



Week 4: Spinoza
and Leibniz

odat@tcd.ie

Weekly Quiz

Final Causes:
Introduction

Gassendi's
Objection

Spinoza against
Final Causes

Arguments against
Teleology

Leibniz's Defence
of Final Causes

The Theological
Argument

The Scientific
Argument

Assignments

Week 4: Spinoza and Leibniz

Takaharu Oda, PhD (odat@tcd.ie)

Southern University of Science and Technology
SS149 (社会科学中心), Spring 2024

Early Modern Western Philosophy (17th-18th Centuries)

近代西方哲学（十七-十八世纪）



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Quiz 3: In Meditation 4, Descartes validates *reductio* arguments in recognising the meditator's reflective power of will. Which logical law (principle) is usually incorporated into the *reductio ad absurdum* (reduction to an absurdity)?

- ① Law of identity
- ② Law of non-contradiction
- ③ Law of excluded middle
- ④ Law of sufficient reason

This is not related to your final grade, but intended to observe your understanding of the last class.



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- ① Law of identity: (*a declarative sentence/statement*) $A \equiv A$
- ② **Law of non-contradiction (Check the *reductio* form in M4):**
 $\neg(B \wedge \neg B)$
- ③ Law of excluded middle: $C \vee \neg C$ (only two truth-values)
- ④ Law of sufficient reason: e.g. $\forall\varphi\forall\psi(\mathcal{S}\varphi\psi \equiv (\mathcal{E}\varphi \supset \mathcal{E}\psi))$ (' φ is a *sufficient* reason for ψ iff some sentence of the *existence* of φ *explains* ψ ': a definition in Leibniz's principle [see also Harrop 2020], or one of Schopenhauer's 'four laws of thought')

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Plato and Aristotle (and Socrates)

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The School of Athens (c.1509–11) by Raffaello, in the Vatican





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Plato holding his
Timaeus

Aristotle holding his
Nicomachean Ethics



Aristotle's Definitions of Nature

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- Natural things—including 'animals and their parts [...] and the plants and the simple bodies (earth, fire, air, water)'—have natures. (*Physics* 2.1 192b9–11)
- A nature is 'a principle of motion and of stationariness'. (*Physics* 2.1 192b12–23)
- Natures aim at ends. [Teleology: *telos* = 'end']
- We can tell this because natures act neither by chance nor by necessity, and they sometimes fall short of their ends.

Teleology = final causation

Aristotle's theory of four causes: material, formal, efficient, and final



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Final Causes in the *Meditations*

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As I reflect on [my capacity for error] attentively, it occurs to me first of all that it is no cause for surprise if I do not understand the reasons for some of God's actions. [...] For since I now know that my own nature is very weak and limited, whereas the nature of God is immense, incomprehensible and infinite, I also know without more ado that he is capable of countless things whose causes are beyond my knowledge. And for this reason alone I consider the customary search for final causes to be totally useless in physics; there is considerable rashness in thinking myself capable of investigating the impenetrable purposes of God.

– Fourth Meditation, CSM II 38–39

By 'God' I mean the very being the idea of whom is within me, that is, the possessor of all the perfections which I cannot grasp, but can somehow reach in my thought, who is subject to no defects whatsoever. It is clear enough from this that he cannot be a deceiver, since it is manifest by the natural light that all fraud and deception depend on some defect.

– Third Meditation, CSM II 35



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Gassendi's Objection: Final Causes

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Gassendi objects to Descartes's rejection of final causes

- On what premises does Gassendi rely? Is the argument sound and convincing?
- Does Descartes deny the existence of final causes altogether?
- Does Descartes think we can know about any final causes at all?
- Does Descartes think we can know that animals have teeth *so that* they can chew, and eyes *so that* they can see?



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Assignments

Your rejection of the employment of final causes in physics might have been correct in a different context, but since you are dealing with God, there is obviously a danger that you may be abandoning the principal argument for establishing by the natural light the wisdom, providence and power of God, and indeed his existence. [... H]ow or where will you be able to get any better evidence for the existence of such a God than from the function of the various plants, animals, man and yourself (or your body), seeing that you bear the likeness of God? [...] You say it is rash to investigate the purposes of God. But while this may be true if you are thinking of the purposes which God himself wished to remain hidden or ordered us not to investigate, it surely does not apply to the purposes which he left on public display.

– Pierre Gassendi, Fifth Objections, CSM II 215–216

Descartes's Reply

We cannot pretend that some of God's purposes are more out in the open than others; all are equally hidden in the inscrutable abyss of his wisdom.

