

3

Background to Modern Philosophy

- *Aristotle's Categories*
 - Chapter Two
 - Chapter Four
 - Chapter Five
- *Aristotle's Physics*
 - Book One, Chapter Five
 - Book One, Chapter Seven
 - Book Two, Chapter One
 - Book Two, Chapter Three
- *Aristotle's Posterior Analytics*
 - Book One, Chapter Two
 - Book One, Chapter Four
 - Book Two
 - Book Two, Chapter Eight
 - Book Two, Chapter Nineteen
- Thomas Aquinas (1225–1274)
 - Aquinas' *On the Eternity of the World*
 - Aquinas' *Summa Contra Gentiles*
 - Chapter Sixty-six: That nothing gives Being except in as much as it acts in the Power of God
 - Chapter Sixty-seven: That God is the Cause of Activity in all Active Agents

- Chapter Sixty-nine: Of the Opinion of those who withdraw from Natural Things their Proper Actions
 - Section One
 - Section Two
 - Section Seven
- Chapter Seventy: How the Same Effect is from God and from a Natural Agent
- Aquinas' *Summa Theologicae, Prima Pars*
 - Question Eighty-four, Article One: Whether the Soul Knows Bodies Through the Intellect?
 - Question Eight-five, Article One: Whether Our Intellect Understands Corporeal and Material Things by Abstraction from Phantasms?
 - Question Eighty-five, Article Two: Whether the Intelligible Species Abstracted from the Phantasm Is Related to Our Intellect As That Which Is Understood?

Somewhat misleadingly, the 'modern' period refers to the seventeenth and eighteenth centuries. For our purposes, it actually covers about a hundred and forty years, from the publication of René Descartes's Meditations in 1641 to that of Kant's Critique of Pure Reason in 1781.

The modern period begins with the rejection of the dominant philosophy of the day, Aristotelianism. And of course the rejection is not complete: core Aristotelian notions, especially substance, live on in the moderns. For both these reasons, very little of the moderns' work will make sense unless it is seen against this scholastic background.

What was taught in the 'schools' in the early seventeenth century was not a monolithic body of doctrine. Nevertheless, we can point to some core beliefs, most of which have a foundation in Aristotle's own writings. We begin with some of Aristotle's texts before jumping ahead nearly 1,500 years, to Thomas Aquinas's (1225–1274) synthesis of Christian and Aristotelian thought. While Aquinas's system was only one of many available to the seventeenth century Aristotelian, philosophers of the four intervening centuries defined themselves against it, just as Descartes was to do.

(Textual note: the standard edition of Aristotle's works is The Complete Works of Aristotle, edited by Jonathan Barnes. For Aquinas, see Basic Writings of St. Thomas Aquinas, edited by Anton Pegis.)

Aristotle's Categories

The Categories is probably an early work of Aristotle's; certainly his Metaphysics departs from it on many scores. Nevertheless, it is Aristotle's clearest expression of his ontology.

Chapter Two

Forms of speech are either simple or composite. Examples of [composite speech] are such expressions as 'the man runs,' 'the man wins'; of [simple] 'man,' 'ox,' 'runs,' 'wins.' Of things themselves some are predicable of a

subject, and are never present in a subject. Thus 'man' is predicable of the individual man, and is never present in a subject.

... There is, lastly, a class of things which are neither present in a subject nor predicable of a subject, such as the individual man or the individual horse. But, to speak more generally, that which is individual and has the character of a unit is never predicable of a subject ...

Chapter Four

Expressions which are in no way composite signify substance, quantity, quality, relation, place, time, position, state, action, or affection. To sketch my meaning roughly, examples of substance are 'man' or 'the horse,' of quantity, such terms as 'two cubits long' or 'three cubits long,' of quality, such attributes as 'white,' 'grammatical.' 'Double,' 'half,' 'greater,' fall under the category of relation; 'in the market place,' 'in the Lyceum,' under that of place; 'yesterday,' 'last year,' under that of time. 'Lying,' 'sitting,' are terms indicating position, 'shod,' 'armed,' state; 'to lance,' 'to cauterize,' action; 'to be lanced,' 'to be cauterized,' affection. No one of these terms, in and by itself, involves an affirmation; it is by the combination of such terms that positive or negative statements arise. For every assertion must, as everyone admits, be either true or false, whereas expressions which are not in any way composite such as 'man,' 'white,' 'runs,' 'wins,' cannot be either true or false.

Chapter Five

Substance, in the truest and primary and most definite sense of the word, is that which is neither predicable of a subject nor present in a subject; for instance, the individual man or horse. But in a secondary sense those things are called substances within which, as species, the primary substances are included; also those which, as genera, include the species. For instance, the individual man is included in the species 'man,' and the genus to which the species belongs is 'animal'; these, therefore the species 'man' and the genus 'animal' are termed secondary substances ...

Everything except primary substances is either predicable of a primary substance or present in a primary substance. This becomes evident by reference to particular instances which occur. 'Animal' is predicated of the species 'man,' therefore of the individual man, for if there were no individual man of whom it could be predicated, it could not be predicated of the species 'man' at all. Again, colour is present in body, therefore in individual bodies, for if there were no individual body in which it was present, it could not be present in body at all. Thus everything except primary substances is either predicated of primary substances, or is present in them, and if these last did not exist, it would be impossible for anything else to exist.

Of secondary substances, the species is more truly substance than the genus, being more nearly related to primary substance. For if any one should render an account of what a primary substance is, he would render a more instructive account, and one more proper to the subject, by stating the species than by stating the genus. Thus, he would give a more instructive account of an individual man by stating that he was man than by stating that he was animal, for the former description is peculiar to the individual in a greater degree, while the latter is too general ...

Another mark of substance is that it has no contrary. What could be the contrary of any primary substance, such as the individual man or animal? It has none. Nor can the species or the genus have a contrary. Yet this characteristic is not peculiar to substance, but is true of many other things, such as quantity. There is nothing that forms the

contrary of ‘two cubits long’ or of ‘three cubits long,’ or of ‘ten,’ or of any such term. A man may contend that ‘much’ is the contrary of ‘little,’ or ‘great’ of ‘small,’ but of definite quantitative terms no contrary exists.

