

The Non-Aristotelian Novelty of Leibniz's Teleology

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Abstract

My aim in this paper is to underscore the novelty of Leibniz's teleology from a historical perspective. I believe this perspective helps deliver a better understanding of the finer details of Leibniz's employment of final causes. I argue in this paper that Leibniz was taking a stance on three central teleological issues that derive from Aristotle, issues that seem to have occupied nearly every advocate of final causes from Aristotle to Leibniz. I discuss the three Aristotelian issues, and how major thinkers treated them in the medieval period. I argue that Leibniz rejected all of the mainstream Aristotelian teleological views on these issues. I conclude that Leibniz broke with longstanding threads of teleological thinking in ways that were often extreme.

Leibniz is famous for his attempts to rehabilitate certain Scholastic doctrines. It is well known, for example, that he incorporated substantial forms into his philosophy. His attempts to revive the doctrine of substantial forms have received a lot of attention in the scholarly literature. But the other major Aristotelian doctrine he sought to revive---the doctrine of final causes---has received far less attention until recently.¹

Leibniz believed final causes were explanatorily relevant for every event at every ontological level of his system. And his commitment to the explanatory importance of efficient causes was equally firm. Any state of affairs in his system could be explained by way of efficient causation (at least, in principle). Moreover, each type of explanation is sufficient *on its own* for a complete explanation of any given state of affairs in Leibniz's system. This implies, as Jeffrey McDonough has recently argued, that Leibniz had "a particularly novel, systematic, and intriguing picture of final-efficient explanatory overdetermination."² Any fact about the created world can be explained by appeal to a set of efficient causal laws, *or* a set of final causal laws, *both* of which govern the created world with equal explanatory power.

I concur that Leibniz's picture here is entirely novel, for careful attention to the historical record shows that Leibniz broke with longstanding threads of teleological thinking in ways that were often extreme. My aim in this paper is to underscore the novelty of Leibniz's teleology from a historical perspective. This perspective helps, I think, not only to see the historical novelty of Leibniz's teleology, but also

to give us a better understanding of the finer details of Leibniz's employment of final causes.

I argue in this paper that Leibniz was taking a stance on three central teleological issues that derive from Aristotle, issues that seem to have occupied every advocate of final causes from Aristotle to Leibniz. In the first half of this paper, I discuss the three Aristotelian issues, and how major thinkers treated them in the medieval period. In the second half of the paper, I argue that Leibniz rejected all of the mainstream Aristotelian teleological views on these issues. Armed with this, I argue against recent interpretations of Leibniz on final causes.

1. Three Components of Teleology Before Leibniz

In a number of passages, Aristotle raises the issue of which of his famous four causes has *explanatory priority*:

There is the final cause and there is the efficient cause. Now we must decide which of these two causes comes first, which second. Plainly, however, that cause is the first that we call the final one. For this is the Reason, and the Reason forms the starting point, alike in the works of art and in works of nature. (*Parts of Animals* I, 1, 639b13-17)

Final causes have explanatory priority because they are ultimate, that is, they form the "starting point" when it comes to explaining a phenomenon. The end state (say, fitness) is always explanatorily prior in the order of knowledge and the efficient causes (hard work) aimed at that end state are explanatorily subservient. So, even though the end *itself* is the last to come into existence, it is the first in the order of explanatory importance in virtue of being the goal at which the efficient and material causes are aimed. In general, Aristotle wrote in *Metaphysics*, "the science which knows to what end each thing must be done is the most authoritative of the sciences [and] ... this must be a science that investigates the first principles and causes; for the good, i.e. the end, is one of the causes" (*Metaphysics* I, 2, 982b5-11). From this perspective, the final causal explanation is the ultimate one, the most fundamental, and in this sense, at least, the most important. It is the *sine qua non* of proper knowledge of nature.

As is well known, Aristotle believed a single event can have *both* an efficient cause as well as a final cause: health is the final cause of walking and the mechanical movement of the walker's body is the efficient cause of walking (cf. *Physics* II, 3, 195a8-11; cf. *Metaphysics* V, 2, 1013b9-12). Clearly, then, Aristotle did not

find anything peculiar about the claim that a given state of affairs could have both a final and efficient cause. Nor should he have found anything peculiar, for final causal explanations appeal to future end states, and as such carried no implication of being instigators of motion.³ But as we shall see, Aristotelian medieval philosophers thought there was something peculiar with all of this.

Nonetheless, Aristotle's thesis of explanatory priority was widely influential. It loomed large in the writings of his early and late commentators. But even in his early commentators, we can find a significant shift in the philosophical content of this doctrine. I suggest in what follows that three popular adjustments to Aristotle's thesis had a major impact on subsequent teleological thinking, and that Leibniz saw his teleology as a vast improvement upon that history.

Adjustment One: Temporal Priority

Aristotle's final cause is, of course, one aspect of a complete explanation of a given phenomenon. Final causes are explanations, and thus the fact that they appealed to future states as "causes" (explanations) of earlier ones did not trouble Aristotle. The efficient cause (hard work) instigates a change to fitness and at the same time, fitness explains *why* the hard work is instigated. There is not obviously a problem here.

But Aristotle's monotheistic commentators seem to have believed there was a problem, or at least, they seem to have believed that if the thesis of explanatory priority is to make sense, the final cause must exist, in *some* sense, prior to what it explains. This had a significant impact on the thesis of explanatory priority. As early as Avicenna — one of Aristotle's most important early commentators, and one particularly concerned with matters teleological — we find claims to the effect that the final cause must exist, in *some* sense, prior to the efficient cause:

The end is prior in its thingness to all the causes and posterior in the existence it derives from them. The end which is *absolutely* non-existent is not a cause.

Instead, it must exist in the agent's mind in order to perform its action.⁴

Here Avicenna claims clearly enough that the end — *qua* cause — must exist prior to what it causes. Future states of affairs do not exist, and thus cannot be causes of present ones. Thus, final causes are to be understood as *representations in the mind of the agent*, for these do exist prior to what they cause: the sculptor envisions a statue *before* he initiates the movements aimed at bringing it into existence. (Note also that in this passage, Avicenna has the final cause "performing an action." More on this to come.)

