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Assessment of Descartes' distinction between mental and physical substance.

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In this essay I will consider Descartes distinction between mind and body with a focus on the role of the pineal gland. I will explain one of the concerns of Descartes view, the issue of psycho-physical interaction and the question of how mental and physical substances can affect each other if they are completely distinct. I will consider Descartes explanation for this and how one might expand on these ideas to form a triadistic rather than dualistic approach to this problem, why this wouldn't work and the reasons concluding that Descartes cannot overcome the problem of psycho-physical interactions.

Descartes was a dualist. He believed that the mind and body were distinct and that the soul could live on after and separately from the body (Cottingham, 1986). Descartes regarded the soul not like the religious soul which is the principle of life, but as the principle of thought (Clarke, 2005). This is because the body is physical and the mind non-physical. He believed the body was like a machine, in that it was a shell that interacted with the world around it, we can't be sure that it exists because all we can know is that our mind exists. The mind is a non-physical thing, distinct from the body and we can know exists beyond doubt, as if we are thinking we must exist. Descartes explains that the mind and body, despite one being mental and the other physical, still interact. He argues that the pineal gland in the brain is what connects them (Cottingham, 1986). The soul is connected to the body as a whole and wholly in the individual parts, this is evident as we can't imagine half a soul. This idea can be explained by the example of gravity. Gravity acts upon any and all objects as if it was pulling on it with the whole of its force. If you cut a hanging rope gravity will act fully and equally on both the hanging rope and the cut off. This is similar to how the soul is fully connected to every part of the body (Clarke, 2005). Its important to note the soul is only in the individual parts of the body when they are connected to the main body. This makes sense as you don't lose part of your soul if your arm is amputated.

However, Descartes says the soul must have one place in the body where it exercises its functions. He decided this as there must be one place where the senses converged to make one sensation (Clarke, 2005). Furthermore we only have one thought at a time so Descartes decided it was necessary that there is a place where multiple impressions unite before being considered by the soul (Cottingham, 1986). The pineal gland, in effect, connects physical and non-physical, the body with the mind or soul. Descartes views it as the seat of common sense. By common sense Descartes means the place where the 5 senses, sight, smell, taste, sound and touch, converge to create one sensation. It is where the soul exercises its functions (Skirry, 2008). A slight tension is present here where Descartes says that the soul is both in the whole body and only in the pineal gland. I would argue if the soul was situated in the pineal gland to exercise its functions, there is no need for Descartes to believe it exists in the whole body. It would arguably make more sense for Descartes to argue it only existed via connectivity to the pineal gland. As this

keeps separation from the body, avoiding the tension of the soul existing both in the whole body, and being seated only in the pineal gland. The reason Descartes chose the pineal gland was because it is the only part of the solid brain that isn't double. It is also situated in the most suitable place for sensations to be considered by the soul. This is because it is in the innermost part of the brain, surrounded by carotid arteries which are said by Descartes to carry animal spirits. Descartes sees animal spirits not as ghostly or religious spirits, but as a fine matter or wind. The position of the pineal gland enables the animal spirits in the brain to communicate with the ones in the arteries surrounding it. Movement in the gland causes the course of animal spirits to change, even a very small change in the movements of the spirits can cause a change in the movements of the pineal gland (Cottingham, 1986).

The soul receives as many different perceptions as there occur movements in the gland. This is important with regards to sensations and memory as will be discussed later. Descartes decides the pineal gland must be the place where things converge and where the soul exercises its functions because it is where we have our thoughts and our thoughts and soul are joined. It's important to note that Descartes' anatomical and physical assumptions are incorrect. The pineal gland had been shown to be surrounded by veins not arteries, and Descartes thought the animal spirit was air like, but the veins had already been shown to carry fluid. It's important to keep this in mind or Descartes' views are hard to understand (Cottingham, 1986). With this in mind, according to Descartes the Pineal gland is involved in sensations like perception, imagination, memory and the causation of bodily movement. It connects the physical and the mental substances. It's important to note that when Descartes talks about sensations he is referring to any experience or perception (Cottingham, 1986), such as seeing a bent stick in water or hearing a dog bark. However when the experience is evaluated, it is no longer a sensation but judgement. For example, if you see a stick in water that appears bent, you get a sensation of a bent stick in water. If you were to then make the evaluation that the stick only looked bent and was actually straight, you would be using judgement. This evaluation is a result of the interaction of intellect and will, not sensation. (Skirry, 2008).