Substance, again, does not appear to admit of variation of degree. I do not mean by this that one substance cannot be more or less truly substance than another, for it has already been stated that this is the case; but that no single substance admits of varying degrees within itself. For instance, one particular substance, ‘man,’ cannot be more or less man either than himself at some other time or than some other man. One man cannot be more man than another, as that which is white may be more or less white than some other white object, or as that which is beautiful may be more or less beautiful than some other beautiful object ...

The most distinctive mark of substance appears to be that, while remaining numerically one and the same, it is capable of admitting contrary qualities ... Thus, one and the same colour cannot be white and black ... But one and the selfsame substance, while retaining its identity, is yet capable of admitting contrary qualities. The same individual person is at one time white, at another black, at one time warm, at another cold, at one time good, at another bad. This capacity is found nowhere else ... It is by reason of the modification which takes place within the substance itself that a substance is said to be capable of admitting contrary qualities; for a substance admits within itself either disease or health, whiteness or blackness.

-
1. Give three examples each of primary substances and secondary substances.
 2. What makes something a (primary) substance? How many criteria does Aristotle give, and what are they?
 3. Why does Aristotle think that if primary substances did not exist, nothing else could?
 4. To think about: what is Aristotle’s method in this text? How does he go about discovering the most basic features of the world?

Aristotle’s *Physics*

With this basic ontological category—primary substance, just plain ‘substance’ from now on—in place, we can move from what things there are in the world to how they change.

Consider how the following differs from what you would find in a contemporary introduction to physics textbook.

Book One, Chapter Five

Our first presupposition must be that in nature nothing acts on, or is acted on by, any other thing at random, nor may anything come from just anything else, unless we mean that it does so in virtue of a concomitant attribute ...

Nor again do things pass into just any old thing; ‘white’ does not pass into ‘musical’ (except, it may be, in virtue of a concomitant attribute), but into ‘not-white’—and not into any chance thing which is not white, but into black or an intermediate colour; ‘musical’ passes into ‘not-musical’—and not into any chance thing other than musical, but into ‘unmusical’ or any intermediate state there may be ...

It does not matter whether we take attunement, order, or composition for our illustration; the principle is obviously the same in all, and in fact applies equally to the production of a house, a statue, or any other complex ...

Book One, Chapter Seven

[T]here are different senses of ‘coming to be.’ In some cases we do not use the expression ‘come to be,’ but ‘come to be so-and-so.’ Only substances are said to ‘come to be’ in the unqualified sense.

Now in all cases other than substance it is plain that there must be some subject, namely, that which becomes. For we know that when a thing comes to be of such a quantity or quality or in such a relation, time, or place, a subject is always presupposed, since substance alone is not predicated of another subject, but everything else of substance.

But that substances too, and anything else that can be said ‘to be’ without qualification, come to be from some substratum, will appear on examination. For we find in every case something that underlies from which proceeds that which comes to be; for instance, animals and plants from seed ...

The underlying nature is an object of scientific knowledge, by an analogy. For as the bronze is to the statue, the wood to the bed, or the matter and the formless before receiving form to any thing which has form, so is the underlying nature to substance, i.e., the ‘this’ or existent.

Aristotle has been arguing that in any case of change, something must persist—that is, there must be something that undergoes the change. Why is he so sure of this? How would you describe a case where a change happens, but there is nothing numerically identical throughout it?

Assuming this principle—in any change, there must be something that endures through the change—is sound, we need to look at two very different kinds of case. Take the case of not-bald/bald. What is the ‘underlying substratum’ in this sort of case?

But now consider a substance itself coming to be (i.e., instead of coming-to-be-F, consider coming-to-be period.) There must be a substratum here as well; but it cannot be a substance (since this is not a case of some substance taking on a new property, but coming into existence in the first place.) This is prime matter, matter lacking all form.

1. *We never experience prime matter; how, then, does Aristotle think we can come to know it? (See the previous paragraph of Aristotle’s text)*

Book Two, Chapter One

Of things that exist, some exist by nature, some from other causes. ‘By nature’ the animals and their parts exist, and the plants and the simple bodies (earth, fire, air, water)—for we say that these and the like exist ‘by nature.’

All the things mentioned present a feature in which they differ from things which are not constituted by nature. Each of them has within itself a principle of motion and of stationariness (in respect of place, or of growth and decrease, or by way of alteration). On the other hand, a bed and a coat and anything else of that sort, qua receiving these designations—i.e., in so far as they are products of art—have no innate impulse to change. But in so far as they happen to be composed of stone or of earth or of a mixture of the two, they do have such an impulse, and just to that extent which seems to indicate that nature is a source or cause of being moved and of being at rest in that to which it belongs primarily, in virtue of itself and not in virtue of a concomitant attribute.

‘Nature’ then is what has been stated. Things ‘have a nature’ which have a principle of this kind. Each of them is a substance; for it is a subject, and nature always implies a subject in which it inheres ...

What nature is, then, and the meaning of the terms ‘by nature’ and ‘according to nature,’ has been stated. That nature exists, it would be absurd to try to prove; for it is obvious that there are many things of this kind, and to prove what is obvious by what is not is the mark of a man who is unable to distinguish what is self-evident from what is not ...

Some identify the nature of a natural object with that immediate constituent of it which taken by itself is without arrangement, e.g., the wood is the ‘nature’ of the bed, and the bronze the ‘nature’ of the statue. As an indication of this Antiphon points out that if you planted a bed and the rotting wood acquired the power of sending up a shoot, it would not be a bed that would come up, but wood—which shows that the arrangement in accordance with the rules of the art is merely an incidental attribute, whereas the real nature is the other, which, further, persists continuously through the process of making.

But if the material of each of these objects has itself the same relation to something else, say bronze (or gold) to water, bones (or wood) to earth and so on, that (they say) would be their nature and essence. Consequently some assert earth, others fire or air or water or some or all of these, to be the nature of the things that are. ... This then is one account of ‘nature,’ namely that it is the immediate material substratum of things which have in themselves a principle of motion or change.

