Phil 309B · Take-Home Exam 1

Due: 3/3/11

Below you will find two sections. Please choose to answer *two* questions from Section I and *one* question from Section II. Read the questions carefully, and be sure to provide answers that are *clear* and *complete*.

Section I

1. In Chapter 2 of *Darwin's Dangerous Idea*, Dennett argues that natural selection is an algorithm. He then writes:

   > Darwin appreciated that only a relentlessly detailed survey of the evidence for the historical processes he was postulating would—or should—persuade scientists to abandon their traditional convictions and take on his revolutionary vision, even if it was in fact "deducible from first principles". (p. 49)

   First, explain what it means to say that something is deducible from first principles. Then, consider whether or not Dennett's claim is true for the following interpretations of what Darwin's revolutionary vision is:

   (a) revolutionary vision = that historical process leading to biological diversity on earth is the proces of evolution via natural selection

   (b) revolutionary vision = that a process of natural selection will yield a population whose ancestors were reproductively successful and who tend to be well-adapted

2. Behe says that a system exemplifies irreducible complexity just in case it is:

   > a single system which is composed of several interacting parts, and where the removal of any one of the parts causes the system to cease functioning.

   Explain how an ambiguity in what it means for a system to cease functioning leads to serious confusion about whether or not irreducibly complex organisms could evolve via natural selection.

3. In Chapter 4 of the *Origin*, Darwin writes:

   > It has been experimentally proved, that if a plot of ground be sown with several distinct genera of grasses, a greater number of plants and a greater weight of dry herbage can thus be raised. [...] Consequently, I cannot doubt that in the course of many thousands of generations, the most distinct varieties of any one species of grass would always have the best chance of succeeding and of increasing in numbers, and thus of supplanting the less distinct varieties; and varieties, when rendered very distinct from each other, take the rank of species.

   Explain how, in giving this sort of explanation of species diversification, Darwin actually gets his own theory backwards.

Section II

4. In Jenkin's review of the *Origin*, he writes:

   > The tendency to produce offspring more like their superior parents than their inferior grandfathers can surely be of no advantage to any individual in the struggle for life. On the contrary, most individuals would be benefitted by producing imperfect offspring, competing with them at a disadvantage; thus it would appear that natural selection, if it select anything, must select the most perfect individuals, having a tendency to produce the fewest and least perfect competitors...

   First, explain what you take Jenkin's objection to be. Then, explain how a Darwinian could best respond to this objection.

5. Find one place in the *Origin* where Darwin argues in favor of his view over special creation (**not** the excerpt we discussed in class on 2/17). Quote this argument in full and show how it can be represented as an inference to the best explanation argument. After doing this, evaluate the argument.