And when we combine this view — that final causes must exist prior to what they cause — with Aristotle’s thesis of explanatory priority, we end up with a new version of that thesis:

The final cause—that on account of which the thing is—is a cause, through its essence and its being an intentional object, of the causality of the efficient cause, while it is an effect of it in its existence. The efficient cause is a cause of its [the end’s] existence ... but it [the efficient cause] is not a cause of its [the end’s] causality nor of its [being] an intentional object.⁵

This new version of explanatory priority involves two steps. Step one: distinguish between the end as it exists in the agent’s mind, and the future end state *itself*. Step two: locate the priority of the final cause in its intentional salience only, for only insofar as it exists in the mind of the agent does it have such explanatory priority. Final causal explanatory priority in the hands of Avicenna now has something akin to a mandatory *temporal* requirement, something Aristotle it seems would not have required: “In terms of thingness and in terms of existence in the intellect, there is no cause prior to the final cause.”⁶

Avicenna’s version of Aristotle’s thesis of final causal explanatory priority became more influential than Aristotle’s non-temporal, non-intentional version. Consider Aquinas, who knew his Avicenna well. He explicitly raised the issue in the *Summa Theologiae*. Aquinas asked: “Does a man act for the sake of an end?” He formulated the negative answer in the mouth of his antagonist:

A cause is something that is naturally prior. But the end has the character of what is last, as the name ‘end’ itself suggests. Therefore, an end does not have the character of a cause. (*Summa Theologiae* 1a2ae, ques. 1, art. 1)

The objection is straightforward, for the end cannot be a cause of a person’s action since the end does not exist until after that action, and causes always precede their effects. Hence, ends are not causally relevant.

In response, Aquinas employed a line that is clearly of Avicennian origin:

The end, even if it is the last thing to be executed, it comes first in the intention of the agent (*primus in intentione agentis*). And in this way, it has the character of a cause. (*Summa Theologiae* 1a2ae, ques. 1, art. 1, reply).

The end is indeed causally relevant, argued Aquinas, because it is prior to the act in virtue of existing in the mind of the agent. The picture is similar to one that we saw in Avicenna: if ends are to be relevant, they must be represented temporally prior to what they explain.

Given Aquinas’ angle above, it is not surprising to find that he also embraced

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Avicenna's understanding of the priority of the final cause, one that included the new temporal requirement:

It should be understood that it is possible for the same thing to be a cause and to be caused, with respect to the same thing but in different ways. . . . The end, on its side, is not the cause of what the efficient cause is, but it does cause the efficient cause to become operative in action; health, for instance, does not cause the doctor to be a doctor . . . but it does cause the doctor to take action. The end, therefore, is the cause of the efficient cause's causality, since it causes the efficient cause to take action. . . . *The end, therefore, is called the cause of causes, since it causes the causality of all the causes.*⁷

The final cause, *as it exists in Fred's mind*, does not cause *the existence of* Fred the walking agent. But it does cause Fred the walking agent to take action; that is, it causes Fred the walking agent's *efficient causality*. The upshot: The final cause as it exists in the mind of the agent is "the cause of all causes since it causes the *causality* of the all the causes," just as Avicenna had claimed. In this sense, then, it has a temporal priority.

Indeed, the final cause as the "cause of all the causes," or the "first among all the causes," would become the slogan for the view that has its roots in Aristotle's thesis of explanatory priority. Where Aristotle maintained that final causes were only explanatorily primary, many medieval Aristotelians required a temporal priority as well. In addition to Avicenna and Aquinas, some version of it can be found in Scotus,⁸ and Ockham,⁹ and even as late as Suárez.¹⁰ All of these thinkers seem to have maintained some version of the idea that final causes are primary, temporally and explanatorily.

Adjustment Two: Intelligence

A second adjustment to Aristotle's teleology may be seen as closely related to the requirement that final causes, or ends, have a temporally prior existence to what they explain. In order for final causes to be temporally prior, there must be some way for the relevant agent to represent the end prior to acting. But when it comes to non-rational agents (trees, dogs, etc.), there is no mind in which there could exist prior representations of ends. This led many philosophers to restrict teleological activity to rational agents, and to maintain that non-rational agents, properly speaking, do not act for ends, since they cannot frame ends to themselves. Rather, non-rational agents are mere "instruments" of rational agents, and in the most relevant cases,

they are the instruments of God. Consider the following from Aquinas:

[T]hings without intelligence tend towards their ends by their natural inclination, which comes from some other motion (*ab alio motu*), not from themselves; they do not grasp what being an end means, and therefore cannot plan, but can only be planned for a purpose as such. In fact, the totality of non-rational nature is related to God as an instrument is related to its principal agent. (*Summa Theologiae* 1a2ae, ques.1, art. 2)

Only rational agents exhibit intrinsic finality. Non-rational agents exhibit *extrinsic* finality; the ends for which they act are not their own, but that of some other external intelligent agent who puts them in motion for a purpose.¹¹ Aside from Aquinas, the view can be found in Ockham,¹² Suárez,¹³ and others. This is a significant revision of Aristotle, of course, who made no such restriction in his natural teleology.

Adjustment Three: Final Causation

As one might suspect, the thesis of final causal explanatory and temporal priority brought with it a challenge. Rightly or wrongly, many medieval thinkers became occupied with explaining the *causality* of the final cause. It is not difficult to see what they were trying to do. Major thinkers from this time period held, on the one hand, that final causes are *causes*, and the nature of causes is such that they must precede their effects. Not only do they seem to have believed this followed from the very nature of what it is to be a cause, but it seems they were increasingly caught in the grip of thinking that ends were causally influential, for as we have seen, in some sense they “put” efficient causal means to work in pursuit of the end state. On the other hand, the relevant type of influence seemed to be efficient causal, the type that incites motion. But the claim that the influence of the final cause on the will is efficient causal was not a popular one, for the will would be efficient causally *determined* by the objects of desire involuntarily found in one’s intellect. This conclusion would have been unacceptable for most medieval Christian philosophers.¹⁴

Thus, starting at least as early as Scotus, we find what would become a popular attempt to separate the causality of the final cause from that of the efficient cause:

The end is a cause only to the extent that the existence of what is ordered to an end depends upon this end as upon something essentially prior. This is clear since every cause *qua* cause is prior in this way. Now this situation obtains if, and only if, the end *as loved* moves the efficient cause to give existence to

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the effect in question, so that the efficient cause would not give existence if the end were not simultaneously *contributing its measure of causality*. Hence, only what the efficient cause brings into existence for *love of the end* is caused by the end.¹⁵

The priority of the final cause is rooted specifically for Scotus in the agent's *love of the end*. This state of loving desire "moves" the efficient cause, and thereby "contributes its measure of causality." Note that the final causal "contribution" to which Scotus refers here is something separate from the efficient cause that achieves the end.

