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From secondary causes to artificial instruments: Pierre-Sylvain Régis's rethinking of scholastic accounts of causation

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ABSTRACT

Although several of Descartes's disciples established occasionalism as the natural outcome of Cartesianism, Pierre-Sylvain Régis forcefully resisted this conclusion by developing an account of secondary causes in which God does not immediately intervene in the natural world. In order to understand this view, it has been argued that Régis melds Aquinas's concurrentism with the new, mechanist natural philosophy defended in Cartesian physics. In this paper, I contend that such a reading of Régis's position is misleading for our understanding of both his account of secondary causality and the relationship between medieval debates and seventeenth century natural philosophy. I show that Régis's account of secondary causality denies two fundamental features at the core of the account proposed by Aquinas, namely that God acts immediately in nature and that secondary causes are *per se* causes. I contend that Régis's view more closely resembles a specific account of artificial instrumental causality developed by Duns Scotus. The comparison with Scotus shows that Régis is still dealing with conceptual tools that can be traced back to the scholastic tradition. Yet, Régis implements these tools to establish an account of causation that is fundamentally irreconcilable with scholastic natural philosophy.

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Les Cartésiens sont d'étranges gens, et trop difficiles à contenter en fait de preuves.

P. Bayle, *Nouvelles de la République des Lettres*, Aout 1686

1. Shifting the understanding of causation

According to a well-established reading, seventeenth century natural philosophy was committed to rejecting the 'Aristotelian-Scholastic' claim that natural bodies are endowed with 'substantial forms', 'active powers', 'occult qualities' or 'real accidents' (see, e.g., [Pasnau \(2011\)](#), pp. 549–573). Instead of these doubtful explanations of natural phenomena, modern authors sought sound 'mechanical' explanations that could account for natural processes in terms of matter in motion only. However, the project of mechanizing nature created a dilemma for seventeenth century natural philosophers.

On the one hand, especially Descartes and his followers perceived the need to preserve and rethink the role of God's

activity in nature. Yet, if bodies are nothing but parts of barely passive extension, and God needs to be involved in nature, Cartesian physics seems doomed to collapse into 'occasionalism', namely, the view that God is the only true cause operating in nature. In fact, several of Descartes's most famous disciples (such as Geulincx, La Forge, Cordemoy and Malebranche) branded occasionalism as an inevitable development of Cartesianism. On the other hand, a variety of other authors (such as Boyle, Leibniz and Toland) tried in different ways to resist occasionalism by reintroducing notions such as those of 'powers', 'dispositions', 'seeds', and 'mechanical structures' of bodies (see, e.g., [Henry \(1986\)](#)). In one way or another, the authors committed to this second approach agree on the basic claim that occasionalism should be avoided. Their solution amounts to rethinking the scholastic account of causation based on powers and substantial forms by adapting it to the new mechanist worldview. Apparently, this approach was developed not only outside the Cartesian camp, but also within it.

Recently, Walter Ott drew attention to the case of Pierre-Sylvain Régis, ironically labelled "the prince of Cartesians" by his opponent Daniel Huet (1711, p. 1) and recognized by today's scholars as a representative of "radical Cartesianism" ([Schmaltz \(2002\)](#)). According to [Ott \(2008 and 2009\)](#), pp. 112–130, Régis opposed

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Malebranche's occasionalism by melding Aquinas's account of how God concurs with secondary causes (which was intended to reject medieval versions of occasionalism) with a mechanistic understanding of secondary causes (i.e. without relying on substantial forms and active powers). As Ott states: "Régis can be seen as trying to preserve what was valuable in the Aristotelian tradition. By 'sanitizing' key concepts such as power and form and making them intelligible in the context of mechanism, Régis preserves something like a commonsense view of the powers of physical objects" (Ott (2008), p. 13).

In this paper, I argue that despite its *prima facie* plausibility this whole picture is misleading, and its correction can provide a better understanding not only of Régis's position but also of the way in which medieval and later scholastic debates affected seventeenth century natural philosophy. By portraying Régis as adapting Aquinas's view in the context of seventeenth century natural philosophy, Ott's interpretation suggests that Régis shares with Aquinas a fundamentally similar understanding of what generally counts as a real cause in nature. Ott suggests that Régis's approach boils down to the fact that he "replaces scholastic forms with mechanically acceptable substitutes" (Ott (2008), p. 11). According to that view, causation has to be analyzed in terms of how substances modify each other on the basis of causal powers (or their mechanical surrogates, such as mechanical features of bodies). On the contrary, I contend that Régis introduced a different understanding of causation, according to which causation must be analyzed in terms of how certain states of a substance (i.e. modal entities) are connected to each other, without relying on any active causal powers that modal entities may have by themselves. Régis underscores that an assumption shared by both Aquinas and the occasionalists is that true causation requires active powers consequent upon the nature of finite things. Régis's account of causation dismisses precisely this assumption. A deeper investigation into the scholastic antecedents of Régis's position confirms that the account he defends can be traced back to Scotus's account of artificial instrumental causality. Scotus's account is developed in the broader context of his discussion of sacramental causality, and Scotus would have never implemented it in the domain of natural philosophy. Yet, the comparison with Scotus suggests that the 'mechanization' of nature proposed by Régis is in fact much more radical than the standard narrative would admit since it amounts to a profound shift in the very understanding of causation in general.

The paper proceeds as follows. Section two presents Aquinas's dismissal of the medieval version of occasionalism by outlining the fundamental points of Aquinas's positive account of causation in nature. Section three presents Régis's dismissal of occasionalism by pointing out that the account of causation that Régis endorses is irreducible (*pace* Ott) to Aquinas's because of the different way in which Régis understands causal relationships. Section four traces Régis's position back to Scotus's account of artificial instruments, and discusses the meaning of Régis's radical move within the context of scholastic and seventeenth century natural philosophy.

2. Aquinas's account of how God acts in nature

Although medieval authors largely agree on the fact that God acts in nature, any consensus unravels as soon as it becomes a matter of specifying *how* God acts in nature, and whether he is *immediately* involved in the production of natural effects. By Aquinas's time, several authors, especially belonging to the Islamic Kalam tradition, argued that God's direct and immediate operation in nature excludes that natural causes can be considered as proper causes. This claim entails that God is in fact the only cause

operating in the natural world. For present purposes, I shall not delve into the specific arguments used to support this view (usually labelled 'occasionalism').¹ Rather, I focus on the alternative that Aquinas intends to offer.

Aquinas's main point is that the immediacy of God's action is compatible with the fact that secondary causes (i.e. creatures) are able to operate in virtue of some causal power consequent upon their nature, that is, that follows as a necessary accident from the creature's substantial form and allows it to act as a real secondary cause.² Since the seventh article of the third question of Aquinas's *Quaestiones De Potentia Dei*³ offers the most extensive and focused discussion of his answer to the problem of whether "God works in the operations of nature", I shall focus mainly on this text. Also, for present purposes, I restrict the discussion to the case of efficient causality. In fact, the most controversial point in the debate I reconstruct is whether secondary causes can have truly efficacious powers as efficient causes, which would allow them to act upon other finite creatures. Occasionalism challenges this possibility, and both Aquinas and Régis focus chiefly on it.

