
 - What evidence suggests that fever and “iron-poor blood” are adaptations to infection? (text p 91, lecture)
 - What is the “behavioral immune system”?
 - The EP argument is that things we find disgusting are likely to be pathogenic. In most cases (e.g., feces, rotten food), avoidance is adaptive and not problematic. But disgust can also be extended to social categories. That’s problematic; is it also adaptive? (see Schaller’s opinion and evidence presented in lecture, but know that it is a contentious area of research).
 - Priming people with disease images changes their immune response and their opinions about ... what? (review the studies shown in lecture #4).
 - Schaller and Park (article) say that two adaptive responses to the problem of accurately detecting disease cues are (a) the smoke-detector principle, and (b) behavioral flexibility. Explain.
 - We can also expect flexibility in the emotional responses and behaviors that help people avoid pathogens. Review the evidence that these vary with the salience of the threat, and the person’s actual or perceived vulnerability (Schaller and Park, lecture).
 - People differ in the “big five” of personality traits (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) but Schaller and Park cite work showing that two of these also vary with the prevalence of pathogens in the environment. Which two, and why do they think that is an adaptation?

Evolutionary Medicine: mental health

- How do we decide what aspects of human variation are “abnormal”? Buss thinks evolutionary psychology has a theoretically-grounded way of making that distinction. What is it?
- A lot of psychological traits make us uncomfortable, but are nonetheless adaptive. What are some examples? (lecture, Buss, Nesse and Williams).

- How might the 'smoke-detector theory' explain anxiety?
- Psychopathy can be maladaptive for others, if not for the psychopath. Gervais et al. used a prisoner's dilemma game to show how people high on traits related to psychopathy differed from other people (lecture). What was he trying to find out, and what was his conclusion?
- If manipulation and cheating are adaptive, why isn't everyone a psychopath? One explanation that has been proposed is frequency dependence. Explain the argument (lecture and text).
- Evolutionary psychologists think sadness and depressed mood are probably adaptive (how? - Nesse and Williams; text) but that the prevalence of clinical depression is also due to evolutionary mismatch between our current environment and the EEA. Explain.

Dutton (article)

- According to Dutton, "there is a spectrum of psychopathy along which each of us has our place" and he gives examples of occupations where he thinks psychopathic traits are advantageous. Like what?
- What did he find out when he asked students to identify the person who was hiding money in a handkerchief?
- Dutton says that psychopaths are good at identifying peoples' vulnerabilities. Other evidence indicates that they are not deficient in knowing what others are thinking, but they lack the emotional response such recognition triggers in non-psychopaths.
- How do psychopathic individuals differ from others in solving the trolley problems? We'll return to "trolleyology" later in the course when we talk about moral emotions and moral reasoning. If this interests you, check out the TED talk by Rebecca Saxe on how brains make moral judgments.

McAuliffe, How your cat is making you crazy (article)

- What is the evidence that *Toxoplasmosis Gondii* affects rodent minds?
- We talked about the puzzle of schizophrenia in class. The author has an explanation that we didn't discuss. What is it? (I am not qualified to assess the evidence so am not endorsing it, but it could make a good term paper topic).