The metaphysics of creation: secondary causality, modern science

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This chapter moves from the most fundamental parts of Aquinas’s metaphysics to Aquinas’s thought about the created world, and especially the way in which things in the created world are able to act as beings in their own right, without altering their dependence on the creator. The result is an account of the causality of creatures that does not impugn their connection to the more basic causality of the Deity and that allows this part of Aquinas’s account to be compatible with accounts of causality in modern science.

When it comes to God’s creation of and interaction with the universe, it has sometimes been suggested that Christian revelation tells us nothing about the world and its origins, restricting itself to questions of value and not to matters of fact.[[1]](#footnote-1) Thomas Aquinas, by contrast, argued that a false account of creation implies false opinions about God.[[2]](#footnote-2) Aquinas consistently held that there were a number of truths about the creation of the universe that are central to Christian revelation. First, the truth that the world causally dependson God for its existence and all of its operations. Given the way in which Aquinas conceives of this dependence, this first truth implies that the universe is guided by God’s intelligent ordering or Providence. The second truth is that God created the world with no constraints of any kind*,* including the necessity of creating from pre-existing matter, the necessity of employing causal intermediaries, or a necessity imposed by His reasons (such that He was not free to do otherwise). The third is that the universe was created in time, that is, having a definite beginning in the finite past. Of these three central truths about creation, Aquinas held that only the third is a revealed truth strictly inaccessible to human philosophical discovery, whereas the first and second are truths for which we can give conclusive, independent philosophical demonstrations even though they are also taught by Scripture. Beginning with his theological motivations, I will explain Aquinas’ commitments in regard to God’s creation, the universe’s dependence upon God, and its beginning in time.

There is, however, an apparent problem with the coherence of Aquinas’ notion of creation: God’s causal role seems to render the causal activity of created entities superfluous. In my view, showing why Aquinas’ account is not saddled with this problem is best done by an appeal to his understanding of God’s Providence. Even though God causes the being of everything, the intelligent way in which God acts allows for created entities and their actions to provide reasons in light of which He can act differently. As God’s reasons for causing a given effect can be counter-factually dependent on a creature and what it does, God’s causing a created effect does not require that this effect could not *also* be dependent on a creature. In the ordinary course of things, then, God is not *individually* sufficient for bringing about the created actions and effects of creatures. Thus, Aquinas holds that God and creatures jointly or concurrently bring about the same effect, each being causally necessary for the same effect in different respects or orders of causal dependence. As I intend to show, this metaphysics of the Christian doctrine of creation, in conclusion, remains compatible with contemporary science.

1. **Creation *Ex Nihilo* and Genesis 1**

Thomas Aquinas’ contemporaries were thoroughly engrossed in questions around the doctrine of creation because of the rediscovery of the writings of Aristotle and the influence of the Arabic commentary tradition through which Aristotle was filtered to the Latin West. Some thinkers at the University of Paris saw Arabic commentators, chiefly Averroes (Ibn Rushd), as holding a view of creation on which the world was demonstrably and necessarily eternal.[[3]](#footnote-3) The Averroist view appeared to be in contradiction with the widely held Christian view of creation, including binding teaching proposed at the Fourth Council of the Lateran,[[4]](#footnote-4) prompting both official censures directed at nascent Averroism in the Parisian academy[[5]](#footnote-5) and a flurry of academic works that argued against the position. Aquinas followed suite as a professor at Paris. Aside from the summary of his views in the *Summa theologiae* and *Summa contra Gentiles*, Aquinas dedicates two significant treatises to questions of creation: one, the *De aeternitate mundi*, and the other, an extensive set of ‘disputed questions’ *De potentia Dei*.[[6]](#footnote-6)

A representative figure often contrasted with Aquinas on these questions was Bonaventure (Giovanni di Fidanza), who held the Franciscan chair of theology, which was the counterpart to Aquinas’ Dominican chair at the University of Paris. Bonaventure and Aquinas each were inspired by the theological synthesis of Augustine, but Bonaventure’s positions on creation represent an older or more traditional position among early scholastics.[[7]](#footnote-7) Bonaventure opposes the claim that the world is necessary and eternal by arguing that, if one holds that everything in the universe was caused by God, then there is a contradiction in holding that the universe existed eternally: “To posit that the world is eternal or eternally produced, while positing likewise that all things have been produced from nothing, is altogether opposed to the truth and reason… For this involves, in itself, an obvious contradiction.”[[8]](#footnote-8) Borrowing from Alexander of Hales, Bonaventure argues that God’s creating the universe from no pre-existing matter (*ex nihilo*) requires that nothing be logically prior to the existence of the universe, so that the universe would begin to exist at a finite moment in the past.[[9]](#footnote-9)

As Bonaventure’s argument illustrates, the issues being discussed in connection to God’s creation were ultimately *metaphysical* questions about causality and God’s reasons for creating. In fact, Bonaventure, Aquinas, and many of their contemporaries inherited a reading from Augustine such that Genesis 1 was understood to teach primarily that the universe was created by God in time and without making use of any pre-existing matter – that is, from nothing. Augustine argued that Genesis should not be understood to teach that the universe was less than six thousand years old – which would have been in contradiction to the best science of the day – and, further, that the six days of creation were a logical division of a single, simultaneous act by which God created the universe, accompanied by the gradual emergence of everything over time by means of ‘rational principles’ (*rationes seminales*) which God implanted in the material universe at its origin.[[10]](#footnote-10) Given Augustine’s proposals for accommodating different scientific accounts of the development and age of the universe, the question for Aquinas and Bonaventure was then not so much how to interpret the book of Genesis in a way compatible with natural science, but rather how to address a view on which the universe, and God’s actions in creating it, were metaphysically necessary.