The idea of an agent's "loving" an end, and that this "loving" is in some way a separate causal contribution from that contributed by the efficient cause, became widely influential. If final causality is to be preserved as a distinct species of cause, it must be spelled out in such a way that it does not reduce to efficient causality. And that is where Scotus's use of the language of love enters the picture.

In seeking to show that the causality of the final cause is distinct from the causality of the efficient cause, Scotus repeatedly described the influence of the end as involving the end's being an object of love. But he also described the causality of the end as "metaphorical," in contrast to the influence of the efficient cause.

In the order of relative priority the efficient cause is next to the final cause and therefore it precedes the material cause. . . . The causation of the end consists in this: that by being loved (*amatum*), it moves metaphorically (*metaphorice movere*); and it is only the efficient cause that is moved in this way.¹⁶

It is not at all clear what Scotus (or subsequent thinkers) had in mind. In some sense, the final cause as represented by an agent is "loved" by the agent, and this love "moves" —"metaphorically" speaking, not efficient causally speaking — the agent's efficient causal means to achieving the end, the object of love. Presumably, the term "love" (*amatum*) is appropriate, on this account, since the end is perceived as something *good*.¹⁷ We may also presume that the influence of the final cause is weaker (so to speak) than that exerted by efficient causality, but not so weak as to be completely devoid of the power to incite movement. In other words, the modality governing the connection between the final cause (*qua* object of love, and under the aspect of goodness) and its effect is weaker than efficient causal (or natural) necessity. It is not clear (to me, at least) what more can be said, but the doctrine of metaphorical motion was popular: it can be found in thinkers from Ockham to Suárez, and was standard for the Coimbrans.¹⁸

2. Leibniz vs. His Predecessors

Summarizing the previous section, we may conclude that Leibniz was handed a thread of teleological thinking that embraced the following components (though different thinkers from that thread may well have disagreed on the details):

1. *Explanatory and Temporal Priority*: As the “cause of all causes,” the final cause is both explanatorily and temporally prior to its effect, and to the other causes (efficient, etc.) of that effect, in virtue of existing *as a representation in the mind of an agent*.

2. *The Need for Intelligence*: Intrinsic final causal activity is restricted to rational agents. Non-rational agents exhibit extrinsic final causality in virtue of being the instruments directed at the ends of an external intelligent agent.

3. *Final Causality*: The final cause as represented in the mind of the agent contributes a measure of causality, often described as a “metaphorical motion,” that is distinct from efficient causality.

Now it is interesting in itself that given the longstanding treatment of final causes in these terms, Leibniz — the leading early modern teleologist, and the one most sympathetic to Aristotelianism — did not often speak directly to these issues. Still, in the end, Leibniz left us a fairly detailed treatment of final causes. When his views are placed against the three components above, what emerges, I think, is a Leibniz who revamped the thread of thinking completely, leaving us with a set of teleological views unlike any other.

Leibniz on Explanatory and Temporal Priority

One might think that Leibniz did indeed adopt the view that final causes have explanatory priority, or are in some sense more fundamental. After all, he often emphasized that the mechanical laws governing bodies have their source in considerations of “fitness” or final causes (cf. AG 319), rather than in a geometrical necessity. Moreover, the bodies governed by mechanical laws are phenomenal, an order of bodies rooted in the realm of monads, the most fundamental entities for Leibniz. And as is well known, Leibniz often emphasized that monads follow the laws of final causes, or are bearers of the kingdom of final causes. Finally, we can find passages in Leibniz that come close to suggesting the traditional view

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that final causes have explanatory priority. Consider the following from a letter to Bierling of August 1711:

The source of mechanism is primitive force, but the laws of motion, according to which impetus or derivative force arise from it, flow from the perception of good and evil, or from that which is most fitting. For this reason, just as efficient causes depend on final causes [*ut efficientes causae pendeant a finalibus*], and spiritual things are prior by nature to material things, so also are they prior for us in thought, since we perceive the soul (private to us) more intimately than the body, as Plato and Descartes also recognized. (GP VII, 501)

In this passage, Leibniz stated flatly that efficient causes depend on final causes. The overall suggestion might be taken to be that material things and their governance by efficient causes are explanatorily subservient to the more fundamental realm of spiritual things and final causes. The latter are “naturally prior,” more fundamental, and explanatorily ultimate, as Aristotle and his successors maintained.

Despite passages such as these, I think there are compelling reasons to think that Leibniz rejected the traditional thesis involving final causal explanatory priority. That is, I think Leibniz held that neither efficient causes nor final causes are more fundamental; neither one holds explanatory priority.¹⁹ If this is correct, then Leibniz's understanding of final causes differed significantly from mainstream thinkers prior to him.

To begin, consider again the passage above from the letter to Bierling. Bierling was asking explicitly about how we can know about incorporeal things such as force based on our sensing only the mechanical arrangements of bodies. Leibniz emphasized that the motion of bodies must have a cause, and that cause must lie in the metaphysical realm of force, whose properties are chosen by God on the basis of their fitness. In this sense, the efficient causes involved in mechanical motion depend on divine final causes. But this need not be taken as a general statement of the explanatory priority of final causes, for what Leibniz says above seems entirely compatible with final causes also having an explanatory dependence on efficient causes in various contexts.