– Descartes, Fifth Replies, CSM II 258



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Key Points: final causation = teleology

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- Gassendi objects that Descartes's is undermining arguments for the existence of God (the argument from design, aka the **teleological** argument).
- Gassendi objects, secondly, that there are some 'purposes which [God] left on open display'. In other words, Descartes wants to make everything *mysterious*, but only some things are mysterious! (Gassendi is *demystifying*)
 - ♣ You might try putting these into formal arguments.
- In response, Descartes *doubles down*: we never know what God's purposes are.
 - ♣ Why do you suppose he does that? What might his motivation be?
- However, again, how do we then know that God's purpose is not to deceive us?



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Spinoza against Final Causes

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Baruch (Bento de) Spinoza (1632–77)

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Biographical Overview



'Why Spinoza still matters?'
(Steven Nadler, Aeon)

- 1632 – Born in Amsterdam to Portuguese Jewish parents.
- 1650s – Begins attending Socinian meetings and studying with van den Enden. Takes up lens grinding.
- July 1656 – Expelled from the Synagogue for his 'abominable heresies' and 'monstrous deeds'.
- 1663 – Publishes *The Principles of Cartesian Philosophy*.
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- 1677 – Dies of respiratory disease in Den Haag, aged 44. *Opera posthuma*, including the *Ethics*, published.
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Reading Questions—Spinoza against Final Causes

- According to Spinoza, why do people believe in **final causes**?
- According to Spinoza, why is this belief wrong?
- Is Spinoza's argument sound and convincing?



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All the prejudices I here undertake to expose depend on this one: that men commonly suppose that all natural things act, as men do, on account of an end; indeed, they maintain as certain that God himself directs all things to some certain end, for they say that God has made all things for man, and man that he might worship God.

So I shall begin by considering this one prejudice, asking *first* [I] why most people are satisfied that it is true, and why all are so inclined by nature to embrace it. *Then* [II] I shall show its falsity, and *finally* [III] how, from this, prejudices have arisen concerning *good* and *evil*, *merit* and *sin*, *praise* and *blame*, *order* and *confusion*, *beauty* and *ugliness*, and other things of this kind.

– *Ethics*, Appendix to Part I (*Collected Works* I 439–440)



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[A]ll men are born ignorant of the causes of things, and that they all want to seek their own advantage, and are conscious of this appetite.

From these [assumptions] it follows, **first, that men think themselves free**, because they are conscious of their volitions and their appetite, and **do not think, even in their dreams, of the causes by which they are disposed to wanting and willing**, because they are ignorant of [those causes]. It follows, **secondly, that men act always on account of an end**, viz. on account of their advantage, which they want. **Hence they seek to know only the final causes** of what has been done, and when they have heard them, they are satisfied, because they have no reason to doubt further. But if they cannot hear them from another, nothing remains for them but to turn toward themselves, and reflect on the ends by which they are usually determined to do such things; so they necessarily judge the temperament of other men from their own temperament.

– *Ethics*, Appendix to Part I (*Collected Works* I 440)

Summary of the *Appendix*

People do not know the **efficient causes** of human choices (and therefore assume that they do not have any), so they look for **final causes**. When they cannot get people to tell them, they guess.



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Furthermore, they find—both in themselves and outside themselves—many means that are very helpful in seeking their own advantage, e.g., eyes for seeing, teeth for chewing, plants and animals for food, the sun for light, the sea for supporting fish. Hence, they consider all natural things as means to their own advantage. And knowing that they had found these means, not provided them for themselves, they had **reason to believe that there was someone else who had prepared those means for their use**. For after they considered things as means, they could not believe that the things had made themselves; but from the means they were accustomed to prepare for themselves, they had to **infer that there was a ruler, or a number of rulers of nature**, endowed with human freedom, who had taken care of all things for them, and made all things for their use.

– *Ethics*, Appendix to Part I (*Collected Works* I 440)



Why Their Inference is 'Mad'

But while **they sought to show that nature does nothing in vain (i.e., nothing which is not of use to men)**, they seem to have shown only that nature and the Gods are as mad as men. See, I ask you, how the matter has turned out in the end! Among so many conveniences in nature they had to find many inconveniences: storms, earthquakes, diseases, etc. These, they maintain, happen because the Gods are angry on account of wrongs done to them by men, or on account of sins committed in their worship. And though their daily experience contradicted this, and though infinitely many examples showed that conveniences and inconveniences happen indiscriminately to the pious and the impious alike, they did not on that account give up their longstanding prejudice. It was easier for them to put this among the other unknown things, whose use they were ignorant of, and so remain in the state of ignorance in which they had been born, than to destroy that whole construction, and think up a new one.