Another account is that ‘nature’ is the shape or form which is specified in the definition of the thing. For the word ‘nature’ is applied to what is according to nature and the natural in the same way as ‘art’ is applied to what is artistic or a work of art. ... What is potentially flesh or bone has not yet its own ‘nature,’ and does not exist until it receives the form specified in the definition, which we name in defining what flesh or bone is. Thus in the second sense of ‘nature’ it would be the shape or form (not separable except in thought) of things which have in themselves a source of motion.

[We can now settle this debate over the question, is form or matter nature?] The form indeed is ‘nature’ rather than the matter; for a thing is more properly said to be what it is when it has attained to fulfillment than when it exists potentially. Again man is born from man, but not bed from bed. That is why people say that the figure is not the nature of a bed, but the wood is—if the bed sprouted, not a bed but wood would come up. But even if the figure is art, then on the same principle the shape of man is his nature. For man is born from man.

We also speak of a thing’s nature as being exhibited in the process of growth by which its nature is attained. ... What grows qua growing grows from something into something. Into what then does it grow? Not into that from which it arose but into that to which it tends. The shape [form] then is nature.

Book Two, Chapter Three

Now that we have established these distinctions, we must proceed to consider causes, their character and number. Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the ‘why’ of it (which is to grasp its primary cause). So clearly we too must do this as regards both coming to be and passing away and every kind of physical change, in order that, knowing their principles, we may try to refer to these principles each of our problems.

In one sense, then, (1) that out of which a thing comes to be and which persists, is called ‘cause,’ e.g., the bronze of the statue, the silver of the bowl, and the genera of which the bronze and the silver are species. In another sense (2) the form or the archetype, i.e., the statement of the essence, and its genera, are called ‘causes’ (e.g., of the octave the relation of 2:1, and generally number), and the parts in the definition. Again (3) the primary source of the change or coming to rest; e.g., the man who gave advice is a cause, the father is cause of the child, and generally what makes of what is made and what causes change of what is changed. Again (4) in the sense of end or ‘that for the sake of which’ a thing is done, e.g., health is the cause of walking about. (‘Why is he walking about?’ we say. ‘To be healthy,’ and, having said that, we think we have assigned the cause.) The same is true also of all the intermediate steps which are brought about through the action of something else as means towards the end, e.g., reduction of flesh, purging, drugs, or surgical instruments are means towards health. All these things are ‘for the sake of’ the end, though they differ from one another in that some are activities, others instruments. This then perhaps exhausts the number of ways in which the term ‘cause’ is used.

-
1. *What is Aristotle’s method in this text? Does it have anything in common with that of the Categories?*
 2. *In [Book Two, Chapter Three](#), Aristotle lists his ‘four’ causes; the translator has numbered them. These causes have come to be known as*
 - c. Formal
 - d. Final
 - e. Material
 - f. Efficient

Try to identify which number corresponds to which of these causes.

The Greek word translated as ‘cause’ here is ‘aitios’; the Greek word can mean either cause or explanation. Which of Aristotle’s four aitia most closely maps our own notion of a cause?

Aristotle’s view came to be known as ‘hylomorphism’—the view that all substances are form/matter compounds. It’s helpful at this point to introduce a little technical terminology, partly derived from later, scholastic writers. If we take my dog Helga as an example of a substance, what will her substantial form (what Aristotle here calls her ‘nature’; what later philosophers call her ‘essence’) be?

This essence explains and fixes everything she can do, and everything that can happen to her. She can’t play the ukulele; she can sniff a treat at five hundred yards. She has these features because she is the kind of thing she is.

But forms never exist on their own. (This is a departure from Plato.) There’s no such thing as humanity apart from individual human beings. Forms, then, require matter: a form is always a form of some chunk of matter. In Helga’s case, what is that matter?

She will have lots and lots of other properties besides her essence. Some of these follow necessarily from that essence. For instance, she has narrow toenails. Other properties have very little relation to her essence. For instance, she has only one eye. This is an ‘accident,’ in two senses of that term.

We can now see another role that prime matter—matter denuded of all forms—plays for Aristotle. Can you see

how the principle that all forms inhere in matter might make trouble, and what prime matter is supposed to be doing?

1. *Why does Aristotle think there is such a thing as nature, in his sense? What then does he make of artificial things, like a bed? Do they not have natures?*
2. *Aristotle argues that form has a better claim on being ‘nature’—an internal principle of change—than does matter. What is his argument for this?*

Aristotle's *Posterior Analytics*

Now that we know what things there are and how they behave, we need some means of assembling our knowledge of them into a system. This system, as applied to the natural world, is what gets translated below as ‘science.’ As you read this, forget everything you’ve learned in science classes—this was written almost two millennia before Galileo, after all. What does Aristotle think a completed science would look like? How does the scientist go about her work?

Book One, Chapter Two

What *Knowing* is, what *Demonstration* is, and of what it consists.

We suppose ourselves to know anything absolutely and not accidentally after the manner of the sophists, when we consider ourselves to know that the ground from which the thing arises is the ground of it, and that the fact cannot be otherwise. ...

Hence it follows that everything which admits of absolute knowledge is necessary. We will discuss later the question as to whether there is any other manner of knowing a thing, but at any rate we hold that that ‘knowledge comes through demonstration.’ By ‘demonstration’ I mean a scientific syllogism, and by ‘scientific’ a syllogism the mere possession of which makes us know.

If then the definition of knowledge be such as we have stated, the premises of demonstrative knowledge must be true, primary, immediate, better known than, anterior to, and the cause of, the conclusion, for under these conditions the principles will also be appropriate to the conclusion. One may, indeed, have a syllogism without these conditions, but not a demonstration, for it will not produce scientific knowledge. The premises must be true, because it is impossible to know that which is not, e.g., that the diagonal of a square is commensurate with the side. The conclusion must proceed from primary premises that are indemonstrable premises, for one cannot know things of which one can give no demonstration, since to know demonstrable things in any real sense is just to have a demonstration of them. The premises must be Prior, Explanatory, Better known [to us] and Previously cognized; Explanatory, because we only know a thing when we have learned its explanation; Prior, if they are to be explanatory; Previously known not only in our second sense, viz. That their meaning is understood, but that one knows that they are true.