Indeed, Leibniz just as often suggested the reverse of what he told Bierling, namely, that the evolution of perceptual states in a substance is *explained by* the efficient causal order of the realm of bodies. Claims of this sort make it sound as though the realm of final causes *depends on* that of efficient causes. In the *Principles of Nature and Grace*, Leibniz wrote that “the perceptions of the monad arise from one another by the laws of appetites, or by the laws of the final causes of good

and evil ... *in the same way that* changes in bodies and external phenomena are born from one another by the laws of efficient causes” (PNG §3; GP VI, 598 [my emphasis]). And in the *Theodicy*, he wrote that “every simple substance embraces the whole universe in its confused perceptions or sensations, and that the succession of these perceptions is regulated ... in a manner which always expresses all of universal nature; and every present perception leads to a new perception, just as every movement that it represents leads to another movement” (T §403). Finally, in a most telling passage from his “Reply to Bayle” (1716 pub.), he wrote that “the reason for the change in the soul’s thoughts *is the same as* for the change in things in the universe which it represents,” for “mechanical causes, which work themselves out in the body, are brought together, and so to speak, concentrated in souls or entelechies” (GP IV, 562; WF 116 [my emphasis]). Just as the passage from Bierling makes it sound as though the motions of bodies are ultimately explained by divine final causes, so passages such as this read as though the passage of perceptual states of monads — i.e. a passage governed by the laws of final causes — is explained by the motions of bodies. One perceptual state follows another *because* the state of the bodily world represented in the second followed the state of the bodily world in the first.²⁰ The upshot, I think, is that even if we think that the realm of monads is *ontologically* more fundamental, Leibniz did not follow tradition and hold that either efficient or final causes were more fundamental. In some contexts, he stresses the primacy of final causes when it comes to explaining the passage of perceptual states; in others, he stresses the explanatory primacy of efficient causes for explaining the evolution of perceptions. In some contexts, he stresses the primacy of appealing to efficient causes to explain mechanical phenomena; in others, he stresses the primacy of final causes for explaining phenomena, *including* mechanical phenomena.²¹

This reading is also supported by the plethora of passages in which Leibniz indicates that our choice of whether to explain things in efficient causal or final causal terms is somewhat arbitrary. For example, he writes to Des Billettes in 1696 that “everything really happens mechanically in nature, and can be explained by efficient causes, but that at the same time everything also takes place morally, so to speak, and can be explained by final causes” (GP VII, 452; L 472). I take the thought expressed in passages such as these to be more fully developed in the following undated fragment:

Just as everything can be explained in Geometry by the calculus of numbers and also by the analysis of situation, but that certain problems are more eas-

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ily resolved [*plus aisement resolu*] by one of these ways, and others by the other, the same thing I find holds with respect to phenomena. Everything can be explained by efficient causes and by final causes; but that which concerns rational substances is explained more naturally [*s'explique plus naturellement*] by a consideration of ends, as that which regards the other substances is better explained by efficient causes. (C 329)

The point is that neither explanatory scheme — that which appeals to final causes, or that which appeals to efficient causes — is better, more fundamental or more ultimate than the other. Rather, some are more convenient in certain contexts. This point is most clear in the context of Leibniz's work in natural philosophy, where despite his commitment to an efficient causal explanatory framework, he often made use of final causes to explain the behavior of bodies. We shall see that he also appealed to both efficient and final causes when it came to the changes in monads: his point, again, is that our choice of how to explain monadic changes is somewhat arbitrary and dictated by context.

Finally, while there is still a clear sense in which Leibniz (or any of us) maintained the *temporal* primacy of final causes — my desire for cheese (final cause) is temporally prior to the mechanical efficient causes involved in my body's movement to the refrigerator — this applies only to cases where we “cross” levels, where an end represented in the monad teleologically explains the ensuing bodily efficient causes that pursue that end. We shall see later in this paper, that as long as we are sticking to one level, there is no temporal priority of the final cause. It follows, then, that Leibniz did not endorse the temporal priority of the final cause as a general thesis the way that his predecessors did.

I conclude that Leibniz rejected the explanatory and temporal priority of final causes, and thereby broke with a thread of thinking that spanned approximately 2,000 years. For Leibniz, the final cause was *not* “cause of all the causes.”

Leibniz on the Need for Intelligence

From Aquinas onward, philosophers began to restrict final causal behavior to the operations of intelligent beings. Only those beings who can cognize their ends can properly be said to act for ends. It is perhaps in overlooking this requirement that Descartes criticized those who held that non-rational objects are goal-directed. Recall that in a semi-autobiographical passage from the “Sixth Replies,” he appears to argue against final causal explanations of the behavior of non-rational objects on

the grounds that such explanations imply that those objects have knowledge. “What makes it especially clear,” Descartes wrote, “that my idea of heaviness (*gravitas*) was taken largely from the idea I had of the mind is the fact that I thought heaviness carried bodies towards the center of the earth as if it had some knowledge of the center within itself. For this surely could not happen without knowledge, and there can be no knowledge except in a mind.”²² Descartes seems to argue here that goal-directed behavior—aiming for the earth—requires knowledge, and that non-rational objects do not have it. Hence, they cannot be understood teleologically, for this is absurdly *anthropomorphic*, and therefore so is intrinsic teleology for natural objects.²³

Clearly, since Leibniz often appealed to final causal explanations of the behavior of natural bodies, he would disagree with Descartes that such explanations imply attributing knowledge to a non-rational object. But the matter is subtler than some commentators have suggested. For example, Don Garrett writes that “Leibniz follows Descartes in requiring that all teleology be thoughtful,” and thus “[a]lthough Leibniz finds loci of teleological selection pervasive throughout nature, this is only because he also finds thought itself to be pervasive throughout nature.”²⁴ But this cannot be exactly correct, since Leibniz often justifies his attributions of end-driven behavior to natural bodies by appeal to God’s ends, as opposed to an intrinsic thoughtful nature of natural bodies. Consider the following discussion of final causes from Leibniz’s late *Animadversiones* on G.E. Stahl’s *Theoria medica verae* (1709):

Because therefore the Author of things understands all things, he makes all things act with order, or [*seu*] for an end ... Particular final causes appear primarily in machines of nature, or in the organic bodies of living beings, which are machines of divine invention, having been prepared for a certain kind of operation, and in our case, indeed, for exhibiting reason. And they possess that beautiful quality of a divine machine, far above those we ourselves can invent, in that they are able to preserve themselves and to produce some copy themselves, by which the operation for which they are destined is further obtained. And although we see, aside from the many machines of nature, works which lack order [*rudia*] and similar to a mass like rubbish, in which special ends are not apparent, nevertheless, no one who regards God as their author must doubt that these too are most exquisitely ordered toward special ends (even if we are ignorant of them) ... (Dut, II, 2, 132f.)

