ADAPTIVE SCENARIO EXERCISE

Language is the means of getting an idea from my brain into yours without surgery. ~Mark Amidon

TYPES OF ADAPTATION:
- **Biological**
  - o The process of biological evolution whereby a population becomes better suited to its environment.

- **Cultural**
  - o The process whereby a population uses some aspect of behavior to successfully respond to the environment.

A cultural adaptation occurs when some aspect of behavior, approach, or material item is used to respond to and cope with the environment. Animals other than humans are also capable of responding behaviorally to the environment. As humans, we're really good at this. Our species has biologically evolved to the point where we are not only very good at learning things, but we actually need to use the results of our learning to successfully survive.

So when you see a particular physical trait, or behavioral practice, you can ask…is that trait or behavior an adaptation? Did it arise because having that trait, or doing that behavior, tends to improve the FITNESS of the individuals with the trait or behavior?

➲ Beyond Expos:

Many other animals respond behaviorally to the environment. The great apes in particular (a family of which humans are members) show excellent use of problem-solving and tool use, and even language.

When you have free time, check out Richard Attenborough talking about Orangutans:
http://www.youtube.com/watch?v=IFACrIx5SZ0

This video uses auto-tuning for good instead of evil, and has some neat footage of orangutans making use of a boat:
http://www.youtube.com/watch?v=hOLAGYmUQV0&feature=relmfu

As long as you're surfing YouTube, this is one of my favorite science-themed, classic rock parodies (yes, it's a niche genre): http://www.youtube.com/watch?v=wbIa9fZuTFA

FITNESS:
When we talk about the evolutionary fitness or success of a trait, it means literally that if a trait is successful, those individuals in a population with a particular trait tend to have more offspring than those individuals without the trait. Importantly, that increased number of offspring has also got to be successful. If you're a chicken, having twice as many eggs as your fellow chickens may not be a successful trait if by having twice as many, none of your chicks survive to have chicks of their own.

DISCUSSION:
- **Does a trait/behavior have to be successful for everyone for it to be adaptive?**

- **If a trait/behavior exists, does that mean it must be adaptive?**

DIRECTIONS:

Consider the following scenario:

- **The Scenario**: In the 1970s, during the course of fieldwork in Papua New Guinea, medical anthropologist Maria Lepowski observed that when children are struck with life-threatening cases of malaria, caregivers respond by withholding food. Perplexed by a practice that seemed to worsen an already grave health condition, after her fieldwork, Lepowski reviewed the medical literature and found a report indicating that refeeding programs in East African famine relief camps were correlated with outbreaks of malaria. Based on the finding, Lepowski suggested that starving children during bouts of malaria is an adaptive practice to protect them from the malaria parasite.

Making use of the readings from your coursepack, be prepared to answer the following questions about the scenario in class.

1. What is meant by the term "adaptation" in this context?

2. What are the strengths and limitations of Lepowski's argument for adaptation?

3. Are there reasonable alternatives to Lepowski's adaptive explanation (if so, explain)?

4. What type of future research could test this claim of "adaptation?"

5. Just because we practice a particular behavior does not mean it's adaptive. In fact, some behaviors we do are likely *decreasing* our fitness. Provide one behavior that you do (or have directly observed) that is probably NOT adaptive and provide 1-2 sentences explaining why you think it's not adaptive.

6. **Consider**: In what ways is this exercise similar to how you could approach the Paper 1 Prompt? Here, you were presented with a particular behavior and asked whether or not it was adaptive. In Paper 1, you are being asked to predict whether there will be adaptations in *response* to a particular behavior. Consider the approach to this scenario that we modeled in class, and think of ways to apply this approach as you draft Paper 1.