UNIT-13: ARISTOTLE'S CONCEPT OF CAUSATION

UNIT STRUCTURE

13.1 Learning objectives

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13.2 LEARNING OBJECTIVES

After going through this unit you will be able to

- the four types of causes according to Aristotle
- view of the ancient Greek philosophers regarding causes
- association of the concept of causation with the relation between actuality and potentiality
- comparison between Aristotle's causation and modern analysis of causation

13.3 INTRODUCTION

Aristotle was not the first person to engage in a causal investigation of the world around us. From the very beginning, and independently of Aristotle, the investigation of the natural world consisted in the search for the relevant causes of a variety of natural phenomena. The so-called "inquiry into nature" consisted in a search for "the causes of each thing; why each thing comes into existence, why it goes out of existence, why it exists". In this tradition of investigation, the search for causes was a search for answers

to the question "why?". It was not Aristotle's habit to propound his theories as if they were something absolutely new, sprung for the first time out of his own brain. In attacking any problem, his custom was to begin by enumerating current and past opinions, to criticize them, to reject what was valueless in them, to retain the residue of truth, and to add to it his own suggestions and original ideas. The resultant of this process was his own theory, which he thus represented, not as absolutely new, but as a development of the views of his predecessors. All his predecessors were engaged in an investigation that eventuated in knowledge of one or more of the following causes: material, formal, efficient and final cause. Aristotle provides his reader with a general account of the four causes because it is an indispensable tool for a successful investigation of the world around us. The first book of Aristotle- "Metaphysics" is a history of all previous philosophy, from Thales to Plato, undertaken with the object of investigating how far the four causes had been recognized by his predecessors.

13.3 THE FOUR TYPES OF CAUSES

The most important passages where Aristotle discussed his theory of 'causation' are to be found in his "Posterior Analytics", his "Physics", and his "Metaphysics". Aristotle's conception of causation includes both what we have called causes and reasons. Whatever is necessary, whether facts or principles, whether causes or reasons, fully to understand the existence of a thing or the happening of an event is included in the Aristotelian notion of causation?

Aristotle stated that, in reference to any singular entity, the question 'What is this?' could be answered in four different ways, each of which corresponded to what he called a 'cause' in the sense of 'something without which the thing would not be' (aitia). Thus, given a marble statue, the question 'What is this?' could correctly be answered in one of the following ways: 'This is marble', 'This is what was made by Phydias', 'This is something to be put in the temple of Apollo' and 'This is Apollo.' These answers are the answers to four different questions, respectively: 'What is this made of', 'By

whom is this made?', 'What is this made for?' and 'What is it that makes this what it is and not something else?' The answers have come to be known as, again respectively, the material cause, the efficient cause, the final cause and the formal cause. These are not alternative causes; it is not meant that, to explain anything, one or other of the four must be present. In every case of the existence or production of a thing all four causes operates simultaneously. Moreover the same four causes are to be found both in human and in cosmic production, in the making of manufactured articles by man and in the production of things by nature. They are more clearly and easily seen, however, in human production, from which sphere, therefore, we select our example.

The material cause: The material cause points to "that from which, as a constituent, an object comes into being. Aristotle considers the material cause of an object is equivalent to the nature of the raw material out of which the object is composed. For example, in the making of a bronze statue of Hermes, the bronze is the material cause of the statue.

The material cause, Aristotle says, had been recognized from the first. The Ionics believed in this and no other cause. They sought to explain everything by matter, though they differed among themselves as to the nature of the material cause, Thales describing it as water, Anaximenes as air. Later philosophers also gave different accounts of it. Heraclitus thinking it was fire, Empedocles the four elements, Anaxagoras an indefinite number of kinds of matter. But the point is that they all recognized the necessity for a material cause of some sort to explain the universe.

The formal cause: The formal cause points to, "the account of what-it-is-to-be", e.g., the shape of a statue. The formal cause embodies the essential nature (all essential attributes) and represents the model or archetype of the outcome. It is the idea of the statue as present in artist's head. Aristotle considers the formal cause as describing the pattern or form which when present makes matter into a particular type of thing, which we recognize as being of that particular type.