Here the ascription of final causes to organic bodies and non-rational objects is

justified by appeal to God's activity. The relevant ends are God's and are *extrinsically* imposed. Leibniz made the point more explicitly in the *New Essays*, claiming that "there is a moral and voluntary element in what is physical, through its relation to God, since the laws of motion are necessitated only by what is best. . . . [B]odies do not choose for themselves, God having chosen for them . . ." (NE 179). In some circumstances then, Leibniz simply denied what Descartes asserted: a final causal explanation of the behavior of a non-rational object does *not* imply knowledge or thought in that object. Rather, it implies, according to Leibniz, that they are instruments of God, and subject to extrinsic finality.²⁵ Thus, contrary to what Garrett wrote, Leibniz does not ground his natural teleology on the idea that non-rational nature is shot through with intrinsic thought.

But I hasten to emphasize that Leibniz grounds his natural teleology on God's ends only when he is considering bodies as physical inanimate masses, abstracting away from the fact that they are also aggregates of monads complete with perceptual states and appetites. The monads that make up bodies, of course, are *intrinsically* end-driven: "Body is the place of motion," Leibniz wrote in his *Animadversiones* on Stahl, "the soul of the series of appetites; the one is passed from cause to effect, the other from end to means" (Dut II, 2, 134). Monadic states are forcefully driven, *via* the internal principle of appetite, from perceptions of ends to perceptions of means. This is true even with respect to changes in monads of which we are not aware, as Leibniz noted in his *Animadversiones*:

[O]ne may understand that confused perceptions and hidden appetites no less concur and accord with every internal function of the body that we call "involuntary," and with the complete formation of the fetus, although such things may not be noticed. . . . Meanwhile, that motion is not improperly called "voluntary," which is distinctly connected with a conscious appetite, where we notice the means at the hands of our soul, being adapted to the end itself; *although in other [non-voluntary] movement also, appetites proceed to their own ends through means, albeit they are not noticed by us.* (Dut II, 2, 136; my emphasis)

Clearly, Leibniz felt comfortable ascribing intrinsic final causality to substances even with respect to unconscious perceptual states. Equally clearly, Leibniz did not require intelligence when it came to intrinsic teleological behavior, nor I think is it precise to call it "thought" as Garrett does.²⁶ Rather, whatever simulacrum of thought or intelligence that Leibniz required for end-driven behavior is apparently best put simply in terms of "representations." Consider:

[T]he present state of body is born from the preceding state through the laws of efficient causes; the present state of the soul is born from its preceding state through the laws of final causes. The one is the place of the series of motion, the other of the series of appetites; the one is passed from cause to effect, the other from end to means. *And in fact, it may be said that the representation of the end in the soul is the efficient cause of the representation in the same soul of the means* [*Et revera dici potest, repraesentationem finis in anima causam efficientem esse repraesentationis mediorum in eadem*]. (Dut II, 2, 134)

Likewise, in his published comments on Bayle's dog from 1705, Leibniz wrote that "in a soul, the representations of causes are the causes of the representations of effects" (GP IV, 533; WF 78). Leibniz did not require intelligence or knowledge for intrinsic teleology. But he seems to have required *representation* (and it could even be blind, located in the *petite perceptions* of the relevant monad).²⁷

Thus, we are justified in concluding that Leibniz rejected the medieval Aristotelian thesis that only intelligent agents exhibit intrinsic finality. Rather, Leibniz required that intrinsically teleological agents be able to represent—consciously or not, *via petite perceptions*—future states of the mechanical, efficient causal world. This, of course, meshes nicely with his suggestion we saw above, that we can explain the evolution of perceptions by appealing to the sequence of bodily states they represent.

Leibniz on Final Causality (and Temporal Priority again)

We now come to the third thesis widely endorsed by medieval teleologists, namely that the final cause as represented in the mind of the agent contributes a measure of causality, often described as a "metaphorical motion," that is distinct from efficient causality. With respect to Leibniz, the first point to be made is this: despite the long-standing attempt to account for the influence of the final cause as one distinct from the efficient cause, and the use of the doctrine of "metaphorical motion" to account for this influence, Leibniz (as far as I know) is silent on this entire matter.

Still, I think there is a clear sense in which Leibniz, like his medieval predecessors, believed that final causes exhibited *causality*, i.e. they are instigators of change. But unlike his medieval predecessors, Leibniz did not, it seems, think that final causality exhibited an influence distinct from efficient causality. This, of course, would explain the complete absence of any hint of the doctrine of metaphorical motion in Leibniz's texts.

Consider again Leibniz's claim in his *Animadversiones*, that "it may be said that the representation of the end in the soul is the efficient cause of the representation in the same soul of the means" (Dut II, 2, 134). This text makes it clear that Leibniz believed that perceptual states of a monad are efficient causes of later perceptual states. In an earlier paper,²⁸ I argued on the basis of this text, as well as others, that Leibnizian final causality may be seen as a species of efficient causality, and that is precisely the sense in which Leibniz held that final causes exhibit an influence: "the representation of the end in the soul is [an] efficient cause." Marleen Rozemond has challenged my claim on two grounds: first, she points out that Leibniz does not identify the efficient and final cause in this passage. Second, she argues that my approach is "surprising," for it cannot be right given that it is so far out of line with the Aristotelian tradition.²⁹ I address each of these briefly, beginning with the second.

With respect to Rozemond's second objection, that the view I attribute to Leibniz is way out of line with the Aristotelian tradition, I agree completely. In fact, it is the very thesis of this paper that Leibniz departed radically from Aristotelian threads of teleological thinking. Of course, it doesn't follow from this historical generalization that any one interpretation is correct or incorrect. So, let us turn then to Rozemond's first objection, which deals more directly with the view I attribute to Leibniz.

