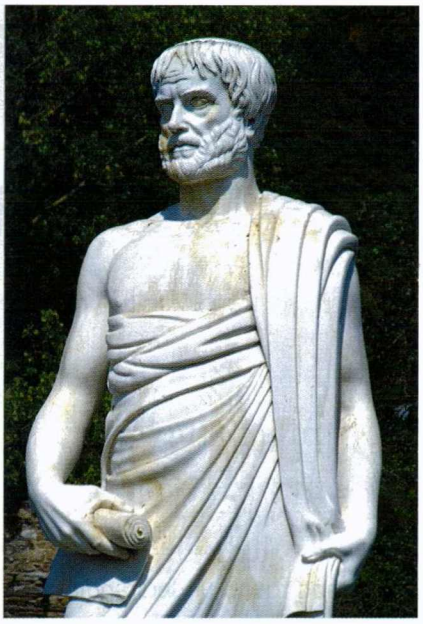
Chapter 3

Aristotle and causation

1 Introduction



Aristotle

Chapter checklist

The chapter begins with an account of Aristotle's life and background, followed by a description of aspects of his scientific method. This looks at both his differences from Plato and his specific use of categorisation *per genus et per differentia*. The chapter describes the theory of the four causes, as outlined in *Physics* II.3, leading to the notion of Final Cause and Prime Mover. It distinguishes Aristotle's concept of Prime Mover from that of Aquinas. It develops detailed criticisms, including whether Aristotle is simply naming causes rather than explaining them, questions about whether the universe is truly purposive and possible limitations of his concept of Prime Mover.

Aristotle's philosophy was notable for its extraordinary breadth and range, covering topics from logic and metaphysics to biology, ethics, psychology, physics, dramatic criticism and politics. It was characterised by careful observation of the world, close attention to definition and categorisation of data. In the later Middle Ages, Dante would describe Aristotle as 'Master of Those Who Know'.

Background

Aristotle was an extraordinary man. The important thing to remember about him is that, unlike Socrates and Plato, he was not an Athenian. He was born in Stagira, a Macedonian city, in 384BC. His father was doctor to Amyntas, King of Macedonia. It is interesting to see how often Aristotle refers to the example of medicine in his own writings. Around 366BC, Aristotle went to study at the Academy, where he remained for almost 20 years, until Plato's death. His brilliance and range of interests were remarkable and recognised by Plato. However, in important ways, his approach was different from his master's, and it is not altogether surprising that on Plato's death, leadership of the Academy would pass not to the foreigner Aristotle, but to Speusippus, who was Plato's nephew.

Aristotle left Athens, studied marine biology, spent time as tutor to Alexander (the future Alexander the Great), son of Philip the Great, King of Macedon, and returned to Athens, where he taught at the Lyceum, creating his own distinctive school of philosophy. The Lyceum already existed as a school, but Aristotle gave it a firm basis, using it as the centre of his own activities in learning. It was destroyed in 86BC by Sulla (a fierce Roman General and Statesman), and, unlike the Academy, was not revived as a centre of learning. Its remains, remarkably well-preserved, were discovered in 1996.

Aristotle was tutor to Alexander the Great

Aristotle suffers a little compared with Plato as his work is not so well preserved. Plato's dialogues have come down to us virtually intact. Most of Aristotle's works, with the exception of the logical writings, known as the *Organon*, would be lost to Western philosophy until the twelfth and thirteenth centuries. After Aristotle's death, his disciples edited his lecture notes into the books we have today. The manuscripts went through various adventures, finding their way to the Middle East, where they would become central to Arabic scholarship. Only the *Organon* (*Categories*, *On Interpretation*, *Prior Analytics*, *Posterior Analytics*, *Topics* and *Sophistical Refutations*) were known about in Western Europe, mainly through commentaries by Boethius and Porphyry. Manuscripts, together with commentaries by Arabic scholars, returned to Western Europe during the Crusades and the reconquest of Spain.

