

1: Lecture on 4 causes

Thomas Aquinas, "The Argument from Efficient Cause" Abstract: Thomas' First Cause Argument for the existence of God is outlined and briefly clarified. Some standard objections to that argument are listed.

From here, you can skip directly to the list of linked sites. Alternatively, you can go to the bibliographic note first. On the Existence of the First Cause This is the easy part. A world void of dynamic punch is a world in which nothing happens. Since things do happen, there is dynamic punch in the world. But why is this so, or how does this work? Nothing can cause itself to happen or activate itself to work, for nothing can be prior to itself. At least, this is so except insofar as something is already activated or energized in some way. Only someone who is already partly awake, and not too sick or exhausted, can force himself to come fully awake. Again, nothing can be prior to itself, and so what nothing can do is to "fire itself up" from point zero. Nor can anything really give to itself any powers or capabilities that it does not already have in some way. Even so, things happen even apart from the exercise of pure spontaneity. Yet a thing that is more or less inert can still convey dynamic punch by way of reacting to what happens to itself. For example, a domino can knock over another domino in reacting to having itself been knocked. But any series of reactions, however long, is purely derivative and refers back to some exercise of genuine spontaneity to initiate the series. To say there was never any such exercise is to deny the basis for what is happening here and now. As Thomas said, it is like saying there is only the series of instrumental causes, with no principal agent. For that is what it means to say something works only because it is itself reacting. Of course, there could be various exercises of partial spontaneity on the part of lesser agents who are themselves reacting. For example, living beings may be said to be this way. Again, given that there is free choice of the will, a human agent who engaged in such choice would be doing exactly this. But since these agents are themselves reacting, the same problem exists concerning the causal impacts upon those agents to which they are reacting. Therefore, one must finally come to an agent whose action is absolutely primary and who thus acts with full spontaneity, free from any conditions or prompting. This agent, then, is the uncaused cause, which turns out to be God. In that case, the world of lesser things as a whole taken as a total system might be sufficient unto itself. Perhaps the need for a transcendent deity can be eliminated on that basis. The ability to act purely spontaneously, in the sense of exercising primary initiative, cannot be built up from the ability to react. To be sure, there are cases in which a whole may be truly said to have attributes that its parts lack, but this is not one of those cases. For here, the total system is a system of reactions and interactions, not something on a higher level. The basic weakness remains in what the system as a whole is and how it works. Alternatively, if the world as a whole were to be on the higher level required, then it would itself have to have the character and status of the First Cause. But this proposal is clearly false, as will be explored further later on. On the Most Popular Objection to this Argument People imagine that, by making the chain of causes reach back to infinity, they can somehow evade the force of this argument. But Saint Thomas was fully aware of this consideration and found it to be beside the point. For Aquinas argued, specifically and explicitly, that the world could in principle have existed forever. In fact, the world began to exist, but that need not have been so. If the world had existed forever, it would still be wholly dependent on God to exist. It would still not have existed of itself. The world would still be created as being made to exist by God. The priority of God over the world of lesser things is a priority of status, of what is original over what is derivative. Indeed, since God is not subject to time, and so is not "in" time, one might well say there is no temporal priority of God to the world. God is the First Cause as being the primary source of all, apart from any question of standing at the beginning of the series. One must think in terms of dynamic punch" or "active energy" , reactivity, and spontaneity, instead of thinking about what follows what in time. Of course, if it should turn out that the world did begin instead of going back forever, then the point would be all the easier to see. But that would be only an "added extra. The answer is to look at a case where they come apart. Once this has been done, the difference between causal dependency and temporal succession can be explored more fully. In principle, this could be done by discussing the issues and questions of simultaneous, or perhaps even retroactive, causation. However, there is a very plain example ready to hand,

derived from Saint Thomas. The processes of generation and reproduction among human animals on Earth occur and are repeated through the centuries. There is an obvious way in which the later members of the series are derived from the earlier members. In principle, the series could go back forever. Whether there could be a "completed infinity" is a serious question in itself, but it is beside the point here. However, what has to be observed is that the "motive power" for all this comes from the Sun in the sky and not through the series from earlier members to later members. Therefore, there is no need for an original act at the beginning of the series to make the whole thing go. But this is so only because the basis to go is constantly supplied from outside the whole series. In general, what can reach back forever is the series of events considered in terms of temporal priority. What cannot reach back forever is the chain of causes considered as supplying the dependency. Things happen in virtue of the agency that supplies the dependency, even though things happen by means of serial causation. Could there be an infinite regress within the chain of causes? No, of course not. For that kind of regress really would eliminate the original basis that supplies the need or provides for the dependency. Thus, in the example given, the work of supplying motive power works just the same whether A is the father of B, or B is the father of A. On the other hand, the relation of the beings on Earth to the Sun is not reversible in the same way. Now, people see that one domino is knocked over by another, which was itself knocked over by another, and so on back. Then, having seen this, they imagine that the series could go back forever. Yes, indeed so, as a series of events, but not as a chain of causes. The domino that does the knocking is merely instrumental relative to the hand that pushed. From the standpoint of the domino that gets knocked, all the others are intermediate between itself and the hand. Being knocked resulted from the original act, and everything else happens in virtue of that act. If the act were removed, nothing would happen, or else things would happen in virtue of nothing. But given that the real world works by dynamic punch, the right answer is that nothing would happen. Alternatively or perhaps in addition, they confuse the series of events with the chain of causes. Based on these confusions, they imagine that the chain of causes could go back forever. But this is a serious error that will not stand once the confusions are resolved. After all, even with the living beings and the Sun, there is an obvious way in which the later are derived from the earlier. Why not here also? As Aquinas said, a man begets simply as a man and not as the son of another man. But a domino knocks another, not simply as a domino, but as having been knocked by another domino. The domino that knocks another is itself reacting to being knocked. But the man who begets is not reacting to the earlier series in the same way. At the present day, there is an exotic application of these points about infinite series versus infinite regress. Stephen Hawking has proposed a tricky gimmick for the structure of time, so that there would be no need for any beginning. Time does not reach back forever, but there is also no point zero. The idea is, with no beginning, there would then be no need for any First Cause. Now, perhaps time has that structure, or maybe not. But even if it did, that would not help. There would still be causal dependency in the world, and so there would still be the need for some primary basis to support the dependency. This basis would simply have to be outside the whole series, as Aquinas said. Of course, the idea might be that the process of the world would loop back on itself, swallow its own tail so to speak, and thus be self sustaining. The problem is, this would be an exotic version of having the effect cause the cause. But that is clearly impossible. Once again, there is the series of events, and there is the chain of causes. The series of events might perhaps loop back on itself as has been proposed, but the chain of causes could not. For then there would be the structure of what is derivative or dependent, but with no primary basis to support it. From here, you can still skip to the bibliographic note or the list of linked sites. For, even at best, what has really been proved? For it does not follow either that there is just one such cause, or that this being has the other attributes ordinarily ascribed to God. Everything else can be gotten out of this one basic fact.

2: Parinama Vada or the Law of Causation in Hinduism

There cannot be an efficient cause unless it is an efficient cause of something. It is this towardness that makes the efficient cause intelligible as an efficient cause at all. Finality and efficacy come as a package deal, just like matter and form.