In the *De Potentia* 3.7 Aquinas distinguishes four ways in which God "concurr[s]" with secondary causes. First, God "gave natural things the powers [*virtutes*] whereby they are able to act". Second, "the preserver of a power is said to cause the action", and God preserves the existence of every creature. Third, "God causes the action of every natural thing by moving and applying its power to action". Fourth, "one thing causes the action of another, as a principal agent causes the action of its instrument: and in this way again we must say that God causes every action of natural things". Aquinas's point is that in all four of these ways God acts immediately upon created things. Nonetheless, God's immediate concursus does not prevent secondary causes from exercising a true causal efficacy, but it rather supports such an efficacy.

In the first two ways, God is the first cause of action because he creates and preserves natural beings as endowed with causal powers. Exactly because God creates secondary causes as endowed with causal powers, God's immediate concursus does not undermine but rather grants and conserves these powers. According to the third way, God applies the power of natural things to action just "as a man causes the knife's cutting by the very fact that he applies the sharpness of the knife to cutting by moving it to cut". God's concursus in this case is similar to that of an unmoved mover that bestows his power on secondary causes or "appl[ies] them to action" in order to let them express their own causal powers.⁴ This case is similar to the fourth way of God's concursus that deals more explicitly with "instrumental" causality.

Aquinas restricts proper "instrumental" causality only to those effects that cannot be fully explained by the nature of the secondary cause itself. For instance, the cutting of the wood is proportionate to the sharpness of the axe, while the form of the bench produced

¹ Aquinas was probably aware of Islamic occasionalism via Maimonides's *Guide to perplexes*. He also discusses an argument for occasionalism found in Avicenna and Averroes. A detailed reconstruction of medieval occasionalism is offered by Perler and Rudolph (2000). Concerning early modern occasionalism, see Nadler, 2010.

² On Aquinas's view of powers as necessary accidents see ST I, q. 77, a. 6; *De Spiritualibus Creaturis*, a.11.

³ In quoting Aquinas's texts, I follow (when possible) the translation provided by the English Dominican Fathers, available here: <<http://dhsprory.org/thomas/QDdePotentia.htm>>. For the original Latin texts, I follow Aquinas, 1965 concerning the *De Potentia* and the Leonine edition (Aquinas, 1884) for the other texts.

⁴ This third way seems to derive from Aquinas's commitment to Aristotle's principles according to which "omne quod movetur, ab alio movetur" ("everything which is moved, is moved by another"). For an overview concerning the use of this principle in ancient and medieval thought, see Weisheipl (1985), pp. 75–97. For Aquinas's use of this principle, see Moreno (1974).

through the cutting of the axe cannot be accounted by the axe alone. In this sense, the axe operates as an instrument for the artisan who produces the bench by applying the axe to the wood. On Aquinas's account, generation (insofar as it entails the production of *being*) is an obvious example in nature of a kind of causation in which individual natural agents produce something that exceeds their own order (i.e. new *esse*) and that requires thus God's concursus.⁵ In this case, secondary causes operate as instruments that produce their effects only because they participate and are moved by the user's motion. Aquinas admits that all natural secondary causes might be considered "instruments" of God's activity insofar as they are involved in the production of effects that exceed their own powers.

After having analyzed the four ways of God's concursus, Aquinas concludes:

God is the cause of everything's action inasmuch as he gives everything the power to act, and preserves it in being and applies it to action, and inasmuch as by his power every other power acts. And if we add to this that God is his own power, and that he is in all things not as part of their essence but as upholding them in their being, we shall conclude that he acts in every agent immediately, without prejudice to the action of the will and of nature.

Aquinas's main strategy against occasionalism consists in showing that the immediacy of God's involvement in nature does not compromise the efficacy of secondary causes. Yet, Aquinas's account seems to entail two concerns. First, concerning the case of instrumental causality, it seems that the instrument is not able to produce the effect attributed to it *qua* instrument. For instance, when a pen is used to write a poem, the effect attributed to the pen as such (e.g. drawing some line on a paper) is either totally different from the poem *qua* poem or clearly beyond the powers of the pen. In this sense, instrumental causality seems to require an immediate and full involvement of God. Since Aquinas grants that there is a sense in which natural agents act as instruments of God, instrumental causality seems to re-open the case for occasionalism. Second, it is unclear in which sense both God and secondary causes can act immediately in the production of a certain effect. If God immediately produces a certain effect, it is unclear what would be left to the efficacy of the secondary cause since God's omnipotence entails that he must always be fully able and sufficient to bring about any effect whatsoever. I shall discuss these two concerns in turn since they help clarify important details of Aquinas's account of secondary causation that will be relevant for my discussion of Régis's account in the next section.

First, concerning instrumental causality, Aquinas's account requires both God's immediate involvement and a true activity of the instrumental cause.⁶ James Albertson (1954) convincingly explained that Aquinas understands instrumental causation analogously to the way in which natural secondary causes operate. This entails that an instrument is *not* a merely passive being that can

bring about its own effects only because the agent using it supplies the whole causal power needed to produce the effect.⁷ Rather, a cause can be considered an instrument of some higher cause when the intrinsic causal power of the instrument is applied to produce an effect that cannot be fully explained on the basis of the nature of the instrument itself. From this point of view, instrumental causality is possible because the instrument is causally active and able to bring about some effect in its own order.⁸

An instrumental cause is nothing but a secondary cause that is used by a higher agent in order to bring about an effect that is not fully proportionate to its nature and causal power. Nonetheless, both secondary and instrumental causes operate in virtue of their own causal powers. For instance, when an artisan uses an axe to cut wood and make a bench, the shape and structure of the bench does not entirely depend on the causal powers of the axe *qua* axe. Yet, the power of the axe to cut the wood is necessary for the artisan to make the bench and contributes to its production. Without a well-working axe (i.e. an instrument endowed with certain causal powers) the artisan could not (ordinarily) produce the bench. Applied to the case of natural agents, this entails that even when secondary causes operate as instruments of God's immediate activity in nature, this does not compromise but rather presupposes a proper causal efficacy on the side of secondary causes. At some point, Régis will invoke Aquinas's account of instrumental causality. Yet, as I shall argue in section three, Régis dismisses the idea that instruments are endowed with proper active causal powers, which is instead essential to Aquinas's account.⁹

This last remark helps to clarify the second concern raised above, namely, the one focused on the immediacy of God's concursus. Aquinas introduces the following distinction:

[I]f, then, we consider the subsistent agent, every particular agent is immediate to its effect: but if we consider the power whereby the action is done, then the power of the higher cause is more immediate to the effect than the power of the lower cause; since the power of the lower cause is not coupled with its effect save by the power of the higher cause. (*De Potentia* 3.7).

Following the standard Aristotelian account of causation, Aquinas presupposes that for an agent to produce an effect means to produce a change in some patient. Yet, the fact that the agent brings about the effect in the patient depends on two strictly connected conditions: (i) the agent must be in direct contact with the patient;

⁷In *De Verit.* q. 24, a. 1, ad 5 Aquinas distinguishes between proper instrumental causes (which exclude self-motion) and improper instrumental causes (which are compatible with self-motion) in order to explain how human beings may act as instrumental causes and still retain their freedom. However, Aquinas's distinction does not deny that even "proper" instrumental causes genuinely contribute to the production of their effect in virtue of their own powers. On this point see Meinert (2014).

⁸Jordan (1993) provides further support for this reading. See also SCG 2.55: "Deus, qui est institutor naturae, non subtrahit rebus id quod est proprium naturis earum".