Aquinas spent much of his life addressing questions about creation, developing a position that opposed the earlier scholastic consensus represented by Bonaventure. The position he developed required Aquinas to clearly differentiate his own view from those that were dogmatically-suspect.[[11]](#footnote-11) On one hand, Aquinas argued that creation can be demonstrated by reason alone, insofar as one considers the dependence of everything on God for its existence.[[12]](#footnote-12) The arguments presented in *Summa theologiae* I, q. 3, for example, are supposed to show that various kinds of phenomena, such as change or contingency, entail the existence of a First Cause, metaphysically necessary to account for the existence of the universe. On the other, Aquinas embraces an epistemic reserve about whether philosophical reasoning can show definitively that the universe existed eternally or began to exist at a finite point in the past. In his early writings, he endorses the position of Maimonides (Moses ben Maimon) that no demonstration can be given either way,[[13]](#footnote-13) and, in later writing, explicitly claims that it is only known as an article of faith that the universe began to exist in time.[[14]](#footnote-14) He therefore argued, as summarized in his *De aeternitate mundi*, that the existence of an eternally-created universe is metaphysically possible. He shows that each of the assumptions (e.g., about causality) that are taken to show the universe must have begun to exist in time are false and so there is no contradiction in the notion of an eternally-dependent universe.[[15]](#footnote-15)

Aquinas has principled reasons for this position, given the way in which he understands what it is for God to create. *Pace* Bonaventure, Aquinas thinks that the way in which God was a cause does not require that the cause temporally precede the effect – cause and effect can be simultaneous since God does not act successively in creating.[[16]](#footnote-16) Further, since creation *ex nihilo* does not require a ‘substratum’ on which God is operating, creation is not a change *in* but the *coming* *to be* of what is created.[[17]](#footnote-17) God’s act is to bring about the ‘whole being’ of what is created immediately and directly; creation is thus “to produce a thing in being in respect to its whole substance.”[[18]](#footnote-18) Aquinas here borrows the notion from Avicenna (Ibn Sina) of a *contingent* being as one that is constantly dependent upon a necessary being for its existence.[[19]](#footnote-19) Aquinas adopts this into the notion of a being whose essence is ‘really distinct’ from its existence.[[20]](#footnote-20) As all of creation is contingent, what is created depends on God at every time it exists.[[21]](#footnote-21) Consequently, even if the universe did not originate at any point in the finite past, this fact would not entail that the universe (or anything in it) ceases to be contingent. There is then nothing contradictory in the possibility that the universe existed for eternity but was, for all that period, dependent on God for its existence.[[22]](#footnote-22) For this same reason, speculations in modern cosmology that there was no first moment of time would be compatible with the fact of the contingent character of the material universe and the necessity of God causing it to exist.[[23]](#footnote-23) Nevertheless, Aquinas elsewhere says that whether the universe is eternal or not is a contingent fact that we know via Revelation and not from general metaphysical reasoning. This is because when the universe (or anything in it) came into existence is not an essential feature of it. But, as scientific demonstrations begin with premises drawn from the essences of created things, we would not be able to demonstrate whether or not the universe came into existence at a particular time from facts about its essence.[[24]](#footnote-24)

1. **Occasionalism, Necessitation, and Providence**

Aquinas’ view that creation involves causing the ‘whole being’ of what is created is the guiding thread for his overall doctrine of divine causality: God is an efficient cause in a radically different way from creatures. To create *ex nihilo* involves creating the whole of the being of an entity, not merely changing how things exist, and this is only something God can do. Creatures have causal powers, but they can only bring into existence new entities *from* what already exists, and thus they cannot create, properly speaking.[[25]](#footnote-25) In addition, creation involves a real dependence relation of what is created on God, yet it involves no intrinsic change or property coming to exist in God – all that results on God’s part is a new logical relation between Him and what He creates, namely, the relation of ‘being the cause’ of it.[[26]](#footnote-26) Finally, more controversially, Aquinas claims that God’s causality is immediately active in every created thing. God not only creates at some initial point all created entities with their properties and causal powers; rather, the powers and operations of every created entity continue to be dependent upon God for their being and exercise: “God is the cause of the action of all things inasmuch as he gives them power to act and preserves them and applies them to action and inasmuch as by his power every other power acts. And when we add that God is his own power and that he is within each thing, not as a part of its essence, but as holding the thing in being, it follows that he operates immediately in every operation, without excluding the operation of the will and nature.”[[27]](#footnote-27) These strong claims about God working within every created cause follow from his general way of understanding creation *ex nihilo* as immediate and direct causal dependence on God – as everything that exists is individually dependent on God’s continuing preserving causality, so too are all of their actions and powers.