Key person

Plato (c.427–347BC): Pupil of Socrates. Created the Academy c.387BC and developed the ideas of Socrates into his own distinctive philosophy, developed in a series of dialogues still central to philosophical discussion.

2 The philosophical views of Aristotle

Key terms

Empiricist One who believes all knowledge is ultimately based on sense experience.

Per genus et per differentia (Latin – through type and difference): Aristotle's method for defining things.

(a) Plato's rationalism versus Aristotle's empiriasm

In looking at Aristotle we find a very different approach to philosophy from that of Plato. Perhaps Aristotle can be described as the first **Empiricist**. He did not look to another realm for an understanding of our existence. Instead, he explored the world and found understanding through a detailed examination of all we find around us.

His method is known as ***per genus et per differentia***, meaning *by type and by difference*. Suppose I look at a guinea pig. I would first learn by seeing what kind of animal it is. In this case, it is a kind of rodent. This would establish its type or genus. Then, comparing how it differs from other rodents, I would note the differences between the guinea pig and other rodents such as squirrels, marmots and rats. The more closely I examined these differences, the greater my knowledge would become. Not only would I learn more about the guinea pig, but my knowledge of the other rodents would increase through my study. This process of reflective categorisation would, for Aristotle, lead me to a closer understanding of the thing in itself.

Another difference from Plato was that we learn things in different ways. For Plato, there is one kind of awareness which he calls knowledge – knowledge of the Forms. This knowledge is strictly intellectual, the result of pure thought.

Aristotle's view is quite different. We are not 'remembering' things from the Realm of the Forms. Instead, we are taught things such as mathematics and learn, through practice, the skills of a musician or a great athlete. Notice the differences here. Plato thought education was drawing out of the mind knowledge that lay dormant within it. For Aristotle, knowledge is based on careful observations and reflection on

what we have seen. We learn from the outside world, and our knowledge is not innate. This is why some put him firmly in the Empiricist camp. We should notice also that for him, knowledge is gained in more than the single way that Plato thought. We learn to play an instrument through practice. Just because I have theoretical knowledge about music, it does not follow that I know how to play an instrument. Knowing *how* to do something is, for Aristotle, as much knowledge as a theoretical point. I can know the fact of what mathematics is, but I can only learn how to be a mathematician through repeated practice. Some things are learned best by experience; others by practice, book-learning or being taught. The knowledge of an artist is different from that of a mathematician. It is interesting that Aristotle pointed out how infant prodigies all happened in certain disciplines, such as mathematics or music. They never happen in subjects such as politics or history, which require a different type of experience. Even today, when we hear of a nine-year-old achieving an astonishing number of grade As at A Level, the subjects seem invariably to be in the sciences or music, never in the humanities.

A good way of understanding these points is by thinking of what is arguably Aristotle's greatest discovery. He observed an eclipse of the Moon, watching the shadow make its way across the face of the Moon. Beginning with his observation, he reflected on what might cause the effect. He concluded that the shadow was that of the Earth, and that the shape of the shadow could be made only by a spherical object. Hence, he was able to demonstrate that the Earth was a sphere. This kind of knowledge could not be achieved by Platonic means, which would have meant meditating on what the Sun truly was. Instead, Aristotle observed nature, seeing the shadow of the Earth and thinking about it. This empirical method seems particularly useful for discovering the facts of the world.

Key quote

The pleasures arising from thinking and learning will make us think and learn all the more.

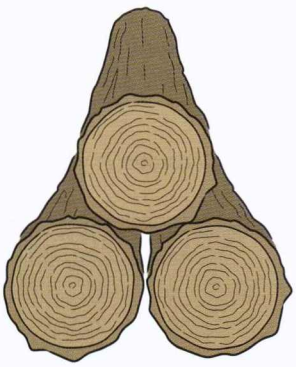
Artistotle, *Nicomachean Ethics*

Key questions

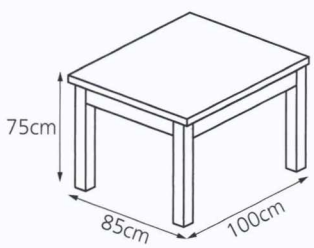
Is Aristotle's empiricism, based on sense experience, a more valuable way of understanding knowledge than Plato's rationalist theories about the Forms?