The Four Causes What are there four of? This is misleading in several ways: Typically, it is substances that have causes. And that sounds odd. We will begin with the question, What is it that Aristotle says there are four of? The Greek word is aition plural aitia ; sometimes it takes a feminine form, aitia plural aitiai. And what is an aition? So an aition is best thought of as an explanation than as a cause. That is, an aition is something that plays a role as an explanatory factor in the explanation of something. Quotations from Physics II. But what the account misses is the idea that there is something ambiguous about the notion of aition. The ambiguity of aition Aristotle warns us of the ambiguity at a5: There is no English translation of aition that is ambiguous in the way Aristotle claims aition is. The table is made of wood. Having four legs and a flat top makes this count as a table. A carpenter makes a table. Having a surface suitable for eating or writing makes this work as a table. Aristotelian versions of 1 - 4: Wood is an aition of a table. Having four legs and a flat top is an aition of a table. A carpenter is an aition of a table. Having a surface suitable for eating or writing is an aition of a table. These sentences can be disambiguated by specifying the relevant sense of aition in each case: Wood is what the table is made out of. Having four legs and a flat top is what it is to be a table. A carpenter is what produces a table. Eating on and writing on is what a table is for. Dynamic Causes Matter and form are two of the four causes, or explanatory factors. But they do not tell us how it came to be that way. Change consists in matter taking on or losing form. Efficient and final causes are used to explain why change occurs. This is easiest to see in the case of an artifact, like a statue or a table. The table has come into existence because the carpenter put the form of the table which he had in his mind into the wood of which the table is composed. The carpenter has done this for the purpose of creating something he can write on or eat on. Or, more likely, that he can sell to someone who wants it for that purpose. This is a teleological explanation of there being a table. This seems like a plausible doctrine about artifacts: Causes of natural objects But what about natural objects? Aristotle notoriously held that the four causes could be found in nature, as well. That is, that there is a final cause of a tree, just as there is a final cause of a table. Here he is commonly thought to have made a huge mistake. How can there be final causes in nature, when final causes are purposes, what a thing is for? In the case of an artifact, the final cause is the end or goal that the artisan had in mind in making the thing. But what is the final cause of a dog, or a horse, or an oak tree? What they are used for? To suppose so would be to suppose Aristotle guilty of reading human purposes and plans into nature. But this is not what he has in mind. Perhaps he thinks of nature as being like art, except that the artisan is God? In both a and b , the final cause is external to the object. Both the artisan and God are external to their artifacts; they impose form on matter from the outside. But the final causes of natural objects are internal to those objects. The final cause need not be a purpose that someone has in mind. The telos of a developing tiger is to be a tiger. Aristotle opposes final causes in nature to chance or randomness. The final cause of a developing plant or animal is the form it will ultimately achieve, the form into which it grows and develops. Physics a25, a31, De Anima b10, Generation of Animals a4ff. The telos of a developing tiger is just to be a tiger i. Thus, the final cause telos and formal cause essence amount to the same thing. Hence, one and the same thing serves as formal, final, and efficient cause. But the identification of formal with final causes is not vacuous. So form and telos coincide. What about the efficient cause? This can be more easily grasped if we realize that for Aristotle questions about causes in nature are raised about universals. Hence, the answers to these questions will also be given in terms of universals. The questions that ask for formal, final, and efficient causes, respectively, are: What kind of thing do these flesh-and-bones constitute? What has this seed, embryo, cub all along been developing into? What produces a tiger? The answer to all three questions is the same: The basic idea as in all change is that matter takes on form. The form is contributed by the male parent which actually does have the form , the matter by the female parent. This matter has the potentiality to be informed by precisely that form. Rather, it must exist

beforehand, and get imposed on appropriate matter. In the case of the production of artifacts, the pre-existing form may exist merely potentially. Nothing has to have the form in actuality. But in the case of natural generation, the pre-existing form must exist in actuality: So the final cause of a natural substance is its form. But what is the form of such a substance like? Is form merely shape, as the word suggests? It has to do with function. We can approach this point by beginning with the case of bodily organs. For example, the final cause of an eye is its function, namely, sight. That is what an eye is for. And this function, according to Aristotle, is part of the formal cause of the thing, as well. Its function tells us what it is. What it is to be an eye is to be an organ of sight. And the function will be one which serves the purpose of preserving the organism or enabling it to survive and flourish in its environment. Since typical, non-defective, specimens of a biological species do survive and flourish, Aristotle takes it that the function of a kind of animal is to do what animals of that kind typically do, and as a result of doing which they survive, flourish, and reproduce. That is, plants and animals develop and reproduce in regular ways, the processes involved even where not consciously aimed at or deliberated about are all toward certain ends. There is much that can be said in opposition to such a view. But at least it is not ridiculous, as is sometimes supposed. In so far as functional explanation still figures in biology, there is a residue of Aristotelian teleology in biology. And it has yet to be shown that biology can get along without teleological notions. The notions of function, and what something is for, are still employed in describing at least some of nature.

3: Leibniz, Gottfried: Causation | Internet Encyclopedia of Philosophy

Ultimately, Leibniz offers a theory of intrasubstantial causation that incorporates both efficient, final causes, and formal causes, where only substances—or better yet, their powers—can be efficient causes and perceptions have a teleological as well as a formal function.

Argument from Motion Our senses prove that some things are in motion. Things move when potential motion becomes actual motion. Only an actual motion can convert a potential motion into an actual motion. Nothing can be at once in both actuality and potentiality in the same respect. Therefore nothing can move itself. Therefore each thing in motion is moved by something else. The sequence of motion cannot extend ad infinitum. Therefore it is necessary to arrive at a first mover, put in motion by no other; and this everyone understands to be God.

Argument from Efficient Causes We perceive a series of efficient causes of things in the world. Nothing exists prior to itself. Therefore nothing [in the world of things we perceive] is the efficient cause of itself. If a previous efficient cause does not exist, neither does the thing that results the effect. Therefore if the first thing in a series does not exist, nothing in the series exists. If the series of efficient causes extends ad infinitum into the past, for then there would be no things existing now. That is plainly false. Therefore efficient causes do not extend ad infinitum into the past. Therefore it is necessary to admit a first efficient cause, to which everyone gives the name of God.

Argument from Possibility and Necessity Reductio argument We find in nature things that are possible to be and not to be, that come into being and go out of being. Assume that every being is a contingent being. For each contingent being, there is a time it does not exist. Therefore it is impossible for these always to exist. Therefore there could have been a time when no things existed. Therefore at that time there would have been nothing to bring the currently existing contingent beings into existence. Therefore, nothing would be in existence now. We have reached an absurd result from assuming that every being is a contingent being. Therefore not every being is a contingent being. Therefore some being exists of its own necessity, and does not receive its existence from another being, but rather causes them. This all men speak of as God.

Argument from Gradation of Being There is a gradation to be found in things: The maximum in any genus is the cause of all in that genus. Therefore there must also be something which is to all beings the cause of their being, goodness, and every other perfection; and this we call God.

Argument from Design We see that natural bodies work toward some goal, and do not do so by chance. Most natural things lack knowledge. But as an arrow reaches its target because it is directed by an archer, what lacks intelligence achieves goals by being directed by something intelligence. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.

4: Cosmological argument - Wikipedia

If what you say is true concerning efficient causation, than our senses alone cannot identify God in the causation of the world. If our spirit is not a sense, than, as you say God is not a mystery, than His spirit is not a mystery and our spirit is compatible with his.