Book One, Chapter Four

Since the object of pure scientific knowledge cannot be other than it is, the truth obtained by demonstrative knowledge will be necessary. And since demonstrative knowledge is only present when we have a demonstration, it

follows that demonstration is an inference from necessary premises. So we must consider what are the premises of demonstration—i.e., what is their character: and as a preliminary, let us define what we mean by an attribute ‘true in every instance of its subject ...’ I call ‘true in every instance’ what is truly predicable of all instances—not of one to the exclusion of others—and at all times, not at this or that time only; e.g., if animal is truly predicable of every instance of man, then if it be true to say ‘this is a man,’ ‘this is an animal’ is also true, and if the one be true now the other is true now.

Where demonstration is possible, one who can give no account which includes the cause has no scientific knowledge.

Book Two

Now that we know what makes something a demonstration, we need to know what the first principles of a demonstration are. This is the burden of [Chapter Eight](#) below.

We also need to know how to get them. Earlier (Posterior Analytics Book One, Chapter Three), Aristotle writes, ‘We ... Hold that not every form of knowledge is demonstrative, but that the knowledge of ultimate principles is indemonstrable. The necessity of this fact is obvious, for if one must needs know the antecedent principles and those on which the demonstration rests, and if in this process we at last reach ultimates, these ultimates must necessarily be indemonstrable. Our view then is not only that knowledge exists, but that there is something prior to science by means of which we acquire knowledge of these ultimates.’ So we cannot demonstrate the first principles of a demonstration. How, then, do we arrive at them? This is the burden of [Chapter Nineteen](#) below.

Book Two, Chapter Eight

We must now start afresh and consider which of these conclusions are sound and which are not, and what is the nature of definition, and whether essential nature is in any sense demonstrable and definable. ...

When we are aware of a fact we seek its reason, and though sometimes the fact and the reason dawn on us simultaneously, yet we cannot apprehend the reason a moment sooner than the fact; and clearly in just the same way **we cannot apprehend a thing’s form without apprehending that it exists, since while we are ignorant whether it exists we cannot know its essential nature.** Moreover, we are aware whether a thing exists or not sometimes through apprehending an element in its character, and sometimes accidentally, as, for example, when we are aware of thunder as a noise in the clouds, of eclipse as a privation of light, or of man as some species of animal, or of the soul as a self-moving thing. As often as we have accidental knowledge that the thing exists, we must be in a wholly negative state as regards awareness of its essential nature; for we have not got genuine knowledge even of its existence, and to search for a thing’s essential nature when we are unaware that it exists is to search for nothing.

On the other hand, whenever we apprehend an element in the thing’s character there is less difficulty. Thus it follows that the degree of our knowledge of a thing’s essential nature is determined by the sense in which we are aware that it exists. Let us then take the following as our first instance of being aware of an element in the essential nature. Let *A* be eclipse, *C* the moon, *B* the earth’s acting as a screen. Now to ask whether the moon is eclipsed or not is to ask whether or not *B* has occurred. But that is precisely the same as asking whether *A* has a defining condition; and if this condition actually exists, we assert that *A* also actually exists. ...

We have stated then how essential nature is discovered and becomes known, and we see that, while there is no

syllogism—i.e., no demonstrative syllogism—of essential nature, yet it is through syllogism, viz. demonstrative syllogism, that essential nature is exhibited.

The passage in bold above formulates a doctrine known as ‘existentialism’. According to existentialism, in order to know a thing’s essence, what must one know beforehand? As we’ll see, this is a central scholastic doctrine that Descartes seeks to undermine with his Meditations.

Book Two, Chapter Nineteen

As to the basic premises [of a demonstration], how they become known and what is the developed state of knowledge of them is made clear by raising some preliminary problems.

We have already said that scientific knowledge through demonstration is impossible unless a man knows the primary immediate premises. But there are questions which might be raised in respect of the apprehension of these immediate premises: one might not only ask whether it is of the same kind as the apprehension of the conclusions, but also whether there is or is not scientific knowledge of both; or scientific knowledge of the latter, and of the former a different kind of knowledge; and, further, whether the developed states of knowledge are not innate but come to be in us, or are innate but at first unnoticed.

Now it is strange if we possess them from birth; for it means that we possess apprehensions more accurate than demonstration and fail to notice them. If on the other hand we acquire them and do not previously possess them, how could we apprehend and learn without a basis of pre-existent knowledge? For that is impossible... So it emerges that neither can we possess them from birth, nor can they come to be in us if we are without knowledge of them to the extent of having no such developed state at all.

Therefore we must possess a capacity of some sort, but not such as to rank higher in accuracy than these developed states. And this at least is an obvious characteristic of all animals, for they possess a congenital discriminative capacity which is called sense-perception. But though sense-perception is innate in all animals, in some the sense-impression comes to persist, in others it does not. So animals in which this persistence does not come to be have either no knowledge at all outside the act of perceiving, or no knowledge of objects of which no impression persists; animals in which it does come into being have perception and can continue to retain the sense-impression in the soul: and when such persistence is frequently repeated a further distinction at once arises between those which out of the persistence of such sense-impressions develop a power of systematizing them and those which do not.

So out of sense-perception comes to be what we call memory, and out of frequently repeated memories of the same thing develops experience; for a number of memories constitute a single experience. From experience again—i.e., from the universal now stabilized in its entirety within the soul, the one beside the many which is a single identity within them all—originate the skill of the craftsman and the knowledge of the man of science, skill in the sphere of coming to be and science in the sphere of being.

We conclude that these states of knowledge are neither innate in a determinate form, nor developed from other higher states of knowledge, but from sense-perception. It is like a rout in battle stopped by first one man making a stand and then another, until the original formation has been restored. The soul is so constituted as to be capable of this process.