Why is Aristotle's methodology likely to provide different results from Plato's approach?

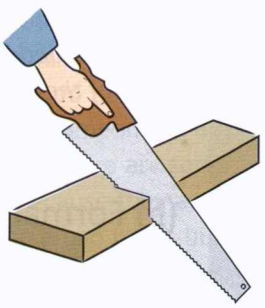
3 The four causes



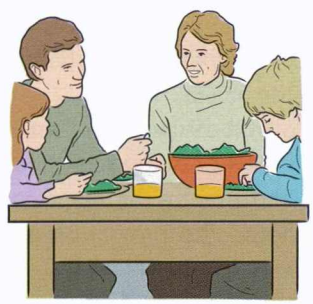
Material cause: the substance of which the thing is made. For example, wood, bricks, nails.



Formal cause: its design that shapes the formal concept. For example, the carpenter/ designer's drawings.



Efficient cause: its maker or builder.



Final cause: its purpose or function. For example, a table, a house, a church.

Aristotle was very interested in the nature of the world. The basis of nature is *substance*, the basic matter of things. Any observation of the world reveals that things exist. Aristotle thinks this is self-evident. He uses it as a basic given fact, which requires no further justification. If we are aware of things, then we are aware that they change. They move, they become

warm or cold, they may decay and die. Sometimes something quite new and different comes from a thing. From the seed comes the plant, from the caterpillar the butterfly, from the two parents a child. The scientific (and philosophical) question is how this change takes place. Change is – as Hume pointed out – a scientific curiosity. This changes to become that. We have no clear idea what exactly happens at the moment of change. The cause is not a cause until the moment the effect happens. 'Cause' has no meaning – in this sense – unless coupled with 'effect'. At the precise point when the effect happens, it is no longer a cause. It *was* a cause, but *is* a cause no longer. The mystery is what happens in that precise moment.

See Chapter 5 for a fuller discussion of Hume's 'cause and effect'.

Hume would attempt to deal with the problem by suggesting that perhaps what we call 'cause and effect' was not much more than our way of explaining things, rather than actually being what happens in the world. Aristotle attempts something different – to demonstrate the nature of things and their causes.

We should notice that Aristotle's notion of cause is wider than what the word means to us. We say that '*x* causes *y*' in the sense that *x* brings about *y*. But Aristotle is trying to probe something slightly different. He wants to know not merely why *x* brings about *y*, but why both *x* and *y*. His enquiry is about not only why things change, but why they are what they are in themselves.

It is important to remember this, because, as we shall see in his theory of the four causes, his use of the word 'cause' is different from ours. Only the **efficient cause** is similar to our usual meaning.

An account of the four causes can be found in *Physics* II 3 and V 2.

(a) Material cause

Here Aristotle begins with the question: what is a thing made from, what material makes it what it is? Examples we might use could be the wood or plastic in a chair, the marble in a statue or the chemicals in a drink. Without the material, a thing could not be. Without the matter something is made from, there would be nothing. According to Aristotle:

> *... that out of which a thing comes to exist and which continues, is called 'cause', for example, the bronze of the statue, the silver of the bowl ...*

Aristotle: *Physics* II, 3

Key terms

Efficient cause What brought it about? This could be a mechanical process or a human, biological, chemical or other process.

Material cause What is it made of? The material – the stuff – of the object.

Formal cause What form does it have? This is something immanent – the shape of the bowl is its form, but it only exists because the material of the bowl is present.

(b) Formal cause

To understand this, it is helpful to think of it as the '*Form - al Cause*', that is the shape of a thing. A silver bowl is a silver bowl because it is in the form of a bowl – it would not be a bowl if it was not shaped that way. The silver would just be a lump of silver.