What an Efficient Cause Is I. That is, he does not mean to analyze causality in non-causal terms. Thus, he is not trying to replace causality with some philosophically more tame or less metaphysical concept like constant conjunction, regularity, counterfactual dependence, change in probability, etc. In giving his analysis, Suarez presupposes that what we ordinarily take to be instances of causality in nature are just that. He argues for this presupposition in section 1 of *Metaphysical Disputation 18*, but for present purposes he is assuming that we have enough paradigmatic instances clearly in mind in order to construct an illuminating definition or, better, explication. *Creation ex nihilo* At a certain point in his discussion Suarez makes adjustments that are conceptually required in order for *creation ex nihilo* to count as an instance of efficient causality. Notice that these moves do not by themselves assume that *creation ex nihilo* is indeed metaphysically possible. Rather, they assume simply that if there is or can be such a thing as *creation ex nihilo*, then it should count as an instance of efficient causality. This seems rather modest and wholly acceptable. This concern with *creation ex nihilo* explains, by the way, why Suarez talks about the communication of *esse* rather than about the communication of form. If every instance of efficient causality involved an agent acting on a patient, then we could simply speak of the communication of form to the patient that serves as matter of the change in question. However, *creation ex nihilo* is an action but not an action on an antecedently existing patient or matter. In the case where the effect of *creation ex nihilo* is a material substance, *creation ex nihilo* brings into being both the form and the matter. Hence, Suarez uses the more general term *esse* for the perfection communicated in efficient causality, rather than the more specific term form. However, whenever a created efficient cause acts at least naturally, the terminus of its action is always *esse qua form*, be it a substantial form, or an accidental form, or perhaps a mode. At each step Suarez makes an emendation and then raises a problem that leads to a further emendation. An efficient cause is that whence there is a first beginning of change or rest. This definition does not contain a proper genus. Later on in section two Suarez will distinguish a principle *quod* from a principle *quo*. This amounts to a distinction between a the substance which *quod* is the agent in a given case of efficient causality and b the power or habit or faculty by which the substance acts. However, this distinction does not come into play at present. The particle *per se* is meant to exclude anything or any description which is only accidentally related to the effect produced. For instance, if a doctor builds a house, he does so as a human being or as a builder, but not as a doctor. That is, his being a doctor is accidental or *per accidens* with respect to this particular instance of efficient causality. An efficient cause is a *per se* principle from which a change first exists or comes to exist. The *definiens* here is common to causes other than efficient causes, in particular the matter or material cause, since the matter, like the agent, exists antecedently to the change or exercise of efficient causality. It is not enough to point out that the matter itself must first be made to exist by an exercise of efficient causality, since the same holds for all secondary *causes*. The efficient cause is at least conceptually prior to the matter, in that the matter receives because the agent acts, but not vice versa. So this is a legitimate sense in which the efficient cause is first and the matter is not. Further, the efficient cause is an extrinsic principle, unlike matter and form, which are intrinsic principles or causes. Later on, Suarez clarifies this further by pointing out that the matter and the form communicate their own *esse* to the composite, whose own *esse* derives from or includes that of the matter and the form. By contrast, the efficient cause communicates an *esse* that is numerically distinct from its own -- and this whether we are speaking of the principle *quod* or the principle *quo*. An efficient cause is a *per se* and extrinsic principle from which a change first exists or comes to exist. The *definiens* seems to apply to the final cause or end rather than to the efficient cause, since the end is that for the sake of which an efficient cause acts and is thus prior to the latter. Note that the Aristotelian picture has a dynamism packed into it that later anti-Aristotelians found fit to reject. Some of them Descartes limited change to local motion, where finality is perhaps least evident; others Hume simply rebelled against metaphysics in general; still

others Malebranche, Berkeley saw the connection between finality and efficiency and limited agency to God alone or to God and rational agents alone. What they all deny--or at any rate are agnostic about--is dynamism and real action in nature. The efficient cause is first in execution and it alone has a real moving influence. So no emendation is called for. So it can apply to any principal cause, and indeed to any instrumental cause, advising cause, or disposing cause--in short, to any cause that acts and thereby contributes to some effect. There is some question here about instrumental causes, but this will be dealt with in the next section. An efficient cause is a per se and extrinsic principle from which an action first exists or comes to exist. An efficient cause is a first per se and extrinsic principle from which an effect flows forth, or on which an effect depends, by means of an action. An efficient cause is a first per se and extrinsic principle from which an effect receives its own distinct esse by means of an action. What an action is is just as obscure as what an efficient cause is. Thus, we need not make explicit mention of the effect in the formula, although we may ala the second alternative. Later, in Disputation 18, Section 10, we will say more about what an action is. Is some entity transferred from the agent to the patient? How can an action be a real modification of the patient or effect and not of the agent? Does this make sense? How is this conception of causality related to notions such as constant conjunction, spatial contiguity, regularity, counterfactual dependence, and variations in the probabilities of the effect-events?

5: Aristotle on Causality (Stanford Encyclopedia of Philosophy)

Since God is the efficient, the exemplar and the final cause of all things, and since primary matter is from Him, it follows that the first principle of all things is one in reality. But this does not prevent us from mentally considering many things in Him, some of which come into our mind before others.

Cause, as the correlative of effect, is understood as being that which in any way gives existence to, or contributes towards the existence of, any thing; which produces a result; to which the origin of any thing is to be ascribed. The term cause is also employed in several other suppositions, philosophical, scientific, legal, etc. The description just given is that of cause taken in the philosophical sense, as well as in its ordinary signification in popular language, for, strictly speaking, cause, being a transcendental, cannot receive a logical definition. It is that also commonly advanced as a preliminary to the investigation of the nature of causality, in the schools. Although the ideas of cause and of causality are quite obviously among the most familiar that we possess, since they are involved in every exercise of human reasoning, and are presupposed in every form of argument and by every practical action, a very great vagueness attaches to the popular concept of them and a correspondingly great ambiguity is to be found in the use of the terms expressing them. In view of this fact, it will be necessary to clear the ground traversed in the main portion of the present article by stating that it is concerned, not so much in treating of individual causes considered in the concrete, as with the analysis of the idea of causality underlying and involved in that of every cause. There is also a psychological, as well as a metaphysical, aspect of the subject, which ought not to be lost sight of, especially in that part of the article in which the more recent speculations with regard to causality are touched upon. As a matter of fact, all mankind by nature attributes to certain phenomena a causative action upon others. This natural attribution of the relationship of cause and effect to phenomena is anterior to all philosophical statement and analysis. Objects of sense are grouped roughly into two classes--those that act and those that are acted upon. No necessarily conscious reflection seems to enter into the judgment that partitions natural things into causes and effects. But when we proceed to ask ourselves precisely what we mean when we say, for example, that A is cause and B effect, that A causes B, or that B is the result of A, we raise the question of causality. Whatever answer we put forward, it will be the statement of our conception of causation. It will be the expression of our judgment as to the actual relationship between A and B involved in the conception of the one as cause and of the other as effect. It will probably be found, when we attempt to formulate any answer to the question, that much more is involved than we had at first sight thought; and, since the investigation we should pursue would probably proceed upon lines analogous to those upon which philosophy has, as a matter of fact, travelled, it will not be amiss to trace the history and development of the problem concerned with causes and causality, and to set down briefly the various solutions advanced. We shall begin, therefore, with the first crude conception of power or efficiency, and pass on through the stages of hyloism and idealism to the full analysis of cause and statement of causality made by Aristotle. This will be considered merely in outline, as filled in in the following more detailed account of the doctrines of the Schoolmen upon the subject, who, while adopting it in all its main lines, in several respects modified the teaching of the Stagirite. The critical attack upon the possibility of a knowledge of causality, made by the Scottish sceptic Hume, will next be considered in its relation to the reply of the Common Sense School, as represented by Reid. The doctrine of Kant, with its double sequence of idealism and materialism, will be touched upon briefly; and, with a comparison of the mechanical concept of modern science with regard to causes and the more fundamental metaphysical analysis of causality, the philosophical treatment of the topic will be brought to an end. Cause in Greek philosophy The Pre-Socratics Before the inception of the pre-Socratic schools of Greek philosophy, the first rude and popular conception of causes was mixed up with much that was extravagant and, in the proper sense of the word, superstitious. The powers of nature were personified, and thought of as intelligent and wilful. They were conceived of as far more powerful than man, but uncertain and capricious, so that it was necessary to propitiate them and enlist their favour by offering them sacrifices and praying to them. Thus there was the idea of power, and a loose attribution of effects to one or another of the natural forces that had vaguely come to be