⁹See *Usage*, livre I, partie II, ch. 36, p. 209, in which Régis refers to ST I, q. 45, a. 5 as support for his own position. Yet, also in this passage, Aquinas explicitly maintains that instrumental causes operate only insofar as they have some truly efficacious power: "causa secunda instrumentalis non participat actionem causae superioris, nisi in quantum per aliquid sibi proprium dispositive operatur ad effectum principalis agentis. Si igitur nihil ibi ageret secundum illud quod est sibi proprium, frustra adhiberetur ad agendum, nec oporteret esse determinata instrumenta determinatarum actionum". There might be other passages that could be used to support Régis's reading of Aquinas. For instance, in ST III, q. 62, a. 1, co., Aquinas writes: "causa vero instrumentalis non agit per virtutem suae formae, sed solum per motum quo movetur a principali agente. Unde effectus non assimilatur instrumento, sed principali agenti". However, the context of this passage is the particular debate of sacramental causality, and the main idea seems to be that instruments do not act in virtue of their forms in the sense that they do not impress their own forms on their product.

⁵See *De Potentia* 3.7: "this or that individual thing cannot by its action produce another individual of the same species except as the instrument of that cause which includes in its scope the whole species and, besides, the whole being of the inferior creature. Wherefore no action in these lower bodies attains to the production of a species except through the power of the heavenly body, nor does anything produce being except by the power of God". Concerning the case of generation, see Pasnau (2001), pp. 62–65 and 100–130.

⁶This position seems consistent across Aquinas's various treatments of the distinction between principal and instrumental causes. See e.g. *Sent.* IV 1.1.4; *De Verit.* 27.4; *De Pot.* 5.1.6 and 5.6.4; SCG III 66. For further discussion of minor changes in Aquinas's view across these works, see Blankenhorn (2006).

and (ii) the agent must be endowed with the appropriate causal power to elicit the effect in the patient. The first condition rules out action at a distance, while the second condition distinguishes the agent from the patient insofar as the agent possesses the active causal power(s) to manifest the potentialities of the patient. If there is only one cause producing one effect, then that cause must satisfy both conditions. However, if there is more than one cause involved in the production of a certain effect, then these conditions can be satisfied by different causes playing at different ontological levels. This is the case of natural effects, in which both God and secondary causes concur. Accordingly, Aquinas suggests that *immediacy* can be understood in two ways. The first is what will be called “immediacy of suppositum”, which expresses the fact that the agent, as a substance, immediately operates on the patient that undergoes the change. In this sense, immediacy of suppositum expresses the idea that agent and patient must be immediately connected in the causal chain leading to the effect. The second kind of immediacy is what will be called “immediacy of power”, which expresses the fact that the agent must possess the appropriate causal power to elicit the effect in the patient.

The case of instrumental causality is a clear instance of a causal relation in which the agent (i.e. the instrument) has immediacy of suppositum (since the instrument is directly applied to the patient in order to produce the effect), but not immediacy of power (since the instrument could not elicit that specific effect without being immediately directed by the power of a superior cause). This entails that an agent has immediacy of power if its own power is the most fundamental and immediate source of causal efficacy for the production of the (whole) effect at stake, independent of how remote and mediate the agent's position in the causal chain is with respect to the substance of the patient. In this case, what matters is not whether the agent directly operates on the patient (i.e. whether it has immediacy of suppositum), but only whether the agent's power is directly responsible for the production of the effect.

This distinction between immediacy of suppositum and immediacy of power seems to allow that an agent can be *immediately* involved in the causal process even in just *one* of these two senses. In fact, Aquinas argues that in the third and fourth ways of God's concursus, God is *immediately* involved with secondary causes through an immediacy of power, which either applies secondary causes to their effects (third way) or “uses” them as instruments to produce effects of higher orders (fourth way). Secondary or instrumental causes maintain a real immediacy of suppositum since they are immediately causally connected with the effects they produce in the patients to which they are applied. In this way, Aquinas concludes that God “acts in every agent immediately, without prejudice to the action of the will and of nature”.

In making the distinction between immediacy of power and suppositum Aquinas intends to explain in which sense God and secondary causes *can* have two different kinds of immediacy, but he does not intend to claim that God *cannot* have both. In fact, insofar as the *esse* of natural things is concerned, God's operation must always retain not only an immediacy of power but also an immediacy of suppositum. Yet, Aquinas's point against occasionalism is that the immediacy of God's action does not compromise the efficacy of secondary causes. In the case of God's immediacy of suppositum, God immediately brings about the *esse* of the secondary cause without compromising the secondary cause's causal power. In the case of God's immediacy of power (as in the case of instrumental causality), the secondary cause remains endowed with its own powers that, although directed by God's action, positively contribute to the production of the final effect. Despite Aquinas's confidence in the possibility to accommodate the immediacy of God's action with the efficacy of secondary causes, I shall discuss in the next section that a great deal of Régis's

argument relies on the dismissal of the claim that God acts *immediately* in nature at all.

To summarize, Aquinas's account of secondary causation analyses causal relationships in terms of substances acting upon other substances in virtue of their own causal powers. Occasionalism contends that God's immediate causal involvement in nature rules out the causal efficacy of secondary causes. Against this view, Aquinas argues that the immediacy of God's operation does not compromise, but rather complements the efficacy of finite creatures. Both natural secondary causes and instrumental causes are endowed with active powers that allow them to produce effects (at least in their own order of causality). God concurs with the operations of his creatures by immediately bestowing their *esse* or being, and by (depending on the case and circumstances) directing them to reach effects beyond the creature's own causal order (such as in the case of instrumental causality).

3. Régis's account of secondary causes

In this section I argue that Régis's rejection of occasionalism is motivated by significantly different reasons than those endorsed by Aquinas, and that Régis endorses a completely different account of secondary causation. I first discuss Régis's reasons for dismissing occasionalism and contrast them with Aquinas's. Then I focus on the distinctive features of the account of secondary causation that emerges from Régis's view.¹⁰

As it emerges from section two, Aquinas would grant to the occasionalist position that God's causal power is immediately involved in nature, but he also argues that God “acts in every agent immediately, without prejudice to the action of the will and of nature”. The core of Aquinas's discussion consists in showing that God's immediate involvement in causal processes is consistent with the ascription of efficacious causal powers to finite creatures. As Aquinas states in the *Summa Theologiae*, “we must therefore understand that God works in things in such a manner that things have their proper operation.”¹¹ According to Aquinas, occasionalism has to be rejected because it does not do justice to these natural causal powers.

Régis's argument against occasionalism differs from Aquinas's on three main points. First, Régis (*pace* Aquinas and occasionalism) denies that God is immediately involved in causal processes in nature. Second, Régis (*pace* Aquinas and in agreement with occasionalism) admits that finite things in nature do not have causal powers on their own. Third, Régis's reason for dismissing occasionalism does not concern the fact that occasionalism undermines the causal powers of natural agents but rather the fact that

¹⁰ In discussing Régis's position, I will refer to his two main works: *Cours entier de philosophie, ou Systeme general selon les principes de M. Descartes*, published in 1691 (hereafter *Cours*), and *L'Usage de la raison et de la foy*, published in 1704 (hereafter *Usage*). All translations are mine. For present purposes I will not discuss in detail the differences among the positions presented in the *Cours* and the *Usage*. The issue of the evolution of Régis's thought has been addressed by Del Prete (2011) concerning Régis's epistemology. Schmaltz (2002), pp. 111–112 notes that in the *Cours*, in order to distinguish between the force of motion and the force of rest, Régis proposes to “conceive the first as in the moving body” (*Cours*, p. 308), which is a claim that conflicts with the thesis that this force, being identical with God's will, should be equally external to both moving bodies and bodies at rest. For this reason, in the *Usage*, Régis presents motion as a “substance” that God adds to the extended substance. In this way, Régis warrants that motion, being general and unchangeable in itself, derives immediately from God while finite physical effects, being changeable, have to be explained by referring to secondary causes. These different formulations notwithstanding, I did not find significant conceptual changes concerning Régis's overall account of secondary causality.