If God causes the entire being and operation of every created entity, at every point in time, does this not render the causal activity of created entities superfluous? This worry concerns metaphysical or causal *overdetermination*. Contemporary authors, such as John Polkinghorne, Philip Clayton, and Keith Ward, believe there is a dilemma for Aquinas’ view: if every physical state has a physical cause, and God is also the full cause of the being of those physical states, either the physical cause is sufficient for the physical effect or God is. It does not seem coherent to say that both are individually sufficient causes of the same effect. But if God is the full cause of the effect, then the physical cause is doing no causal work, and the view is equivalent to occasionalism. Or, if the physical cause individually accomplishes the effect, and God does nothing, then the view seems to make God’s causality superfluous – and, if this were true, then it is not easy to see how God can guide the course of events.[[28]](#footnote-28) Some interpreters of Aquinas claim that he holds that God’s causality is ‘non-competitive’ with creaturely causality, but without explaining how this fact avoids the overdetermination worry, or relying on religious faith to bridge the gap.[[29]](#footnote-29) These interpretations make it appear as if Aquinas’ position is merely that God is a special kind of cause, where divine causality alone does not result in overdetermination despite being sufficient for directly and immediately bringing about every created effect. And that would be clearly an *ad hoc* and unsatisfying response.

Aquinas was familiar with occasionalism from Islamic thought, and he rejects it explicitly, appealing first to a response by Averroes to other Islamic occasionalists. Contrary to a prominent school of Islamic theology beginning with al-Ashʿarī (874–936), which held that all entities other than God can exercise no real causal influence, Averroes proposed an account of divine causality that attempted to preserve the notion that creatures can exercise efficient causality.[[30]](#footnote-30) Aquinas adopts parts of this response from the Islamic dialectic and incorporates it in his position.[[31]](#footnote-31) Aquinas argues, for example, that the occasionalist position seems to lead to skepticism about what is otherwise evident to our senses and that it would make the whole nature of created entities useless if they did not actually exercise any of their own proper activity. In sum, he argues that nothing about the fact that God is the cause of creaturely actions requires us to think that created things exercise no real activity or causal power. Instead, he proposes that God is the cause of the natures and powers by whichthey operate, and that His causal agency sets them in motion, applying them to their activities.[[32]](#footnote-32)

The key way, however, in which Aquinas goes beyond his Islamic interlocutors is in how he conceives of the way that God brings about creaturely actions, adopting a significantly different understanding of divine Providence. Although some today dispute or qualify whether Averroes held that God creates necessarily,[[33]](#footnote-33) what is uncontroversial is that, for Averroes as it was for his predecessor Avicenna (Ibn Sina), God’s causality entails that everything He creates is necessitated – that is, all that occurs is necessary.[[34]](#footnote-34) Avicenna arrives at this position because He thinks God acts (in quasi-Leibnizian fashion) in light of His best reasons. Appealing to a version of the Principle of Sufficient Reason, Avicenna reasoned that God must have a sufficient reason to bring about what He does, and so that what God does is necessitated by His reasons. Thus, God produces the first Intelligence in the Avicennan emanationist scheme by necessity, and that one produces the next…and so on.[[35]](#footnote-35) Aquinas agrees with Avicenna that, because God is an intelligent agent, God acts in light of reasons. ‘Providence’ is the intelligent plan or design by which God chooses to bring about what He does, existing from eternity in God’s intellect, and which He executes temporally in His act of ‘governing’ the cosmos.[[36]](#footnote-36) So too God’s knowledge, in line with His causal role in creation, is not metaphysically dependent on what He creates. Unlike our knowledge, God’s knowledge of the created world is causative of what He knows.[[37]](#footnote-37)

However, Aquinas holds that God is supremely free and not constrained by reasons independent of Himself. The divine ideas, on the basis of which God creates, are not metaphysically independent of God – rather, God knows what is metaphysically possible in virtue of knowing His own essence and power.[[38]](#footnote-38) But, contra Avicenna (and Leibniz), Aquinas denies it is strictly true that God cannot do better than He does, denying the supposition that there is any one, unique ‘best’ possible world for God to create or that God’s reasons would constrain His actions with strict necessity (God *always* has some other potential actions open to Him).[[39]](#footnote-39) Clearly, God is not metaphysically dependent on the course of events in time, or upon creaturely action, to bring about what He does. And, since God operates outside of time and is the total cause of all that exists, God choosing to do anything *on account of* something else does not imply that God needed to choose to do anything at all or to do it in the way that He chose to do, even though there was an order among the actions He (in fact) chose to perform. So, God’s being a rational agent implies only a highly qualified kind of necessity in God’s actions: one thing God does might be a necessary means, in His Providence, to another He has freely chosen to accomplish (as, for example, choosing to redeem humanity by the Incarnation and Passion rather than in some other way).[[40]](#footnote-40) Aquinas thus rejects the position that God creates necessarily, that God cannot do otherwise, or that what God chooses to create is necessitated by God’s decisions.[[41]](#footnote-41)

