

Getting familiar with . . . inference to the best explanation

A. For each of the following, identify both the explanation and the observation being explained.

1. Flowers are able to reproduce because bees transfer pollen from flower to flower as they gather pollen for honey.
2. Voters turned out in droves for candidate Jones because his television ads were so compelling. (Additional question: is this explanation causal?)
3. Of course your eyes no longer itch. Benadryl stops allergic reactions.
4. Geese fly south every winter. That explains why we've seen so many recently.
5. The car is out of gas. That's why it won't start.

B. Using the theoretical virtues, construct one plausible and one implausible explanation for each of the following observations.

1. I don't have my wallet.
2. That police officer is stopping someone.
3. I feel strange after drinking that glass of milk.
4. That meat looks undercooked.
5. My boyfriend just freaked out when I asked him about his sister.

C. In each of the following there is an observation and two possible explanations. Using at least one theoretical virtue, identify the best of the two explanations.

1. Observation: This shrimp tastes funny.

Explanation A: The shrimp is bad.

Explanation B: It is not shrimp.

2. Observation: The dryer is making a knocking sound.

Explanation A: The load is out of balance.

Explanation B: You trapped the baby inside.

3. Observation: This guitar string keeps going out of tune.

Explanation A: The string is old.

Explanation B: Someone keeps turning the tuner when I'm not looking.

4. Observation: This shrimp tastes funny.

Explanation A: The shrimp is bad.

Explanation B: I'm getting sick and food tastes differently when I'm sick.

5. Observation: An oil spill in Prince William Sound, Alaska

Explanation A: Members of Green Peace bombed the tanker.

Explanation B: The tanker hit a reef due to the negligence of an overworked crew.

D. In each of the following there is an observation and two more complicated possible explanations. Using at least two theoretical virtues, identify the best of the two explanations.

1. Observation: “That landscape is represented perfectly on this photo paper! How is that?”

Explanation A: A small demon lives inside cameras and each has the unique ability to paint pictures very quickly and very accurately.

Explanation B: Thin papers, treated with chemicals to make it sensitive to the light of the three primary colors (yellow, red, blue), are exposed to the light reflected from a scene (such as a landscape). This produces a reverse image of the scene called a “negative.” A chemical reaction with silver halide causes the negative to transfer (by a process called “diffusion”) into a positive image, or, the image you wanted to capture.

2. Observation: “The sun looks like it moves up into the sky in the morning, then down into the ground in the evening. Why is that?”

Explanation A: The sun is a set of four fiery horses driven by Helios out of his palace by the River Okeanos every morning across the flat disc of planet Earth. It lights the sky for humans and animals and is then driven down into the land of Hesperides, where Helios rests the night in a golden cup that carries him back to his palace in the east.

Explanation B: The Earth is spherical in shape and spins on a tilted axis. When the part of the Earth you are on turns toward the sun, the sun appears to rise in the east. As your part of the Earth turns away, the sun appears to descend in the west.

3. Observation: “Hey, these two pieces of steel get warm when you rub them together quickly. Why is that?”

Explanation A: There is a liquid-like substance called “caloric” that is warm. When an object has more caloric it is warmer than when it has less. Caloric flows from warmer objects to cooler just as smoke dissipates into a room. When you rub two pieces of steel together, the caloric from your body flows into the steel.

Explanation B: Objects are made of molecules. Heat is a function of the speed at which molecules in an object are moving. If the molecules move faster, the object becomes warmer; if the molecules slow down, the object becomes cooler. Rubbing two metal pieces together quickly speeds up the molecules in the metal, thereby making it warmer.

4. Observation: “You say the flagpole is 50 feet high? Why is that?”

Explanation A: Because the shadow cast by the flagpole is fifty feet long. The shadow’s length given the sun’s 45 degree angle to the ground plus the mathematics of an isosceles triangle logically entails that the flagpole is fifty feet tall. Given these conditions, the flagpole couldn’t be any other height.

Explanation B: Because the town decided to make the flagpole one foot tall for each state in the Union. [This one is tricky. Here’s a hint: think about what each explanation is attempting to do. Then think about how well each answers what the question is asking.]