¹¹ ST Ia q. 105 a. 5: “intelligendum est Deum operari in rebus, quod tamen ipsae res propriam habeant operationem”.

occasional causes presuppose some indeterminacy in God. I shall review these three points in turn.

First, according to Régis, God does not act immediately on finite things in order to bring about specific effects. To fully appreciate this point, it is important to note that Régis holds that finite bodies and finite minds are not substances, but rather “modal entities” (“estres modaux”). God produces two substances, namely, body and mind (“esprit”). These substances are really distinct from each other and completely general when conceived in themselves. Finite bodies and human souls (“âmes”) are modal entities that express the variety of ways in which substances are specifically determined.¹² According to Régis, natural effects are immediately caused by modal entities.

Régis repeats that “when I reflect on the fact that since God is immutable he can act only through a very simple act of will; I see that the succession that is observed among modal entities cannot derive immediately from God; thus, it must derive from secondary efficient causes” (*Cours*, p. 110).¹³ Since God is immutable, whatever God produces immediately is immutable as well. On this basis, Régis argues that substances are produced by God immediately through creation, and for this reason substances (considered as such) are completely immutable or “indefectible” since their existence depends directly on God’s will, which cannot change (*Cours*, p. 101).¹⁴ On the contrary, modal entities are in perpetual change (*Cours*, p. 106). Because natural effects imply change and succession, these effects cannot follow from God immediately but must be determined immediately by modal entities.

Régis’s claim that God does *not* act immediately in the production of finite effects leads to two important remarks, each of which clarifies how Régis’s position diverges from Aquinas’s. First, considered from the point of view of Aquinas’s distinction between immediacy of power and immediacy of suppositum, it would be possible to rephrase Régis’s view by stating that Régis attributes to God only an immediacy of power (rather than an immediacy of suppositum) with respect to modal entities, more or less as Aquinas argues in the case of instrumental causes. However, as mentioned in the previous section, Aquinas maintains that God *always* has immediacy of suppositum, insofar as he constantly creates and conserves the being or *esse* of secondary causes. On the contrary, Régis’s point is that God has no immediacy of suppositum with regard to changeable modal entities (but only immediacy of suppositum with regard to the immutable substances that modal entities affect). In that sense, even from the point of view of Aquinas’s use of the distinction between immediacy of suppositum and immediacy of power, Régis’s position is significantly different from Aquinas’s own view.

Second, it is possible to wonder whether Régis endorses one of the standard alternatives to Aquinas’s position, according to which God’s involvement in nature is limited to creating and conserving secondary causes that will then act on the basis of their own causal powers. This view has been introduced by medieval authors such as Peter John Olivi and Durandus of St. Pourçain and is usually labelled

‘mere-conservationism’.¹⁵ In a sense, Régis agrees with conservationism in rejecting God’s immediate involvement in the operations of secondary causes. However, he also significantly disagrees with conservationism in rejecting the claim (crucial to conservationism) that secondary causes are endowed with powers that make them somehow self-sufficient in the production of their own effects.

This last remark leads to the second point of disagreement between Régis and Aquinas. Régis denies that modal entities have proper causal powers. As he explains:

When I reflect on the specific way in which modal entities act, I see that they have nothing by themselves that is efficacious [*n’ont rien d’eux-mêmes qui soit efficace*]. Thus, to stress this difference between the effects that God and modal entities bring about, I will call God “primary efficient cause”, and the modal entities “secondary efficient causes”. By “primary efficient cause” I understand that cause that acts by itself and through itself, while by “secondary efficient cause” I understand that cause that acts in virtue of another. Since secondary causes act more immediately than the primary cause, to stress this difference I will attribute the production of all the modal entities to the secondary causes rather than to the first cause. (*Cours*, pp. 109–110).¹⁶

According to Régis, the main difference between primary and secondary causes is that only a primary cause acts “by itself and through itself”. This means that a primary cause does not need any other cause in order to be activated. Whatever a primary cause does, it is done through a power that the primary cause has by itself. According to Régis, only God satisfies this definition of primary cause. For instance, God creates substances immediately without being determined by any other cause and in virtue of his own power alone. Régis’s remark that secondary causes act “more immediately” than the primary cause concerns the perpetually changing series of finite effects observable in nature. While God bestows his own causal power on modal entities (and thus God maintains some causal connection with the effects produced in nature, insofar as these effects still depend on his power), modal entities are the causes that directly channel God’s power in order to produce specific effects. Yet, the crucial point is that secondary causes (i.e. modal entities) have no causal efficacy *d’eux-mêmes*, namely, they do not possess active causal powers intrinsic to their own nature.¹⁷

I shall elaborate in more detail on this point later in this section. For present purposes, it suffices to say that Régis understands causal efficacy as the active power through which a cause brings about a certain effect. Régis then maintains that the active power required by modal entities to produce effects does not follow from their own nature but must be provided directly by God. As a result,

¹² Concerning this aspect of Régis’s thought see Schmalz (2002), pp. 107–121.

¹³ “Lors que je fais reflexion que Dieu estant immutable ne peut agir que par une volonté tres-simple; je vois bien que la succession qui se rencontre dans les choses modales ne peut venir immediatement de luy, et que par consequent elle doit proceder des causes efficientes secondes”. Same claim in *Usage*, livre I, partie II, ch. 9, p. 131.

¹⁴ On this notion of ‘indefectibility’ see Schmalz (2002), pp. 94–113.

¹⁵ Olivi (1248–1298) and Durandus (1275–1334) took issue with Aquinas’s concurrentism and rejected his claim about the immediacy of God’s action. In this way, they both defended what could be better called a ‘mediationist’ account of God’s action in nature, according to which God acts only *mediately* through secondary causes. See Freddoso (1991); Schmutz (2001); Schmalz (2008), pp. 19–24; Frost (2014).

¹⁶ “Quand je fais reflexion sur la maniere particuliere dont les estres modaux agissent, je conçois qu’ils n’ont rien d’eux-mêmes qui soit efficace; c’est pourquoy, pour marquer cette difference par rapport aux effets que Dieu et les estres modaux produisent ensemble, je veux appeler Dieu, *Cause efficiente premiere*, et nommer les Estres modaux, *Causes efficientes secondes*, entendant par cause efficient premiere, celle qui agit d’elle-même et par elle-même, et par cause efficient seconde, celle qui agit par la vertu d’une autre. Et parce que les causes efficientes secondes agissent plus immediatement que la premiere, pour marquer encore cette difference, j’attribueray la production de tous les estres modaux, non à la cause premiere, mais aux causes secondes”.

¹⁷ The same point is stated in *Usage*, livre I, partie II, ch. 28, p. 180: “la forme intrinseque par laquelle les corps agissent, est toujours déterminée à agir par un principe qui est extrinseque”. In this context, the intrinsic form of a body is defined by its primary qualities, while the extrinsic form is defined by the movement it receives.

modal entities do not have by themselves or in themselves any causal efficacy.

