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### Final Paper: Is That a Cube

The question whether a two-dimensional picture of a cube might be called a cube appears to be a very hard question. One's answer apparently depends on what belief and life views this person has. Since every person is unique, everyone would have their own personal answer for this question, including me. Different philosophers over time had different views on life and beliefs, so their arguments might be very different. Aristotle, who lived in the 3<sup>rd</sup> century BC, follows a theory called empiricism. Plato, was Aristotle's teacher, and he represents an a priori knowledge ideas. Rene Descartes lived in the 17<sup>th</sup> century and his thinking is opposite to the Plato's or Aristotle's and is called rationalism. The last philosopher, David Hume, from the 18<sup>th</sup> century, summarized all the previous philosophy experience and came up with the skepticism thinking. This paper is an analysis of what different types of philosophers would think about my argument, that a drawing on the board cannot be considered a cube.

In order to answer the question is something a cube, we should first define a cube. A cube is a three-dimensional geometrical figure with six equal sides in six different planes. The properties of a cube are that its sides are on all x, y and z planes and each side has a parallel side to it in the parallel x, y and z plane. Such properties give a cube volume. What we see on the board is the two-dimensional drawing of a cube on a two-dimensional plane – the board, and there is no volume. At some point in our lives, most likely sometime in elementary school, a teacher showed us a cube and then drew it on the board. It was the same image which is commonly known as a two-dimensional representation of a cube. Since we all

saw an actual cube, our mind makes a three-dimensional shaped image of a cube in our head. However, our mind is very powerful and it can make up things. So, if you see a cube on the board, it does not mean it is a cube. Actually, the drawing on the board is just a set of twelve equal lines in one plane, placed in a way, so our mind makes it a three-dimensional figure in our imagination. We should be very careful with our imagination because it is influenced by our previous experiences. However, if something happened before, even multiple times, it does not mean it will be always the same way. Maybe in other circumstances such a set of lines would represent something else besides a cube. So, the reality here is that we see just the two-dimensional drawing that consists of twelve equal lines. An example of how tricky our mind can be is a picture of a square. In different circumstances and under different kind of influences one can see it as a square, or s/he can imagine it as an object with volume such as a cube, cylinder or a pyramid. Regardless what we have in our mind, reality is outside of our mind because in our mind we can imagine whatever we want. Reality cannot be in our minds because eventually we cannot do whatever we want, however, we can in our mind. For example, one cannot fly without special devices, but everyone could fly in their imagination. So, reality is outside our minds, and what is not in our minds should be sensible because sensations is the only way to get information from the outside world. In reality, a cube should be a three-dimensional shaped figure, so one can not only imagine six sides in the six different planes, but touch and see them in the different planes. In order to do it, one should be able to hold a cube on its two sides, whose planes are parallel to each other, at the same time. A person should be able to perform this with all x, y and z planes. Therefore, this person would be holding a cube so its volume is in-between the person's arms in three different plane directions. Such actions would prove that a person is dealing with an actual cube, not its representation. One cannot do it with the drawing, which proves that this drawing is not a cube, but it is just the two-dimensional representation of a cube.

I think that Aristotle's process of thinking is the closest to my argument. Aristotle is empiricist which means that for him truth comes from experience alone. This experience comes to us through senses like touch, vision and smell. The more one experiences something though repetitiveness and habituation, the more information one gets from his or her experience. As a result, the experience becomes more truthful for this person. The information a person learns gets stored in the wish which represents one's beliefs and opinions that are held to be true for this person. Therefore, different circumstances and experiences shape our wish. For Aristotle, we are born with nothing and we develop our wish through all kinds of different experiences. Regarding my argument, I think Aristotle would agree with it because of several points. When we were kids, we discovered through our senses the properties of a cube and the fact that a cube has volume. Later in school, the teacher showed us a cube and drew it on the board. This new experience gets connected to the old one regarding an actual cube. So, every time we see such a drawing we think about the experience of an actual three-dimensional cube – the information stored in our wish. The fact that the drawing is a cube is only supported by our wish; however, different circumstances might change our wish. So, Aristotle would agree with my statement that such the drawing might not represent a cube in different circumstances. That is why he states that truth comes from the experience alone and whatever we think in our mind is not considered the truth for Aristotle. Therefore, Aristotle would also agree with my statement that reality is what is outside our minds; something what we can feel through senses. Consequently, in order to believe in the truth that a cube is a cube, we have to sense it and feel its properties in all three-dimensions because a cube is a three-dimensional figure. We are unable to experience the drawing as a three-dimensional figure because it only has two-dimensions. The drawing only becomes three-dimensional in our minds. Therefore, Aristotle would agree with my argument that the drawing is not a cube.