looked upon as causes. It was in order to provide a ground of unity, rather than thus to distract causes, that the early philosophers took up their search for the principles of things. The problem immediately before them was that of explaining similarity and diversity, as well as change, in the visible world. By this term a principle was designated that, in some vague sense, approaches in meaning to the material cause of the Stagirite. It was used to signify an entity prior to existing entities, and yet in some way coexisting with them and furnishing the ground or reason for their existence. But it did not connote the idea of cause in the strict sense, namely as that which actually gives being to its effect, such as is involved in later concepts of causality and is derived from the observation and analysis of the conditions of physical change. The problem thence arising had not yet been definitely set. The task of the philosophers of these early schools was the investigation of nature, with, for result, the discovery of its elemental constituent or constituents, its primordial principles. Thus the representatives of both the Ionian and Eleatic Schools, in reducing all things to a single purely material basis, or to several bases, assign, indeed, a principle that may be considered as a concrete cause, but do not raise the real question of causality, or give any satisfactory account either as to how one thing differs from another or as to how things can come to be at all. Nor, in explaining diversity and change by assigning heat, rarefaction, condensation, arrangement in space, number, etc. This, obviously, is not an analysis of causality, and in no sense really touches the heart of the question. It hardly calls for the remark that at most the causes, or more properly the principles, assigned, even if understood in the sense of inherent differentiating principles, were such as would account for no more than an accidental diversity, leaving all things, the diversity of which was the very point to be explained, really identical in substance. Plato The progress from this first search for the elemental principles of being to the later investigation and interpretation of alteration, or change, in itself was gradual. Something had to be found that would account for the regularity of the succession of phenomena in the physical world, as well as for their diversity and alteration. The Pythagoreans put forward their doctrines of number as an explanation; Plato, his theory of ideas. Thus, in his advance upon his predecessors, he clearly allows, in a very real sense, for formal causes of existence. But he does not specify the nature of these ideas, other than as substances, separate from the individual entities that they cause. In some manner not fully explained, these individual entities are precisely what they are by participating in the idea. In different passages in his writings Plato alludes to the relation between the ideas and the concrete entities as a participation, a community, or an imitation. Thus he states the fact of similarity in the essences and processes of the physical world, but does not offer any explanation or definite account of it. In common with the earlier nature philosophers, Plato assigns concrete causes but does not attempt to give any solution of the real problems of causality. Not until Aristotle formulated his famous doctrine of the four causes of being can it be said that the question was envisaged with sufficient clearness to admit of exact presentation or fruitful discussion. Instead of explaining diversity in the physical world by a reference to a common underlying principle and an accidental modification, either fortuitous or designed, proceeding from it and in it--at best the crude makeshift of an incipient philosophy that has yet to state correctly the problem to be solved, instead of looking outside the object, or effect, for that which specifies it, and finding a substance entirely separated from it, to which its substantial existence in the world of phenomena, in some cryptic manner, is to be attributed, Aristotle instituted a profound inquiry into the essentially diverse modes in which any one thing can be said to contribute to the existence of any other. In so doing he changed the nature of the inquiry. The result was not only the discovery of the four causes, but a solution of the really far more important question of causality. There is no doubt but that his teaching is, in a very real sense, a synthesis of all that had gone before it; but it is a synthesis in which no one of the preceding doctrines is adopted precisely as it stood in the earlier systems. The secret which governed the adaptation of the currently accepted "principles" and made the synthesis possible, lay in the signification that he gave to the formal cause. The task he had to perform had ceased to be that of discovering merely physical constituents or principles, and had shifted to the fundamental issue of metaphysical inquiry. Aristotle gives the opinions of his predecessors at considerable length in the "Physics", and again in the "Metaphysics", in which he submits them to a careful analysis and rigorous criticism. But the elements of his own doctrine with regard to the four causes, as causes, were there in solution. The Ionians of the older school had dealt with matter. Later Ionians had treated vaguely of efficient causes. The method and

moral teaching of Socrates had convolved and brought out the idea of the final, while Plato had definitely taught the existence of separated formal, causes. All these factors contributed to the result of his inquiry, and the splendid historical criticism and review to which he submits the earlier philosophers and their teachings on this point show not only his wide and profound acquaintance with their doctrines, but his readiness also to credit them with whatever they had advanced that at all made for knowledge. Still, to this point, as has been said, it was a question of principle rather than of cause; and, when of cause as such, of cause considered in the concrete rather than of the causality of causes. Aristotle The problem, then, for Aristotle , took the form of an analysis of essences in such wise as to perceive, separate, and classify those principles which, in conspiring to bring the essence of any effect, object or event, actually into existence, as it were, flow into it. For the idea of cause is of that which in any way influences the production of an effect as an essence. And, to declare the manner in which such causes, once discovered, are found to correspond, and play their several parts in causation, will be to state causality. Now, as our notion of principles in general, whether in the being, in the becoming, or in the understanding of any thing, is primarily derived from observation of motions taking place in space, so our notion of cause is derived from observation of changes, whether local, quantitative, qualitative, or substantial. The explanation of any change leads to the doctrine of the four distinctions, or classes, of causes as formulated by Aristotle. These are severally related in various ways. It is in the declaration of this relationship that the notion and explanation of causality is to be found. The material cause, that out of which the principiate, or effect, is made or caused, is conceived as an indeterminate potentiality. It is determined to a definite substantial essence by the formal cause. This, in turn, is conceived as an actuality specifying the material potentiality. Formal causes are the changeless essences of things in themselves, permanent in them amid the flux of accidental modifications, yet by actual union with the material cause determining this to the concrete individual; and not, like the ideas of Plato , separated from it. They are, under the action of the moving, or efficient, cause, the accomplishment of the determinability of matter. The moving, or efficient, cause, which, as will be seen later, is that which has come to be chiefly regarded as the true cause, and that round which most controversy has arisen, is, in this fourfold division of causes, that one by the operation or agency of which the effect is brought into being; i. Lastly, the final cause is that principle on account of which the efficient cause moves towards the production of its effect. It is the effect itself formally considered as the term of the intention of the agent, or efficient cause. Neither Aristotle nor Plato is very clear as to the precise sense in which the final cause is to be understood. The Aristotelean phrase is loose enough to cover the two meanings: Aristotle perceives and teaches that the end is frequently identified with the form, and that this is also frequently identified in species with the moving cause; for man, as he says in the example that he gives, begets man. It does not, however, follow that all moving causes are always identified, even in species, with their effects. Indeed, Aristotle teaches that this is not the case. He holds that the world is eternal; but, in virtue of his fundamental principle that no potentiality can precede actuality, he makes it a participative eternity. Hence the material and the formal causes that together go to make up the world are created, or more properly, eternally concreated. From this fundamental principle of the priority of actuality over potentiality, Aristotle proves also the fact of the existence of God as the first moving cause. As each effect of a process is now to be reckoned an actuality that was before no more than potential, and postulates a moving cause in order that it should have come into being as the term of a motion, so all things in the world, taken together, necessitate an absolutely first cause of the same nature. Thus did Aristotle raise and answer the question of causality, dividing causes into four classes, and indicating the nature of the causal influx with which each contributes towards the production of their common effect. For, according to this theory, all the four causes, taken together, are really the cause of any given physical effect. The Scholastic analysis of causation The teaching of Aristotle is that which substantially passed current in the medieval schools. With certain important modifications concerning the eternity of the material cause, the substantiality of certain formal causes of material entities, and the determination of the final cause, the fourfold division was handed on to the Christian teachers of patristic and scholastic times. As Aristotle had developed and improved the doctrine of Plato with regard to inherent substantial forms, so the leaders of Christian thought, guided in their work by the light of revelation and the teaching of the Church , perfected the philosophical teaching of Aristotle. It is not, indeed,

advanced that the Christian philosophy of this period was merely theological ; but it is contended that certain purely philosophical truths , verifiable in and by philosophy, were obtained as a result of the impetus given to metaphysical research by the dogmas of revelation. This is not the place for enlarging upon such a topic except in so far as it is directly pertinent to the question of causes; and it is principally in other matters that the contention obtains. Still, at least in the three cases to which allusion has just been made, it is true that speculation was helped forward on the right lines by the teaching of the Church. The truth of the contention is patent. In the patristic Period, particularly in the works of St. Augustine , who was a Platonist rather than an Aristotelean , and in the scholastic period, the foremost representative of which is St. Thomas Aquinas , the doctrine of the four causes of being is set forth in connection with the modifications noted. The theory of causality, as held and taught in the Middle Ages , and as taught in the schools today, will in this section be exhibited in some detail. For at first, being as it were less cultivated, they did not recognize any beings other than sensible bodies. And those of them who acknowledged movement in them only admitted movement as to accidents, as in rarity and density, aggregation and disgregation. And, supposing that the substance of bodies was untreated, they assigned certain causes for accidental changes of this kind, as, for example, friendship, strife, intellect or something of this nature. Proceeding, they distinguished intellectually between the substantial form and the matter, which they considered as uncreated; and they perceived that substantial transmutation takes place in bodies with respect to their substantial forms. In order that such a change should be possible, four things are necessary:

6: Second Way to God of Saint Thomas Aquinas

What an Efficient Cause Is. I. Preliminary Remarks. A. Suarez and the moderns Unlike Hume's analysis of causality, and unlike most of the prominent contemporary analyses (e.g., those of Lewis, Mackie, Tooley, etc.), Suarez's definition is not meant to be reductive.