Consider, for instance, the case of bodies.¹⁸ Régis argues that God is the first cause of movement in the world, and since God is immutable the whole quantity of motion cannot change (*Cours*, pp. 305–306). Specific effects in nature are thus the result of the particular ways in which finite bodies modify the whole quantity of movement produced by God or, as Régis puts it: “when we will say that a body communicates its motion to another, we will mean nothing but the fact that God makes use of this body in order to move another body that was at rest” (*Cours*, p. 331).¹⁹ It is important to note that Régis distinguishes between two ways in which a body can be considered to have movement: “formal movement” expresses the way in which the body actually moves while “efficient movement” is the cause of such (formal) movement. Régis argues that both kinds of movement are accidental to bodies, that is, they both depend on external causes (*Cours*, p. 304). Formal movement depends on surrounding bodies, while efficient movement depends on God himself. In the context of Cartesian physics, a body brings about an effect, which it does through some transfer of motion during impacts; but since motion does not belong in any sense to the nature of the body as such, it must be concluded that when a body acts it does not act on the basis of a power embedded in its own nature. As a result, Régis denies that bodies (and secondary causes in general) have any real causal power “d’eux-mêmes”.

This last point leads to the third difference between Régis and Aquinas’s positions, namely, Régis’s motivation to reject occasionalism. As Régis explains:

I say ‘secondary efficient causes’ rather than ‘occasional causes’ because occasional causes are incompatible with the idea of God. In fact, if by ‘occasional causes’ I understand those causes that determine God to produce some effect that he would not produce otherwise (unless these causes would offer him the occasion by themselves and without that he predetermined them), this would suppose in God a kind of indeterminacy that is incompatible with his immutability. Yet, if by ‘occasional causes’ I understand those causes that determine God’s will, which is by itself general, this would entail the same problem. Thus, I shall not say that secondary causes are occasional causes. (*Cours*, p. 110).²⁰

Régis’s motivation to reject occasionalism does *not* depend on the fact that occasionalism dismisses the causal powers of finite things (which is something on which Régis actually agrees) but rather on the fact that occasional causes seem to attribute some kind of indeterminacy to God. Régis contends that, according to the occasionalist account, God operates through general laws that do not entail the specific effects that will be brought about by themselves. For this reason, occasional causes are necessary to instantiate these general laws and determine their implementation in

specific circumstances. If this is the case (Régis’s objection goes), then occasional causes somehow steer God’s will towards the production of different effects by so undermining God’s immutability. For present purposes, it is important to stress that Régis’s main concern with occasionalism is about the fact that occasionalism would compromise God’s immutability. According to Régis, God’s immutability can be preserved only if finite and changeable effects are ascribed immediately to finite and changeable modal entities only, without any direct involvement of God himself.

I have now discussed the three main differences between Régis and Aquinas’s reasons to reject occasionalism. In the rest of this section I shall elaborate on how these differences reveal a more fundamental distinction between Régis and Aquinas’s positive views on the nature of causality in general. To do so, I shall defend two interconnected points. First, although Régis does sometimes refer to faculties (*facultez*) and dispositions (*dispositions*) of bodies, they do not count as some sort of mechanical surrogate of Aquinas’s notion of ‘causal power’. Second, Régis’s account of causation entails that causal relata are no longer substances and their powers but only modal entities and their faculties or dispositions. I shall argue for these two points in turn.

To begin with the first point, it is true that Régis seems to attribute faculties or dispositions to modal entities, which seem to reintroduce some kind of causal power that could be attributed to them directly. Especially in his later work *L’Usage de la Raison et de la Foy* (1704), Régis writes for instance:

To begin with bodies, it is an undebatable truth that bodies cannot act if they do not have certain dispositions. If fire, for instance, does not penetrate wood, if it does not separate its parts, if it does not impress upon them a movement similar to its own, fire will never transform this wood into a flame. The same applies to all other natural agents: if you take away their form, their figure, their placement, their heaviness, their lightness, their liquidity etc., you overthrow everything, and they will no longer produce any effects. This is an undoubtable proof that these qualities physically contribute to produce their [i.e. natural agents’] effects. (*Usage*, livre I, partie II, ch. 36, p. 205).²¹

Régis grants that the primary qualities of bodies and their mechanical dispositions “physically contribute” to the production of their effects. This is his main reason to resist the occasionalist dismissal of secondary causes.²² However, I maintain that these dispositions do not count as ‘causal powers’ in Aquinas’s sense.

²¹ “Pour commencer par les corps, c’est une vérité incontestable qu’ils ne peuvent agir s’ils n’ont de certaines dispositions. Si le feu, par exemple, ne s’insinue dans le bois, s’il n’en écarte les parties, s’il ne leur imprime un mouvement pareil au sien, jamais il ne convertira ce bois en flamme. Il en est de même de tous les autres agents naturels: Si vous leur ôtez leur forme, leur figure, leur situation, leur pesanteur, leur légèreté, leur liquidité, etc. vous renversez tout, ils ne produiront plus aucun effet. Ce qui est une preuve indubitable que ces qualités contribuent physiquement à la production de leurs effets.”

²² See *Usage*, livre I, partie II, ch. 36, p. 208: “Concerning the source of the secondary causes’ efficacy, we agree that it consists in those faculties that God assigned to them as he wanted; but since these faculties are something that is truly real and positive, which is not in God but in creatures themselves, we will say that beyond God’s power that is extended to everything, it must be admitted in creatures a proper and particular efficacy that corresponds to the effects that God produces by using secondary causes as his own instruments” (“Quant à la source de l’efficacité des causes secondes, nous demeurons d’accord qu’elle consiste dans les facultez que Dieu leur a départies telles qu’il a voulu; mais parce que ces facultez sont quelque chose de très réel et de très positif qui n’est pas dans Dieu, mais dans les creatures mêmes, nous disons, qu’outre la puissance de Dieu qui s’étend à tout, il faut reconnoître dans les creatures une efficacité propre et particulière qui réponde aux effets que Dieu produit par leur moyen”).

¹⁸ For present purposes, I will leave aside Régis’s complex account of the nature of human minds and the changes it undergoes between the *Cours* and the *Usage*. On this topic, see Del Prete (2010). Concerning Régis’s account of substance-modes relationship, see Lennon (1994).

¹⁹ See analogous discussion in *Usage*, livre I, partie II, ch. 11, p. 135.

²⁰ “Je dis des causes efficientes secondes, et non pas des causes efficientes occasionnelles, parce que les causes occasionnelles paroissent répugnantes à l’idée de Dieu; car si par causes occasionnelles, j’entends des causes qui déterminent Dieu à produire quelque effet qu’il ne produiroit pas, si ces causes ne lui en donnoient occasion d’elle-mêmes, et sans qu’il les ait prevenues, cela suppose en Dieu une indetermination qui est incompatible avec son immutabilité; et si j’entends des causes qui déterminent la volonté de Dieu qui est d’elle-même generale, cela suppose encore le meme défaut. Je ne diray donc point que les causes secondes sont des causes occasionnelles”.

According to Aquinas, causal powers are nothing but the fact that a certain substance (the agent) has a certain actuality that tends to be communicated to a suitable patient. Causal powers are crucial insofar as Aquinas (in the wake of Aristotle) understands natural changes as a transition from potentiality to actuality, and he further maintains that actuality must have some priority over potentiality. Without a substance that already instantiates in act some property, this property could not be elicited in another substance that has a potentiality for it. Motion is the process through which the patient receives this actuality and actualizes its power of receiving similar qualities. The action of the agent is explained by his active power of eliciting some properties that exist in actuality in the agent but only in potentiality in the patient.