Formal causes had, perhaps, been recognized by the Pythagoreans, for numbers are forms. But they straightway degraded the formal cause to the level of a material cause by declaring that number is the stuff or matter of which things are made. Plato alone clearly saw the necessity of the formal cause, for formal causes are, as we have seen, the same as Plato's Ideas. But Plato's philosophy contains only two of the four causes, namely the material and the formal, for Plato made all things out of matter and the Ideas.

The efficient cause: The efficient cause is "the source of the change or rest"; it is the moving cause. The efficient cause is always defined by Aristotle as the cause of motion. It is the energy or moving force required to bring about change. Aristotle defines the agent or efficient cause of an object as that which causes change and motion to start or stop. In many cases, this is simply the thing that brings something about. For example, in the case of a statue, it is the sculptor who transforms a block of marble into a statue, the efficient cause of a table is a carpenter, or a person working as one, and according to Aristotle the efficient cause of a boy is a father. Only this one of the four causes is like what an ordinary person considers to be a cause.

The ancient philosophers realized that matter itself does not produce its motion. Wood is not the cause of its becoming a bed, nor is brass the cause of its becoming a statue Hence arose the idea of the efficient cause. The Eleatics did not recognize it, for they denied motion, and for them, therefore, no cause of motion could be assumed. But Parmenides, Aristotle thinks, wavered on this point, somehow allowing vaguely the existence of a second cause. Other philosophers clearly assumed an efficient cause, for they thought that one element, for example, fire, is more active, that is, more productive of motion, than others. Empedocles certainly attained to the idea of an efficient cause, for he named as moving forces, harmony and discord, love and hate. Anaxagoras also, used Nous as a moving force.

The final cause: The final cause is that "for the sake of which a

thing is what it is". For a seed, it might be an adult plant. For a sailboat, it might be sailing. For a ball at the top of a ramp, it might be coming to rest at the bottom. Aristotle defines the end, purpose, telos, or final cause as that for the sake of which a thing is done. As for example, health is the end of walking, losing weight, purging, drugs, and surgical tools. The final cause is why efficient causes do what they do and why formal causes do what they do.

Final causes were introduced into philosophy by Anaxagoras, whose doctrine of the world-forming mind was assumed to explain the design and purpose which the universe exhibits. But as his system developed he forgot about this, and used the Nous merely as a piece of mechanism to explain motion, thus letting it sink into nothing more than an efficient cause.

In the result, Aristotle finds that all four causes have been recognized in greater or lesser degrees by his predecessors, and this, in his opinion, greatly reinforces his own doctrine. But whereas material and efficient causes have been clearly understood, his predecessors had only vaguely foreshadowed and dimly perceived the value of formal and final causes.

According to Aristotle, once a final cause is in place, the material, efficient and formal causes follow by necessity. The four causes are not mutually exclusive. For Aristotle, several answers to the question "why" have to be given to explain a phenomenon and especially the actual configuration of an object. For example, if asking why a table is such and such, a complete explanation, taking into account the four aitias, would sound like this: This table is solid and brown because it is made of wood (matter), it does not collapse because it has four legs of equal length (form), it is as such because a carpenter made it from a tree (agent), it has these dimensions because it is to be used by men and women (end).

Aristotle marked two modes of causation: proper (prior) causation and accidental (chance) causation. All causes, proper and incidental, can be spoken as potential or as actual, particular or generic. The same language

refers to the effects of causes; so that generic effects assigned to generic causes, particular effects to particular causes, and operating causes to actual effects. It is also essential that ontological causality does not suggest the temporal relation of before and after - between the cause and the effect; that spontaneity (in nature) and chance (in the sphere of moral actions) are among the causes of effects belonging to the efficient causation, and that no incidental, spontaneous, or chance cause can be prior to a proper, real, or underlying cause per se.