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. Both in the *Physics* and in the *Metaphysics* Aristotle places himself in direct continuity with this tradition. At the beginning of the *Metaphysics* Aristotle offers a concise review of the results reached by his predecessors *Metaph.* From this review we learn that all his predecessors were engaged in an investigation that eventuated in knowledge of one or more of the following causes: However, Aristotle makes it very clear that all his predecessors merely touched upon these causes *Metaph.* That is to say, they did not engage in their causal investigation with a firm grasp of these four causes. They lacked a complete understanding of the range of possible causes and their systematic interrelations. Put differently, and more boldly, their use of causality was not supported by an adequate theory of causality. According to Aristotle, this explains why their investigation, even when it resulted in important insights, was not entirely successful. This insistence on the doctrine of the four causes as an indispensable tool for a successful investigation of the world around us explains why Aristotle provides his reader with a general account of the four causes. That proper knowledge is knowledge of the cause is repeated in the *Physics*: My hesitation is ultimately due to the fact that not all why-questions are requests for an explanation that identifies a cause, let alone a cause in the particular sense envisioned by Aristotle. This account is general in the sense that it applies to everything that requires an explanation, including artistic production and human action. Here Aristotle recognizes four types of things that can be given in answer to a why-question: All the four types of causes may enter in the explanation of something. Consider the production of an artifact like a bronze statue. The bronze enters in the explanation of the production of the statue as the material cause. Note that the bronze is not only the material out of which the statue is made; it is also the subject of change, that is, the thing that undergoes the change and results in a statue. The bronze is melted and poured in order to acquire a new shape, the shape of the statue. This shape enters in the explanation of the production of the statue as the formal cause. However, an adequate explanation of the production of a statue requires also a reference to the efficient cause or the principle that produces the statue. For Aristotle, this principle is the art of bronze-casting the statue *Phys.* This is mildly surprising and requires a few words of elaboration. There is no doubt that the art of bronze-casting resides in an individual artisan who is responsible for the production of the statue. But, according to Aristotle, all the artisan does in the production of the statue is the manifestation of specific knowledge. This knowledge, not the artisan who has mastered it, is the salient explanatory factor that one should pick as the most accurate specification of the efficient cause *Phys.* By picking the art, not the artisan, Aristotle is not just trying to provide an explanation of the production of the statue that is not dependent upon the desires, beliefs and intentions of the individual artisan; he is trying to offer an entirely different type of explanation; an explanation that does not make a reference, implicit or explicit, to these desires, beliefs and intentions. More directly, the art of bronze-casting the statue enters in the explanation as the efficient cause because it helps us to understand what it takes to produce the statue; that is to say, what steps are required to produce the statue. But can an explanation of this type be given without a reference to the final outcome of the production, the statue? A model is made for producing the statue. A mold is prepared for producing the statue. The bronze is melted and poured for producing the statue. Both the prior and the subsequent stage are for the sake of a certain end, the production of the statue. Clearly, the statue enters in the explanation of each step of the artistic production as the final cause or that for the sake of which everything in the production process is done. In thinking about the four causes, we have come to understand that Aristotle offers a teleological explanation of the production of a bronze statue; that is to say, an explanation that makes a reference to the *telos* or end of the process. Moreover, a teleological explanation of the type sketched above does not crucially

depend upon the application of psychological concepts such as desires, beliefs and intentions. This is important because artistic production provides Aristotle with a teleological model for the study of natural processes, whose explanation does not involve beliefs, desires, intentions or anything of this sort. Some have contended that Aristotle explains natural process on the basis of an inappropriately psychological teleological model; that is to say, a teleological model that involves a purposive agent who is somehow sensitive to the end. This objection can be met if the artistic model is understood in non-psychological terms. In other words, Aristotle does not psychologize nature because his study of the natural world is based on a teleological model that is consciously free from psychological factors. For further information on the role that artistic production plays in developing an explanatory model for the study of nature, see Broadie , pp. One final clarification is needed. By insisting on the art of bronze-casting as the most accurate efficient cause of the production of the statue, Aristotle does not mean to preclude an appeal to the beliefs and desires of the individual artisan. On the contrary, there are cases where the individual realization of the art obviously enters in the explanation of the bronze statue. For example, one may be interested in a particular bronze statue because that statue is the great achievement of an artisan who has not only mastered the art but has also applied it with a distinctive style. In this case it is perfectly appropriate to make reference to the beliefs and desires of the artisan. Note, however, that the idiosyncrasies that may be important in studying a particular bronze statue as the great achievement of an individual artisan may be extraneous to a more central and more interesting case. To understand why let us focus on the study of nature. When the student of nature is concerned with the explanation of a natural phenomenon like the formation of sharp teeth in the front and broad molars in the back of the mouth, the student of nature is concerned with what is typical about that phenomenon. In other words, the student of nature is expected to provide an explanation of why certain animals typically have a certain dental arrangement. We shall return to this example in due course. This theory has in fact been developed primarily but not exclusively for the study of nature. The Four Causes in the Science of Nature In the Physics, Aristotle builds on his general account of the four causes by developing explanatory principles that are specific to the study of nature. The best way to understand this methodological recommendation is the following: The factors that are involved in the explanation of natural change turn out to be matter, form, that which produces the change, and the end of this change. Note that Aristotle does not say that all four explanatory factors are involved in the explanation of each and every instance of natural change. Rather, he says that an adequate explanation of natural change may involve a reference to all of them. Aristotle goes on by adding a specification on his doctrine of the four causes: This slogan is designed to point at the fundamental fact that the generation of a man can be understood only in the light of the end of the process; that is to say, the fully developed man. What a fully developed man is is specified in terms of the form of a man, and this form is realized in its full development at the end of the generation. But this does not explain why it takes a man to generate a man. Note, however, that a fully developed man is not only the end of generation; it is also what initiates the entire process. For Aristotle, the ultimate moving principle responsible for the generation of a man is a fully developed living creature of the same kind; that is, a man who is formally the same as the end of generation. Thus the student of nature is often left with three types of causes: However, the view that there are in nature causes besides material and efficient causes was controversial in antiquity. According to Aristotle, most of his predecessors recognized only the material and the efficient cause. This explains why Aristotle cannot be content with saying that formal and final causes often coincide, but he also has to defend his thesis against an opponent who denies that final causality is a genuine mode of causality. Here Aristotle establishes that explaining nature requires final causality by discussing a difficulty that may be advanced by an opponent who denies that there are final causes in nature. Aristotle shows that an opponent who claims that material and efficient causes alone suffice to explain natural change fails to account for their characteristic regularity. Before considering how the defense is attempted, however, it is important to clarify that this defense does not perform the function of a proof. By showing that an approach to the study of nature that ignores final causality cannot account for a crucial aspect of nature, Aristotle does not thereby prove that there are final causes in nature. Strictly speaking, the only way to prove that nature exhibits final causality is to establish it on independent grounds. But this is not what Aristotle does in Physics II 8. Final causality is here introduced as