Régis diverges from Aquinas's view not only because he eliminates substantial forms from the picture but more fundamentally because he understands the whole process of causation differently. Faculties or dispositions do not represent qualities that a certain substance actualizes in virtue of its own nature and that tend to be communicated to other suitably disposed substances that have a potency to receive them. In fact, the whole machinery of potentiality and actuality is no longer in place. Primary qualities (such as form, shape, movement, etc.) "physically contribute" to produce effects in the sense that they explain why given certain conditions (e.g. subtle matter moves in a certain way, as in the case of fire), other bodies will be affected in specific ways (e.g. the parts of wood exposed to fire will be disrupted by the fire's motion because they cannot oppose enough resistance to it). According to Aquinas's account, the agent and patient are connected by the fact that they have paired natures such that they can actualize or have in potency the same kind of accidents. Régis's holds instead that the very distinction between agent and patient reduces the mere distinction between what begins the causal process and what results from it. For instance, fire is the agent that burns the wood not because it actualizes some form that gives to fire some ontological priority over wood, but only because the process of burning cannot be initiated without the amount of movement that characterizes fire. Also, wood is the patient that is converted into ashes and flame not because it has a potency to become ashes and flame but only because, when exposed to fire, its parts are connected in such a way that they will be re-arranged as ashes and flame.

According to Régis, faculties and dispositions of modal entities do not count as mechanical surrogates of Aquinas's notion of causal powers because they are *not* actualities of certain forms that tend to be communicated and reproduced in other substances, which in turn have a potency to receive them. Rather, faculties and dispositions modify God's general power (e.g. efficient motions in the case of bodies) in such a way that they will bring about other modifications. Faculties and dispositions do play a real causal role (they "physically contribute" to produce effects), but they do not 'act' in Aquinas' sense because they do not represent actualized forms or provide a 'mechanical' surrogate of forms since they are no longer accounted for in terms of actuality and potentiality.

This remarks leads to the second point, namely, that Régis no longer conceives of causality as a relationship among substances affecting each other on the basis of their causal powers. *Pace* Aquinas, Régis agrees with the occasionalist opponent in dismissing causal powers in nature. Yet, he resists the occasionalist conclusion that secondary causes do not qualify as true causes. In fact, Régis's discussion underscores that *both* Aquinas and occasionalists would agree that causation depends on the efficacy of causal powers. This is why the focus of the discussion between Aquinas and the occasionalists concerns whether natural causal powers are actually efficacious or could play any role at all in natural causal processes. On the contrary, Régis dismisses this shared premise and maintains that in order to have real causation, it is

enough to grant a necessary connection between the features that define the nature of a given cause and the features of the effects that would follow from it.

In other words, occasionalism argues that since true causality requires true active causal powers, and creatures do not have true active causal powers, creatures cannot be true causes. Aquinas takes issue with this argument by attacking the minor premise, according to which creatures would not have true active causal powers. Régis, instead, takes issue with the major premise by arguing that since modal entities must be responsible for finite effects (because God cannot be their cause, given his immutability), and since modal entities do not have true active causal power, true secondary causation does *not* require true active causal powers embedded in secondary causes.

Régis conceives of causation as a relation among modal entities in which a certain modification of a substance (i.e. a certain modal entity) brings about another modification of the same substance (i.e. another modal entity). This relation among modal entities is based on their features (such as dimensions, shape, and motion, for instance, in the case of bodies), which channel the redistribution of God's own power among modal entities (i.e. God's efficient movement, in the case of bodies). This entails that causation is not a process through which a certain self-standing entity (the agent) modifies another self-standing entity (the patient), but rather the process through which some configuration of a certain substance succeeds to another configuration. In other words, causation is the order in which modal entities succeed one another.²³

Consider, for instance, the case of collision between two bodies, in which one communicates some quantity of motion to the other. Based on Régis's account, both bodies are modes of the same extended substance. Moreover, a moving body is nothing but the way in which the immutable extended substance is modified in a certain way when God's efficient movement is applied to it in a specific manner. The fact that a moving body impacts another and transfers a certain quantity of motion amounts to the fact that the same efficient movement is redistributed in the same extended substance, which thus receives different modifications. Régis maintains that the way in which one modification (the effect) follows from the other (the cause) is necessitated by the nature of its cause. For instance, it is because a specific body has a certain magnitude and moves at a particular degree that it can communicate motion in the way in which it does. In general, the fact that extension is shaped and moved in such and such a way leads to shape and move other configurations of extension in another way. Impacts and changes in the material world are nothing but a succession of different configurations of extension in motion, which can be identified as modal entities. Physical effects can be conceived of as the redistribution of the whole quantity of motion among modal entities. This whole quantity of motion is nothing but God's efficient movement. Yet, as Régis claims, it is not God's power (or efficient movement) that immediately causes finite phenomena in the physical world, but it is rather the connection among modal entities that causes the redistribution of God's power (i.e. efficient movement) in nature.

²³ At some point (*Cours*, p. 106) Régis hints at the fact that modal entities have an intrinsically durational and successive existence: "I know not only that modal entities endure, namely, that they persevere in being; I know also that their duration is successive, namely, it is continually changing (je ne sçay pas seulement quel es Estres Modaux durent, c'est-à-dire qu'ils perseverent dans l'estre, je sçay encore que leur durée est successive, c'est-à-dire, continuellement changeante)". This may suggest that modal entities could be in fact understood as a kind of events, i.e. ways in which the substance happens to be shaped in a certain interval of time. Based on that reading, Régis's account of secondary causation would entail that causal relations are, in fact, events rather than substances.

Régis's position (*pace* Ott) does not consist in providing a mechanistically acceptable definition of what qualifies as 'causal power', but rather in arguing that secondary causation does not need to presuppose any notion of active power through which a substance would modify another substance. True secondary causation is nothing but a connection among modal entities on the basis of their dispositions or faculties. True secondary causes are not true causes because they have any efficacious power to act and modify other substances, but rather because (and only insofar as) they account for the succession of modifications that a certain substance (e.g. extension as such) receives over time.²⁴

Régis's account of modal entities is somehow a consequence of his metaphysical assumptions concerning the nature of God's immutability. Yet, the idea that causation can be accounted for *without* relying on active causal powers has a significant medieval antecedent in John Duns Scotus's discussion of artificial instrumental causality. I shall conclude this paper by showing how a due appreciation of this medieval antecedent provides a better understanding of the complex relationship that Régis's account of secondary causation maintains with scholasticism.

4. The scholastic antecedent of Régis's account of causality

I would like to conclude my discussion by showing that Régis's fundamental idea that true causation does not require causal powers embedded in the nature of the cause has an important scholastic antecedent. Yet, this antecedent is not to be found in scholastic accounts of *natural* causes but rather in scholastic discussion of *artificial* instruments, especially as Scotus developed it. I shall argue that this comparison offers a better perspective to appreciate the way in which Régis's account of secondary causation departs from scholastic views.