Nevertheless, what Aquinas insists upon is that God *does* act in such a way that creatures and their actions can be reasons for what He brings about – and, because He is not necessitated to do anything, everything flows from God’s goodness and not from any necessity.[[42]](#footnote-42) While I cannot here discuss all elements of Aquinas’ view of Providence, this is the basis for Aquinas’ rejection of occasionalism. The very claim that God is a radically different sort of cause allows Aquinas to say that God’s causal action is not in ‘competition’ with creaturely causality. Creaturely ‘secondary’ causes remain dependent on God’s ‘primary’ causality for their efficacy, but that does not take away their causal efficacy.[[43]](#footnote-43) As we see in Aquinas’ account of how God responds to petitionary prayers, God can be responsive to what creatures do by taking account of their actions in His Providence; He can choose to heal someone on account of the prayers of a saint, such that God’s healing would be counter-factually dependent on the saint’s prayer.[[44]](#footnote-44) In much the same way, however, Aquinas holds that God causing everything does not remove contingency or freedom from what He causes. This is because, while God acts as the transcendental efficient cause of everything’s being, *how* God brings about their actions involves, e.g., having chosen to allow them to be real efficient causes, to exercise free decisions, etc. God would just be causing them, intelligently, in such a way that He is causing the very free or contingent actions the creature performs from its own powers.[[45]](#footnote-45)

Aquinas appeal to God’s manner of bringing about His effects by means of His Providence can, I think, adequately address the overdetermination worries. Aquinas often discusses ‘secondary’ causality, the way creatures exercise their own causal powers even when under the influence of God’s ‘primary’ causality, by means of an analogy with how instruments exercise causal influence even while operating under the power of an agent.[[46]](#footnote-46) When a butcher cuts meat with a knife, the sharpness of the knife is precisely the means by which the action of the butcher accomplishes the goal of cutting the meat, even though the knife would not cut the meat without the action of the butcher. That is, the instrument – the knife – exercises its own causality even though it could not exercise that causality unless under the influence of the primary agent – the butcher. By analogy, there is no reason why God cannot bring about some created effects in light of created causes, as if these are instruments by which He has chosen to act, even though all of these depend on God.[[47]](#footnote-47) When God brings about created effects, then, He brings about those effects *precisely* *by means of* their created causes, and in the way that the created things cause them to occur. This is nothing more than to say that these effects are brought about by the real causal power of the created agents, even if the whole created causal order depends on God to exist and act.

It is often overlooked too that, although everything depends on God for their existence, Aquinas holds that God ordinarily brings about effects in His government through causal intermediaries. It is not true that everything depends upon God *immediately and directly* either for their existence or for their operations. Even though everything about a created entity depends on God, the fact that God’s power *could* be sufficient for bringing about the effect of any creature does not entail that He *is* always actually acting in a way sufficient by Himself to bring about those effects *without* the creature. To the contrary, God has good reasons not to bring about every creaturely act immediately and, in how things actually operate in the universe, it is apparent to us that creatures exercise real causal activity. This points to a distinction between God’s Providence/creation and His government in time: “God created all things immediately, but in the creation itself He established an order among things, so that some depend on others, by which they are preserved in being, though He remains the principal cause of their preservation.”[[48]](#footnote-48) God is not therefore engaged in ‘continual creation.’[[49]](#footnote-49) God’s act of creation is intelligent and involves His Providential ordering of causes which, as they work out in time, involve the real causal dependence of created entities upon each other without God having to specifically intervene, even if He can exceptionally intervene in the created order of things and perform miracles.[[50]](#footnote-50) The causal order by which God causes the existence of everything, consequently, is in no apparent conflict with the way in which created entities relate to each other as cause and effect. If we understand Aquinas’ doctrine of creation in light of these qualifications, it seems unclear where the overdetermination worry could take hold.[[51]](#footnote-51)

1. **Conclusion: Contemporary Science and God’s Causal Activity**

From the above, it should be apparent that, while revelation teaches us about the dependence of the universe on God, Aquinas does not think that the truths about creation entail much in regard to the scientific details concerning the universe’s origins. That the universe began to exist in time is ultimately something Aquinas does not believe our science could demonstrate definitively, even if we could show that it was likely. Similarly, the dependence upon God’s causality is not a dependence in any created causal order, but a dependence that involves all of the existence and operations of every creature – there would be *no need* for a special physical force, for example, by which God intervenes in order for God to guide the course of events.[[52]](#footnote-52) So it could seem as if Aquinas’ notion of creation has no scientific implications. But this is not quite correct.