the best explanation for an aspect of nature which otherwise would remain unexplained. The difficulty that Aristotle discusses is introduced by considering the way in which rain works. It rains because of material processes which can be specified as follows: It may happen that the corn in the field is nourished or the harvest is spoiled as a result of the rain, but it does not rain for the sake of any good or bad result. The good or bad result is just a coincidence Phys. So, why cannot all natural change work in the same way? For example, why cannot it be merely a coincidence that the front teeth grow sharp and suitable for tearing the food and the molars grow broad and useful for grinding the food Phys. When the teeth grow in just this way, then the animal survives. When they do not, then the animal dies. More directly, and more explicitly, the way the teeth grow is not for the sake of the animal, and its survival or its death is just a coincidence Phys. Moreover, since this dental arrangement is suitable for biting and chewing the food that the animal takes in, the opponent is expected to explain the regular connection between the needs of the animal and the formation of its teeth. Either there is a real causal connection between the formation of the teeth and the needs of the animal, or there is no real causal connection and it just so happens that the way the teeth grow is good for the animal. In this second case it is just a coincidence that the teeth grow in a way that it is good for the animal. But this does not explain the regularity of the connection. Where there is regularity there is also a call for an explanation, and coincidence is no explanation at all. In other words, to say that the teeth grow as they do by material necessity and this is good for the animal by coincidence is to leave unexplained the regular connection between the growth of the teeth and the needs of the animal. Aristotle offers final causality as his explanation for this regular connection: In the first case, something is good for the animal because the animal cannot survive without it; in the second case, something is good for the animal because the animal is better off with it. This helps us to understand why in introducing the concept of end telos that is relevant to the study of natural processes Aristotle insists on its goodness: Once his defense of the use of final causes is firmly in place, Aristotle can make a step further by focusing on the role that matter plays in his explanatory project. Let us return to the example chosen by Aristotle, the regular growth of sharp teeth in the front and broad molars in the back of the mouth. What explanatory role is left for the material processes involved in the natural process? Aristotle does not seem to be able to specify what material processes are involved in the growth of the teeth, but he is willing to recognize that certain material processes have to take place for the teeth to grow in the particular way they do. In other words, there is more to the formation of the teeth than these material processes, but this formation does not occur unless the relevant material processes take place. For Aristotle, these material processes are that which is necessary to the realization of a specific goal; that which is necessary on the condition on the hypothesis that the end is to be obtained.

7: What an Efficient Cause Is

The efficient cause of a motion may be also be internal to the thing. In natural motions the efficient cause of the motion is the natural form of the thing that changes. This applies to all the kinds of motions there are, i.e. natural alterations (an apple turning from green to red), the growth of plants and animals, and all natural local motions.

Is He the final cause of things? Whether it is necessary that every being be created by God? It would seem that it is not necessary that every being be created by God. For there is nothing to prevent a thing from being without that which does not belong to its essence, as a man can be found without whiteness. But the relation of the thing caused to its cause does not appear to be essential to beings, for some beings can be understood without it; therefore they can exist without it; and therefore it is possible that some beings should not be created by God. Further, a thing requires an efficient cause in order to exist. Therefore whatever cannot but exist does not require an efficient cause. But no necessary thing can not exist, because whatever necessarily exists cannot but exist. Therefore as there are many necessary things in existence, it appears that not all beings are from God. Further, whatever things have a cause, can be demonstrated by that cause. But in mathematics demonstration is not made by the efficient cause, as appears from the Philosopher *Metaph.* On the contrary, It is said *Romans* For whatever is found in anything by participation, must be caused in it by that to which it belongs essentially, as iron becomes ignited by fire. Now it has been shown above I: Therefore all beings apart from God are not their own being, but are beings by participation. Therefore it must be that all things which are diversified by the diverse participation of being, so as to be more or less perfect, are caused by one First Being, Who possesses being most perfectly. Hence Plato said *Parmen.* Reply to Objection 1. Though the relation to its cause is not part of the definition of a thing caused, still it follows, as a consequence, on what belongs to its essence; because from the fact that a thing has being by participation, it follows that it is caused. Hence such a being cannot be without being caused, just as man cannot be without having the faculty of laughing. But, since to be caused does not enter into the essence of being as such, therefore is it possible for us to find a being uncaused. Reply to Objection 2. This objection has led some to say that what is necessary has no cause *Phys.* But this is manifestly false in the demonstrative sciences, where necessary principles are the causes of necessary conclusions. And therefore Aristotle says *Metaph.* But the reason why an efficient cause is required is not merely because the effect is not necessary, but because the effect might not be if the cause were not. For this conditional proposition is true, whether the antecedent and consequent be possible or impossible. Reply to Objection 3. The science of mathematics treats its object as though it were something abstracted mentally, whereas it is not abstract in reality. Now, it is becoming that everything should have an efficient cause in proportion to its being. And so, although the object of mathematics has an efficient cause, still, its relation to that cause is not the reason why it is brought under the consideration of the mathematician, who therefore does not demonstrate that object from its efficient cause. Whether primary matter is created by God? It would seem that primary matter is not created by God. For whatever is made is composed of a subject and of something else *Phys.* But primary matter has no subject. Therefore primary matter cannot have been made by God. Further, action and passion are opposite members of a division. But as the first active principle is God, so the first passive principle is matter. Therefore God and primary matter are two principles divided against each other, neither of which is from the other. Further, every agent produces its like, and thus, since every agent acts in proportion to its actuality, it follows that everything made is in some degree actual. But primary matter is only in potentiality, formally considered in itself. Therefore it is against the nature of primary matter to be a thing made. On the contrary, Augustine says *Confess.* I answer that, The ancient philosophers gradually, and as it were step by step, advanced to the knowledge of truth. At first being of grosser mind, they failed to realize that any beings existed except sensible bodies. And those among them who admitted movement, did not consider it except as regards certain accidents, for instance, in relation to rarefaction and condensation, by union and separation. And supposing as they did that corporeal substance itself was uncreated, they assigned certain causes for these accidental changes, as for instance, affinity, discord, intellect, or something of that kind. An advance was made when they understood that there was a

distinction between the substantial form and matter, which latter they imagined to be uncreated, and when they perceived transmutation to take place in bodies in regard to essential forms. Such transmutations they attributed to certain universal causes, such as the oblique circle [The zodiac], according to Aristotle *De Gener.* But we must take into consideration that matter is contracted by its form to a determinate species, as a substance, belonging to a certain species, is contracted by a supervening accident to a determinate mode of being; for instance, man by whiteness. Each of these opinions, therefore, considered "being" under some particular aspect, either as "this" or as "such"; and so they assigned particular efficient causes to things. Then others there were who arose to the consideration of "being," as being, and who assigned a cause to things, not as "these," or as "such," but as "beings. And thus it is necessary to say that also primary matter is created by the universal cause of things. But here we are speaking of things according to their emanation from the universal principle of being; from which emanation matter itself is not excluded, although it is excluded from the former mode of being made. Passion is an effect of action. Hence it is reasonable that the first passive principle should be the effect of the first active principle, since every imperfect thing is caused by one perfect. For the first principle must be most perfect, as Aristotle says *Metaph.* The reason adduced does not show that matter is not created, but that it is not created without form; for though everything created is actual, still it is not pure act. Hence it is necessary that even what is potential in it should be created, if all that belongs to its being is created. Whether the exemplar cause is anything besides God? It would seem that the exemplar cause is something besides God. For the effect is like its exemplar cause. But creatures are far from being like God. Therefore God is not their exemplar cause. Further, whatever is by participation is reduced to something self-existing, as a thing ignited is reduced to fire, as stated above Article 1. But whatever exists in sensible things exists only by participation of some species. This appears from the fact that in all sensible species is found not only what belongs to the species, but also individuating principles added to the principles of the species. Therefore it is necessary to admit self-existing species, as for instance, a *per se* man, and a *per se* horse, and the like, which are called the exemplars. Therefore exemplar causes exist besides God. Further, sciences and definitions are concerned with species themselves, but not as these are in particular things, because there is no science or definition of particular things. Therefore there are some beings, which are beings or species not existing in singular things, and these are called exemplars. Therefore the same conclusion follows as above. Further, this likewise appears from Dionysius, who says *Div.* On the contrary, The exemplar is the same as the idea. But ideas, according to Augustine *QQ.* I answer that, God is the first exemplar cause of all things. In proof whereof we must consider that if for the production of anything an exemplar is necessary, it is in order that the effect may receive a determinate form. For an artificer produces a determinate form in matter by reason of the exemplar before him, whether it is the exemplar beheld externally, or the exemplar interiorly conceived in the mind. Now it is manifest that things made by nature receive determinate forms. This determination of forms must be reduced to the divine wisdom as its first principle, for divine wisdom devised the order of the universe, which order consists in the variety of things. And therefore we must say that in the divine wisdom are the types of all things, which types we have called ideas. And these ideas, though multiplied by their relations to things, in reality are not apart from the divine essence, according as the likeness to that essence can be shared diversely by different things. In this manner therefore God Himself is the first exemplar of all things. Moreover, in things created one may be called the exemplar of another by the reason of its likeness thereto, either in species, or by the analogy of some kind of imitation. Therefore although this particular man is a man by participation of the species, he cannot be reduced to anything self-existing in the same species, but to a superior species, such as separate substances. The same applies to other sensible things. Although every science and definition is concerned only with beings, still it is not necessary that a thing should have the same mode in reality as the thought of it has in our understanding. For we abstract universal ideas by force of the active intellect from the particular conditions; but it is not necessary that the universals should exist outside the particulars in order to be their exemplars. Reply to Objection 4. As Dionysius says *Div.* Whether God is the final cause of all things? It would seem that God is not the final cause of all things. For to act for an end seems to imply need of the end. But God needs nothing. Therefore it does not become Him to act for an end. Further, the end of generation, and the form of the thing

generated, and the agent cannot be identical Phys. But God is the first agent producing all things. Therefore He is not the final cause of all things. Further, all things desire their end.