Scotus introduces a nuanced distinction between secondary causes and different kinds of instrumental causes.²⁵ In particular, Scotus distinguishes between proper secondary causes and other specific kinds of artificial instrumental causes. In this way, Scotus aims at undermining Aquinas's understanding of instrumental causes based on the model provided by natural secondary causes. Scotus claims:

The fact that something can act in a principal way can be understood in two senses. In a first sense, by excluding any superior agent [i.e. efficient] cause, so that 'acting in a principal way' consists in acting independently of the action of a superior agent cause. In a second sense, 'acting in a principal way' can be understood as acting through a form that is proper and intrinsic to the agent, even if the agent that acts through this form is subordinated to a superior agent cause. If the instrument is distinguished from a principal cause in the first sense, then all

the secondary causes can be called instrumental causes. But if the instrument is distinguished from a principal cause in the second sense, then this [thing] can be called an instrument that does not have in itself an active form in its own order, and also depends for its action on a superior agent, but moves only because of the actual motion of some other mover, as is manifest in artificial instruments, such as an axe, a saw and the like. (*Ord.* IV, dist. 1, q. unica, pp. 43–44)²⁶

Scotus distinguishes between two ways in which a cause can be said to act as a principal cause. In the first sense, a principal cause is an *independent* cause, and Scotus grants that only God can be said to be a principal cause in this sense. In the second sense, however, a principal cause acts on the basis of some "intrinsic form", although it operates under the influence of some higher cause. In this sense, secondary causes can still be "principal" causes. From the point of view of the first meaning of "principal cause", there is no distinction between secondary and instrumental causes since neither of them can be a principal cause in this sense. Yet, from the point of view of the second meaning of "principal cause", it is possible to distinguish between secondary and instrumental causes insofar as only secondary causes, but not all instrumental causes, act in virtue of an "intrinsic form."²⁷

According to Scotus, it is possible for some instrument to be considered active in some sense (e.g. in the cases of natural causes used as instruments by higher causes), although the original meaning of "instrument" is derived from the case of human tools, which are not properly active. As Scotus explains:

More commonly, we use to attribute the name 'instrument' to some other [kinds of instrument], that is, to artificial instruments, from which the name 'instrument' has been originally derived, as in the cases of the axe and the saw, and the like. Of these [instruments] we often find the following examples of things (as said above) that are not properly active, neither regarding the effect of the principal cause (if the [principal] agent attains the principal effect through these [instruments], as in the case of the coin minter who attains the figure that should be impressed on a coin – which is his principal term – by using some instrument); nor regarding the disposing form (if the [principal] agent acts through these [instruments] to effect a prior disposition, as in the case [of an agent who] acts through a saw in order to divide some piece of wood, which [division] is prior to the form of the chest). But nonetheless, an instrument considered in this way (differently from the other four kinds of instruments previously mentioned) is a moved thing receptive of an earlier effect ordered to a later effect, such that what is received in [the instrument] acquires an order to the principal term, as the proximate effect of the cause [is ordered] to the more remote effect. Yet, [the instrument] does not have a causal

²⁴ Régis's contemporaries often criticized his account as a form of 'occasionalism in disguise' because his rejection of power might seem to reduce bodies to mere *sine quibus non* causes (see on this point Sangiacomo (2015)). However, on behalf of Régis, it should be pointed out that he understood occasionalism as characterized by the claim that God has to *immediately* intervene in nature in order to produce effects. He forcefully denies this immediate involvement of God in finite effects, and this is arguably the major difference between his account of the occasionalist position (as he understands it).

²⁵ Scotus's account of artificial instruments appears in the context of his broader discussion of sacramental causality. It is beyond the limits of this paper to reconstruct the scholastic debate on sacramental causality. On the historical and social context of the debate on sacramental causality in the thirteenth century, see Courtenay (1972). On Aquinas's position see Jordan (1993) and Blankenhorn (2006). On Scotus see McCord Adams (2007). For a general overview of Scotus's account of causation in general, see Wengert (1971); Cross (1999), pp. 56–57; King (2003), pp. 38–48; Cross (2005), pp. 17–28; Kluge (2008). In quoting Scotus's texts I refer to Scotus, 1950–2013.

²⁶ My translation: "Aliquid agere principaliter postest intelligi dupliciter: uno modo, excludendo omnem causam superiorem agentem, ut sic 'agere principaliter' sit agere independentem a causa superiore agente; alio modo potest intelligi 'agere principaliter', quod per formam propriam et intrinsicam agit, licet - in agendo per eam - sit subordinata causae superiori agenti. Si contra principalem causam, primo modo dictam, distinguatur instrumentum, sic omnis causa secunda potest dici 'instrumentalis'. Si autem contra secundum modum distinguatur instrumentum, tunc illud potest dici 'instrumentum' quod non habet in se formam activam in suo ordine, etiam dependendo in actione sua ab alio superiore, sed tantum agit per actualem motionem alicuius alterius moventis, ut patet de instrumentis artificum (ut securi, serra et huiusmodi)".

²⁷ Concerning secondary causes it should be stressed that Scotus not only defends their *per se* efficacy but even rejects the principle '*omne quod movetur ab alio movetur*' in order to accept the possibility of self-motion for natural agents. See full discussion of this point in King (1994).

order properly speaking. And of this [kind of] instrument it is possible to concede that it does not have a proper action regarding the effect, because it does not have any intrinsic active virtue (neither when at rest nor when in a state of change). (*Ord.* IV dist. 6, pars 3 q. 1, pp. 332–333)²⁸

The artificial instrument does not have any active power or virtue to produce the effect. Nonetheless, the instrument can receive in itself the influence of the agent that uses and orders it to produce a given effect. In this way, the artificial instrument occupies a real place in the causal chain leading from the agent to the final effect, and acquires a causal order with respect to such an effect (even if the instrument does not possess this order in virtue of its own nature). In fact, Scotus's phrasing suggests that the artificial instrument has only a 'passive power', namely, a power of being moved by an agent. This passive power accounts only for the fact that the artificial instrument can be used by an agent, although it does not entail that the instrument itself has any active power to produce any specific effect.²⁹ In principle, different agents might use the same instrument to produce various effects because the instrument by itself is not ordered to produce any effect in particular.

In this way, Scotus's account of artificial instruments combines two claims. First, artificial instruments maintain a positive involvement in the causal process. Second, this causal involvement does not arise from any active power resulting from the nature of the instrument itself, but only from the fact that a certain agent uses the instrument in a specific way by so ordering it towards the production of a given effect. As a result, artificial instruments can play a real causal role that does not depend on their having specific active powers to produce certain effects.

For instance, a pen does not have any active power to write a book, but it can be moved in such a way to produce ink marks needed to write the book. The pen has only a passive power to be moved by me in the way I wish. The pen acquires a connection with the book that I write only through the movement I impress on the pen. The causal connection between the pen and the book does not depend on any actual or active form intrinsic to the pen, but only on the fact that when I apply it to a piece of paper, the pen produces ink marks that I intend to use to write the book. In this sense, the pen is really involved in the causal process of writing the book and contributes to it, without having in itself any active causal power that orders the pen to actualize the book.³⁰

²⁸ My translation: "Communius consuevit nomen 'instrumenti' de quibusdam aliis dici, utpote de instrumentis artificum, a quibus primo tractum est nomen instrumenti, utpote de securi et serra, et huiusmodi, de quibus frequenter ponuntur exempla; ista vero, ut dictum est supra, proprie non sunt activa respectu principalis effectus: neque principalis, si agens per talia attingit effectum principalem (sicut monetarius per aliquod instrumentum attingit figuram imprimendam monetae, quae est terminus ejus principalis), - neque formae disponentis, sicut si agens per talia agat ad dispositionem praeiviam (sicut per securim agit ad divisionem ligni, quae est praevia formae arcae). Sed tamen instrumentum isto modo, alio a quatuor modis predictis, est motum, susceptivum effectus prioris ordinati ad effectum posteriorem, ita quod receptum in eo habet ordinem ad terminum principalem, sicut effectus propinquior causae ad effectum remotiorem; non autem habet ordinem causalitatis proprie dictae. Et de tali posset concedi quod instrumentum non habet actionem propriam respectu effectus, quia nec habet aliquam virtutem activam propriam (nec in esse quieto neque in fieri)".