So they maintained it as certain that the judgments of the Gods far surpass man's grasp.

– *Ethics*, Appendix to Part I (*Collected Works* I 441)



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Argument 1 against Teleology

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Not many words will be required now to show that Nature has no end set before it, and that all final causes are nothing but human fictions. For I believe I have already sufficiently established it, both by the foundations and causes from which I have shown this prejudice to have had its origin, and also by P16, P32C1 and C2, and all those [propositions] by which I have shown that all things proceed by a certain eternal necessity of nature, and with the greatest perfection.

— *Ethics*, Appendix to Part I (*Collected Works* I 442)



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Ethics, Demonstrated in Geometrical Order, Part I

Proposition 16: From the necessity of the divine nature there must follow infinitely many things in infinitely many modes (i.e., everything which can fall under an infinite intellect.)

P32 Corollary 1: God does not produce any effect by freedom of the will.

P32 Corollary 2: Will and intellect are related to God's nature as [...] absolutely all natural things [...] must be determined by God to exist and produce an effect in a certain way.



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First Argument

- ① We know that everything proceeds by a certain eternal necessity of nature with the greatest perfection. [ψ]
- ② If there are final causes [i.e. people's inference], then we do not know everything proceeds by a certain eternal necessity of nature with the greatest perfection. [See the last slide, $\varphi \supset \neg\psi$]
- C Therefore, there *cannot* be final causes. [Modus Tollens: $\neg\varphi$]



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Again, this doctrine [i.e. ordinary people's inference 'concerning the end'] takes away God's perfection. For if God acts for the sake of an end, he necessarily wants something which he lacks.

– *Ethics*, Appendix to Part I (*Collected Works* I 442)

Second Argument

- ① If God acts for the sake of an end, he necessarily wants something which he lacks.
- ② *Never* does God necessarily want something which he lacks.
[Premiss 1 in the first argument]
- C Therefore, God *cannot* act for the sake of an end. [MT]



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Hence it happens that one who seeks the true causes of miracles, and is eager, like an educated man, to understand natural things, not to wonder at them, like a fool, is generally considered and denounced as an impious heretic by those whom the people honor as interpreters of nature and the Gods. For they know that if ignorance is taken away, then foolish wonder, the only means they have of arguing and defending their authority, is also taken away.

– *Ethics*, Appendix to Part I (*Collected Works* I 443)



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Leibniz's Defence of Final Causes

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6 Assignments for the Next Lecture



Gottfried Wilhelm Leibniz (1646–1716)

Bibliographical Overview



- 'Let us calculate!' – invention of a calculator (Jonathan Gray, PDR)
- I Ching (易經) – from the Jesuit Bouvet in 1701 (Daniel J. Cook)

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Gottfried Wilhelm
LEIBNIZ

**Writings
on
China**

*Translated, with an
Introduction, Notes, and
Commentaries by*

**Daniel J. Cook
and
Henry Rosemont, Jr.**



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- Volumes published so far (since 1923): 68
- Total contents of Leibniz Archive (Hanover): about 50,000 items (150,000–200,000 pages)
- Correspondence: about 20,000 letters exchanged with about 1,300 different people
- 1686 – *Discourse on Metaphysics* (published posthumously). Begins correspondence with Arnauld (an objector in D's *Meditations*).
- 1695 – 'New System of Nature' (published)
- 1704 – Stops work on *New Essays concerning Human Understanding* after Locke dies.
- 1710 – *Theodicy* (published)
- 1714 – *Principles of Nature and Grace* and *Monadology*
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SINCE I do not like to judge people wrongly, I do not accuse our new philosophers, who claim to banish final causes from physics. But I am nevertheless obliged to confess that the consequences of this opinion appear dangerous to me, especially if I combine it with the one I refuted at the beginning of this discourse, which seems to go so far as to eliminate final causes altogether, as if God proposed no end or good in acting or as if the good were not the object of his will. (*Discourse on Metaphysics*, 1686, §19)

The inquiry into final causes in physics is precisely the application of the method which I think ought to be used, and those who have sought to banish it from their philosophy have not adequately considered its usefulness. For I do not wish to do them the injury of thinking that they have evil designs in doing this. Others followed them, however, who have abused their position, and who, not content with excluding final causes from physics but restoring them elsewhere, have tried to destroy them [i.e. final causes] entirely and to show that the Creator of the universe is most powerful, indeed, but without any intelligence. There have been still others who have not admitted any universal cause, like the ancients who recognized nothing in the universe but a concourse of corpuscles. ('*Tentamen anagogicum* [Analogical Essay]', c.1696, 477–478)



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Reading Question

Which (early modern) philosophers fall into either of the three groups that Leibniz mentions?