Plato believed in the a priori knowledge which means that we are already born with knowledge and virtue. Plato's ideas were that soul and body are two separate things and the body is like a prison for the soul. Plato believed in reincarnation and existence after death, so when a person dies, his soul is still alive. After the body's death, the soul gets a new body. This process repeats itself until the soul becomes free and goes to heaven. This soul has the past life knowledge in the new body, and the person just recollects this knowledge through experience. Plato's theory includes a part of empiricism, but Plato also gives the credit to the soul/mind. Through the idea of recollection, Plato justifies the development of mathematics and geometry. He says that it gets easier for people to learn geometry because we already know some concepts from our soul's previous experience and instead of learning these concepts again we just recollect the knowledge. At this point, Plato would disagree with me on the point that to recognize the drawing as a cube someone would have had to show us a cube and then draw it on the board. Plato would say if one would draw a cube, a person would be able to conceptually understand it as a cube without experiencing a cube as a three-dimensional figure. He would argue that this person most probably has had this experience before. Through the experience of looking at the two-dimensional representation of a cube the person recollects the previous knowledge of a cube from the previous lives. The person sees the lines on the board, and in his mind, he makes a three-dimensional picture of a cube because he has some knowledge of the volume from his previous lives. I think the appropriate example would be how engineers read drawings: they see a picture and they can imagine a three-dimensional object that this drawing represents without experiencing it as a volume object. Plato would not agree with my statement that the drawing in different circumstances, might not represent a cube. Instead, Plato would say that our experience of a cube and its representation from the previous lives is super strong, so it is enough to consider the representation as a truth. It is strong because we experienced a cube and its representation so

many times and, same as for Aristotle, the more we experience it, the more truth it is.

Therefore, Plato would disagree with my argument and he would say that the two-dimensional representation of a cube is enough to call it a cube.

Rene Descartes believes in rationalism, which means that he believes that truth comes from the mind alone. To believe that something is truth, one only has to be logically convinced and does not have to experience it. Descartes believes that a person should not trust his or her senses because there are gaps of experience – we do not get the full information from our senses. A very good modern example of the gaps a person may experience is with a movie: what we experience from our visual senses is some action and movements. The truth is that there are just many frames that are switching very fast which creates action. Since we cannot truly rely on our senses, we need faculty of judgment which means that we have to trust our mind and our logic. So, when we look at the drawing of a cube, or physically touch an actual cube, we cannot really believe our senses. Everything we do has to be logically verified by our mind. While I was saying that reality is outside our mind, Descartes would disagree with me saying that we cannot trust what is outside our mind only what is inside. So, when I say that to call something a cube we have to be able to hold it in the way to experience its volume, Descartes would disagree because we cannot fully believe this experience. For Descartes, the more important aspect is that the person is able to logically verify the information he or she gets. By logically verifying a cube, Descartes would say that our mind produces a three-dimensional figure in our mind and can connect this figure to the drawing by juxtaposing all the lines and sides. Since Descartes thinks opposite of what I think, he would completely disagree with my argument. He would say that the drawing is a cube because for our mind it is a cube and truth only comes from the mind alone.

David Hume determined that both empiricism and rationalism are two extremes, so he developed a new idea of thinking – skepticism. The main idea of skepticism is that since

human beings are finite, absolute truth is unattainable for humans. Hume redefines the idea of truth and he states that something that is highly probable might be called truth. Since we are not infinite beings, he also states that we are incapable of knowing what will happen in the future. If something happens multiple times, it does not mean that the same thing will happen again. He calls it the problem of induction. So, Hume would agree with my statement that such a set of lines that is depicted on the board would not always mean and represent a cube. Another idea that Hume follows is that different kinds of experiences have different values. Hume would agree with my argument that to call something a cube we should be able to feel its volume. The more different experiences we get from the object, the more information we get about it, the more intense impression we get about the object, and stronger vivacity of our experiences. So, when the person holds a cube, he can see it, and touch it in many different ways: feel all the different sides, experience the volume and different planes of a cube, and feel the angles. When the person is looking at the drawing, the only experience related to a cube he or she gets is through vision. When this person is touching the board, he or she is able to touch just one plane, while a cube is a three-dimensional object. I think, that Hume would agree with my argument that the drawing is not a cube because even though now we see this drawing as a cube, such a representation could not be a cube tomorrow because we are finite beings. As well as the experiences, we get from the drawing are not enough for intense impression, therefore a person feels weak vivacity, so he or she cannot consider the drawing as a cube.

Through exploring different ways of philosophical thinking, we can conclude that there is no right or wrong answer on whether the two-dimensional drawing of a cube can be considered as a cube. I personally believe that the drawing is not a cube and it is only a representation of a cube. My judgment was mostly based that reality is outside of our minds and should be sensible. Aristotle would agree with my argument because he thinks in a very

similar way; he believes that truth comes from experience alone. Plato would disagree with my argument because he believes that we come to the world with some knowledge and virtue from previous lives and all experience is strong enough to consider the drawing as a cube. Descartes's thought process is completely opposite from mine. He believes that truth comes from the mind alone, so he would disagree with argument because a person can logically verify that the drawing is a cube. Hume would agree with my argument because from the drawing a person does not get strong enough expression of a cube to consider it as a cube.