

Exercise 4

1. In *Physics* I.7, Aristotle argues that every change has three components. Say what these three components are. (3 points)

The three components are:

Underlying thing

Privation

Actuality

2. Using Aristotle's theory, analyze the following changes. For each, say what persists through the change, what does not persist through the change, and what comes into being during the change. (3 points each)

- a. Jürgen learns to play the piano.

Underlying: Jürgen persists through the change.

And not learning how to play the piano (privation) is replaced by learning to play the piano (thing that comes into being).

- b. Bernini sculpts *Apollo and Daphne*

Underlying: Bernini persists through the change.

Clay + not being Apollo and Daphne is what does not persist through the change is replaced by Apollo and Daphne (things that come into being).

3. Locke distinguishes between what he calls primary qualities and secondary qualities. Say what primary qualities and secondary qualities are for Locke, and give an example of each. (2 points)

Primary qualities: size, shape, location, motion or rest, impenetrability...

Secondary qualities: colors, taste, smell, sound...

Example a lime is green. Lime has certain primary qualities (it is round, small...) which are disposed to produce the idea of green in us.

4. In the *Three Dialogues*, Berkeley writes, "in case colors were real properties or affections inherent in external bodies, they could admit of no alterations." Explain, in no more than five sentences, what Berkeley is saying here, and what important principle that Berkeley is alluding to. (4 points)

This is the principle of variability: if an object X appears with incompatible properties, F and G, and X itself has not changed, the F and G are not the object itself. Colors aren't objects, because they appear different when you use jaundice and or a microscope.

5. Using your answer to question 4 above, explain why Berkeley thinks the argument generalizes to Locke's so-called primary qualities. No more than six sentences. (5 points)

Berkeley thinks the argument generalizes to Locke's primary qualities because: Shape appears different depending on the perspective from which you view the object. Size appears different depending on the distance from which you view the object. Nothing about the object changes when you view it from a different distance or angle. There is no reason to privilege the appearance from one perspective or distance. So, by the principle of variability, size and shape are not in the objects themselves, but merely in the mind. But size and shape are supposed to be essential properties of material objects; so material objects do not exist!

6. Suppose that you fold a piece of paper making a paper airplane. Call the piece of paper PAPER and the paper airplane DART. Why should we think that PAPER and DART are two different objects? No more than three sentences. (2 points)

We should think that they are different objects because: even though DART was made of PAPER they have different properties: that DART can fly, it is newer, it's more rare (since paper would always outnumber paper airplanes) By Leibniz's Law, it follows that PAPER and DART are different objects.

7. In his correspondence with Clarke, Leibniz asks Clarke to consider the scenario in which God created all the matter in the universe exactly as it actually is, but flipped 180°, or moved 10 ft to the left. If space is absolute, this is a genuine possibility. Leibniz then uses the PSR to argue that this shows Clarke's substantivalism about space to be mistaken. Explain, in no more than five sentences, how Leibniz reaches this conclusion. (3 points)

Leibniz reaches that conclusion because:

If there is no sufficient reason why state of affairs A obtains rather than not, then state of affairs A does not obtain (PSR). If space is absolute and God could have created everything the same but shifted to the left, there would still be no intrinsic qualitative difference between our world and that of the one shifted to the left. Thus, there is no real sufficient reason that one would exist rather than the other, then there our world doesn't exist, but it does. => Space is not absolute.