

tc core 122: Quiz 6

Key

1. [4] (Okasha) Describe the structure of the covering law model for scientific explanation.

"Firstly, the premisses should entail the conclusion, i.e. the argument should be a deductive one. Secondly, the premisses should all be true. Thirdly, the premisses should consist of at least one general law." pg 41

So $\text{General Law} + \text{Facts observed} \Rightarrow \text{event to be explained.}$

2. [3] Name two problems with the covering law model for scientific explanation that Okasha discusses.

(+) Symmetry \rightarrow The covering law allows for the conclusions and observed facts to switch roles. Okasha used the trig. ex. to illustrate this. This is closely related to ignoring causality.

(+) Irrelevance \rightarrow Irrelevant facts and/or laws can fit the structure, but not adequately explain things. Okasha used the man taking birth control pills to illustrate this.

3. (Okasha)

(a) [1] What does an empiricist believe?

Things that can be experienced
(Extreme empiricists don't believe in causality.)

(b) [2] Do you think Hempel (the man who made the covering law from problems 1 & 2) was an empiricist? Why or why not?

Yes. 2 reasons

- 1) Okasha said so in the reading (top of pg 51)
- 2) Hempel's covering law is most strongly picked apart because of its disregard of causal relationships. For Hempel to be a respectable philosopher (& thus made it into Okasha's book) he would have had to address such an obvious flaw. Being an empiricist thus wouldn't have required him to do so.

(+1.5) started
(+1) sense
(+1.5) structure

(+1.5) started
(+1.5) sense

(+1) got it

(+1.5) started
(+1) justified
(+1.5) sense

1.5 started
1.5 in chapter
+1 got it

4. [1] In chapter 7 Lang takes preexisting origami designs and adds texture to them. Name one of the patterns that Lang works with in chapter 7.

turtle and fish

1.5/1.5

5.3 [2] (Lecture 5/11) Give two characteristics that distinguished mathematicians of the 1800's from those that came before 1800.

much more abstract than previous mathematicians
working in an ideal world + not concerned with physical
obsessed with reducing the # of assumptions
worried about the level of rigor + used (almost exclusively) deductive logic

6. (5/11 Lecture) Recall that a geodesic is the shortest path between two points in a space.

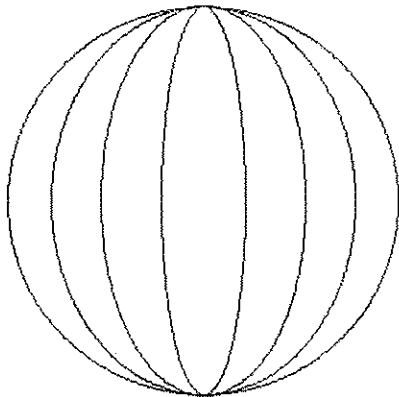
(a) [1] What do geodesics on a patty paper look like?

straight lines

1.5 started
1.5 got it

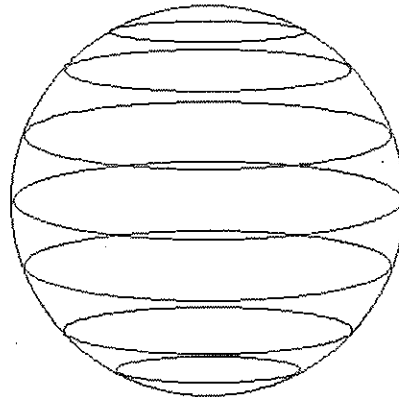
(b) [3] A few paths are shown on the spheres below. Identify any of the paths that are geodesics.

started 1.5
great circles 1.5



Lines of Longitude

all are +1
geodesics



Lines of Latitude

the equator
is a
geodesic
+1