²⁹ See McCord 2007, p. 65 stresses that for Scotus artificial instruments are "powerless causes", which arguably refers to their lack of active causal powers. Scotus's use of "susceptivum" (which occurs in the quote above from *Ord.* IV dist. 6, pars 3 q. 1, but also in his *Commentary* on Aristotle's *Metaphysics* IX) suggests that an entity that is "susceptivum" of something has some kind of passive power.

³⁰ Scotus's view of artificial instruments raised some concerns. Cross, 2008, p. 291 emphasizes the apparent oddity of Scotus's view. Cross, 1999, pp. 135–138 claims that Scotus's account leads to a kind of "occasionalism" closer to Bonaventure's view.

We are now in a position to compare Scotus's account of artificial instruments with Régis's account of secondary causes. Both Scotus and Régis grant that causation is possible even if the cause has only a specific order towards its own effect, but without possessing any intrinsic active causal power that follows from the cause's nature. Both Scotus and Régis distinguish between the source of causal power and the involvement of the artificial instrument or secondary cause. They grant that causal power is owned and bestowed upon the instrument or secondary cause by the primary agent only (God, in Régis's case). In this sense, (Scotus's) artificial instruments and (Régis's) secondary causes must be receptive to God's power (or have the 'passive power' of being moved by another). Nonetheless, both Scotus and Régis maintain that artificial instruments or secondary causes do play a real role in the causal process (or "physically contribute" to it, as Régis puts it), even if this role is based only on "faculties" or "dispositions" (to use Régis's phrasing) that do not entail any active power that the instrument or the secondary cause naturally have. To use Aquinas's distinction between immediacy of power and immediacy of suppositum, both Scotus and Régis would grant that artificial instruments and secondary causes retain only an immediacy of suppositum without having any immediacy of power with respect to the effect they produce. In this sense, God's power is the condition of possibility for causation to take place, but secondary causes or artificial instruments count as real causes even without possessing any proper active causal power on their own.

These considerations lead to the conclusion that when Régis identifies secondary causes with instrumental causes, the notion of instrumental cause that more closely matches with his account cannot be Aquinas's, but rather Scotus's notion. As discussed in section two, Aquinas's notion of instrumental cause presupposes that instruments have active causal powers, and he understands them analogously to other natural secondary causes. Scotus, on the contrary, distinguishes more sharply between the case of natural secondary causes and artificial instruments. Régis's equation of secondary causes with instrumental causes amounts to reduce natural secondary causes to what Scotus labelled artificial instruments. The fact that Régis sides with Scotus, rather than with Aquinas, on this issue is consistent with the divergences between Régis and Aquinas's accounts of secondary causation that I outlined in section three.

From a historical point of view, it is highly plausible that Régis was acquainted with Scotus's position.³¹ However, for present purposes, I would like to conclude by focusing on the conceptual consequences of the comparison between Régis and Scotus's views on secondary causation. Régis builds his general account of secondary causation on the idea that true causation does not require causal powers. According to Scotus, artificial instruments are instances of true causes that nonetheless do not require embedded causal powers to operate. Given the limited scope of Scotus's account of artificial instrumental causes, Scotus does not generalize this point and he never envisages it as a model to understand *natural* causal relationships. Nonetheless, Scotus's account suggests that, from a medieval perspective, the difference between natural and artificial causation can be accounted for in terms of whether

³¹ Later scholastic authors seriously considered Scotus's account of artificial instrumental causality; see, e.g. Nielsen (1997). During the seventeenth century, Scotus's philosophy was commonly discussed and easily accessible; see Schmutz (2002). For instance, an account of artificial instrumental causality close to Scotus's account can be found in Sebastian Basson's *Philosophia Naturalis adversus Aristotelem* (Geneva, 1621). For an accurate analysis of Basson's view, see Hattab (1998), ch. 4. Since in the *Usage* Régis demonstrates his awareness of the main scholastic positions, it is likely that he knew the main tenets of the Scotist party, which circulated widely outside the Franciscan circles.

the cause has intrinsic active powers. Régis's move consists in rejecting the idea (endorsed by both Aquinas and occasionalism) that active causal powers are necessary to have true secondary causation. Instead, Régis adopts a view in which every natural cause operates on the model provided by what Scotus could have considered artificial instruments. From the point of view of medieval accounts, Régis's position entails thus a radical artificialization of nature.

This remark leads to an important observation concerning the relationship between medieval and early modern natural philosophy. The 'mechanization' of nature introduced in the seventeenth century is often portrayed as the emergence of efficient causation as the only kind of causation operating in nature. While according to the Aristotelian account, endorsed by Aquinas, it would be impossible to account for natural phenomena without considering formal and final causes (arguably rooted in the substantial forms of finite things), in the mechanist universe (the standard narrative goes) only efficient causes remain in place. However, efficient causes may continue to be understood according to a traditional Aristotelian model of causation based on the act-potency machinery. In this case, the 'mechanization' of nature would amount to simply reducing the number of causes operating in nature without significantly affecting the understanding of causation as such.

As I mentioned at the beginning of this paper, seventeenth century natural philosophers faced the alternative between rejecting causal power altogether, and thus also true causation in nature (by endorsing the occasionalist approach), or resorting to some mechanical surrogate of causal powers (by adapting to the new mechanist approach the notion of causal power at work in scholastic accounts of causation). Such a reading suggests that the choice has to be exclusively between accepting true causal efficacy in nature based on (some mechanical surrogate of) active causal powers, or rejecting it altogether. However, Scotus's account of artificial instruments reveals a third way of approaching this dilemma. According to Scotus, at least in the case of artificial instruments, true causation does not necessarily require active causal powers rooted in the nature of the cause itself. Régis reworks a similar model by placing true causal power in God alone and by treating all secondary causes as artificial instruments (in Scotus's sense), which lack intrinsic active causal powers but nonetheless are immediately connected with their effects in virtue of their own physical features.

To conclude, by reading Régis's account on the background of Scotus's account of artificial instrumental causality, it is possible to appreciate a deeper and more radical meaning of the 'mechanization' of nature. In fact, Régis's mechanization of nature goes far beyond his rejection of formal and final causes.³² Nor is it limited to finding some mechanical surrogate for causal powers. Rather, Régis shifts the understanding of causality towards an account in which causality holds among modal entities on the basis of features that characterize them. Based on his account, causal relationships explain the order of succession of certain modal entities rather than the way in which an independent substance, in virtue of its active powers, acts and modifies another. Scotus's view on artificial instruments provides a model to account for true causation without relying on active powers. Régis's move is to understand the whole of nature as operating on the model provided by Scotus's artificial instruments. From this point of view, Régis's case suggests that the process of 'artificialization' of nature that is usually associated with seventeenth century science marks a radical discontinuity with the scholastic tradition. However, this discontinuity does not depend on some radically new conceptual machinery invented *ex novo* in

the seventeenth century, but rather on the radically different use that authors such as Régis are ready to pursue with conceptual tools crafted by the scholastics.

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³² See *Cours*, ch. 12, p. 180; *Usage*, livre I, partie II, ch. 35, p. 201.

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