Let us now restate the account given already, though with insufficient clearness. When one of a number of logically indiscriminable particulars has made a stand, the earliest universal is present in the soul: for though the act of sense-perception is of the particular, its content is universal. ... A fresh stand is made among these rudimentary universals, and the process does not cease until the indivisible concepts, the true universals, are established: e.g., such and such a species of animal is a step towards the genus animal, which by the same process is a step towards a further generalization.

Thus it is clear that we must get to know the primary premises by induction [epagoge]; for the method by which even sense-perception implants the universal is inductive. Now of the thinking states by which we grasp truth, some are unfailingly true, others admit of error-opinion, for instance, and calculation, whereas scientific knowing and intuition are always true: further, no other kind of thought except intuition is more accurate than scientific knowledge, whereas primary premises are more knowable than demonstrations, and all scientific knowledge is discursive. From these considerations it follows that there will be no scientific knowledge of the primary premises, and since except intuition nothing can be truer than scientific knowledge, it will be intuition that apprehends the primary premises—a result which also follows from the fact that demonstration cannot be the originative source of demonstration, nor, consequently, scientific knowledge of scientific knowledge. If, therefore, it is the only other kind of true thinking except scientific knowing, intuition will be the originative source of scientific knowledge. And the originative source of science grasps the original basic premise, while science as a whole is similarly related as originative source to the whole body of fact.

1. *One of these arguments is a demonstration; the other is merely a deduction. Which is which, and why?*

Argument 1

1. Human beings are rational animals.
2. Rational beings are risible (have the ability to laugh). Therefore, human beings are risible.

Argument 2

1. Everyone in modern philosophy is wearing shoes.
2. Everyone wearing shoes has sweaty toes. Therefore, everyone in modern philosophy has sweaty toes.

1. *What would a completed science look like, according to Aristotle? How is it different from contemporary science?*
2. *Aristotle says that we go about getting our first principles by induction (epagoge in Greek). What does he mean by this?*

Thomas Aquinas (1225–1274)

Thomas Aquinas synthesized Aristotelian and Christian thought into a nearly seamless whole. It is not an exaggeration to say that every philosopher for the next five hundred years stood in his shadow.

Like Aristotle, Aquinas is an empiricist in both senses of the term: he thinks that all the materials for knowledge come from sensation, and that all justifications ultimately depend on experience. He is also an existentialist, in the

sense discussed in the *Glossary*. Despite his often technical formulations, Aquinas aims to give a commonsensical account of metaphysics and epistemology, just as Aristotle did.

Our first reading is a short statement of Aquinas's views on the cosmological argument. This argument for the existence of God, in its crudest form, runs thus:

- a. Everything must have a cause.
- b. There must be a first cause, i.e., a cause that does not itself have a cause.
- c. The first cause is God.

Like all a posteriori arguments—arguments from experience—this one has a problem in the move from (ii) to (iii). Why not think that the first cause is the Jonas brothers, or a clam? Why should we believe that the first cause still exists? Aquinas himself runs into these problems. Thus a later philosopher, John Duns Scotus, argues that Aquinas's famous 'five ways' might prove the existence of five distinct beings.

1. As a good justification empiricist, Aquinas is committed to proving God's existence from experience; he cannot evade Duns Scotus's objections. Nevertheless, Aquinas does not think the cosmological argument is a good one. Can you see what goes wrong in premises 1 and 2?

Aquinas has other criticisms of his own, criticisms that would apply even to the most sophisticated versions of the cosmological argument. These tell us much about how Aquinas conceives of causation.

Aquinas's thoughts here landed him in trouble with the establishment. In 1277, three years after his death, his views on the cosmological argument were condemned. Why?

Aquinas' On the Eternity of the World

Let us assume, in accordance with the Catholic faith, that the world had a beginning in time. The question still arises whether the world could have always existed ...

If it be impossible that something caused by God has always existed, it will be so either because God could not make something that has always existed or because such a thing could not be made, regardless of God's ability to make it. As to the first, all parties agree that, in view of his infinite power, God could have made something that has always existed. It remains to be seen, therefore, whether something that has always existed can be made.

We thus ought to determine whether there is any contradiction between these two ideas, namely, to be made by God and to have always existed. And, whatever may be the truth of this matter, it will not be heretical to say that God can make something created by him to have always existed. ... For, if there is no contradiction, we ought to admit that God could have made something that has always existed, for it would be clearly derogatory to the divine omnipotence, which exceeds every thought and power, to say that we creatures can conceive of something that God is unable to make.

In this, therefore, the entire question consists: whether to be wholly created by God and not to have a beginning in time are contradictory terms.

That they are not contradictory can be shown as follows. If they are contradictory, this is for one or both of these

two reasons: either because the agent cause must precede the effect in time, or because non-being must precede the effect in time, for we say that what God creates comes to be out of nothing.

First, we should show that it is not necessary that an agent cause, in this case God, precede in time that which he causes, if he should so will. This can be shown in several ways. First, no cause instantaneously producing its effect necessarily precedes the effect in time. God, however, is a cause that produces effects not through motion but instantaneously. Therefore, it is not necessary that he precede his effects in time.

The first premise is proved inductively from all instantaneous changes, as, for example, with illumination and other such things. But the premise may be proved by reason as well.

For, at whatever instant a thing exists, at that instant it can begin to act, as is clear in the case of all things that come to be by generation: in the very instant at which there is fire, the fire heats. But in an instantaneous action, the beginning and the end of the action are simultaneous, indeed identical, as is clear in the case of all indivisible things. Hence, at whatever moment an agent instantaneously producing an effect exists, the end of its action can exist as well. The end of the action, however, is simultaneous with the thing made. Therefore, there is no contradiction if we suppose that a cause instantaneously producing an effect does not precede its effect in time. A contradiction does obtain if the cause involved is one that produces its effects through motion, for the beginning of the motion precedes in time the end of the motion. Since people are accustomed to considering the type of cause that produces effects through motion, they do not easily grasp that an agent cause may fail to precede its effect in time, and so, having limited experience, they easily make a false generalization.