13.4 FORM AND MATTER

The next step in Aristotle's metaphysics is to reduce these four principles to two, which he calls matter and form. This reduction takes place by showing that formal cause, efficient cause, and final cause, all melt into the single conception of form. In the first place, the formal cause and the final cause are the same. For the formal cause is the essence, the concept, the Idea, of the thing. Now the final cause, or the end, is simply the realization of the Idea of the thing in actuality. What the thing aims at is the definite expression of its form. It thus aims at its form. Its end, final cause, is thus the same as its formal cause. Secondly, the efficient cause is the same as the final cause. For the efficient cause is the cause of becoming. The final cause is the end of the becoming, it is what it becomes. And, in Aristotle's opinion, what causes the becoming is just that it aims at the end. The striving of all things is towards the end, and exists because of the end. The end is thus itself the cause of becoming or motion. That is to say, the final cause is the real efficient cause. We may see this well by an example. The end or final cause of the acorn is the oak. And it is the oak which is the cause of the acorn's growth, which consists essentially in a movement by which the acorn is drawn towards its end, the oak. We may see this even more definitely in the case of human productions, because here the striving towards an end is conscious, whereas in nature it is unconscious or instinctive. The efficient cause of the statue is the sculptor. It is he that moves the brass. But what moves the sculptor, and causes him to act upon the brass, is the idea of the

completed statue in his mind. The idea of the end, the final cause, is thus the real ultimate cause of the movement. Only, in the case of human production, the idea of the end is actually present in the sculptor's mind as a motive. In nature there is no mind in which the end is conscious of itself, but nevertheless nature moves towards the end, and the end is the cause of the movement. Thus the three causes named all melt into a single notion, which Aristotle calls the form of the thing. And this leaves only the material cause unreduced to any other. So we are left with the single antithesis of matter and form. Now as matter and form are the fundamental categories of Aristotle's philosophy, by means of which he seeks to explain the entire universe, it is essential that we should thoroughly understand their characteristics. First of all, matter and form are inseparable. We think of them as separate in order to understand them clearly. And this is quite right, because they are opposite principles, and therefore they are separable in thought. But they are never separable in fact. There is no such thing as form without matter, or matter without form. Every existent thing, that is, every individual object, is a compound of matter and form. We may compare them in this respect to the material and the shape of a thing, though we must be careful not to think that form is merely shape. Geometry considers shapes as if they existed by themselves. But, in fact, we know that there are no such things as squares, circles, and triangles. There are only square objects, circular objects, etc. And as there are no shapes without objects, so there are no objects without shapes. We talk of things being shapeless, but this only means that their shape is irregular or unusual. An object must have some shape. Yet, though shape and matter are inseparable in fact, they are opposite principles, and are separable in thought. Geometry is quite right to treat shapes as if they existed by themselves, but it is nevertheless dealing with mere abstractions. Just in the same way, matter and form are never apart, and to think of form by itself or matter by itself is a mere abstraction. No such thing exists. In fact, to imagine that forms can exist by themselves was just the mistake of which, as we have seen, Aristotle accuses Plato. For Plato, form is the Idea, and Plato imagined that Ideas exist in a world of their own. From this, too, we can see that the form is the

universal, the matter the particular. Form is the Idea, and the Idea is the universal. To say that form and matter cannot exist apart is thus the same as saying that the universal only exists in the particular, which, as we have seen, is the fundamental note of Aristotle's philosophy. But if we thus identify matter with the particular element in things, we must be careful that we do not confuse the particular with the individual. We often use these two words as practically synonymous, and there is no harm in this, but here we must be careful to separate them. For every individual is, according to Aristotle, a compound of matter and form, of the particular and the universal. And when we say that matter is the particular, we mean, not that it is such a compound, but that it is the absolutely particular which has no universal in it. But the absolutely particular and isolated does not exist. So that the particular, as such, has no existence, but this is only the same as saying, what we have already said, that matter has no existence apart from form. A very natural mistake would be to suppose that by matter Aristotle meant the same as we do, namely, physical substance, such as wood or iron, and that by form he meant simply shape. Now although there is a kinship in the ideas, these two pairs of ideas are far from identical. Let us begin with matter. Our ordinary idea of matter as physical substance is an absolute conception. That is to say, a thing which we call material is absolutely, once and for all, matter. It is not material from one point of view, and immaterial from another. In every possible relation it is, and remains, matter, nor does it in process of time cease to be matter. Brass never becomes anything but matter. No doubt there are in nature changes of one sort of matter into another, for example, radium into helium. And for all we know, brass may become lead. But even so, it does not cease to be matter. But Aristotle's conception of matter is a relative conception. Matter and form are fluid. They flow into one another. The same thing, from one point of view, is matter, from another, form. In all change, matter is that which becomes, that upon which the change is wrought. That is form towards which the change operates. What becomes is matter. What it becomes is form. Thus wood is matter if considered in relation to the bed. For it is what the bed becomes. But wood is form if considered in relation to the growing plant. For it is what the plant becomes.