Rozemond correctly points out that Leibniz, in the passage from the *Animadversiones*, does not explicitly identify efficient and final causes. This is true. He does not do so in that passage alone. However, consider the following passage from a table of definitions from 1704:

An end [*finis*] is that, an appetite for which is a sufficient cause of *conatus* in the agent [*Finis est, cujus appetitio est causa <efficiens> conatus in agente*] (C 472).

Note that appetites are for future perceptual states, as Leibniz wrote in the *Monadology*, and elsewhere. So the appetite for the end here is an appetite for a future perceptual state, a representation of some state of affairs. But moreover the appetite must be "sufficiently" strong enough to produce *conatus*, where *conatus* is an act of volition. Leibniz wrote in the *New Essays* and elsewhere that volition is "the effort or *conatus* to move towards what one finds good and away from what one finds bad, the *conatus* arising immediately out of one's awareness of those things" (NE 172; cf. Grua 512, 513; C 498). So, the picture that emerges seems to me relatively clear: a final cause for Leibniz is an appetite for a represented state

of affairs that is strong enough to induce one to pursue that state of affairs (*via* a perception of means). The role of the appetite here is *crucial*: if a represented end is to be understood as an *end*, it must be desired or aimed at, or pursued. There is no such thing as an undesired end, or goal for which there is no appetite; if we are pointing to an end or final cause, we are appealing to an appetite. Indeed, Leibniz often *equates* “the laws of final causes” with “the laws of *appetites*” (e.g. PNG §3; my emphasis).

But of course, in citing sufficiently strong appetites for future state of affairs, we are also citing the *efficient* causes of monadic change. We might not *explain* such changes in efficient causal terms, and Leibniz rarely does. But in referencing an appetitive state of a monad as a final cause, we are appealing to the very same entity that serves as the efficient causal principle of monadic change — only this time, with respect to its anticipated outcome (a “pull”), as opposed to appetite considered as an efficient causal “internal principle of change” (a “push”). Again, although we do not *explain* such changes in efficient causal terms, we do appeal to the *very same* entity—appetitive monadic states—this time with reference to its anticipated outcome. In this sense, then, the final cause and the efficient cause differ only in perspective, not *in concreto*, for they are both one and the same appetitive state that initiates change.

This view of the picture gives us a way of addressing a concern raised by John Carriero in his treatment of Leibniz on final causes.³⁰ Carriero argues that we should resist the temptation to understand monads as cognitive beings, and instead understand them as “*fundamentally*” seats of agency or activity.³¹ If we understand monads as seats of cognition, we do not, Carriero argues, get an explanation of why we should think of the order of monads as “grounding” the order of bodies. But if we understand monads as most fundamentally seats of activity or agency, we get a better sense of why the physical world is not a complete order of reality, and thus why the realm of monads is needed. Finally, he points out that Leibniz often describes simple substances as “substantial forms,” and “first entelechies,” and that these are not primarily cognitive notions. Thus, Carriero argues that we get a better understanding of monads as substantial forms and first entelechies if we understand monads as most fundamentally seats of activity. On the other hand, Rozemond argues for precisely the opposite conclusion, namely, that we ought to see monads as primarily mental and cognitive.

While Carriero is surely correct that monads *can* be seen as seats of activity and that perhaps a focus on this aspect of the monad yields a clearer understanding of

their role as entelechies and grounders of the physical order, I do not think that we are forced to his conclusion that this is in some sense their most fundamental role, or their primary role. And Rozemond is surely correct that we can see monads as mental teleological strivers capable of representative states, but again I do not think we must see that role as somehow primary. If what I have claimed above is correct, monads as followers of the laws of final causes, must be understood as bearers of representations. And to understand them as such is to understand them primarily as appetitive end-strivers. But we can with equal justice understand them as Carriero does, as seats of activity that *efficient causally* produce subsequent states of the universe. It seems to me that monads are in and of themselves neutral between being characterized as representative end-strivers, and efficient causal entelechies. Leibniz can be seen emphasizing both, depending on the context.

The upshot is this: the causal powers responsible for monadic change can be described in either efficient causal or final causal terms; they can be seen as entelechies, seats of activity, or as appetitive bearers of representations of future states. Of course, in some contexts, we will find it more natural (as Leibniz did) to emphasize the monad's capacity as an entelechy, an efficient causal producer of subsequent states. In other contexts, we will find it more natural to emphasize its capacity to represent future states and have an appetite for them, a final causal producer of subsequent states. But in each case we are citing the very same causal power. And given that we are citing the *same* causal power merely considered in different ways, I conclude that Leibniz rejected the medieval Aristotelian idea that final causality contributes a measure of causality in some way distinct from the efficient cause. It also follows, of course, that with respect to monadic activity, neither the efficient nor the final cause is temporally prior. Rather, they are the simultaneous "push and pull" of monadic change.

3. Conclusion

The results of this study may be summarized as follows. Advocates of final causes throughout the medieval period held that final causes are explanatorily more fundamental, that only rational agents exhibit intrinsic finality, and that final causality exerts an influence that is distinct from efficient causality. I have argued that Leibniz rejected all three Aristotelian theses: he maintained that neither efficient nor final causes are more fundamental, that non-rational substances act for ends in virtue of having an appetitive power for representations of anticipated future states, and

that Leibniz saw no difference (beyond mere emphasis, or point of view) between final and efficient causality.