Further, if, granted a cause, its effect does not immediately exist as well, this can only be because something complementary to that cause is lacking: the complete cause and the thing caused are simultaneous. God, however, never lacks any kind of complementary cause in order to produce an effect. Therefore, at any instant at which God exists, so too can his effects, and thus God need not precede his effects in time.

Aquinas here distinguishes between a cause that produces its effect through motion and one that does so instantaneously. We can call these horizontal and vertical causes, respectively. A horizontal cause produces its effect over time, as the firing of a gun produces death. A vertical cause produces its effect concomitantly, as the sun produces light. The world exhibits both kinds of cause, for Aquinas; as we'll see, he goes on to call God the primary cause of all being, or esse (the vertical cause), and creatures, secondary causes (vertical and horizontal causes).

Aquinas' *Summa Contra Gentiles*

If God is not necessary as a first cause in time, then how exactly is he related to his creation? Put differently: Aquinas thinks there's no way to prove through reason alone that the world came into being; it might be co-eternal with God. But if God isn't the first cause in this sense, how is he a cause at all? these arguments will be especially important when we look at Descartes (see the [Third Meditation](#) and Berkeley (see [PHK Part One, Section 51, 52 and 53](#), as well as [107](#), as well as [De Motu, Section 34](#)).

Chapter Sixty-six: That nothing gives Being except in as much as it acts in the Power of God

Nothing gives being except in so much as it is an actual being. But God preserves things in actuality.

The order of effects is according to the order of causes. Now the first of all effects is being, for all others are determinations of being. Therefore being is the proper effect of the first agent, and all other agents produce it by the power of the first agent. Furthermore, secondary agents which, as it were, particularize and determine the action of the first agent, produce, as their proper effects, the other perfections which determine being.

Chapter Sixty-seven: That God is the Cause of Activity in all Active Agents

As God not only gave being to things when they first began to be, but also causes being in them so long as they exist; so He did not once for all furnish them with active powers, but continually causes those powers in them, so that, if the divine influx were to cease, all activity would cease.

Hence it is said: *Thou hast wrought all our works in us, O Lord* (Isa. XXVI, 12). And for this reason frequently in the Scriptures the effects of nature are put down to the working of God, because He it is that works in every agent, physical or voluntary: e.g., *Hast thou not drawn me out like milk, and curdled me like cheese? with skin and flesh thou hast clothed me, with bones and sinews thou hast put me together* (Job X, 10, 11).

Chapter Sixty-nine: Of the Opinion of those who withdraw from Natural Things their Proper Actions

Some have taken an occasion of going wrong by thinking that no creature has any action in the production of natural effects—thus that fire does not warm, but God causes heat where fire is present. So Avicbron in his book, *The Fountain of Life*, lays it down that no body is active, but the power of a subsistent spirit permeating bodies does the actions which seem to be done by bodies. But on such theories many awkward consequences follow.

Section One

If no inferior cause, and especially no corporeal cause, does any work, but God works alone in all agencies, and God does not change by working in different agencies; no difference of effect will follow from the difference of agencies in which God works: but that is false by the testimony of sense.

Section Two

It is contrary to the notion of wisdom for anything to be to no purpose in the works of the wise. But if created things in no way work to the production of effects, but God alone works all effects immediately, to no purpose are other things employed by Him.

Section Seven

If effects are not produced by the action of creatures, but only by the action of God, it is impossible for the power of any creature to be manifested by its effect: for an effect shows the power of the cause only by reason of the action, which proceeds from the power and is terminated to the effect. But the nature of a cause is not known through its effect except in so far as through its effect its power is known which follows upon its nature. If then created things have no actions of their own productive of effects, it follows that the nature of a created thing can never be known by its effect; and thus there is withdrawn from us all investigation of natural science, in which demonstrations are given principally through the effect.

Some Doctors of the Moorish Law are said to bring an argument to show that accidents are not traceable to the

action of bodies, the ground of the argument being this, that an accident does not pass from subject to subject: hence they count it an impossibility for heat to pass from a hot body to another body heated by it, but they say that all such accidents are created by God. Now this is a ridiculous proof to assign of a body not acting, to point to the fact that no accident passes from subject to subject. When it is said that one hot body heats another, it is not meant that numerically the same heat, which is in the heating body, passes to the body heated; but that by virtue of the heat, which is in the heating body, numerically another heat comes to be in the heated body actually, which was in it before potentially. For a natural agent does not transfer its own form to another subject, but reduces the subject upon which it acts from potentiality to actuality.

Chapter Seventy: How the Same Effect is from God and from a Natural Agent

Some find it difficult to understand how natural effects are attributable at once to God and to a natural agent. For, [*first,*] one action, it seems, cannot proceed from two agents. If then the action, by which a natural effect is produced, proceeds from a natural body, it does not proceed from God.

[*Second,*] when an action can be sufficiently done by one, it is superfluous to have it done by more: we see that nature does not do through two instruments what she can do through one. Since then the divine power is sufficient to produce natural effects, it is superfluous to employ also natural powers for the production of those same effects. Or if the natural power sufficiently produces its own effect, it is superfluous for the divine power to act to the same effect.

[*Third,*] if God produces the whole natural effect, nothing of the effect is left for the natural agent to produce.

Upon consideration, these arguments are not difficult.

[*First,*] the power of the inferior agent depends upon the power of the superior agent, inasmuch as the superior agent gives to the inferior the power whereby it acts, or preserves that power, or applies it to action; as a workman applies a tool to its proper effect, frequently however without giving the tool the form whereby it acts, nor preserving it, but merely giving it motion. The action therefore of the inferior agent must proceed from that agent not merely through its own power, but through the power of all superior agents, for it acts in virtue of them all. And as the ultimate and lowest agent acts immediately, so is the power of the prime agent immediate in the production of the effect. For the power of the lowest agent is not competent to produce the effect of itself, but in power of the agent next above it; and the power of that agent is competent in virtue of the agent above it; and thus the power of the highest agent proves to be of itself productive of the effect, as the immediate cause, as we see in the principles of mathematical demonstrations, of which the first principle is immediate. As then it is not absurd for the same action to be produced by an agent and the power of that agent, so neither is it absurd for the same effect to be produced by an inferior agent and by God, by both immediately, although in different manners.