What it shows us, first, is that the revealed truth that God created the universe, and providentially disposes all creaturely activity, is compatible with a wide range of possible scientific accounts of the origins of things. Although I have already discussed cosmology, it is also typical in discussions of faith and science to highlight evolutionary biology as in conflict, or potential conflict, with belief in the existence of a provident God who created the universe. From Aquinas’ perspective, however, it is hard to see where any potential conflict *could even be*. While Aquinas was not aware of any scientific evidence for the generation of new species over the course of biological history, there would not be any reason from his account of creation that he could not accept its occurrence.[[53]](#footnote-53) Similarly, God’s Providence can guide the course of world history, including biological evolution, without any particular miraculous interventions needed over the course of the universe. It might also be thought that there is a significant problem for how non-living things could give rise to living ones, i.e., abiogenesis. Yet abiogenesis poses no unique problem for Aquinas’ account. God is able to cause the existence of contingent or chance processes, and nevertheless bring about definite, foreseen, and intended outcomes by means of them. If we assume that random changes over time in material bodies are metaphysically capable of giving rise to living organisms (which I think Aquinas can accept[[54]](#footnote-54)), then a random natural process is something that still falls under the direction of God’s Providence. When we discover that organisms were generated by natural and chance processes from non-living things, we would *ipso facto* discover that God brought about living things in this way.

The only special difficulty, which I wager underlies many worries about evolutionary biology among theists of various stripes, is that if there was a chancy, biological account which exhaustively explains the origin of human beings, this seems to entail some kind of materialism about the human person incompatible with the existence of an immortal human soul. On one hand, it is noteworthy that this is ultimately not a question about creation, but about philosophy of mind. Aquinas has a ‘hylomorphic’ account of how human beings are essentially material organisms, although with a special kind of substantial form that can survive their death, and this involves a different mind-body relation from that of classical Cartesian ‘substance dualism.’[[55]](#footnote-55) Whether and how a hylomorphic account of the person is defensible in light of contemporary neuroscience and evolutionary biology has no direct bearing on Aquinas’ account of God’s causal activity, so I leave it to the side. On the other, Aquinas’ account of creation nevertheless can be helpful in considering how God *could* use a chancy biological process to bring about human beings with immaterial souls. In sum, it would be possible for Aquinas to admit every biological fact about human origins, while only denying that these alone are *sufficient* to account for the existence of a human being.

This is essentially how Aquinas explains the causal role that biological parents have in producing a child: their contributions – sexual activity, egg and sperm, etc. – are all causally necessary for producing a child, but God needs to intervene to immediately create a human soul.[[56]](#footnote-56) Further, given Aquinas’ hylomorphism, God’s action follows immediately when the biological conditions are sufficient.[[57]](#footnote-57) There is no reason Aquinas could not apply the same understanding to the chancy biological processes that would have been involved in human evolutionary origins: the biological process was necessary, but not sufficient, for the production of a human being and, when evolutionary history made it such that there were biological conditions that would potentially produce a human being, God’s action followed immediately, leading to the production of the first human being in much the same way as every human being is produced by their parents.[[58]](#footnote-58) We can note that, as with the cosmological story, this tells us essentially nothing about what actually occurred biologically; instead, this is a metaphysical description of what steps in the biological process *depend upon* God’s causal activity. Although this story is conditional on Aquinas’ hylomorphic account of the human soul being correct (which *does* have implications for neuroscience and biology), the parts of the causal story that deal with what God would have to do to bring about a human being otherwise posit no scientific facts over and above those already known in biology or neuroscience. For this reason, it is hard to see how Aquinas’ metaphysics could conflict with contemporary science.

Yet there is a principled reason for Aquinas’ metaphysical reserve in regard to natural science; the goal was not to insulate Christian doctrine against science, but to defend the autonomy of the natural sciences and other related modes of investigation against overreach from theology or metaphysics. God has so set up the world that it operates according to intelligible natural laws, knowable *sans* revelation, and the way that He governs the world does not undermine the ability of these creatures to exercise their own natural modes of activity. Much can be gained in understanding God’s intentions, then, by exploring the natures of these creatures via scientific means. Aquinas also holds this to be true of normative facts as well. A well-known tradition of *natural law* ethics and politics holds that human nature is what accounts for the normative facts about what human beings ought to do. While it is certainly possible for God to create special positive laws,[[59]](#footnote-59) God does not need to do anything more than create human beings in order to establish a moral law.[[60]](#footnote-60) This is because, as rational creatures, humans can discern how their natures participate in His eternal law, the design He has in His Providence.[[61]](#footnote-61)

Even more strongly, the formal autonomy of scientific investigation, Aquinas thinks, has theological import. The conclusions of natural inquiry, whether in philosophy or the natural sciences, are the starting points for knowledge we can have of God’s existence and His nature, and Aquinas in fact thinks this is a revealed fact (referencing Rom. 1:20).[[62]](#footnote-62) Certainly, Aquinas thinks, the truth of revelation could not *contradict* the results of the natural sciences, as truth cannot contradict truth.[[63]](#footnote-63) But Aquinas thinks it would be equally difficult to see how human beings could see the Gospel message as *intelligible* if there was no ground for natural knowledge of God or morality, even though he readily admits that Christianity requires belief in revealed truths that cannot be established by natural reason alone.[[64]](#footnote-64) That is, it seems to be the case that Christian revelation presupposes we do have *natural knowledge* of these things because “faith presupposes natural knowledge, even as grace presupposes nature.”[[65]](#footnote-65)

