Study Questions Dealing with Cognitive Ethology

Ethology and Behavioral Ecology
Spring 2005

Be sure that you have read all the assigned articles and answered the study questions for those articles before trying these questions.

1. Define cognition.

2. Behavioral scientists often talk about studying the function of the nervous system by following either a "web brain" or a "dry brain" approach. What do you suppose these two approaches are? (Hint – apply one of these terms to cognitive approaches and other to another prominent approach we have taken this semester).

3. In humans, cognitive processes are often thought to involve the mental manipulation of various symbols by using certain rules. If symbols are defined narrowly as the sorts of representations that humans create as part of their verbal and mathematical abilities (e.g., the numeron example, and not broadly as any representation of reality within the nervous system), do you suppose that verbal symbols are required for cognitive processes? In other words, can non-verbal animals have cognitive processes? If you believe they can, explain how these processes might work (again, without invoking the specific ways that humans think about things or solve problems). Here's a hint that you may be to use, if not ask me – think about the differences between doing a calculation with a computer and slide rule (I have really dated myself).

4. What is meant by "qualia" and phenomenonical consciousness as compared to responsive and being "alert". Since most of you are premeds and since we are concerned with ethical questions at this college, you might also reflect on the Terri Schiavo case in this regard.

5. How do you ascertain consciousness in someone (or thing) else and what do you think of the Turing test? Could it be used for animals?

6. Do you understand why it is that (probably) most researchers who would call themselves cognitive ethologists believe that, at present, the search for consciousness in animals is not fruitful?

7. Explain the relationship between the Turing test and anthropomorphism, if any. Is anthropomorphism a problem in all areas of cognitive ethology or only those concerned with animal consciousness?

8. What do you think of the notion of finding the antecedents to human cognitive abilities in animals? Explain some of the approaches taken by Marc Hauser, for example (since we studied his work). You may also want to think about the classic article on tinkering we read for the communication section of the course when you answer this

question. Does something have to evolve initially for the same purpose as it later comes to be used for? Explain using the tinkering model.

9. Explain how a mental toolkit (for example, the objects kit we discussed in class) illustrates the fact that phenotype is always the result of genetic and environment interaction.

10. Reflect on the differences and similarities to navigation by cognitive maps vs. dead reckoning vs. piloting vs. the use of celestial navigation. There are overlaps but also significant differences. Explain them. How could one, for instance, tell the difference between an animal that was using cognitive map vs. piloting? Try the same exercise for some of the other combinations.

11. What is much of the human moral sense built on (in your experience) and what does this have to do with the capuchin monkey experiments we considered? What does this have to do with reciprocal altruism? Would an animal society not based on reciprocal altruism be able to closely resemble ours? Is it crazy to look for the antecedents of human moral behavior in animals? Be sure you understand the critique by Wynne of Brosnan and de Waal and also their response. Also, be sure that you understand the methodology they used (as an example of a cognitivist's approach to animals).