

Open Book/Laptop. Question 1 is worth 15 points, the remaining questions 10 points each. (45 pts total)

1. (a) Give a brief description of the tenets of evolutionary psychology. **(b)** Use **two** of the seminar papers as **good** examples of the application of those principles. **(c)** Use **two** of the seminar papers as **poor** examples of the application of those principles (not necessarily as poor research, just as not really evolutionary psychology). [For b and c, you can assume I've read the papers; just indicate the specific ways in which the research applies the tenets or does not.]

One student's answer:

"The tenets of evolutionary psychology are that there are domain-specific modules, that these modules related to the EEA, that there is a lag from the EEA to today because we evolved these mechanism in the past.

A good seminar paper was the paper dealing with the language instinct in that is a specific module (language or universal grammar mechanism) that had adaptive value and so has evolved to the point where the mechanism is so specific it has it own area in the brain. Another paper that is a good example of EP is the Wason selection task cheater detection module paper. It talks about the adaptive value of having cheater detection and not altruist detection and then show that there seems to be a specific module that has evolved [for cheater detection].

Papers that are bad examples of these tenets would be the eating disorder hypothesis paper because it over-relies on the EEA to come up with an adaptive hypothesis that makes no sense. A specific module for anorexia as a control for reproduction seems ridiculous when we could have evolved a more direct control for reproduction such as ferrets who only ovulate when having sex. Another paper that fails to meet the tenets of EP is the birth order paper which realistically is more of a personality hypothesis than an EP hypothesis. There is no theorizing or testing of adaptiveness or even of specific modules, furthermore they even fail to fully articulate parental investment and how these personalities are adaptive towards gaining [parental investment]."

The description of tenets here is *almost* too brief, but it captures the three big ideas of EP dead on.

You could have chosen other papers as good or bad (and papers often chosen as bad, such as the anorexia paper, were sometimes chosen as good) – all that really mattered was that you gave a reasonable defense of why you considered it a good vs. a bad example.

2. Consider the following statement: “Aggressiveness in males has been shown to be a moderately heritable trait (heritability approximately 50%). This indicates that genes for aggressiveness have been favored in evolution, but also that experience plays a role in determining the behavioral phenotype”. Assume the this heritability estimate is true, based on a standard method in behavior genetics such as a study of identical twins raised together vs. apart.

Question: Argue that more aggressive males do **not** have more ‘genes for aggression’ than less aggressive males but instead that they simply represent the aggressive end of a facultative trait or conditional strategy. Include in your argument (1) the likely reason/s for this variation in aggressiveness among individuals and (2) an explanation of why it is that the trait measured out with a 50% heritability.

One student’s answer:

“The likely reason for this variation in aggressive behavior among males could be that perhaps something that makes aggression a conditional strategy worth choosing is heritable, such as large stature, or perhaps higher testosterone levels. The trait [aggressiveness] would then only be chosen by the individual if the situation was appropriate and would lead to more reproductive success or higher rates of overall fitness. For example, if you are born a tall, muscular man, you have a higher probability of choosing the conditional strategy of being mean and aggressive, [whereas] if the situation or state you are in is one of highly enforced peaceful behavior, you would benefit more by choosing to be non-aggressive so you would choose that instead. This would account for why the trait seems to divvy up at 50% heritability if the trait [e.g., large size or high T levels] that leads to the possibility of having this conditional strategy is heritable then you are still left with environmental state influencing your final conditional strategy. So its not aggressive genes, just traits that are genetic that could lead you to use your facultative traits to decide that being aggressive would be beneficial.”

Though this answer leans heavily on “the language of decision” (e.g., the last sentence), it nails the question in very succinct fashion.

Answer **one** of the following **two** questions.

3. Offer an evolutionary hypothesis for extravagant gifts in human courtship (i.e., gifts that are costly to the male but worthless, if beautiful or tasty, to the female).

“This sort of gift is perfect because it indicates that the male is above average, either in quality or wealth (otherwise he couldn’t afford the gift), and that the female is not a gold digger! Thus it tells both of them something about the other.”

This one took the prize for succinctness!

4. (a) Describe how one could **directly** test Miller’s SSFI (sexually selected fitness indicator!) theory. Be sure to give a complete answer here. **(b)** Why is this theory more plausible for schizophrenia than it is for homosexuality?

“A direct test of Miller’s SSFI theory would require a family study that looks directly at reproductive success. For instance, while Nettle looked at general population and artist groups, they did not see if schizotypy traits and creativity existed in the same families. Another problem with this study is that males and females were not differentiated. SSFI theory would predict that males displayed more than females. The study could be done differently by finding a group of schizophrenic patients and a group of anxious patients as a control. Use the number of offspring of the patients and close relatives as the measure of reproductive success. The prediction would be that schizophrenics’ relatives would have increased RS because they would display attractive creativity. The male relatives should have greater success than the females if this is truly a SSFI.