We need to be careful not to confuse Aristotle's idea of the form of a bowl or statue with the use of the word 'Form' by Plato. Here the idea of a **transcendent** single form, of which an individual thing is a more or less good copy, is rejected and replaced by an **immanent** form: the form is in the thing itself. This is a silver bowl because it is in the form of a bowl and not shaped to be something else. The form is not abstract. If there were no silver material, there would be no bowl, but it is only a bowl because it is shaped in the form of a bowl.

Key terms

Transcendent Beyond our everyday experience of the world.

Immanent Present in the world of our normal experience.

(c) Efficient cause

A statue does not just happen, it takes an *efficient* cause, which in this case would be the sculptor. To put this at its most simple: a statue is what it is because it is in the form of a statue made by something or someone. Something external brings about the effect. This is the closest we come to our normal, modern use of the word 'cause'. It is also worth noting that, for Aristotle, efficient causes are found in nature as well. A rose could be described as having natural processes as its efficient cause.

Key terms

Purposive Assumes that something has a goal and reason for being.

Final cause What is a thing's purpose? Not a cause in the modern sense, but the reason something exists – its goal.

Teleology A term used to describe any theory in which everything is related to its goal or purpose. *Telos* is the Greek word for goal or target.

(d) Final cause

This is perhaps most difficult for us to understand. When we hear the word 'cause' we think of something that begins a process. We say that a cause cannot happen before an effect. Effects *follow* causes.

But Aristotle thought differently. For him, the *purpose* for which something exists is a cause, the *final cause*. The maker of the bowl creates it for a purpose, to be a decoration, to hold plants or fruit. The bowl is made for the sake of its use.

For Aristotle, this is true for everything. We can understand that someone will make things for a reason, because humans have purposes and we do things (generally) for reasons. I listen to music in order to relax. I make a cake to be eaten, a painting to be sold, to hang on a wall. But Aristotle goes much further. He assumes that nature is **purposive**.

Any theory, such as Aristotle's view of reality, which bases its judgements on purpose, is called a *teleological theory*, from the Greek *telos*. The term is used here in relation to Aristotle's theory of nature, but it could equally be applied to his ethics, where the goal is to be a fulfilled person.

Aristotle believed that everything in nature has a purpose and that if we examine the human body we would find a purpose for each of its parts. If I had no feet, my ankles would wear down and I would find it difficult to balance. If I had no eyebrows, sweat would get in my eyes. Given this belief, it is easy to see why he would argue that it is a natural jump to believe that each person also has a purpose. In his *Nicomachean Ethics,* Aristotle uses the concept of final cause to argue that humans have a purpose. For him, a good person is one who fulfils her purpose well. He notes that a good horse is good at being a horse. In the same way, when we describe someone as a good flautist, he is someone who plays the flute well. But there are some people we call 'good' in an unqualified way, not because they are good *at* something (after all, a good flautist might be a bad man), but because we see them as good in themselves. They are good at being people.

Even non-human things, he believes, have purposes. Hence, nature as a whole also has a purpose. Trees, leaves, animals, stones, all exist for a purpose.

Key question

In what ways are Aristotle's ideas of causation different from modern ideas?

4 The Prime Mover

If everything in the universe has a purpose, it would then follow, by analogy with his assumption that if every part of the human person has a purpose, then the person as a whole has a purpose that: the universe has a purpose – a final cause.

Key term

Prime Mover Aristotle's God, indifferent to the universe, contemplating his own perfection, creates motion by drawing all things to himself as ultimate final cause. This concept is particular to Aristotle, for whom the Prime Mover is an attracter, and is not to be confused with Aquinas, for whom the Prime Mover is also a creator. The two versions of the same term therefore mean something different.

For Aristotle, this final cause is God.

Here we need to be careful not to envision the kind of God that the Abrahamic religions have given us. Aristotle's beliefs are quite different.