Descartes says the nerves in a body are fine fibres which are encased in hollow tubes that expand and branch out from the brain to the ends of the body. The fibres float in a very fine matter or wind which Descartes called the animal spirits, which he believes are created in the blood. The animal spirits allow the fibres to float freely so that any slight movement in the body will cause the fibres to move (Skirry, 2008). These fibres connect the sense organs with small valves in the brain. When a sense organ is stimulated it pulls on the fibres which opens the valve they are connected to. This causes some of the animal spirits in the pressurised ventricles of the brain to be sucked through pores, as the animal spirits move from an area of high pressure to one of low pressure, because "nature abhors a vacuum" (Descartes in Cottingham, 1986 pp.130). The animal spirits are sucked through the pores into the fibres in the nerves creating a certain sensation to appear on the surface of the pineal gland and therefore in the mind. The animal spirits provide for Descartes the same mechanism that is provided by our understanding of the nervous system. An explanation of how the sensations being in the mind can be felt in the body is given in Descartes' 6th Mediations. If you have a string connecting A B C (and) D and you pull D, A will move. However, A will also move if you pull C or B, regardless of

whether you have moved D. This is the same with the fibres. If you have a pain in your foot, the fibres in the foot pull on the ones that link to the fibres in the brain that produce a movement in the pineal gland that we experience as a sensation of pain occurring in the foot. So the pain is not really occurring in the foot, but the movement of the pineal gland and fibres makes it feel as though the pain was in the foot. He explained how the pain only appeared to be in the foot by using the example of phantom limbs. Even if it wasn't the fibre in the foot, but one of the fibres in-between that was being pulled, the same movement would happen in the pineal gland. This movement of the pineal gland would cause the same sensation of pain in the foot. Even though the foot wasn't there. This is how someone can feel pain in their foot sometimes despite having had their foot amputated (Skirry, 2008).

Memory arises in the same way as perception, except that there is the lack of an external object. So the pineal gland, affected by the soul's willing to remember something, moves, causing the animal spirits to flow. They find the fibre in the brain that opened when stimulated by the object originally. The fibres in the nerve, having opened previously for the external object the person is trying to remember, open more willingly in the same pattern as when there was the external stimulus. The pores of the fibre in the nerves become wider due to the animal spirits that move through them when you experience perception. This alters the pattern of the animal spirits that will later flow through the brain. This produces, in the pineal gland the movements which represent, or cause the image to form making it recognisable to the soul. Images can be formed even a long time after the external cause is gone. (Cottingham, 1986).

The movement of the body is also caused by the pineal gland being moved by the soul or an external stimulus. It makes the animal spirits go through the pores in the brain to the fibres in the nerves and causes muscles to move (Cottingham, 1986). Descartes says that when the soul is the cause, which is only the case in voluntary movement, not in autonomic movement like heart beats (Skirry, 2008), it has caused the experience simply by willing something to happen in the body (Cottingham, 1986). This causes the pineal gland that it is closely joined to, to move in the way which will cause the desired action in the body. The problem here is how the mental soul can interact with the physical body just by willing it.

These kind of psycho-physical interactions, threaten Descartes' approach. According to Descartes' dualism, human attributes either fit in the category, modes of thought or modes of extension. He gives some criteria to determine if what is being experienced is a mode of thought or mode of extension. If we experience something we conceive of being in any way existing in us and also existing in wholly inanimate bodies, we must attribute it to the body. If there's something in us which we cannot conceive being in any way attributed to an inanimate body, it must belong purely to the soul (Lokhorst, 2013). However, psycho-physical sensations and interactions don't fit completely to either category. Vision seems to start in our body at the eyes and cause an image to form in our mind. Descartes realises this though. He says the pineal gland is what links modes of thought with modes of extension. He suggests that we have to train our brain to physically submit the ideas we have for consideration of the soul. This is why Descartes thinks there's a gap or pause

between trying to imagine an object and the image appearing in our head. The pause is where the fibres open and move with the animal spirits and the pineal gland converges the images or other experience and we see the image after this pause when it is considered by the soul (Cottingham, 1986).