Finally, that everything is not immediately caused by God as if by miracle, and that God has reasons to allow creatures to exercise their own kinds of causality, is also important to preserve the responsibility of human beings within a providentially-guided universe. Because God can guide the course of history in a way that respects and is compatible with human free decisions, Aquinas can affirm classical Christian doctrines about the necessity of grace for supernatural conversion, coming to faith in and love of God, as a special instance of his general approach to God’s causality.[[66]](#footnote-66) This too set Aquinas apart from his Islamic interlocutors, who often proposed a deterministic theory of causality that implied either a denial of or a compatibilist understanding of human free agency.[[67]](#footnote-67) In the end, Aquinas’ account of divine causality remains a plausible and attractive way to explain the nature of God’s causal activity, given the way that his understanding God’s Providence provides unified solutions, by appeal to a few metaphysical principles, to many apparent puzzles or difficulties with theism.

**Further Reading**

Acar, R., 2005 *Talking about God and Talking about Creation: Avicenna’s and Thomas Aquinas’ Positions*. Islamic Philosophy, Theology and Science. Texts and Studies 58 (Leiden; Boston: Brill).

Aquinas, T., 2011 *On Creation: Quaestiones Disputatae de Potentia Dei, Q. 3*. Thomas Aquinas in Translation, Susan Selner-Wright (trans.) (Washington: Catholic University of America Press).

Burrell, D. B., ed., 2010 *Creation and the God of Abraham* (New York: Cambridge University Press).

Dodds, M. J., 2012 *Unlocking Divine Action: Contemporary Science and Thomas Aquinas* (Washington DC: Catholic University of America Press).

Kerr, G., 2012 “A Thomistic Metaphysics of Creation.” *Religious Studies* 48, no. 3: 337–56.

Kerr, G., 2019 *Aquinas and the Metaphysics of Creation* (Oxford: Oxford University Press).

Kretzmann, N., 1998 *The Metaphysics of Creation: Aquinas’s Natural Theology in Summa Contra Gentiles II* (Oxford: Clarendon Press).

Levering, M. W., 2017 *Engaging the Doctrine of Creation: Cosmos, Creatures, and the Wise and Good Creator* (Grand Rapids, Michigan: Baker Academic, a division of Baker Publishing Group).

Wallace, W. A., 1974 “Aquinas on Creation: Science, Theology, and Matters of Fact.” *The Thomist* 38, no. 3 (July 1974): 485–523.

Wawrykow , J., 2018 “Aquinas and Bonaventure on Creation,” in Gary Anderson and Markus Bockmuehl (eds.), *Creation ex nihilo* (Notre Dame, IN: University of Notre Dame Press): 173-194.

White, T. J., 2009 *Wisdom in the Face of Modernity* (Washington, DC: Catholic University of America Press).

Wippel, J. F., 2014 “Aquinas on Creation and Preambles of Faith.” *The Thomist* 78, no. 1: 1–36.

**Bibliography**

Acar, R., 2005 *Talking about God and Talking about Creation: Avicenna’s and Thomas Aquinas’ Positions*. Islamic Philosophy, Theology and Science. Texts and Studies 58 (Leiden; Boston: Brill).

Augustine, 1982 *The Literal Meaning of Genesis*, John Hammond Taylor, S.J. (trans. & anno.), 2 vols (New York: Newman Press).

Avicenna, 2005 *The Metaphysics of the Healing*, M. Marmura (trans.) (Provo: Brigham Young University Press).

Ayala, F. J., 2007 *Darwin’s Gift to Science and Religion* (Washington, D.C.: Joseph Henry Press).

Belo, C., 2016 “Freedom and Determinism,” in *Routledge Companion to Islamic Philosophy,* edited by Richard Taylor and Luis Xavier López-Farjeat (New York, NY: Routledge): 325-336.

Clayton, P., 2004 “Natural Law and Divine Action: The Search for an Expanded Theory of Causation.” *Zygon* 39: 615–36.

Dodds, M. J., 2012 *Unlocking Divine Action: Contemporary Science and Thomas Aquinas* (Washington DC: Catholic University of America Press).

Fakhry, M., 2008 *Islamic Occasionalism and its Critique by Averroes and Aquinas* (first printed 1958, reprinted by Routledge).

Farrer, A., 1967 *Faith and Speculation: An Essay in Philosophical Theology* (London: Adam & Charles Black).

Feser, E., 2019 *Aristotle's Revenge: The Metaphysical Foundations of Physical and Biological Science* (Editiones Scholasticae).

Gould, S. J., 1997 " Nonoverlapping Magisteria," *Natural History* 106: 16-22.