Aristotle did believe that God was 'perfect' and 'everlasting'. For him, God is 'everlasting' in the sense that God and the world are co-eternal. He did not think that the universe had a beginning. Aristotle's God is a completely transcendent God and not the immanent God the Abrahamic religions believe in. So, for Aristotle, petitionary prayer would be redundant. His God is not listening as he is not interested in the world. For Aristotle, 'perfection' in this context means that the only thing worthy of contemplation by a perfect being is perfect being. Perfect thought requires a perfect object of thought. Therefore this God would only contemplate himself. This means that this God, who is not interested in anything else, will spend eternity contemplating his own wonderful being.

So what, then, is Aristotle's understanding of God's relationship with the world? God's relationship with the Earth is as final cause: as 'purpose' or 'goal'. The key word in understanding Aristotle's view on motion is 'change'. In the *Physics*, he defines motion as more than simply something moving from place to place, as when I say I have moved from London to Paris. It includes any kind of change, such as becoming cool or warm or growing older. This is the idea that motion is more than someone hitting a hockey ball with a stick or competing in a heptathlon. When a girl becomes a woman, she has moved from one state to another. Or a piece of wood in a fire moves from one state to another as it burns.

The goal or final cause of the universe may be compared with a cat being attracted to a saucer of milk. We need to be a little careful here. When we speak of someone 'bringing something about', we think in terms of a conscious action. For Aristotle, God attracts by his nature, not because he is interested in things outside himself. Aristotle's God happens to attract, but there is no consciousness in the attraction, any more than the saucer of milk has any awareness of attracting the cat. It just happens to do so.

For Aristotle, the universe does not have an efficient cause. Being eternal, it has no beginning and, if you like, just is. It is there and needs no further explanation. The effect of the Prime Mover is therefore not as creator, but rather it should be understood as something which creates movement and change by exercising a 'pull' on things. If a cart is pulled with sufficient force, it moves. The Prime Mover exercises this pulling power, because it is so powerful, but it does not do so by any act of thought, but rather because the final cause of things is to seek their own perfection.

This concept is often, and perhaps more helpfully, referred to as the Unmoved Mover. This helps to avoid confusion with Aquinas, who, as we

Key question

In what ways is Aristotle's God different from the idea of God found in religions such as Judaism, Islam or Christianity?

Key person

St Thomas Aquinas (c.1225–74): Dominican friar, perhaps the greatest medieval philosopher, of unparalleled industry. At the forefront of attempts to rethink existing philosophical and theological thought in the light of the Aristotelian revival. Best known for his *Summa Theologica*, *Summa Contra Gentiles* and dozens of other works.

shall see in Chapter 5, uses the term Prime Mover to refer to the one who begins things, who deliberately creates the world from nothing, consciously putting things into motion. It is essential not to confuse the idea of Prime Mover in Aristotle with that in Aquinas.

5 The Prime Mover and Plato's Form of the Good

Although Aristotle was inspired by Plato, and often reflects on that inspiration, as we have seen, he was often to differ from his master. There are few similarities between Plato's Form of the Good and Aristotle's Prime Mover. Neither is directly or personally concerned with the world, and neither created it.

It is not clear – Plato does not tell us – whether the Form of the Good has consciousness of any description. Aristotle's Prime Mover is supremely conscious, but its mental activity is entirely concerned with meditation on its own wonderful nature.

It might be argued that each is assumed to exist in order just to explain why certain things occur in the world. The Form of the Good seems to be a hypothesis to explain what things like goodness 'really' is, to find something permanent in a world of change, while Aristotle derives his Prime Mover to provide his own explanation of change, the problem that had worried Plato (and Heraclitus) in the first place. Plato's Form of the Good seems to provide a *refuge* from the uncertainties of change, while Aristotle's Prime Mover seeks to *explain* them.

But it does not follow that because something seems to fill a gap in a theory, or to explain a theory, that it is necessarily the right solution.

6 Objections to Aristotle's theories

(a) Scientific objections

It would be too easy to use an argument from the modern era against Aristotle's theories. It is certainly true that advances in modern science cast doubts on many aspects of his theory of the four causes.

