Studyguide 3. 2020

Perception, Fear, and danger

- 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.
- 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? (lecture). Since people in different cultures experience the environment differently, these biases also vary cross-culturally, as the Muller-Lyer illusion illustrates (explain). (lecture and article "How Weird are you?").

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?
- Most of Stefanucci's article concerns the effect of fear on perception, but she also presents evidence suggesting that disgust and sadness also affects perception (p. 301-2).

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

- 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 the evidence from both text and lecture, especially that on probability vs. frequencies.

Cognitive psychology

- Why are humans so smart? No agreement; many scholars, especially primatologists, emphasize social intelligence. Buss emphasizes a different idea (in the last chapter, section on cognitive psychology).

spatial ability - see lecture slides, and article

1. How do men and women differ in spatial ability? (lecture and article).
2. Do we also see this in hunter-gatherers, or is it found only in industrial societies with formal education (data in lecture)?
3. How do men and women differ in how they navigate – the kinds of cues they attend to, and the kind of cognitive map they develop? People using primarily a route strategy have an egocentric frame of reference, while people using a survey strategy have a geocentric or absolute frame of reference. What does this mean? Note that everyone uses both, but to different degrees, and there is a reliable sex difference in emphasis (article and lecture).
4. Biologists argue that the navigational challenges of large ranges select for better spatial ability. In several non-monogamous species, such as meadow voles, males range farther. Why? Review the vole study discussed in lecture (there's a slide on it).
5. Several explanations have been suggested for the sex difference in spatial ability, including (a) sex differences in foraging, (b) mating competition, and (c) constraints on females due to parental care. Foraging was emphasized in the text, mating and parenting in the article. Review the arguments. Which explanation was suggested for the fact that Twe men range farther than Twe women? (review the evidence given in lecture). These are not mutually exclusive explanations.
6. The magnitude of the sex difference in both range size and spatial ability varies a lot cross-culturally.

7. In "How weird are you? Oddball minds of the Western world", the author summarizes some very interesting work showing that cultures differ a lot in whether they use an egocentric or an allocentric spatial frame of reference, and that this derives from the languages they speak. Note this, we didn't discuss it, but it's real.

Sexual selection (from lecture)

1. What is sexual selection?

2. Darwin identified two types of sexual selection. What are they? Give some examples of traits likely to evolve from each type of sexual selection.

3. Jacanas are an example of a "sex reversed species," where males do the parental care, and females and males differ... how and why? (lecture). The text (102) gives others.

4. What is the relationship between mating system (polygyny, monogamy, polyandry), sexual dimorphism, and variance in reproductive success?

5. Puts (assigned reading) notes some reasons why sexual selection might seem modest in humans, including bi-parental care & moderate body size sexual dimorphism. Yet he thinks that just comparing body size is misleading – why? What other anatomical evidence indicates that sexual selection was significant in humans? (also mentioned in lecture). Is sexually-dimorphic body size characteristic of intra-sexual or inter-sexual selection?

6. Males typically have greater variance in reproductive success than females, but the magnitude of that difference varies a lot cross-culturally. How does it vary across forager, horticultural/pastoral, and state-level societies? (lecture, Puts).

7. A comparison of human cultures finds polygyny practiced in most of them. But wat about mating in monogamous societies like ours makes Puts say that we are "effectively polygynous"? 29

8. Puts also refers to the implications of "concealed ovulation". He means that it isn't obvious when a woman is ovulating, as it is in most other primates, where females often advertise it with sexual swellings. The evolutionary reasons for concealed ovulation are contentious in the literature so we're not going there.

9. What is the relationship between reproductive variance and the strength of sexual selection? (Puts, etc).

10. We'll talk about women's body fat distribution later - not for this quiz (Puts).

11. It's typical among mammals for males to compete over females, and there is plenty of evidence for that among humans. So why would women also compete over males? What are they competing for? Puts thinks women's mating competition is primarily through (intra- or inter-sexual selection?) (More on this when next week.)

12. There are lots of ways in which males compete (lecture and Puts table 1). Puts thinks that most male-male competition in humans is ... which of these? (more on this next week).

13. Cyclic shifts in women's mating preferences, long argued by EP and discussed by Puts, has become very contentious in the literature, with replication failures in studies with better methods. But you should know the argument, and why they find it plausible.

Women's long-term mating strategies

1. When reviewing the material on mate preferences, remember that although most of the attention in ev psych has been on areas that differ among men and women (resources, beauty, fidelity, etc) most important criteria are similar for women and men. See also the discussion in the text on "preference for similarity" (118).

2. The sex that invests the most is usually more choosy about mates. Why?

3. Evolutionary psychologists say that women prefer partners with good economic potential. How robust is this generalization? How variable is it? (see text on the 37 cultures study and follow-ups, and the data on Hadza foragers (Tues. lecture). Also look at the behavioral evidence toward the end of the chapter (p. 123ff) .

4. Review the evidence for other traits women find attractive in a long-term partner (text and lecture).

5. Remember that the great disparities in wealth and status seen in state-level societies are an "evolutionary novelty" not found in hunter-gatherers.

6. Why do females find physical strength and athletic prowess attractive? Note the argument by Smuts, discussed in the text (p 112), which she has also applied to people. What evidence supports her explanation (p 113)?

7. In lecture and in the text, we discussed indicators of genetic quality that have been shown to affect women's mate preferences, including MHC diversity and low fluctuating asymmetry, both of which are indicators of genes associated with health (review the evidence). Why is symmetry attractive?

8. I agree with Puts that it is more likely that masculine facial features and other testosterone-related traits evolved through intra-sexual selection (male-male competition) than female choice (epigamic selection). However, those features could still provide useful information to women seeking a mate. The text notes different views on why women should prefer faces that are somewhat more masculine than average (115).

9. The answer to the question "Do women like very masculine-looking men is "up to a point" and "it depends". What might it depend on? Think about the reasons why preferences might be expected to vary.

10. Is love an evolutionary novelty? How is it related to committment? (116-17)

11. Do women find men more attractive if the men are interacting positively with children? What do we know about women's ability to assess a man's interest in children (lecture and text)? Does an interest in infants make men more attractive as a long-term or a short-term mate?

12. Understand both the evolutionary explanation for this female preference, and the "structural powerlessness hypothesis," and why the text thinks that the latter is not supported by the evidence – that is, what evidence does Buss provide that he thinks refutes it? (120-121).

13. how do women's preferences for long-term and short-term mates vary? (top box, p. 122)

14. How do women's expectations and preferences affect men's behavior? (124-5)

15. Men's options and strateies (how much they invest in mating vs. parenting effort) define women's trade-offs (they can't usually get everything they want in the same man). The optimal strategy for a woman, therefore, may vary cross-culturally, depending on context (lecture, see last slides).

16. What are the MHC genes and why are they relevant to mate choice? (lecture).