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For example, 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. End or purpose: a change or movement's final cause, is that for the sake of which a thing is what it is.

According to the theory of physical influx, there is an inflow between cause and effect; in other words, there is intersubstantial causation among finite i. So, for instance, when Andres Segovia appears to strum his guitar, he really is the cause of the vibration of the strings. In this case, motion is a mode or state of the body of Segovia and is transferred or communicated to the body of his guitar. For physical influx sometimes is invoked to explain the causal interaction among immaterial finite substances e. Occasionalism denies causation not only among finite substances, and so rules out any inflow between cause and effect, but also within finite substances. In other words, regarding finite substances, there is neither intersubstantial nor intrasubstantial causation. Taken individually or jointly, finite substances have no genuine causal efficacy. Nor are his fingers, wrist, and arm real causes. Is the vibration then uncaused for the occasionalist? No, for there is God. Like occasionalism, the theory of parallelism holds that there is no intersubstantial causation among finite substances. Nor, again, are his fingers, wrist, or arm real causes. Nevertheless, it is not God who is the total real cause of this vibration. According to parallelism, finite substances can be real causes. Rather the strings themselves are causing themselves to vibrate. Due to the special harmony between mind and body and not because of any direct causal relation, when Segovia is in a state of willing his fingers to strum the strings on his guitar, the strings are in a physical state that would result in their vibration. Leibniz was and is the most famous proponent of parallelism. Consider also this articulation of the pre-established harmony: Each of these souls expresses in its own manner what occurs outside itself, and it cannot do so through any influence of other particular beings or, to put it a better way, it has to draw up [devant] this expression from the depths of its own nature ; and so necessarily each soul must have received this nature's "this inner source of the expression of what lies without" from a universal cause [cause universelle], upon which all of these beings depend and which brings it about that each of them perfectly agrees with and corresponds to the others. New Essays A vi, 6, As to be expected, there is some controversy regarding the interpretation of these tenets; for instance, tenet 2 is sometimes extended to also include non-initial states see Whipple, There is another important aspect of the pre-established harmony. The pre-established harmony consists in the isomorphic mapping of perceptions and bodily motions. Whenever a substance has a perception x there will be a corresponding bodily state y expressing that perception x. Why is Leibniz drawn to the rather bizarre-sounding pre-established harmony? In other words, why does he reject the more terrene physical influx and the more celestial occasionalism? Why does Leibniz reject Physical Influx? Leibniz wants to rule out any kind of causation in which one substance passes something on to the other substance: Whether Suarez actually held the view Leibniz ascribes to him is another matter entirely. Leibniz holds that it cannot be comprehended how one finite substance could act on another finite substance. For such intersubstantial causation entails the transference or migration of an accident from one substance to another, where a trope passes from one thing to another, which then instantiates it. Such transference is inexplicable; an accident passing i. Leibniz writes in the Discourse on Metaphysics: We have all these forms in our mind; we even have forms from all time, for the mind always expresses all its future thoughts and already thinks confusedly about everything it will ever think about distinctly. Leibniz also argues in this way: This is an obvious violation of the law of the conservation of motion. Therefore, there is no physical influx. The Monadology includes the following passage: Descartes recognized that souls cannot impart a force to bodies because there is always the same quantity of force in matter [i. However, he thought that the soul could change the direction of [force in] bodies. But that is because the law of nature, which also affirms the conservation of the same total direction in matter, was not known at that time. If he had known it, he would have hit upon my system of pre-established harmony. According to Leibniz, real causation entails that the cause not lose any of its efficacy after exercising its causal power. Leibniz depicts the production of our thoughts, for instance, as involving emanative causation: Other

commentators have put it this way: It is hard to tell why Leibniz is troubled by any theory that involves the potential loss of causal efficacy in substances. Part of it might have to do with his belief that even finite, created substances are naturally indestructible. But then created, finite substances, continually acting according to the physical influx model, might eventually lose their causal efficacy and would no longer be able to act. So, physical influx would entail the natural mortality of substance, a view that Leibniz wholly rejects. No created substance exerts a metaphysical action or influence on another, for to say nothing of the fact that it cannot be explained how anything can pass over from one thing into the substance of another, it has already been shown that all the futures of each thing follow from its own concept. What we call causes are in metaphysical rigor only concomitant requisites. Why does Leibniz reject Occasionalism? Occasionalism puts forward a view where God must act for any substance that does not have the causal power itself to act. But since no other substance besides God has the causal power to act for itself, or even in conjunction with other finite substances, God must continually intervene in the course of the world. Leibniz sees this as a serious problem for the occasionalist account of causation. Even if God produced them all the time, they would still be miracles, if the word is understood not in the popular sense, as a rare and marvelous thing, but philosophically, as something which exceeds the power of created things. It is necessary, that is, that what happens should be explicable in terms of the God-given nature of things. The idea is that the doctrine of occasionalism must hold that God did not initially get creation right even if the occasionalist himself or herself is not willing to make such an assertion and so must continually step in and repair things to get them to go the way God intends. This is, of course, not to say that for Leibniz there are no miracles whatsoever. For Leibniz, a world of genuinely active substances is more perfect than a world of purely passive or causally inert substances, whose activity is not properly ascribed to them but to God. In order to avoid what he thinks is unadulterated Spinozism, Leibniz is keen to emphasize that we must be able to distinguish the actions of God from the actions of created substances.

Intersubstantial Causation Since Leibniz seems to think that intersubstantial causation requires physical influx and physical influx is unacceptable, he concludes, logically enough, that we must reject intersubstantial causation. But Nicholas Jolley notes that Leibniz does not always argue this way. For while consistently rejecting the existence of influx, sometimes Leibniz will not at the same time reject outright the existence of intersubstantial causation. So, on the whole, Leibniz does not take seriously other alternative accounts of intersubstantial causation. Perhaps because he thinks he already has an account that will work for him—the pre-established harmony—Leibniz does not believe that a plausible theory of causation need be intersubstantial in kind. In other words, Leibniz does not face a problem so many of his contemporaries face: Thus, it makes sense that Leibniz would not feel compelled to defend intersubstantial causation. This point can be alternatively expressed. A difficult problem in giving an account of intrasubstantial causation concerns the explanation of the difference between causation among systems and causation within a system. For instance, do the works of a watch constitute an isolated system? For even Rolexes, constructed for deep-sea divers, are affected at extreme temperatures and depths. So there is a problem giving an account of causation within a Rolex. A similar problem arises for a seventeenth century philosopher who holds a mechanistic and materialist notion of substance. But Leibniz has no problem with explaining the difference between systems that are causally isolated and systems that cannot be made absolute; his monadic ontology is readily equipped to handle causally isolated units or unities. There is no way in which it could make sense for a monad to be altered or changed internally by any other created thing. Because there is nothing to rearrange within a monad, and there is no conceivable internal motion in which it could be excited, directed, increased, or diminished, in the way that it can in a composite, where there is change among the parts. Monads have no windows, through which anything could come in or go out. So the rest of this entry will address intrasubstantial and divine causation. A perception is an accident of a substance, for the action of a substance consists precisely in the fact that they are always changing their perceptions. Now, an attribute must not be considered a substance, since it would be a mistake to equate action with what is acting, or extension with what is extended. *New Essays* A vi, 6, f. The accidents, tropes or property-instances of a substance are its perceptions. For causal interaction between created substances. Therefore, the cause of change of perceptions in a created substance is either to be located in an uncreated substance, namely God, or

in the substance itself. So, putting God aside for the moment, perceptual change is caused by the substance itself. But surely we want to know what it is about the substance or in the substance that drives perceptual change. What exactly causes the change of perceptions of a substance? As we shall see, furthermore, God is no minor player in this effort as well. To be clear, however, primitive powers and perceptions do not play the same causal roles, according to Leibniz. Whereas the primitive power of a substance some commentators maintain that primitive powers and substances are one and the same is the efficient cause—a post-Humean might say the real cause—of the change of its perceptual states, these states themselves do not function as efficient causes. How perceptual states do function causally is controversial, and we will address this issue later.

