

Studyguide 2

Evolutionary Medicine (physical disease) and the EEA

The EEA

- Life in a foraging group differs from our own in many ways, some of which are likely to be important for our evolved psychology. What are some important differences? Among the things discussed in lecture were differences in causes of death, diet, and social organization.
- 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)
- Does homicide exist in hunter-gatherers, or is it only found in modern states? (text and lecture).
- from Buss: What kinds of habitats do people like? Why? Do you share the responses to different environments that are described in the text?

Why we get sick (Nesse and Williams, lecture, Buss):

- The Nesse and Williams article outlines various evolutionary explanations for why we get sick (also reviewed in lecture). Be able to give an example of each of the following, and how it illustrates the point of that example:
 - genetic trade-offs
 - conflicts with other organisms
 - evolved defenses
 - the “smoke-detector” principle
 - novel environments
- Is senescence an adaptation? How does the force of selection change with age, and why? Explain the antagonistic pleiotropic theory of senescence (text and lecture).
- What evidence suggests that fever and “iron-poor blood” are adaptations to infection?
- What evidence supports the hypothesis that pregnancy sickness is an adaptation?

Behavioral immune system (Schaller, lecture, Buss)

- 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 but know that it is a contentious area of research).

- Priming people with disease images changes their bodies and behavior. How? (review the studies).
- Schaller thinks xenophobia is part of a behavioral immune system. Why does he think it makes sense? What evidence was given (lecture and article) in support of that claim?

Evolutionary Medicine (mental disease)

Buss, clinical psychology, and lecture

- 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. Some reasons were given in lecture, in Buss, and in Nesse and Williams. Review (some specific examples are below)
- Schizophrenia is very disabling, but susceptibility to it is heritable. Why might genes predisposing to schizophrenia be maintained in the population? (lecture)
- Psychopathy can be maladaptive for others, if not for the psychopath. Two evolutionary hypotheses were discussed in lecture (also discussed in Buss) to explain the circumstances under which psychopathy might be favored by selection. Review.
- Nesse and others have argued that sadness is adaptive (how?) but that the prevalence of clinical depression is due to evolutionary mismatch between our current environment and the EEA. Explain.

Misfits (article):

- The gene for the dopamine receptor DRD4 is very polymorphic (it has many different forms). The different forms of the gene are associated with personality differences. In what way?
- The frequency of the two main forms of the gene vary a lot among populations. How and why?
- Which form of the gene is better? Answer: it depends. On what?

Dutton (article)

- According to Dutton, is psychopathy a pathology? A normal psychological variant? Neither? Both?
- Does he think psychopathy can be adaptive? Why and for whom?
- 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.

Perception, Fear, and danger

perception (lecture, see also Simons video)

- Knowledge has no selective advantage unless it helps us solve problems of survival and reproduction. So our senses must have evolved to solve such problems. Therefore the visual system enhances things that convey information, processes those things more readily, and fills in missing information with the best guess. Give some examples (lecture, and web exercises).
- Our perception is biased by our experience of the world. We perceive circles shaded on top vs. shaded on the bottom differently. How and why? Since people in different cultures experience the environment differently, these biases also vary cross-culturally, as the Muller-Lyer illusion illustrates (explain). (lecture)

effects of emotion on perception (Stefanucci):

- Do people estimate heights accurately? How are they biased when looking down? when looking up?
- How does induced fear change that bias when looking down?
- How does having a friend with you change the bias when looking up? Why?
- Why were people more accurate estimating slope haptically (with the palmboard) than visually? (also discussed in lecture, and recommended blindsight exercise).

Snakes and other scary things (Ohman and Mineka, Buss, lecture)

- Emotions evolved because they motivate adaptive responses. What is adaptive about fear? What kinds of behavioral physiological responses does it engender? (text). Fainting at the sight of blood is an interesting specific reaction. People debate the adaptive reasons for it.
- We are more fearful of ancestral threats (text and lecture), and specific fears are related to specific adaptive problems (text). When do these fears develop? (text).
- Fear of snakes in monkeys is more easily learned than fear of more neutral things. Fear of snakes and spiders in people is also harder to unlearn (extinguish) than fear of more neutral things. Why, and how do we know (also in lecture)?
- Do Ohman and Mineka think that the ease with which people learn snake fear is cortical or sub-cortical? How do they know? Why should this be?
- A study found that conditioned fear was hard to extinguish not only to snakes but also to outgroups (review lecture).

Cognition: Heuristics and biases

Simons video

- Why do a lot of us fail to see the gorilla?
- Change blindness can occur when changes are very gradual. Even big changes can be missed when there is a brief break in the visual scene.
- Change blindness has some serious real-world consequences. What are some mentioned by Simons?
- Simons closes by saying you should “counter your intuitions where they are likely to lead you astray.” He doesn’t tell us when that is (i.e., when they might lead you astray). What do you think? What would Gigerenzer suggest?

Heuristics and biases

- Tversky and Kahneman showed that people use rules of thumb, and that these can lead to systematic biases in judgments under uncertainty. Give an example (lecture).
- Many psychologists have emphasized that we are lousy statisticians. Yet there is reason to think that our evolved “heuristics” for solving probabilistic problems are well adapted, given the way in which information usually presented itself to us in the EEA. Review all the evidence from both text and lecture, especially that on probability vs. frequencies.

Cognitive psychology (other topics in the reading from Buss and Brooks)

- Pinker says that language is a human “instinct” (an adaptation, not a by-product). What is the evidence? That doesn’t mean we know what the adaptation is for, however.
- Why are humans so smart? No agreement, but review the ideas in the text.
- What attributes of human cognition lead some evolutionary psychologists to think that people have a predisposition to believe in God? Attend especially to the arguments about biases regarding cause and effect. (Brooks reading).