[*Second,*] though a natural thing produces its own effect, it is not superfluous for God to produce it, because the natural thing does not produce it except in the power of God. Nor is it superfluous, while God can of Himself produce all natural effects, for them to be produced by other causes: this is not from the insufficiency of God's power, but from the immensity of His goodness, whereby He has wished to communicate His likeness to creatures, not only in point of their being, but likewise in point of their being causes of other things.

[*Third,*] when the same effect is attributed to a natural cause and to the divine power, it is not as though the effect

were produced partly by God and partly by the natural agent: but the whole effect is produced by both, though in different ways, as the same effect is attributed wholly to the instrument, and wholly also to the principal agent.

1. Why does Aquinas reject ‘occasionalism,’ the doctrine that God is the only true cause? Give what you take to be his best argument.
2. At the end of [Chapter Sixty-nine](#) (‘Some Doctors of the Moorish Law’), Aquinas addresses a difficulty raised by the defenders of occasionalism. (This difficulty will become important later on, especially when we look at Locke.) What is the difficulty, and how does Aquinas propose to solve it?
3. How do God and creatures ‘cooperate’ to produce effects? What does God do, and what do creatures do? Give an analogy.

Aquinas’ *Summa Theologicae, Prima Pars*

We can now turn from Aquinas’s metaphysics to his epistemology and theory of perception.

Aquinas’s *Summa* is organized into Questions, which in turn are made up of Articles, each defined by a particular question. After stating the question, Aquinas gives a series of objections to the view he will go on to defend. Next, he briefly states his own view (these paragraphs always begin ‘sed contra,’ ‘on the contrary’) before explaining it (‘respondeo dicendum,’ ‘I answer that’) and then replying to the objections. One needs to be careful in quoting from Aquinas—obviously what he writes in the Objections, for example, does not reflect his own view. (Some of the objections and replies have been omitted here.)

<!--_The following passages concern the mind’s relation to the things it knows and thinks about, chiefly, material beings. (Articles [One](#question-eighty-four-article-one-whether-the-soul-knows-bodies-through-the-intellect) and [Three](#article-three) constitute an attack on the rationalism of Plato.)_-->

Question Eighty-four, Article One: Whether the Soul Knows Bodies Through the Intellect?

Science is in the intellect. If, therefore, the intellect does not know bodies, it follows that there is no science of bodies; and thus perishes natural science, which treats of mobile bodies.

I answer that, It should be said in order to elucidate this question, that the early philosophers, who inquired into the natures of things, thought there was nothing in the world save bodies. And because they observed that all bodies are mobile, and considered them to be ever in a state of flux, they were of the opinion that we can have no certain knowledge of the true nature of things. For what is in a continual state of flux, cannot be grasped with any degree of certitude, for it passes away ere the mind can form a judgment thereon: according to the saying of Heraclitus, that ‘it is not possible twice to touch a drop of water in a passing torrent,’ as the Philosopher relates (Metaph. IV, Did. III, 5).

After these came Plato, who, wishing to save the certitude of our knowledge of truth through the intellect, maintained that, besides these corporeal things, there is another genus of beings, separate from matter and movement, which beings he called species or ‘ideas’ [or ‘Forms’], by participation of which each one of these singular and sensible things is said to be either a man, or a horse, or the like. Wherefore he said that sciences and definitions, and whatever appertains to the act of the intellect, are not referred to these sensible bodies, but to those immaterial

and separate beings: so that according to this the soul does not understand corporeal things, but only their separate species.

Now this may be shown to be false for two reasons. First, because, since those species are immaterial and immovable, knowledge of movement and matter would be excluded from science (which knowledge is proper to natural science), and likewise all demonstration through moving and material causes. Secondly, because it seems ridiculous, when we seek for knowledge of things which are to us manifest, to introduce other beings, which cannot be the substance of those others, since they differ from them essentially: so that granted that we have a knowledge of those separate substances, we cannot for that reason claim to form a judgment concerning these sensible things.

Now it seems that Plato strayed from the truth because, having observed that all knowledge takes place through some kind of similitude, he thought that the form of the thing known must of necessity be in the knower in the same manner as in the thing known. Then he observed that the form of the thing understood is in the intellect under conditions of universality, immateriality, and immobility: which is apparent from the very operation of the intellect, whose act of understanding has a universal extension, and is subject to a certain amount of necessity: for the mode of action corresponds to the mode of the agent's form. Wherefore he concluded that the things which we understand must have in themselves an existence under the same conditions of immateriality and immobility.

But there is no necessity for this. For even in sensible things it is to be observed that the form is otherwise in one sensible than in another: for instance, whiteness may be of great intensity in one, and of a less intensity in another: in one we find whiteness with sweetness, in another without sweetness. In the same way the sensible form is conditioned differently in the thing which is external to the soul, and in the senses which receive the forms of sensible things without receiving matter, such as the color of gold without receiving gold. So also the intellect, according to its own mode, receives under conditions of immateriality and immobility, the species of material and mobile bodies: for the received is in the receiver according to the mode of the receiver. We must conclude, therefore, that through the intellect the soul knows bodies by a knowledge which is immaterial, universal, and necessary.

1. *Aquinas gives two arguments against Plato. What are they?*

Question Eight-five, Article One: Whether Our Intellect Understands Corporeal and Material Things by Abstraction from Phantasms?

Objection 1: It would seem that our intellect does not understand corporeal and material things by abstraction from the phantasms. For the intellect is false if it understands an object otherwise than as it really is. Now the forms of material things do not exist as abstracted from the particular things represented by the phantasms. Therefore, if we understand material things by abstraction of the species from the phantasm, there will be error in the intellect.

