

5.5 Pre-established harmony

5.5.1 Readings and study questions

- Readings: *Discourse on Metaphysics*, 14, 15
- Study questions:
- Why is the idea that individual substances are independent from one another seemingly contradictory with what we observe in the world?
- How does Leibniz explain the appearance of a causal order in what we observe of the world?
- What is it for an individual substance to act or to be acted upon according to Leibniz?

5.5.2 Dependence of substances on another

1. Created substances depend on God: continual production and preservation

Analogy: God produces the substances as we produce thoughts – substances emanate from God when he decides to actualize his thought.

2. Created substances are independent of everything else than God

This means that there is no interaction between substances. As an individual substance, you are neither acting on, nor acted upon by other substances. *Causation is an illusion.*

How can we make sense of this? How can Leibniz give an account of the fact that we observe interactions all the time?

5.5.3 The problem of the order in phenomena

We observe a certain order in the phenomena

- phenomenon / phenomena: observable facts and events

Why is this a problem for Leibniz' metaphysics? The problem is the following:

1. Leibniz wants to argue that the fundamental constituents of the world are individual substances or monads;
2. In order to do so, he has to recover the appearances. That is to say, he has to explain how the world appears to us as it is given that it is fundamentally made of individual substances;
3. The world as it appears to us, however, seems to be constituted of *interacting systems*. We naturally construe the world as a set of systems (particles, atoms, or larger systems) linked by causal relationships.
4. That there is something like a “causal order” in the world is the basis of most of our action.

Most simply put: You act because you think that

- your action has an impact on the external world
- such impact is predictable because there are some laws in the external world

Leibniz takes it that this is sufficient to believe that there is a causal order within the phenomena.

Leibniz thus admits the existence of laws of nature at the level of the phenomena.

5. Now he has argued that each of the individual substances that constitute the world is independent of all the others created substances

It seems that there is a contradiction between the independence of individual substances and the causal order within the phenomena.

How can everything be interact in order if everything is independent?

5.5.4 Pre-established harmony

Leibniz solves the problem above with his famous thesis of pre-established harmony.

Correlations and causation

How do we deal with correlations between phenomena?

- What are correlations?

There is a correlation whenever two events occurs more often together than independently.

Examples:

- You are usually shy and self conscious. However, whenever you drink some alcohol, you feel confident and even sometimes all-powerful – and also, if you think about it, your brain really does not work well.
- Two exact same papers given by two different students, two students in two rooms who give the exact same answers etc.

- How do we deal with correlations?

- either direct causal relationship
- or a common cause

In both cases, we take that there is a causal explanation.

- Of course, not all correlations are relevant:

Alsace: amount of storks and natality rate are correlated

- Still a very useful principle: correlations are indicative of either a direct causal influence between the correlated events or of a common cause of which both events are consequences.

Leibniz pre-established harmony

- All the correlations that we take to be indicative of causal relationship are really due to a single common cause: God's decree.
- Every single individual substance is independent, but all individual substances have been synchronized at the beginning, like independent clocks following independent paths after synchronization.
- The appearance of a causal order at the level of phenomena is the result of the synchronization of all the otherwise independent individual substances.

Characteristics of the synchronization

The synchronization needs only to be proportional

Not every substance perceive the same world, but the same world from its own perspectives, all perspectives being proportionally coherent

Example: spectators and vision: does a short sighted person see the same show as someone with accurate vision? Or: do we see the same show from the main floor or the upper gallery? Of course not exactly, but all perspectives are proportionate to one another.

5.5.5 What it is to act and to be acted upon

- The problem:

At the fundamental level, the only real things are individual substances, their perceptions and thoughts.

At the level of the phenomena, we perceive and think that we act upon the rest of the world and that we are acted upon

Leibniz has to give an account of this too.

- To act, or to cause is to pass to a more perfect expression, and to be acted upon is to pass to less perfect expression.
- We attribute to ourselves just what we express the most perfectly
- A change consists in 1. in the cause, an augmentation of what it expresses the most perfectly, and 2. in the effect, a diminution of what it expresses the most perfectly
- Hence:
 - to act is to expand our domain of expression which is more perfect
 - to be acted upon is to have this domain diminished
- Further: to act, expanding and change for the better is accompanied with pleasure, whereas to be acted upon, shrinking, and change for the less perfect is accompanied with pain

5.5.6 Well Grounded illusions

At the end of the day, we found ourselves with two levels of reality:

1. At the fundamental level, all there exists are the independent self sufficient and active individual substances, which emanate from God.
2. At the level of the phenomena, we perceive and conceive the world as constituted of systems causally interacting with one another and that such interactions follow the structure of a causal order.

The existence of causation and of a causal order are illusions in the sense that it does not correspond to anything physical in the world. That said, they are well grounded illusions, for they emerge from the harmony between all individual substances that God has pre-established.

5.6 Material and Final Causes in Physics

5.6.1 Readings and Study questions

- Readings: *Discourse on Metaphysics*, 19-22
- Study questions:
 - What is a final cause? Explain the difference with a material cause. Use the example given by Leibniz in section 19.
 - How does Leibniz defend explanations the physical world in terms of final causes in section 19?
 - How does Leibniz reject Descartes' reduction of matter to extension, figure and movement?
 - Explain the two possible demonstrations for Snell's Law in section 22. What is Leibniz' point in comparing the two?

5.6.2 Mechanical Model vs. Final Causes

- Modern science and the Mechanical Model

Dream of modern science: to give an account in mechanical terms only.

That is to say: to give an account of the phenomena in terms of contact interactions between material bodies.

Descartes: only mass and speed

Leibniz proves that mass and speed are not sufficient (energy has to be taken into account)

- Final Causes
 - Plato: materialism unsatisfactory: Socrates does not seat in prison with the poisonous beverage in his hand because of a determinate series of movement in matter.
 - taken by Aristotle as essential : the function of something is a necessary part of a complete explanation of what that thing is.
- Final Causes were rejected for:
 - being immaterial
 - being to the future of the effect
 - not adding any information that science cares about

Distinction between the question of HOW something happens with the question of WHY something happens. Modern science does not provide answer to the why-question, neither is it supposed to ! the why-question has been abandoned altogether as pertaining to another domain of knowledge.

- Leibniz argues for the reconciliation of the two points of view: efficient and final causes are both useful

Leibniz has a strange argument: he has shown that Descartes' account in terms of speed and mass is not sufficient, taking into account conservation of energy, and not only quantity of movement is necessary to have an empirically adequate theory. This is fine, but then he deduces from this that the conservation of energy is to be accounted for in terms of God's plan. Why would that be?

- General Principles

It seems that the way to make sense of Leibniz' claim is in saying that we can justify general principles, like the conservation laws or the principle of least action only by appeal to God's plan.