The oak is the form of the acorn, but it is the matter of the oak furniture. That matter and form are relative terms shows, too, that the form cannot be merely the shape. For what is form in one aspect is matter in another. But shape is never anything but shape. No doubt the shape is part of the form, for the form in fact includes all the qualities of the thing. But the shape is quite an unimportant part of the form. For form includes organization, the relation of part to part, and the subordination of all parts to the whole. The form is the sum of the internal and external relations, the ideal framework, so to speak, into which the thing is molded. Form also includes function. For it includes the final cause. Now the function of a thing is just what the thing is for. And what it is for is the same as its end, or final cause. Therefore function is included in form. For example, the function of a hand, its power of gripping, is part of its form. And therefore, if it loses its function by being cut off from the arm, it likewise loses its form. Even the dead hand, of course, has some form, for every individual object is a compound of matter and form. But it has lost the highest part of its form, and relatively to the living hand it is mere matter, although, relatively to the flesh and bones of which it is composed, it is still form. Clearly, then, form is not merely shape. For the hand cut off does not lose its shape. The form includes all the qualities of the thing. The matter is what has the qualities. For the qualities are all universals. A piece of gold is yellow, and this means simply that it has this in common with other pieces of gold, and other yellow objects. To say that anything has a quality is immediately to place it in a class. And what the class has in common is a universal. A thing without qualities cannot exist, nor qualities without a thing. And this is the same as saying that form and matter cannot exist separately.

13.5 POTENTIALITY AND ACTUALITY

Matter is the substratum which tries to underlie everything. It has, in itself, no character. It is absolutely featureless, indefinite, without any quality. Whatever gives a thing definiteness, character, and quality, whatever makes it a 'this' or 'that', is its form. Consequently, there are no differences within matter. One thing can only differ from another by having different qualities.

And as matter has no qualities, it has no difference. And this in itself shows that the Aristotelian notion of matter is not the same as our notion of physical substance. For, according to our modern usage, one kind of matter differs from another, as brass from iron. But this is a difference of quality, and for Aristotle all quality is part of the form. So in his view the difference of brass from iron is not a difference of matter, but a difference of form. Consequently, matter may become anything, according to the form impressed upon it. It is thus the possibility of everything, though it is actually nothing. It only becomes something by the acquisition of form. And this leads directly to a most important Aristotelian antithesis, that between potentiality and actuality. Potentiality is the same as matter, actuality as form. For matter is potentially everything. It may become everything. It is not actually anything. It is a mere potentiality, or capacity of becoming something. But whatever gives it definiteness as a 'this' or 'that', whatever makes it an actual thing, is its form. Thus the actuality of a thing is simply its form. Aristotle claims that by means of the antithesis of potentiality and actuality, to have solved the ancient problem of becoming, a riddle, propounded by the Eleatics, which had never ceased to trouble Greek thinkers. How is becoming possible? For being to pass into being is not becoming, for it involves no change, and for not-being to pass into being is impossible, since something cannot come out of nothing. For Aristotle, the sharp line drawn between not-being and being does not exist. For these absolute terms he substitutes the relative terms potentiality and actuality, which shade off into each other. Potentiality in his philosophy takes the place of not-being in previous systems. It solves the riddle because it is not an absolute not-being. It is not-being inasmuch as it is actually nothing, but it is being because it is potential being. Becoming, therefore, does not involve the impossible leap from nothing to something. It involves the transition from potential to actual being. All change, all motion, is thus the passage of potentiality into actuality, of matter into form. Since matter is in itself nothing, a bare unrealized capacity, while form is actuality, the completed and perfected being, it follows that form is something higher than matter. But 'matter' is what becomes 'form'. In order of time, therefore, matter is earlier, form later. But in order of thought, and in reality, it is