On the contrary, The Philosopher says (De Anima iii, 4) that 'things are intelligible in proportion as they are separate from matter.' Therefore material things must needs be understood according as they are abstracted from matter and from material images, namely, phantasms.

I answer that, ...the object of knowledge is proportionate to the power of knowledge. Now there are three grades of the cognitive powers. For one cognitive power, namely, the sense, is the act of a corporeal organ. And therefore the object of every sensitive power is a form as existing in corporeal matter. And since such matter is the principle

of individuality, therefore every power of the sensitive part can only have knowledge of the individual. There is another grade of cognitive power which is neither the act of a corporeal organ, nor in any way connected with corporeal matter; such is the angelic intellect, the object of whose cognitive power is therefore a form existing apart from matter: for though angels know material things, yet they do not know them save in something immaterial, namely, either in themselves or in God. But the human intellect holds a middle place: for it is not the act of an organ; yet it is a power of the soul which is the form of the body, as is clear from what we have said above [Question Seventy-six, Article One]. And therefore it is proper to it to know a form existing individually in corporeal matter, but not as existing in this individual matter. But to know what is in individual matter, not as existing in such matter, is to abstract the form from individual matter which is represented by the phantasms. Therefore we must say that our intellect understands material things by abstracting from the phantasms...

Reply 1: Abstraction may occur in two ways: First, by way of composition and division; thus we may understand that one thing does not exist in some other, or that it is separate therefrom. Second, by way of simple and absolute consideration; thus we understand one thing without considering the other. Thus for the intellect to abstract one from another things which are not really abstract from one another, does, in the first mode of abstraction, imply falsehood. But, in the second mode of abstraction, for the intellect to abstract things which are not really abstract from one another, does not involve falsehood, as clearly appears in the case of the senses.

For if we understood or said that color is not in a colored body, or that it is separate from it, there would be error in this opinion or assertion. But if we consider color and its properties, without reference to the apple which is colored; or if we express in word what we thus understand, there is no error in such an opinion or assertion, because an apple is not essential to color, and therefore color can be understood independently of the apple. Likewise, the things which belong to the species of a material thing, such as a stone, or a man, or a horse, can be thought of apart from the individualizing principles which do not belong to the notion of the species. This is what we mean by abstracting the universal from the particular, or the intelligible species from the phantasm; that is, by considering the nature of the species apart from its individual qualities represented by the phantasms.

...[T]he intellect is false when it understands a thing otherwise than as it is; and so the intellect would be false if it abstracted the species of a stone from its matter in such a way as to regard the species as not existing in matter, as Plato held.

1. Aquinas distinguishes two things one might mean by 'abstraction.' Which does Aquinas endorse, and why?

Question Eighty-five, Article Two: Whether the Intelligible Species Abstracted from the Phantasm Is Related to Our Intellect As That Which Is Understood?

On the contrary, The intelligible species is to the intellect what the sensible image is to the sense. But the sensible image is not what is perceived, but rather that by which sense perceives. Therefore the intelligible species is not what is actually understood, but that by which the intellect understands.

I answer that, Some have asserted that our intellectual faculties know only the impression made on them; as, for example, that sense is cognizant only of the impression made on its own organ. According to this theory, the intel-

lect understands only its own impression, namely, the intelligible species which it has received, so that this species is what is understood.

This is, however, manifestly false for two reasons. First, because the things we understand are the objects of science; therefore if what we understand is merely the intelligible species in the soul, it would follow that every science would not be concerned with objects outside the soul, but only with the intelligible species within the soul; thus, according to the teaching of the Platonists all science is about ideas, which they held to be actually understood [Question Eighty-four, Article One]. Secondly, it is untrue, because it would lead to the opinion of the ancients who maintained that ‘whatever seems, is true’ [Aristotle, *Metaph.* III. 5], and that consequently contradictories are true simultaneously. For if the faculty knows its own impression only, it can judge of that only. Now a thing seems according to the impression made on the cognitive faculty. Consequently the cognitive faculty will always judge of its own impression as such; and so every judgment will be true: for instance, if taste perceived only its own impression, when anyone with a healthy taste perceives that honey is sweet, he would judge truly; and if anyone with a corrupt taste perceives that honey is bitter, this would be equally true; for each would judge according to the impression on his taste. Thus every opinion would be equally true; in fact, every sort of apprehension.

Therefore it must be said that the intelligible species is related to the intellect as that by which it understands: which is proved thus. There is a twofold action (*Metaph.* IX, Did. VIII, 8), one which remains in the agent; for instance, to see and to understand; and another which passes into an external object; for instance, to heat and to cut; and each of these actions proceeds in virtue of some form. And as the form from which proceeds an act tending to something external is the likeness of the object of the action, as heat in the heater is a likeness of the thing heated; so the form from which proceeds an action remaining in the agent is the likeness of the object. Hence that by which the sight sees is the likeness of the visible thing; and the likeness of the thing understood, that is, the intelligible species, is the form by which the intellect understands.

But since the intellect reflects upon itself, by such reflection it understands both its own act of intelligence, and the species by which it understands. Thus the intelligible species is that which is understood secondarily; but that which is primarily understood is the object, of which the species is the likeness. This also appears from the opinion of the ancient philosophers, who said that ‘like is known by like.’ For they said that the soul knows the earth outside itself, by the earth within itself; and so of the rest. If, therefore, we take the species of the earth instead of the earth, according to Aristotle (*De Anima* iii, 8), who says ‘that a stone is not in the soul, but only the likeness of the stone’; it follows that the soul knows external things by means of its intelligible species.

This is a crucial passage for understanding Aquinas’s views. Consider two positions on the relation between mind and the external world:

Direct realism

In perception and thought, the mind is directly connected to the things it perceives and thinks about, and these are (typically) really existing external objects.

Indirect realism (‘representationalism’)

In perception and thought, the mind is only indirectly connected to the things it perceives and thinks about; what it immediately perceives or thinks about is only a mental entity, which in turn represents the thing in the world.

1. *Which view does Aquinas endorse? Why?*