Aristotle had no access to modern devices such as the microscope or even the magnifying glass. He was attempting astronomy with no telescope, and attempting to analyse the chemistry of things without a laboratory, pure chemicals or heatproof test-tubes in which to heat them. Nevertheless, it is important not to denigrate Aristotle's insights. He recognised, perhaps more fully than anyone of his time, the need not only to be careful in our observations of phenomena, but to find appropriate ways of recording, analysing and sorting the information discovered. This is why we find his account of learning and reflection *per genus et per differentia* so valuable. They were rich in possibilities and provided a groundwork for future debate, on which modern science could build.

(b) Philosophical objections

Philosophical objections to Aristotle's theory are significant, and there are good reasons to doubt the assumptions on which he works. Important objections are:

1 Aristotle's assumptions about efficient cause may be questioned. Aristotle gives the name *efficient cause* to that which brings about a change in things. But it is a mistake often made by people to think that because they have *named* something that they have therefore *explained* it. Something brings about a change, and we call that 'efficient cause', but we know no more than that something brought about the change in the first place, which is where we began. Aristotle's notion of 'efficient cause' does not tell us *what* has happened, only that something *has happened*. The term is used to cover such a wide range of changes, natural, human-made, chemical, physical, biological, those the result of unthinking processes and those determined by thought, that it seems too broad to be informative in any significant way.

2 Questions may be asked about Aristotle's notion of *purpose*. The normal use of the word 'purpose' is to describe a mental intention. People have purposes – that is, they have identified a future state of affairs that they wish to achieve. When I make a cake, I do so having chosen a future state of affairs in which the cake exists to be eaten. Minds have purposes, but do inanimate things? I may have a purpose for the flour, eggs, milk, raisins and icing sugar, but they surely, not being sensate, have no intentions or purposes. Flour has purpose only because we have purposes for which it could be used. In itself, it is just flour, and it is only flour because we chose to grow wheat and turn it into flour. It seems difficult to argue that it has purpose as a natural thing. We are seeing a thing *as having* purpose, but it does not follow that, in itself, it has purpose.

Key term

Fallacy of composition The error of thinking that what is true of the part is true of the whole. Just because all humans have mothers, it does not follow that humankind as a whole has a mother.

3 The **fallacy of composition** is an error in reasoning. It is the assumption that what is true of the part is true of the whole. Even if it were true that every part of the human body had a purpose, it would not follow that the person as a whole has a purpose. Modern anatomy suggests that not all parts of the body do indeed have a purpose. The appendix may have had a purpose in the past, but it does not seem to have a purpose now. Even more obviously, what is the purpose of a nipple in a male of the species?

4 In the case of the universe, it is even more difficult to assume that it has a purpose. It is not evident that even the parts have a purpose. The universe seems filled with rocky lumps and expanses that serve no end, and fragments that whirl about doing no particular good for anything. Evolution on Earth suggests random and not purposive generation, growth and destruction of species. Many scientists have described evolution as 'blind'. It happens, but does not intend, has no purpose, to go anywhere. Philosophically, questions have been asked about whether it could ever be appropriate to see the universe as purposive. Existentialism, as a philosophical movement, has always denied that the universe has any purpose. Only humans have purposes: the universe just exists. The only meaning it has is the meaning I choose to give it. Outside the Existentialist tradition, other philosophers have seen no reason to assume purpose. Famously during his radio debate in 1948, Bertrand Russell said '... I should say the universe is just there, and that's all.' This view suggests that thinkers like Aristotle – and later Aquinas – are finding purpose where it does not exist.

For a profile of Copleston, see Chapter 5.

5 Aristotle uses the idea of the Prime Mover to explain motion and change in the world. But this assumes that there is one, single reason for motion

and change. If we argue that there are many reasons and causes for change, then it is difficult to see how one Prime Mover can be assumed to be the cause of all. If there are many possible causes of change, there seems to be no reason to jump from that to a single explanation.

6 The Big Bang theory and much of modern cosmology would cast serious doubt on a god who brings the world into motion by attracting it to himself. Instead, we are presented with a violent beginning of an ever-expanding universe which some cosmologists would argue has no need for any kind of god.