Schizophrenia involves interruption in patterns of our humanity such as language, affect, humor, creativity. The schizophrenic patients shows visible behaviors that suggest low quality genes and/or environment [development]. Conversely, the flawless exhibition of these features in poetry, sociality, and art are good examples of costly display and are attractive. You could see how the RS [of individuals displaying these traits] would be greatly enhanced.

For homosexuality, the features that are being displayed are difficult to identify. The Zeitsch paper suggests gender atypicality increases RS in moderate doses, but decreases it if you have so much that you are homosexual. It is not clear how this fits the mold of a costly display.”

Right, it doesn’t! And fully homosexual individuals often are high – not low – on these ‘costly display traits’!

Answer **one** of the following **two** questions.

5. How is modern warfare, as practiced by the U.S., different from the coalitional warfare of early humans? Speculate on whether it can be sustained by similar mechanisms. (Tooby & Cosmides paper is most relevant here.)

“Traditionally warfare among humans is sustained by a “risk contract of war”. In this risk contract, individuals do not know who will live and who will die, evenly distributing probability of death. The probability of achieving success, the value of the group’s goal, and said goal’s achievement being allocated (relatively) fairly are also a part of this. Also, reproductive success should favor participating in coalitional aggression. Because risk is evenly spread, average RS for individuals in the group doesn’t go down when individuals die.

However, in the modern era (exemplified by the U.S.), warfare is quite different in an interesting regard. For the most part, those who decide to declare war do not actually share the risking of going into battle. That part is usually done by other who are not as high in the social hierarchy. It can also be argued that in many cases at least those obtaining the rewards from war are not those doing the fighting. Instead it’s the politicians and corporations that get much of the material wealth.

I do speculate though that the mechanisms supporting traditional warfare still have a hand in supporting modern warfare. Risk on the battle field is still evenly spread for the most part. Soldiers do know who will live and who will die. I’m sure that soldiers who knew they were going to die would likely surrender. [or desert]

Also, those who participate in coalitional aggression (war) may still reap positive reproductive benefits. Even if they do not receive a share of the material wealth, people who volunteer to become soldiers may have reproductive success. Measure the number of partners and/or offspring of soldier could be a decent way to examine this.”

6. find a statement in Buss that you find quite dubious, from the scientific point of view, and tell me why you consider it dubious.

“Suicide as evolutionary strategy (evolved adaptation). Buss: ‘we can conclude, theoretically, that there are conditions that could select for psychological mechanisms that would prompt a person to commit suicide. These conditions center on failing in heterosexual mating and being a burden to close kin’ (p. 102). The illusion of burden may not be a shared perspective between family. There aren’t usually accounts of people saying, ‘Fewww, glad he finally did himself in, now I can function as a productive human being’!

According to NIMH, scientific evidence has shown that almost all people who take their own lives have a diagnosable mental or substance abuse disorder, and the majority have more than one disorder. They may commit suicide because they can’t cope with the challenges of life. The evolutionary suicide hypothesis doesn’t account for the fact that a substantial portion of suicides are committed by people who are ‘fitness-capable’. There are many famous suicides by intelligent, creative, wealthy individuals suffering from depressive and bipolar disorders. The individuals could still use his/her services/labor to help kin reproduce (like the turkey example). In the EEA, where sparsely populated, semi-nomadic hunter-gathers lived, labor would be a scarce resource. any suicide would decrease the relative fitness of a group in this context. Culturally, however, it may be influenced by public opinion; for example, the East Asian ritual of suicide as a way to redeem one’s honor. That doesn’t follow from evolutionary theory of suicide though. 2005 statistics: suicide rates by age (per 100,000 people): 5-14 (0.7), 15-24 (10.0), 25-34 (12.4), 35-44 (14.9), 45-54 (16.5), 55-64 (13.9), 65-74 (12.6), 75-84 (16.9), 85+ (16.9) – If suicide was significantly related to fitness then it would steadily increase with age. Instead there is an increase up to 45-54, then a dip, such that the rate for 65-74 is actually less than the rate for the three age brackets below it and almost as low as the 25-34 age group – most reproductively fertile. Additionally, men are nearly four times as likely to commit suicide than women, and the suicide rates among whites is 12.3, while among non-whites is only 5.5. Does that mean that whites and men are somehow less reproductively fit as a whole than non-whites? Not likely... A causal link between reproductive fitness and suicide [seems] far fetched. Depression is a more likely indicator (more reliable) of suicidal tendencies, which may be contextually triggered by various environmental cues (like a major breakup, feelings of worthlessness, negative self-talk and job loss, etc.) – Broadly defined as less fit. Social stigmas, loss of self image, physical pain, and biological disease processes/chemical imbalances, are just as likely. Its evident [well, it seems likely] that lack of reproductives fitness is neither a sufficient nor a necessary cause of suicide or suicidal ideation.”