I do not mean to suggest that these three Aristotelian theses capture everything that is important and interesting in traditional teleology. I want to suggest, however, that they capture a major strand of medieval thinking about final causes. Given this, my overall conclusion is that Leibniz went in a significantly different direction with final causes than that taken by his Aristotelian predecessors.³²

Received 10 November 2011

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Notes

¹ In the past few years a few studies have emerged. For treatments of various aspects of Leibnizian final causes, see: Laurence Carlin, “Leibniz on Final Causes,” *Journal of the History of Philosophy* 44 (2006): 217-233; John Carriero, “Substance and Ends in Leibniz” in *Contemporary Perspectives on Early Modern Philosophy: Essays in Honor of Vere Chappell*, eds. P. Hoffman, D. Owen, and G. Yaffe (Broadview Press, 2008), pp. 115-140; Glenn Hartz, “Leibniz’s Animals: Where Teleology Meets Mechanism,” in *Machines of Nature and Corporeal Substances in Leibniz*, eds. J.E.H. Smith and O. Nachtomy (Springer, 2011), pp. 29-37; Jeffrey McDonough “Leibniz’s Two Realms Revisited,” *Nous* 42 (2008): 673-696; Jeffrey McDonough “Leibniz on Natural Teleology and the Laws of Optics,” *Philosophy and Phenomenological Research* 78 (2009): 505-544; Marleen Rozemond, “Leibniz on Final Causation,” in *Metaphysics and the Good*, eds. S. Newlands and L. Jorgenson (Oxford: Oxford UP, 2009), pp. 272-294. I discuss some of this commentary below.

² McDonough, “Leibniz’s Two Realms Revisited,” *Nous* 42 (2008): 692.

³ At least, they carried no such implication insofar as they are not being closely linked with forms or formal causes. See *Physics* II, 7, 198a25-26 for one place

where Aristotle links the two. This might suggest that the strivings of a form are to be identified with final causes. For discussion, see John Cooper's "Aristotle on Natural Teleology," in *Language and Logos* (Cambridge: Cambridge UP, 1982), pp. 197-222. I put aside this consideration, as it is irrelevant for my purposes.

⁴ Quotation taken from Robert Wisnovsky's *Avicenna's Metaphysics in Context* (Ithaca: Cornell UP, 2003), p. 173.

⁵ Wisnovsky, *Avicenna's Metaphysics in Context*, p. 169.

⁶ Wisnovsky, *Avicenna's Metaphysics in Context*, p. 173.

⁷ Aquinas, *De Principis Naturae* chap. IV, sec. 22, ed. J. Bobik (Notre Dame: University of Notre Dame Press, 1998), 59 (my emphasis).

⁸ See Duns Scotus, *De Primo Principio* 2.11: "The end is the first cause in causing; wherefore Avicenna calls it the cause of the causes. Reason confirms this ..." (ed. and trans. A. Wollter, 2nd edition [Chicago: Franciscan Herald Press, 1982]).

⁹ See Ockham, *Opera Philosophica Theologica* I, pt. 2: "The end is prior in intention and last in execution" (ed. S. Brown [St. Bonaventure University Press, 1984], p. 306).

¹⁰ See Suárez, *Disputationes Metaphysicae*, Disp.17, sec.1, par.3: "For the end ... is prior to the efficient cause in causing, inasmuch as the efficient cause does not act unless it is moved by the end. This is why the final cause is commonly said to be the first among all the causes" (*Opera Omnia*, ed. C. Berton [Hildesheim: Georg Olms, 1965], vols. 25, p. 581.)

¹¹ Dennis Des Chene has argued for a closely related interpretation in a separate context. See Des Chene's *Physiologia: Natural Philosophy in Late Aristotelianism and Cartesian Thought* (Ithaca: Cornell University Press, 1996), chap. 6. But the point seems not to be understood in the way I have put it, as some recent commentators still ascribe immanent/intrinsic teleology to mainstream medieval thinkers. I argue in "Boyle's Teleological Mechanism and the Myth of Immanent Teleology" (forthcoming in *Studies in the History and Philosophy of Science*) against these commentators that the medieval thinkers in question did not endorse immanent teleology.

¹² See Ockham, *Opera Philosophica* VI, 228: "Properly speaking, it is not said that a [non-rational] agent acts on account of an end, but it is properly said that one directs or moves that agent. From whence it is not properly said that the arrow moves or acts for the sake of murder, but it is well said that the archer directs the arrow for the sake of murder" (St. Bonaventure: St. Bonaventure University Press, 1984).

¹³ See Suárez, *Disputationes Metaphysicae*, Disp. 23, sec. 10, par. 6: "There is no

proper final causation in actions insofar as they come from natural agents, but only a tendency [*habitus*] to a certain endpoint [*terminus*]; and in fact those actions are from God” (*Opera Omnia*, ed. C. Berton [Hildesheim: Georg Olms, 1965], vols. 26, p. 887).

¹⁴ The problem many of these thinkers saw here is nicely summarized by the 13th century Scholastic Thomas Wylton in his *Quodlibet* III (Vatican ms. Cod. Burgh. 36, f. 83rb): “The question is whether an end is a cause. In regard to this question all agree in concluding that it is, for the Philosopher in *Physics* II shows by demonstration that every agent, whether acting naturally or through understanding and will, acts in every action for the sake of an end. If it is a natural agent, then it acts for the sake of an end prearranged by a superior agent, that is, the author of nature. If it is an agent acting through knowledge, then it acts for an end that is intended, known, weighed, or at least imagined. Yet even though this conclusion is one that all are certain about, still it is very difficult to assign the manner in which an end causes, if we are speaking about the causality of the end in contrast to the causality of an efficient cause and as distinct from the other types of causes.” The original Latin is in Cecilia Trifogli’s “Thomas Wylton on Final Causality,” in *Erfahrung und Beweis: Die Wissenschaften von der Natur im 13. und 14. Jahrhundert*, ed. A. Fidora (Berlin: Akademie Verlag, 2007), pp. 249-264. For more on Wylton on final causes, see in addition to Trifogli’s article, Anneliese Maier’s “Das Problem der Finalkausalität um 1320,” in *Metaphysische Hintergründe der spätscholastischen Naturphilosophie* (Rome: Edizioni di Storia e Letteratura, 1955), pp. 273-299. See especially 291f.

¹⁵ Duns Scotus, *De Primo Principio* 2.15, ed. and trans. A. Wollter, 2nd edition (Chicago: Franciscan Herald Press, 1982; my emphasis).