otherwise. For when we say that matter is the potentiality of what it is to become, this implies that what it is to become is already present in it ideally and potentially, though not actually. The end, therefore, is already present in the beginning. The oak is in the acorn, ideally, otherwise the oak could never come out of it. Since all becoming is towards the 'end' and would not take place except for the 'end', the 'end' is the operative principle and true cause of becoming. Motion is produced not by a mechanical propulsive force, pushing from behind, so to speak, but by an ideal attractive force, drawing the thing towards its end, as a piece of iron is drawn to the magnet. It is the end itself which exerts this force. And, therefore, the end must be present at the beginning, for if it were not present it could exert no force. It is not only present in the beginning, it is anterior to it. The 'end' is the cause of the motion, and the cause is logically prior to its consequence. The 'end', or the principle of form, is thus the absolute first in thought and reality, though it may be the last in time. If, we ask what, for Aristotle, then is that ultimate reality, that first principle, from which the entire universe flows, the answer is, the end, the principle of form. And as form is the universal, the Idea, we see that his fundamental thesis is the same as Plato's. It is the one thesis of all idealism, namely, that thought, the universal, reason, is the absolute being, the foundation of the world. Where he differs from Plato is in denying that form has any existence apart from the matter in which it exhibits itself.

13.6 COMPARISON BETWEEN ARISTOTLE'S CONCEPTION OF CAUSATION AND MODERN ANALYSIS OF CAUSATION:

If we take Mill's definition of a cause as the best expression of modern scientific ideas, we find that he defines a cause as the "invariable and unconditional antecedent of a phenomenon." This cuts out final causes at once. For the final cause is the end, and is not an antecedent in time. It also does not include formal causes. We do not now think of the concept of a thing as being part of its cause. This leaves us with only material and efficient

causes, and these correspond roughly to the modern notions of matter and energy. Even the efficient causes of Aristotle, however, appear on further consideration, to be excluded from the modern idea of causation. For, though the efficient cause is the energy which produces motion, modern science regards it as purely mechanical energy, whereas Aristotle thinks of it, as we shall see, as an ideal force, operating not from the beginning but from the end. But it must not be supposed that, in saying that the modern idea of causation excludes formal and final causes, we mean that Aristotle is wrong in adding them, or that the modern idea is better than Aristotle's. It is not a question of better and worse at all. Modern science does not in any way deny the reality of formal and final causes. It merely considers them to be outside its sphere. It is no business of science whether they exist or not. As knowledge advances, differentiation and division of labour occur. Science takes as its province mechanical causes, and leaves formal and final causes to the philosopher to explicate. Thus, for example, formal causes are not considered by science because they are not, in the modern sense causes at all. They are what we have called reasons. If we are to explain the existence of an object in the universe it may be necessary to introduce formal causes, concepts, to show why the thing exists, to show in fact its reasons. But science makes no attempt to explain the existence of objects. It takes their existence for granted, and seeks to trace their history and their relations to each other. Therefore it does not require formal causes. It seeks to work out the mechanical view of the universe, and therefore considers only mechanical causes. But Aristotle's theory, as being philosophy rather than science, includes both the principles of mechanism and teleology.



CHECK YOUR PROGRESS

Q 1: What is the material cause of the universe according to Heraclitus?

Ans: .....

Q2: Who regarded formal cause as 'Ideas'?

Ans: .....

Q3: Why the Eleatics did not recognize efficient cause?

Ans: .....

Q4: Can form exist apart from matter?

Ans: .....

Q5: **Fill in the blanks.**

(a) The material cause of the universe according to Thales is _____.