7 Religiously, it is also possible to criticise the idea of the Prime Mover. Aristotle's god is not the god of the Abrahamic religions. For Jews, Muslims and Christians, God cares supremely about the universe he created and with which he interacts. The way the world is matters. He desires good, and is not indifferent to it or to the world's suffering. Above all, he created the world. The world does not have purpose in itself, as Aristotle assumed, but the believer asserts that God has purpose for the universe, as an action of the divine mind. There would be no point in praying to Aristotle's god, and an indifferent and distant body seems worthy neither of worship nor belief.

7 Conclusions

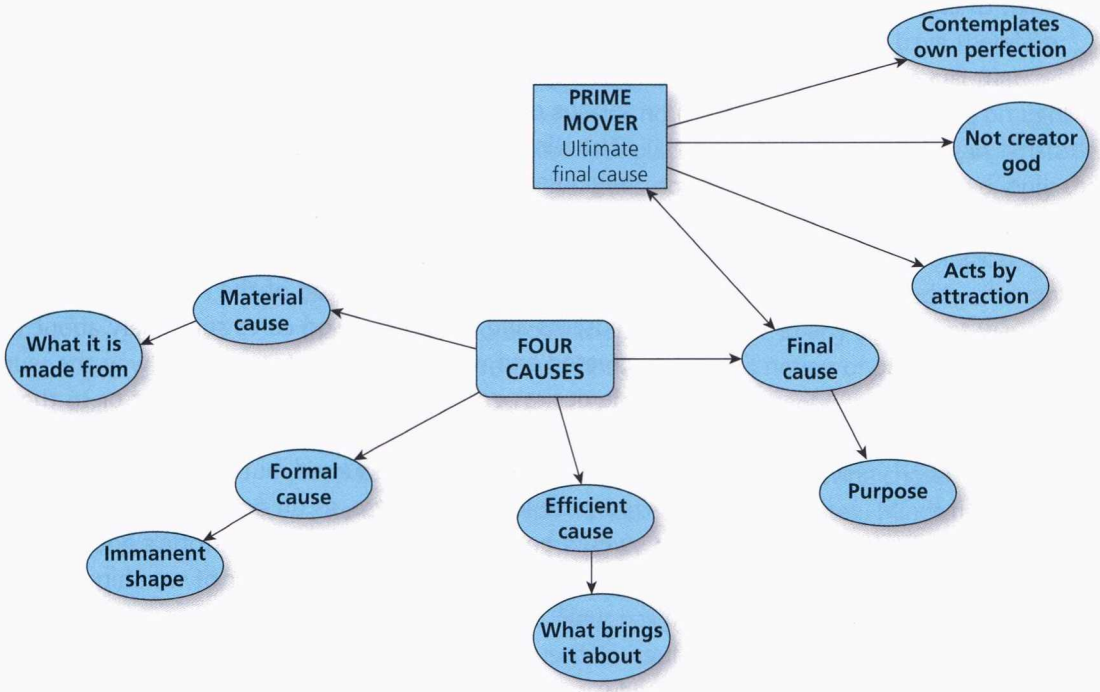
If Aristotle's views, though interesting, are so flawed, why should we pay attention to them? Obviously, his arguments are an interesting example of a brave attempt to make sense of a complex world. It is also interesting to see this founder of scientific method attempting to make sense of hard questions, and few are harder than the nature of cause. But perhaps most significant is the influence of Aristotle's ideas. When we study Aquinas, we find, for example in his teleological argument for the existence of God, that he adopts Aristotle's notion of the purposiveness of the universe. Many later assumptions in ethics, such as in some versions of natural law theory, have assumed that there is a proper purpose for human life, a purpose which can be determined by human reason.

Study advice

When studying Aristotle, it is important to be clear about major points. Reading will help to reinforce these, but here as elsewhere, such reading must be reflective. Do not just learn about the four causes, but really think about them. Develop your own examples for the different kinds of causes. Examiners are more impressed by material that has clearly come from reflection than learned lists. Work through your ideas on whether or not there are better explanations for the nature of the universe than those put forward by Aristotle.