International Theological Commission, 2004 *Communion and Stewardship*, https://www.vatican.va/roman\_curia/congregations/cfaith/cti\_documents/rc\_con\_cfaith\_doc\_20040723\_communion-stewardship\_en.html

Kerr, G., 2012 “A Thomistic Metaphysics of Creation.” *Religious Studies* 48, no. 3: 337–56.

Kerr, G., 2019 *Aquinas and the Metaphysics of Creation* (Oxford: Oxford University Press).

Kretzmann, N., 1997 *The Metaphysics of Theism*. Oxford: Clarendon Press.

Kvanvig, J. L. and McCann, H. J., 1988. “Divine Conservation and the Persistence of the World,” in Thomas V. Morris (ed.), *Divine and Human Action* (Ithaca, NY: Cornell University Press): 13–49.

Levering, M. W., 2017 *Engaging the Doctrine of Creation: Cosmos, Creatures, and the Wise and Good Creator* (Grand Rapids, Michigan: Baker Academic, a division of Baker Publishing Group).

López-Farjeat, L. X., 2012 “Avicenna’s Influence on Aquinas Early Doctrine of Creation in ‘In Sent.’, D. 1, Q. 1, A. 2,” in *Recherches de théologie et philosophie médiévales,* 2012, Vol. 79, No. 2: 307-337.

Noone, T. and Hauser, R.E., 2020 "Saint Bonaventure", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2020 Edition), URL = <https://plato.stanford.edu/archives/win2020/entries/bonaventure/>.

Polkinghorne, J., 1996 “Chaos Theory and Divine Action.” In W. M. Richardson and W. J. Wildman (eds.), *Religion and Science: History, Method and Dialogue* (New York: Routledge): 243–252.

Polkinghorne, J., 1989 *Science and Providence: God’s Interaction with the World* (Boston: New Science Library).

Richardson, K., 2020 "Causation in Arabic and Islamic Thought", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2020 Edition), URL = https://plato.stanford.edu/archives/win2020/entries/arabic-islamic-causation/.

Silva, I., 2011 “Thomas Aquinas Holds Fast: Objections to Aquinas within Today’s Debate on Divine Action.” *Heythrop Journal* 48, no. 1: 1–10.

Stump, E., 1995 “Non-Cartesian Substance Dualism and Materialism Without Reductionism,” in *Faith and Philosophy* Vol. 12, No. 4: 505-531.

Wallace, W. A., 1974 “Aquinas on Creation: Science, Theology, and Matters of Fact.” *The Thomist* 38, no. 3 (July 1974): 485–523.

Wawrykow , J., 2018 “Aquinas and Bonaventure on Creation,” in Gary Anderson and Markus Bockmuehl (eds.), *Creation ex nihilo* (Notre Dame, IN: University of Notre Dame Press): 173-194.

White, T. J., 2009 *Wisdom in the Face of Modernity* (Washington, DC: Catholic University of America Press).

Wittman, T. R., 2019 *God and Creation in the Theology of Thomas Aquinas and Karl Barth* (Cambridge University Press)

Wippel, J. F., 1977 “The Condemnations of 1270 and 1277 at Paris,” *The Journal of Medieval and Renaissance Studies*, 7: 169–201;

Wippel, J. F., 1995 “Thomas Aquinas and the Condemnation of 1277,” *The Modern Schoolman*, 72: 233-272.