¹⁶ Duns Scotus, *De Primo Principio* 2.21. Cf: “A final cause does not cause at all unless in a metaphorical sense it moves the efficient cause to produce the effect. Only in this way does the entity of what exists for the sake of an end depend on the end as prior” (Duns Scotus, *Philosophical Writings*, ed. and trans. A. Wollter [Indianapolis: Hackett Publishing, 1987, p. 45]). See also Duns Scotus, *Quaestiones Super Libros Metaphysicorum Aristotelis* bk. V, q. 1, n. 39 in *Opera Philosophica*, ed. R. Andrews, et. al., (St. Bonaventure: St. Bonaventure UP, 1997), vol. III, 404. For a brief discussion of the “metaphorical motion” of the end on the efficient causality of an agent’s will, see Des Chene, *Physiologia*, pp.189-191. Des Chene notes that “talk of metaphorical motion is obfuscating” (190). I agree. The idea may have developed as a result of some remarks by Aristotle in *De Generatione*

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et Corruptione I, ch. 7, 324b14f.

¹⁷ See Duns Scotus, *Quaestiones Super Libros Metaphysicorum Aristotelis* bk. V, q. 1, n. 20 and 26 in *Opera Philosophica* III, 400. Indeed, as Jeffrey McDonough has noted in “The Heyday of Teleology and Early Modern Philosophy” (manuscript), many medieval thinkers were attracted to the idea that the objective goodness of some thing or event may figure prominently in explanations of that thing or event. McDonough’s extremely valuable discussion focuses on different aspects of the history of teleology than I do in this paper.

¹⁸ See Suárez, *Disputationes Metaphysicae*, Disp. 17, sec. 1, par. 6: “The end, on the other hand, causes only by means of a metaphorical motion insofar as it is an end.” See also Ockham, *Quaestiones Variiae* IV in *Opera*, vol. VIII (St. Bonaventure: Franciscan Institute, 1984), 108. For a discussion of the doctrine in the Coimbrans, see Des Chene, *Physiologia*, p. 189f.

¹⁹ Jeffrey McDonough has argued for a similar view. He argues against David Hirschmann’s claim that for Leibniz, final causes are more fundamental and do all the explanatory work, as efficient causes simply track divine ends. McDonough argues that Leibniz did not hold this view, and more importantly, he was not forced into such a view. I agree with McDonough, and shall argue something similar in what follows though on the basis of different texts than those to which he appeals. See McDonough’s “Leibniz’s Two Realms Revisited,” *Nous* 42 (2008): 673-696, and Hirschmann’s “The Kingdom of Wisdom and the Kingdom of Power in Leibniz,” *Proceedings of the Aristotelian Society* 88 (1988): 147-159.

²⁰ Donald Rutherford seems to make a somewhat similar point in his “Leibniz on Spontaneity,” in *Leibniz: Nature and Freedom* eds. D. Rutherford and J. Cover (Oxford: Oxford UP, 2005), pp. 156-180. See p. 173.

²¹ See, for example, *The Human Body, Like That of Any Animal, is a Sort of Machine* (1680-86): “The description of a machine is best approached through its final cause. The human body, like the body of an animal, is a sort of machine. Any machine, moreover, is best defined in terms of its final cause, so that in the description of its parts it is therefore apparent in what way each of them is coordinated with the others for the intended use” (translation from Justin E.H. Smith’s *Divine Machines: Leibniz and the Sciences of Life* [Princeton UP, 2011], p. 290).

²² René Descartes, *Oeuvres de Descartes*, ed. C. Adam and P. Tannery (Paris: Vrin, 1964-74), vol. VII, 443; *The Philosophical Writings of Desartes*, ed. and trans. J. Cottingham, R. Stoothoff, and D. Murdoch (Cambridge: Cambridge UP, 1984-85), vol. II, 297f.

²³ In a letter to Mersenne of 26 April 1643 (*Oeuvres* III, 648f.), Descartes made essentially the same point, this time claiming that the idea that bodies possess such knowledge amounts to the *animistic* idea that they have “little souls” (*petites ames*). In this letter too, he did not explicitly link it with final causes. Instead, he linked it with the Scholastic doctrine of real qualities (*qualitez reelles*). He argues there that we have no way of understanding such *petites ames*, and in any event, there are better ways of explaining the phenomena of nature.

²⁴ Don Garrett, “Teleology in Spinoza and Early Modern Rationalism” in *New Essays on the Rationalists*, eds. R. Gennaro and C. Huenemann (Oxford: Oxford UP, 1999), pp. 310-325. The quotation is from p. 326f.

²⁵ See also Ar 253f., where Leibniz makes essentially the same point in the context of discussing the use of final causes in deriving the law of reflection.

²⁶ Indeed, Leibniz usually restricts thought to rational minds, but given what Leibniz writes in the *New Essays*, Garrett’s use of the term “thought” is easily understood and forgiven: “One might, I believe, replace ‘thought’ by a more general term, ‘perception’, attributing thought only to minds whereas perception belongs to all entelechies. But still I would not challenge anyone’s right to use ‘thought’ with that same generality, and I may sometimes have carelessly done so myself” (NE 210; my emphasis).

²⁷ It is the doctrine of *petite perceptions*, of course, that arms Leibniz with a response to someone like Descartes, who held that teleological activity requires thinking. Descartes maintained that non-thinking objects do not have the ability to act teleologically, while Leibniz could argue that they do have that ability in virtue of having *petite perceptions*, which gives them the ability to represent future states of affairs. (I am grateful to an anonymous referee for emphasizing the crucial role of *petite perceptions* here.)

²⁸ Laurence Carlin, “Leibniz on Final Causes,” *Journal of the History of Philosophy* 44 (2006): 217-233.

²⁹ Rozemond, “Leibniz on Final Causation.” See especially pp. 291f.

³⁰ Carriero, “Substance and Ends in Leibniz,” *passim*.

³¹ Carriero, “Substance and Ends in Leibniz,” p. 117.

³² Earlier versions of this paper were read at the 2011 Annual Meeting of the Leibniz Society of North America, and the 2011 Atlantic-Canada Seminar in Early Modern Philosophy. The feedback I received at these meetings led to significant revisions. I am grateful to Jeffrey McDonough and Justin Smith for sharing drafts of their work in progress, and for the helpful comments of an anonymous referee for the *Review*.