Divine Causation It is difficult to distinguish the actions of God from those of creatures, for some believe that God does everything, while others imagine that he merely conserves the force he has given to creatures. According to Leibniz, both God and created substances are causally responsible for changes in the states of created substances. But God is no minor player in this effort; God is immediately and directly causally present in every aspect of the universe, even in those effects normally attributed to created substances. Consider these two texts: But I hold that in doing it he also continually produces or conserves in us that energy or activity which according to me constitutes the nature of substance and the source of its modifications. So even though Leibniz rejects occasionalism, Leibniz does agree with the occasionalist Malebranche that God must be given his causal due. It is certainly not a mere afterthought. This provides a perfect proof of that famous truth of Christian theologians and philosophers, that the conservation of things is a continual creation; and it gives a very special way of verifying the dependence of every changeable thing on the unchangeable divinity. Letter to Sophie Charlotte GP vii f And when it is said that the creature depends upon God insofar as it exists and insofar as it acts, and even that conservation is a continual creation, this is true in that God gives always [donne toujours] to the creature and produces continually all that in it is positive, good and perfect, every perfect gift coming from the Father of lights.

9: Leibniz on Causation (Stanford Encyclopedia of Philosophy)

Still, there is a sense in which they are subject to final causes, for they act for the ends that God has set for them, and they do so by way of mechanical efficient causation. Thus, there is some suggestion that Leibniz held that both efficient and final causation permeated the universe at multiple ontological levels.

Following Aristotle, Scholastics like Thomas Aquinas held that a complete understanding of any natural phenomenon requires attention to each of its four causes. Of course, there is more to the story. What exactly distinguishes flesh from other kinds of matter? What exactly is the mechanism by which cats make new cats? These questions too require answers, but finding those answers will entail identifying further causes of each of the four kinds referred to. How do we determine these causes? It is through our experience of cats that we know that they come from other cats, that they tend to seek out mice, and so forth. The Four Causes The Aristotelian four causes are, as Feser notes, necessary for a complete description of nature. Of course, ordinarily we do not invoke all four causes to explain everyday phenomenon. If we want to know what metal a coin is made of material cause, we need not investigate the ultimate purpose for coinage in our economy final cause. We can be parsimonious in our understanding of nature, according to our practical needs. But to completely understand anything in nature, we need to understand all four causes. You can just study the things themselves. Medieval thinkers like Aquinas were Big Picture men. Hence, formal and final causes got most of their attention. Material and efficient causes, the specific physical mechanisms by means of which a thing realizes the ends set for it by its nature, were of secondary importance. But even the formal and final causes of natural phenomena were ultimately of less interest to the Scholastics than the divine cause of there being any natural world in the first place. God is the necessary primary cause of all that exists, but we may study nature quite adequately by focusing on specific secondary causes. It merely means that reference to primary causation, in some circumstances like routine scientific investigation, is not necessary to the purposes at hand. That God and primary causation exist has been demonstrated with great rigor by a host of philosophers, from Aristotle to Maimonides to Aquinas to Leibniz to Plantinga. But science can ordinarily be done quite well without reference to God or primary causation. Primary Causation However, merely because inference to primary cause can be stipulated to be unnecessary to ordinary science does not mean that primary causation has been demonstrated to be non-existent. The Enlightenment shifted these priorities, bringing the Small Picture into focus. Whereas the medievals sought to understand God so as to improve their souls, the Enlightenment was about understanding nature so as to improve our material conditions – to cure diseases, curb natural disasters, harness natural forces, develop new technologies, and so on. Such practical ends required discovery of the specific physical mechanisms by which natural phenomena operate, so that material and efficient causes would now take center stage, and formal and final causes would recede into the background. Philosophers in the Enlightenment gradually inclined to mechanical explanations for nature, focusing on efficient and truncated material causes and casting aside formal and final causes. It meant that science, in certain circumstances, could more efficiently investigate nature by focusing on efficient and material causation. Instead of identifying the distinctive ends or purposes toward which nature aims each thing, the focus would be on identifying the law-like ways in which certain configurations of particles served as the efficient causes of others. Nature would thus be treated as a machine whose parts and their interactions may be described in an entirely quantitative way. The idea was that, to the extent that the world could be captured by such a mathematical and mechanical model, it could be better predicted and controlled, and the practical aims of the Enlightenment thereby realized. Knowledge as Power Feser gets to the heart of the shift in perspective in the Scientific Enlightenment. Aristotle and the classical philosophers were interested in wisdom about causes in nature – they were interested in understanding the Big Picture, and about questions of ultimate cause. The Enlightenment philosophers and modern scientists are more interested in power over nature, and thus a focus on material and efficient causes mechanical causes suits their purposes. A focus on power, to the neglect of wisdom, is fine, as long as it is recognized that mechanical philosophy is incomplete, and is merely a tool used for understanding some natural phenomena in a restricted sense. If you are trying to

predict the course of a cannonball, Newtonian mechanics are adequate. If you are trying to understand the mind of the guy who fired the cannon, or if you are trying to understand the quantum states of electrons in the gunpowder or the moral status of war or the cause of the Big Bang, you need to look much deeper than mere mechanics. A comprehensive understanding of nature entails an understanding of primary causation and of secondary causation, which entails material, formal, efficient, and final causation. Isaac Newton, via Wikimedia Commons.

Lennon, what happened! Oxygen, nutrition and human performance Caregiving roles in older women Peggye Dilworth-Anderson and Lyn Rhoden. Fascination in France Journey to wisdom MORE HAIKUS FOR PUNSTERS Monitoring for Conservation and Ecology (Conservation Biology) Definition of water resource management Product Data Interfaces in Cad/Cam Applications Desmond Goes to New York (Dinosaurs Althea Books) Kidnapped (An Irene Kelly Novel) Nuclear Energy in Latin America Gods Promises for You (From the New International Version) Queen and the cure Sea island mystery : a mystery Wendy M. Harris Complete Aikido: Aikido Kyohan The Mechanics of Piezoelectric Structures Social media management agreement contract los angeles Editors note : Using this guide Pearl Millet Breeding Fundamentals of Naturopathic Endocrinology Laboratory Manual and Workbook in Microbiology My Best Bible Stories Dictionary of social services Visualizing Lincoln : Abraham Lincoln as student, subject, and patron of the visual arts Harold Holzer Chinese prison system, / Study guide for experiencing the lifespan hager Relationship Therapy With Same-Sex Couples Martial law diary and other papers Standard for information technology-POSIX Fortran 77 language interfaces Chapter 5: Exposition of Paramattha Dhammas 111 (Nibbana) Putting value creation into practice strategy, success measures, and speed Filmography (p. 165-178). The Music of Home (Heartsong Presents #751) Preparation for the NCLEX-RN examination : transitional issues for the foreign-educated nurse Pt. 3. Revisiting Edinburgh missionary conferences. Four metaphysical poets: George Herbert, Richard Crashaw, Henry Vaughan [and Andrew Marvell 50 photo projects lee frost Cromwells crowning mercy Amway india all product handbook 2017