1. See Ayala 2007, p. ix; Gould 1997. [↑](#footnote-ref-1)
2. SCGII.3. [↑](#footnote-ref-2)
3. López-Farjeat 2012, esp. p. 315, fn. 19 for references to texts of Averroes on the eternity of time and motion. [↑](#footnote-ref-3)
4. Lateran IV, Canon 1. [↑](#footnote-ref-4)
5. e.g., local Parisian censures of 1215 & 1231. [↑](#footnote-ref-5)
6. Wippel 1977, pp. 169–201; Wippel 1995. [↑](#footnote-ref-6)
7. Wawrykow 2017, pp. 174-180. [↑](#footnote-ref-7)
8. Bonaventure, *In II Sent.* dist. 1, pars 1, art. 1, qu. 2 (ed. Quaracchi, II: 22a-b). Translation from Noone and Hauser 2020. [↑](#footnote-ref-8)
9. Ibid., sec. 3.2. [↑](#footnote-ref-9)
10. See Augustine 1982, esp. Vol. 1, p. 36. [↑](#footnote-ref-10)
11. For an itinerary of Aquinas’ thought and writings on creation, see Wallace 1974, esp. pp. 503-504. [↑](#footnote-ref-11)
12. *In II Sent*. dist. 1, qu. 1, art. 2. [↑](#footnote-ref-12)
13. *In II Sent.* dist. 1, qu. 1, art. 5, co. See López-Farjeat 2012, pp. 317-318. [↑](#footnote-ref-13)
14. *Quodl* XII q. 5 a. 1. [↑](#footnote-ref-14)
15. *De aeternitate mundi*. [↑](#footnote-ref-15)
16. ST I q. 46 a. 2 ad. 1. [↑](#footnote-ref-16)
17. *QDP* a. 2 Resp.; ST I q. 46 a. 1 ad. 1. [↑](#footnote-ref-17)
18. *In II Sent.* dist. 1, qu. 1, art. 2, co. (my translation) [↑](#footnote-ref-18)
19. López-Farjeat 2012, pp. 330-331. [↑](#footnote-ref-19)
20. Kerr 2019, pp. 49-51. [↑](#footnote-ref-20)
21. See ST I q. 104 a. 1. [↑](#footnote-ref-21)
22. See further Kerr 2019, pp. 159-173. [↑](#footnote-ref-22)
23. Kerr 2012, esp. pp. 338-350. [↑](#footnote-ref-23)
24. *QDP* q. 3 a. 17; ST I q. 46 a. 2. [↑](#footnote-ref-24)
25. *QDP* a. 1, Resp. & a. 4. [↑](#footnote-ref-25)
26. *QDP* a. 3. [↑](#footnote-ref-26)
27. *QDP* a. 7. (Translation Selner-Wright 2011) [↑](#footnote-ref-27)
28. Silva 2013, pp. 659-660. [↑](#footnote-ref-28)
29. See Farrer 1967, esp. p. 62 & p. 110. (Polkinghorne, Clayton, and Ward were largely responding to Farrer.) [↑](#footnote-ref-29)
30. Richardson 2020, sec. 1.2. [↑](#footnote-ref-30)
31. See Fahkry 2008. [↑](#footnote-ref-31)
32. *QDP* a. 7 co. [↑](#footnote-ref-32)
33. Acar 2005, pp. 146-149. [↑](#footnote-ref-33)
34. Richardson 2020, sec. 3.1, 3.3; Acar 2005, pp. 132-146. [↑](#footnote-ref-34)
35. See Avicenna 2005, pp. 126-127; cited in Richardson, op. cit. [↑](#footnote-ref-35)
36. ST I q. 22 a. 1. [↑](#footnote-ref-36)
37. ST I q. 14 a. 8. [↑](#footnote-ref-37)
38. SCG I.46; ST I q. 14 a. 9 & q. 15 a. 1. [↑](#footnote-ref-38)
39. E.g., he rejects Avicenna’s reasoning explicitly at *QDP* q. 3 a. 15 & a. 17 ad. 4. [↑](#footnote-ref-39)
40. See ST I q. 19 a. 3. [↑](#footnote-ref-40)
41. *Pace* Kretzmann 1997, pp. 224-225, God is not necessitated either in deciding whether to create or what to create – see Kerr 2019, pp. 62-67. [↑](#footnote-ref-41)
42. See Wittman 2019, pp. 57-65. [↑](#footnote-ref-42)
43. See ST I q. 105 a. 5; SCG III.109. [↑](#footnote-ref-43)
44. SCG III.96. [↑](#footnote-ref-44)
45. See ST I q. 19 a. 8. [↑](#footnote-ref-45)
46. ST I q. 105 a. 5 Resp. [↑](#footnote-ref-46)
47. Wittman 2019, pp. 100-106. [↑](#footnote-ref-47)
48. ST I Q. 104 a. 2 Resp. (Translation English Dominican Fathers) [↑](#footnote-ref-48)
49. E.g., McCann and Kvanvig 1988. [↑](#footnote-ref-49)
50. God acts on the basis of His divine ideas and His Word in creating and guiding the providential order of creation; Levering 2017, pp. 54-71; Wittman 2019, pp. 94-95. [↑](#footnote-ref-50)
51. Silva 2013, pp. 662-664. [↑](#footnote-ref-51)
52. Polkinghorne 1989, p. 31; Polkinghorne 1996, pp. 247-249; Clayton 2004, pp. 615-636. [↑](#footnote-ref-52)
53. Dodds 2012, pp. 221-225. [↑](#footnote-ref-53)
54. Feser 2019*,* pp. 372-378. [↑](#footnote-ref-54)
55. Cf. Stump 1995; and Stump 2021 (in this volume). [↑](#footnote-ref-55)
56. ST I q. 90 a. 1 & 2; SCG II.87. [↑](#footnote-ref-56)
57. Levering 2017, pp. 220-223. [↑](#footnote-ref-57)
58. This is essentially how the Catholic Church today explains the process; International Theological Commission 2004, no. 68. Also see Dodds 2012, pp. 203-204. [↑](#footnote-ref-58)
59. ST I-II q. 91 a. 4. [↑](#footnote-ref-59)
60. ST I-II q. 91 a. 2. [↑](#footnote-ref-60)
61. Also, SCG III.129. [↑](#footnote-ref-61)
62. SCG I.8 & I.12. [↑](#footnote-ref-62)
63. SCG I.7. [↑](#footnote-ref-63)
64. For a fuller defense from a Thomistic point of view, see White 2009. [↑](#footnote-ref-64)
65. ST I q. 2 a. 2 ad. 1. [↑](#footnote-ref-65)
66. SCG III.148. [↑](#footnote-ref-66)
67. Belo 2016. [↑](#footnote-ref-67)