Descartes could try to avoid the problem of psycho-physical interactions by adopting a trialistic rather than a dualistic approach (Cottingham, 1986). If a trialistic approach could provide a third category that would include the sensations which don't fit into physical or mental categories completely, it would avoid the problem of psycho-physical interactions. The third category wouldn't involve the mental and physical interacting. It would provide a separate category which is neither mental nor physical. Descartes, at first glance, appears to be leaning towards a trialistic solution for the problem of psycho-physical interaction when he speaks of three primitive categories or notions in terms of what we think about the world. The first is extension. This is what the body comes under. The second is thought, this includes the mind. The final category is the union of mind and body causing psycho-physical interactions (like passions and visions). One confusion commonly held with this is why Descartes uses the term primitive categories, when the notion is dependent on a union of two elements. For example, just because a mule is from a horse and a donkey, it doesn't mean it's primitive. But Descartes would say, despite that it's from the donkey and horse, it has its own distinct characteristics that don't fit completely into either horse or donkey categories. In other words, as sensations and feelings don't fit into either modes of thought or modes of extensions completely, it seems another category is called for; modes of sensations (Cottingham, 1986).

Descartes expands on this, offering the analysis that there are three grades of sensory response. Using the example of vision, the first grade is the optic nerves reacting, which comes under the category, modes of extension. The second grade is the perception of the thing being looked at, which arises from the mind being connected to the body. With regards to the trialistic approach this would come under the modes of sensations. And the third grade is the rational conclusions made about the object such as its size and shape. This is a mode of thought (Cottingham, 1986). The perception is a result from the physical and mental responses intermingling (Skirry, 2008). Descartes says this creates the feeling of psycho-physical experiences (Cottingham, 1986).

It is important to note that despite the trialistic flavour of his points, Descartes never called himself a Trialist, I have used his ideas, presenting them in a way which could be used in a trialistic manor in an attempt to overcome psycho-physical interactions. Descartes views sensations as not being physical and mental but purely physical occurrences as there can never be a non-physical sensing thing. I agree, Not only are there no examples of this in the real world, but it seems impossible that a sensing thing could exist without a body. According to Descartes, the subject of sensations fit into one category, modes of extension, it is only the attributes of them that need a third distinct category. Although Descartes doesn't fully explain this. So, Descartes' apparent trialistic approach is relating to a distinct aspect of a things nature, not a distinct type of thing.

However, Descartes contradicts himself. He claims, sensations are purely physical. However he also says they're what we experience. For example, the pain we feel or the colours we see are sensations. Referring back to having a sensation of a stick in water. It is evident the image we have of the stick is mental, as according to Descartes we can't have this image without the information first being considered by the soul. However, this sensation needs physical workings such as the nerves and the animal spirits, to present this experience to the soul. Evidently, the physical workings themselves are not enough for us to have the sensation of the stick in water, the mental consideration of the soul is needed. So it is contradictory for Descartes to claim this sensation is purely physical after showing that it's not. This is one of the biggest problems with Descartes theory and shows that he is unable to overcome psycho-physical sensation. Descartes himself admits that he cannot or is unwilling to provide an answer to how physical and mental substances can interact.

This is a problem still being discussed in contemporary philosophy of mind. Coined "The hard problem of consciousness" by David Chalmers in 1995: The problem of explaining why any physical state is conscious or how sensations acquire characteristics, such as colors and tastes. The issue Descartes faces about sensations not being adequately explained, is in kin with this. We can explain all the functions, properties, how it changes, but we don't know why something is conscious. (Weisberg, no date) "even when we have explained all the cognitive and behavioral functions...[we may still ask] Why is the performance of these functions accompanied by experience?" (Chalmers 1995). This might help us see why there is so much tension in Descartes arguments, as he had no clear picture of how or why we experience conscious sensations. Something we still can't answer today.

In conclusion, Descartes argues, the mind and body are connected but not joined as the soul leaves the body after death. However, he faces problems of the physical and mental substances interacting. He attempts to explain this phenomenon using the pineal gland, which is key in connecting soul and body. However, he cannot account for sensations in his dualistic view. He shows how sensations, despite the attributes not fitting into a distinct category, are mode of extension. However, he directly contradicts this point by saying that sensations are the basic experiences we have, for example Images. Showing that he cannot fully support the claim that sensations are purely physical. Therefore it is clear that sensations do not fit into either modes of extension or modes of thoughts. If Descartes was willing to adopt a trilateral approach and find a suitable third category then he may be able to overcome this problem. However, so far we have been unable to find a suitable category. Therefore it is evident that Descartes is unable to overcome the problem of psycho-physical interactions.

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