Be careful not to fall into the trap of confusing the Prime Mover of Aristotle with that of Aquinas. Aristotle's god is not a creator or initiator. Remember that for Aristotle the universe was without beginning, while for Aquinas, as a matter of faith, it was made by God. People sometimes try to Christianise Aristotle. To do so is anachronistic and leads the student into misrepresenting the subtleties of his thought.

Summary diagram: Aristotle



Revision advice

There is not too much material to memorise in the current chapter. Even so, it is important to remember that, as in the last chapter, it is necessary to be selective, especially about objections to Aristotle's theories. Quite a few are listed here. For essay purposes, make sure that you can write confidently about three or four of the objections. There is no need to know them all. But what you learn matters because it is used again in relation to Aquinas on the existence of God, and in some versions of ethical theory, especially of natural law. Being clear about Aristotle will prove both illuminating and helpful.

Can you give brief definitions of:

- material cause
- formal cause
- efficient cause
- final cause
- Prime Mover?

Can you explain:

- how Aristotle's theory of formal cause differs from Plato's theory of the Forms
- how the four causes interrelate
- the connection between final cause and the Prime Mover
- how Aristotle's concept of god differs from that of Aquinas?

Can you give arguments for and against:

- Aristotle's methodology
- his theory of efficient cause
- final cause
- the Prime Mover?

Sample question and guidance

'Aristotle's theory of the four causes explains nothing.' Discuss.

A question like this is very common. It is designed to encourage you to think about what Aristotle's theory actually is but also about whether it is helpful in practice. It is important always to remember that the test of a theory is practice, so you would need to think of examples to illustrate how the theory might or might not have explanatory power.

When an essay such as this is set, it does not mean that the question writer necessarily agrees – or disagrees – with the statement to be discussed. Nor do examiners require a particular answer. They want to know *whether* you agree or disagree, but more importantly, your reasoning in arriving at the conclusions you reach. Make sure you do reach a conclusion. This does not have to be a straight yes or no answer, as you might think the theory has some value but is not wholly satisfactory.

In this essay, it is important to make sure you know and can explain the theory. Do not just refer to it, but demonstrate your knowledge so your understanding can be assessed. Give examples to illustrate the theory and your arguments about it.

A danger in this type of essay is to write just about one aspect of the problem, such as Aristotle's assumptions about the universe as purposive and everything having a final cause, and to ignore others. You might usefully consider whether he needs to postulate a Prime Mover, whether his god is convincing, as well as any issues with other claims, such as his treatment of the efficient cause. You may not have time to develop everything in the same depth, but it is good to demonstrate awareness that there are other issues.

Further essay questions

To what extent has modern cosmology made Aristotle's views on the universe redundant?

'Aristotle's Prime Mover is an unconvincing construction to fill a hole in his theory.' Discuss.

'Aristotle's understanding of the world is more convincing than that of Plato.' Discuss.

Going further

For further reading, Jonathan Barnes: *Aristotle: A Very Short Introduction* (Oxford University Press, 2000) may be recommended with confidence. The literature on Aristotle is extensive, but it is useful, here as elsewhere to take a little time to read some of his original works. These do not have the fluency of Plato's dialogues, as they are in note-form, but they are rewarding to consider and digest. Book 1 of *Nicomachean Ethics* is a good place to start, as Aristotle says much about his philosophical and scientific method. The *Physics* may also be read, perhaps by concentrating on Book II. There are various translations online and Aristotle's complete works are available to read on electronic devices, often with helpful notes. Penguin translations are excellent, largely because of excellent and informative notes, though not all titles are currently available. Perhaps the best book in its field is Mariska Leunissen: *Explanation and Teleology in Aristotle's Science of Nature* (Cambridge University Press, 2015), but it is very dense. A very simple and clear – and brief – guide may be found in *Aristotle in Plain and Simple English,* independently published by Bookcaps (2012).