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[I]t is unreasonable to introduce a supreme intelligence as orderer of things and then, instead of using his wisdom, use only the properties of matter to explain the phenomena. This is as if, in order to account for the conquest of an important place by a great prince, a historian were to claim that it occurred because the small particles of gunpowder, set off by the contact of a spark, escaped with sufficient speed to push a hard and heavy body against the walls of the place, while the little particles that make up the brass of the cannon were so firmly interlaced that this speed did not separate them, instead of showing how the foresight of the conqueror enabled him to choose the suitable means and times and how his power overcame all obstacles. (*Discourse on Metaphysics*, §19)

THIS reminds me of a beautiful passage by Socrates in Plato's *Phaedo*. This passage agrees marvellously with my opinions on this point and seems to be directed expressly against our overly materialistic philosophers. (*Discourse on Metaphysics*, §20)



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Plato's *Phaedo*

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Then I heard someone reading, as he said, from a book of Anaxagoras, that mind was the disposer and cause of all, and I was delighted at this notion, which appeared quite admirable, and I said to myself: If mind is the disposer, mind will dispose all for the best, and put each particular in the best place; and I argued that if anyone desired to find out the cause of the generation or destruction or existence of anything, he must find out what state of being or doing or suffering was best for that thing. [...] How high were my hopes, and how quickly were they lost to me! As I proceeded, I found my philosopher altogether forsaking mind and making no appeal to any other principle of order, but having recourse to air, and ether, and water, and many other eccentricities. I might compare him to a person who began by maintaining generally that mind is the cause of the actions of Socrates, but who, when he endeavoured to explain the causes of my several actions in detail, went on to show that I sit here because my body is made up of bones and muscle.

— Plato, *Phaedo*, 97b–99d



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I am quite willing to admit that we are subject to deception when we wish to determine God's ends or counsels. But this is only when we try to limit them to some particular design, believing that he had only one thing in view, when instead he regards everything at the same time. [...] Thus when we see some good effect or perfection occurring or ensuing from God's works, we can say with certainty that God had proposed it. For he does nothing by chance and is not like us, who sometimes fail to do the good. That is why, far from being able to fall into error in this, as do extreme politicians who imagine too much subtlety in the designs of princes or as do commentators who look for too much erudition in their author, we cannot attribute too much reflection to this infinite wisdom, and there is no subject in which error is to be feared less, provided we limit ourselves to affirmations and avoid negative propositions that limit God's designs. (*Discourse on Metaphysics*, §19)



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- ① If God exists, then the world was created by a mind who aims at the good.
- ② If the world was created by a mind who aims at the good, then there are (transcendent) final causes.
- C Therefore, if God exists, there are (transcendent) final causes.

It follows that the denial of final causes is tantamount to atheism.

Leibniz thinks that banishing final causes from physics is halfway to denying final causes altogether, and hence halfway to atheism.



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It is known now that M. Descartes was much mistaken in his statement of [the laws of nature ...] the laws of motion actually existing in Nature, and confirmed by experiments, are not in reality absolutely demonstrable, as a geometrical proposition would be; but neither is it necessary that they be so. They do not spring entirely from the principle of necessity, but rather from the principle of perfection and order; they are an effect of the choice and the wisdom of God. I can demonstrate these laws in divers ways, but must always assume something that is not of an absolutely geometrical necessity. Thus these admirable laws are wonderful evidence of an intelligent and free being, as opposed to the system of absolute and brute necessity, advocated by Strato [of Lampsacus, ancient Greek] or **Spinoza**. (*Theodicy*, 1710, §345)



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It is known now that M. Descartes was much mistaken in his statement of [the laws of nature ...] **the laws of motion actually existing in Nature, and confirmed by experiments, are not in reality absolutely demonstrable, as a geometrical proposition would be**; but neither is it necessary that they be so. They do not spring entirely from the principle of necessity, but rather from the principle of perfection and order; they are an effect of the choice and the wisdom of God. I can demonstrate these laws in divers ways, but must always assume something that is not of an absolutely geometrical necessity. Thus these admirable laws are wonderful evidence of an intelligent and free being, as opposed to the system of absolute and brute necessity, advocated by Strato or **Spinoza**. (*Theodicy*, 1710, §345)