(b) Plato's philosophy contains only two of the four causes, namely the material and the _____

(c) Mill defines cause as the _____ and unconditional antecedent of a phenomenon.

(d) The material cause of the universe according to Anaximenes is _____.

Q 6: **Write true or false.**

(a) Matter is compared to potentiality by Aristotle.

(b) According to Aristotle the efficient cause of a boy is a father.

(c) The bronze is the final cause of the statue.

(d) In order of time, matter is earlier and form is later.

Q7: How many causes are there according to Aristotle? What are they?

Ans: .....

Q8: Name three books of Aristotle.

Ans: .....

Q9: What is final cause?

Ans: .....

Q10: What is formal cause?

Ans: .....



13.7 LET US SUM UP

- Aristotle's theory of causation is not absolutely new, but it is a development of the views of his predecessors.
- There are four types of causes according to Aristotle. They are- material, formal, efficient and final cause.
- The material cause of an object is equivalent to the nature of the raw material out of which the object is composed. For example, in the making of a bronze statue the bronze is the material cause of the statue. The formal cause is the pattern or structure of the object. For example, the shape of the statue. The efficient use is the active agent which produces the thing. For example, the sculptor who makes the statue. The final cause is that for the sake of which a thing is made. For example, health is the final cause of exercise.
- A thing without qualities cannot exist, nor qualities without a thing. So as form and matter cannot exist separately. We think of them as separate in order to understand them clearly. There is no such thing as form without matter, or matter without form. Every existent thing, that is, every individual object, is a compound of matter and form.
- Potentiality is the same as matter, actuality as form. For matter is potentially everything. It may become everything. It is not actually anything. It is a mere potentiality, or capacity of becoming something. Thus the actuality of a thing is simply its form. In order of time, matter is earlier and form is later. But in order of thought, form is earlier and matter is later.



13.8 FURTHER READING

1. Stace, W.T. (2005), A Critical history of Greek Philosophy, New Delhi: Macmillan India LTD.

2. Falcon, Andrea. Aristotle on causality, Stanford Encyclopedia of philosophy 2008

13.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q 1: Ans to Q 1. Fire

Ans to Q 2. Plato

Ans to Q 3. The Eleatics did not recognize efficient cause because they denied motion.

Ans to Q 4. No

Ans to Q 5. (a) Water, (b)Formal, (c) Invariable, (d) Air

Ans. to Q6. (a) True, (b)True, (c)False, (d)True

Ans. to Q7. There are four types of causes according to Aristotle. They are- material, formal, efficient and final cause.

Ans to Q 8. The name of three books of Aristotle are- Posterior Analytics, Physics, and Metaphysics.

Ans to Q 9. Aristotle defines the final cause as that for the sake of which a thing is done. For example-For a sailboat, it might be sailing. For a ball at the top of a ramp, it might be coming to rest at the bottom.

Ans to Q 10. Aristotle considers the formal cause as describing the pattern or form which when present makes matter into a particular type of thing. As for example, the shape of a statue.

10.11. MODEL QUESTIONS

A. Very short Questions

Q1: Who is the author of the book, "Metaphysics"?

Q2: What is the literal meaning of the term 'aitia'?

Q3: What is the final cause?

Q4: 'Matter and form are fluid'- Whether this statement is true or false?

Q5: Which tries to underline everything?

B. Short Questions (Write in about 100-150 words)

Q1: What is material cause? Explain briefly

Q2: Write a short note on formal cause.

Q3: Briefly explain the efficient cause.

Q4: Discuss briefly the formal cause.

Q5: What are the two modes of causes presented by Aristotle?

C. Long Questions (Write in about 150 words)

Q1: Explain the relationship between form and matter.

Q2: Explain the four causes of Aristotle.

Q3: Why matter is regarded as potentiality by Aristotle?

Q4: Why form is regarded as actuality by Aristotle?

Q5: Explain the difference between Aristotle's conception of causation and modern analysis of causation

Q6: Write a short note on modern analysis of causation.

Q7: Why Mill rejected 'final cause' as a cause?

Q8: "In order of time, matter is earlier and form is later." Explain.

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