Yixuan Huang.4013

Professor Samuels

Philo 2650 Final Test

Question 1:

It provides an explanation of the necessity of paradigm replacement: this anomaly makes a new paradigm be defined and replace the old paradigm, thus triggering the scientific revolution; at the same time, this anomaly also reveals the deficiencies of the current paradigm.

Question 2:

Inference to the Best Explanation(IBE) is a kind of inductive inference; it is the fact that a hypothesis best explains some fact provides us with good reason to accept the hypothesis.

Question 3:

1. Inductive reasoning is a method of reasoning in which the premises are viewed as supplying some evidence for the truth of the conclusion; it makes broad generalizations from specific observations.
2. Hume asks on what grounds we come to our beliefs about the unobserved on the basis of inductive inferences. For Hume, the problem remains of how to explain this question.
3. “Inductive reasoning is justified by the successes that have resulted from using it in the past”, this sentence itself is inductive reasoning, so we cannot use inductive reasoning to justify itself.

Question 4:

1. It is a branch of creationism which holds as a central tenet that the Earth and its lifeforms were created in their present forms by supernatural power, such as God, between approximately 6,000 and 10,000 years ago.
2. Early geologists believed that the earth had to be very old to have the conditions to account for the large number of geological phenomena observed; the reason for this conjecture is that many of the phenomena we observe in the crust’s surface simply cannot be formed in a very short period of time, so the age of the earth must be very long for these changes to be possible.
3. Yes, because this objection has a better explanation for the large number of geological phenomena observed; furthermore, the advanced scientific dating methods make us have many reliable measurement methods to verify this objection.

Question 5:

1. When we test a theory T by observing X’s, the auxiliary propositions we use are “independently justified”; in the sense that our reasons for accepting them do not depend on either assuming that the theory being tested is true or using the data on X’s.
2. The requirement would allow us to show that any theory, no matter how irrelevant it is to the occurrence of eclipses, makes accurate predictions about them. In which case, adopting the present auxiliary assumption would guarantee that theory T always make the correct prediction.

Question 6:

Introduction of Scientific Realism

Scientific realism has a special position in the philosophy of science. It is a school that admits the objective existence of scientific theoretical entity and insists on objective truth. Today, I am going to detail the main points of scientific realism in this article, and carefully explain an important argument existing in scientific realism and the objection for this argument.

Scientific realism is mainly composed of three themes: first, metaphysical topics: the world has a definite and independent of the structure of the mind, which means for scientific realists, they claim that science aims to accurately explain and describe our shared reality; second, semantic topics: scientific theory on the literal meaning shall prevail; they are expected to its domain (including both observable thing in the world and an observation of) with the description of the true value; in other words, when science is done well, or the resulting theories accurately characterize the reality, this science is successful; and third, the epistemological thesis: mature science can successfully predict a scientific theory is confirmed, and for the world is really (approximately) the truth, so according to this theme, science is often successful; that is, our best extant science tends to be at least approximately accurate in its characterization of reality.

According to scientific realism’s point of view, the unobservable things in a mature scientific theory- whether they are the true nature of the world, causal effects, or hidden structures- represent what exists in an objective or “real” world, and how the theory says it should exist. Therefore, what a mature scientific theory provides is the true knowledge of the objective world, and the rationality of scientific progress lies in the accumulation of objective knowledge. According to this scientific realism, the unique basis of objectivity and rationality of scientific undertakings lies in the correspondence between representational knowledge and the represented objective world.

One of the most important and influential argument for scientific realism is the miracles argument. It is widely regarded as a powerful motivation for scientific realism. The name “miracles” comes from Putnam’s claim that realism is the only philosophy that does not make the success of science a miracle. The miracle argument is ordinarily viewed as an inference to the best explanation, which means realism about science is the best explanation of the success of science, which would otherwise be “miraculous”.

In order to explain the miracles argument better, we need to first explain what is the “inference to the best explanation”. The rough idea is that the fact that a hypothesis best explains some observable fact provides us with good reason to accept the hypothesis. For example, when we see the sidewalk is wet, we will consider that it may be rainy, or if we hear some squeaking noise, and see the cheese missing, we will know that there may be mouse in the house. Such inference seems exceedingly common in science! In Musgrave’s view, the general structure of inference to the best explanation has four parts: first, it is reasonable to believe that the best available explanation of any fact is true. F is a fact. Second, Hypothesis H explains F. Third, no available competing hypothesis explains F as well as H does. Fourth, therefore, it is reasonable to believe that H is true.

So, for the miracles argument, inference to the best explanation(IBE) applied to scientific realism itself, not only some specific scientific phenomena. The argument supposes that the fact can be explained whether science is predictively successful. However, there are some objections for this argument.

The one objection is that IBE is not an acceptable kind of argument. This objection contains one concern that it is not a valid form of argument in the technical sense. According to this objection, IBE does not guarantee the truth of a hypothesis, instead, we could say that it guarantees that it is just reasonable to believe the hypothesis. However, here are two response that seems successfully answer the questions from this objection. The first response is that it is widely supposed that there are good arguments that are not deductively valid. This response admits that indeed, scientists appear to rely routinely on arguments that are not deductively valid, which they sometimes called “ ampliative” inferences. For example, enumerative induction. Another response mentions that the anti-realists also need IBE. In the present debate, no-one denies that we can have knowledge, or justified beliefs regarding observables phenomena, and IBE- or at least some kind of ampliative inference- seems to be required in order to justify our beliefs about observable phenomena. In which case, it is hard to see how the anti-realists can reject ampliative inference, or IBE.

So far, I have explained in detail what the miracles argument is, and also made a careful explanation about one of its objections. Due to space reasons, I only mentioned one of the objections here, but I have tried as much as possible to make this article better. it is inevitable that there will be some small flaws, I hope readers can make suggestions for the shortcomings in the article to help me improve this article.