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Snell, who first discovered the rules of refraction [...] followed the method [...] of final causes. For, by seeking the easiest way to lead a ray from a given point to another point given by reflection on a given plane (assuming that this is nature's design), they discovered the equality of angles of incidence and angles of reflection. (*Discourse on Metaphysics*, §22)



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Argument

- ① If scientific laws are demonstrated from the principle of perfection and order, then there must be a final cause (i.e. 'wisdom of God').
- ② The laws are demonstrated from the principle of perfection and order.
- C Therefore, there must be a final cause. [Modus Ponens]



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Analogy of 'Two Kingdoms'

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[T]he smallest parts of the universe are ruled in accordance with the order of greatest perfection; otherwise the whole would not be so ruled. It is for this reason that I usually say that there are, so to speak, two kingdoms even in corporeal nature, which interpenetrate without confusing or interfering with each other – the realm of power, according to which everything can be explained *mechanically* by efficient causes when we have sufficiently penetrated into its interior, and the realm of wisdom, according to which everything can be explained architectonically, so to speak, or by final causes when we understand its ways sufficiently. ('Tentamen anagoricum', 478–479)

Leibniz's 'two kingdoms' analogy in *mechanics*

- ① efficient causation: the realm of **power**
- ② final causation: the realm of **wisdom**

– See also *Discourse on Metaphysics* §22; *Monadology* §79; 'Considerations on Vital Principles...' (1705/1969, 588), etc.



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[T]he smallest parts of the universe are ruled in accordance with the order of greatest perfection; otherwise the whole would not be so ruled. It is for this reason that I usually say that there are, so to speak, **two kingdoms** even in corporeal nature, which interpenetrate without confusing or interfering with each other – the **realm of power**, according to which everything can be explained *mechanically* by **efficient causes** when we have sufficiently penetrated into its interior, and the **realm of wisdom**, according to which everything can be explained architectonically, so to speak, or by **final causes** when we understand its ways sufficiently. ('Tentamen anagogicum', 478–479)

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I even find that several effects of nature can be demonstrated **doubly**, that is, by considering first the **efficient cause** and then by considering the **final cause**, making use, for example, of God's decree always to produce his effect by the easiest and most determinate ways. (*Discourse on Metaphysics*, §21)

The true middle term for satisfying both truth and piety is this: all natural phenomena could be explained mechanically if we understood them well enough, but the principles of mechanics themselves cannot be explained geometrically, since they depend on more sublime principles which show the wisdom of the Author in the order and perfection of his work. ('Tentamen anagogicum', 478)

These considerations make it plain that the laws of Nature regulating movements are neither entirely necessary nor entirely arbitrary. The middle course to be taken is that they are a choice of the most perfect wisdom. (*Theodicy*, §349)



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- 1 Does modern science allow **final causes**?
- 2 Is Spinoza right that belief in final causes is a product of ignorance and superstition?
- 3 Does theism require final causes?
- 4 Is Leibniz correct that the laws of nature exhibit final causal principles?
- 5 Does the use of mathematical beauty, elegance, and simplicity as criteria in theoretical physics support Leibniz's point? Can you think beauty, elegance, and simplicity are guides to truth if you do not believe in God?



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3 Gassendi's Objection: Final Causes

4 Spinoza against Final Causes
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6 Assignments for the Next Lecture



Next Week 5: Leibniz and Cavendish

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Assignment 1: Read Descartes's *Principles of Philosophy*, Part II, §§1–4, 11, 21–27, 36–43; Leibniz's *Discourse on Metaphysics* §§1–18; Cavendish's *Observations upon Experimental Philosophy*, Part I, chs. 16–17 (pp. 72–75).



Assignment 2: Read the 'Argument Advice' and 'Essay Questions' in PDF. And ask me or your assigned TA for anything unclear in the documents and slides.

- Keep active in the **WeCom/企业微信** group for this course, and pay attention to the **Blackboard** (SS149, Spring 2024), in which you can find all the basic info and recommended references.
- **Office hours** of the instructor (Center for Social Sciences, C111) and TAs (their offices) are Mondays 2-4pm, or any working time of appointment, by WeCom direct message or email.