

The Early Modern Rationalists and Substantial Form: From Natural Philosophy to Metaphysics

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Abstract: This paper argues that, contrary to what one might think, early modern rationalism displays an increasing and well-grounded sensitivity to certain metaphysical questions substantial form was designed to answer—despite the fact that the notion itself was in such disrepute, and emphatically banished from natural philosophy. This main thesis is established by examining the thought of Descartes, Spinoza, and Leibniz through the framework constituted by what have been designated as the two aspects, metaphysical and physical, of substantial form. This examination shows that Descartes ends up assigning to soul a notable metaphysical task formerly assigned to substantial form, whereas Spinoza advances a theory of essences motivated by the philosophical concerns behind the two aspects of substantial form. Leibniz finally makes a sharp distinction between natural philosophy and metaphysics as he develops a dynamistic theory that deliberately aims at understanding substantial form in a new fashion. This line of development is designated as one major factor contributing to the separation of philosophy and natural science.

Keywords: Scholasticism, Hobbes, Descartes, Spinoza, Leibniz, metaphysics, natural philosophy, substantial form, essentialism, individuation, identity, force

Introduction

In the seventeenth century, the notion of substantial form came to be one of the most contested, not to say ridiculed, features of the traditionally dominant Aristotelian philosophical framework. What did the thinkers widely regarded as the three great early modern rationalists think about the controversial notion?

It seems that the answer is readily at hand: Descartes and Spinoza emphatically rejected it, whereas Leibniz endorsed it, bringing a new turn to the debate by attempting to rehabilitate the time-honored doctrine. However, on a closer look, this answer appears superficial to the point of being misleading. In fact, things are considerably more complex, and examining the fate of the notion of substantial form allows us to see some key aspects of early modern thought, especially the relationship between natural philosophy and metaphysics, in a new light.

We can begin by a brief survey of what was traditionally meant by substantial form, or the form of a substance. For the scholastics, natural substances are unions of form and matter; as Thomas Aquinas writes, “[b]y form, which is the act of matter, matter is made a being in act and an individual substance”¹—or, as Robert Pasnau puts it, for Aquinas one of substantial form’s major tasks is to be “the actualizer of prime matter.”² Through such actualization, a substance is formed. Moreover, on Aquinas’s reading of Aristotle, precisely the formal and material causes are intrinsic principles, whereas the efficient and final causes “are external to the thing.”³ Together, form and matter compose what is innermost to a thing, namely its very essence: that “according to which a thing is said to be.”⁴ Thereby is constituted a concrete *particular* thing of a certain *kind*. According to the preeminent medieval line of thought, form determines the species of a thing (e.g. *human*), whereas matter is responsible for making individuals of the same species particulars different from each other (e.g. *Socrates* and *Plato*).⁵ The appearance, presence, and disappearance of a substantial form was invoked to *explain* why sometimes a thing is generated, sometimes destroyed, and sometimes merely altered. Substantial forms also make material things genuine unities instead of mere aggregates.⁶

¹ Thomas Aquinas, *On Being and Essence* II (*Selected Writings of St. Thomas Aquinas*, trans. Robert P. Goodwin, Upper Saddle River: Prentice Hall, 1965, p. 37).

² Robert Pasnau, *Metaphysical Themes 1274–1671*, Oxford: Clarendon Press, 2011, p. 550.

³ Thomas Aquinas, *The Principles of Nature* III.20 (*Selected Writings*, p. 16).

⁴ Thomas Aquinas, *On Being and Essence* II (*Selected Writings*, p. 38).

⁵ What makes something numerically distinct from all other things (of its own species) is what the medievals understood as the problem of individuation proper. The prevalence of the line of thought designating matter as the principle of individuation is beyond doubt, but there certainly were also many other notable positions; see Peter King, “The Problem of Individuation in the Middle Ages,” *Theoria* 66:2 (2000), pp. 159–184.

⁶ For instructive accounts of these facets of substantial form, see Pasnau, *Metaphysical Themes*, pp. 553–557; Dennis Des Chene, *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*, Ithaca: Cornell University Press, 1996, pp. 69–73; Christopher Shields, “The Reality of Substantial Form: Suárez, *Metaphysical Disputations* XV,” in Daniel Schwartz (ed.), *Interpreting Suárez: Critical Essays*, Cambridge: Cambridge University Press, 2012, pp. 39–45.

From a broader perspective, I believe that it can be said, despite all the variance in the late scholastic natural philosophy, that there was an extremely widely shared ground-level conviction that there must be something in the world, namely substantial forms, that make things what they are: principles that (when joined with matter) *constitute* substances. In as plain terms as possible, these principles determine *what it is to be a thing*; more finely put, they are the key ontological features that determine the identity and nature of substances as unified individuals such as human beings, horses, trees, etc.⁷ This is what has come to be called the metaphysical aspect of substantial form; but there is also another aspect, what can be labeled physical, by which is referred to the more robust *causal* role assigned to substantial forms in the natural world: for instance, the substantial form of fire causes it to have the accident of hotness.⁸ Thus, substantial form had highly prominent *physical* and *metaphysical* explanatory tasks.⁹

At first sight, things look very different in the beginning of the early modern era, with its well-known preference for mechanistic explanation in a world considered a book “written in mathematical language” with “triangles, circles, and other geometrical figures” as its characters.¹⁰ With regard to our topic, the pioneering work by Hobbes offers a particularly striking contrast to the Peripatetic philosophical framework. According to the Hobbesian first philosophy, the reality consists of nothing but extended bodies in motion. As Doug Jesseph aptly puts it, in Hobbes’s “scheme of things motion is the only cause, and because all of philosophy involves reasoning about causes, he is committed to the thesis that motion is the ultimate explanatory concept.”¹¹ According to the Hobbesian view, all causal efficacy and change consist in motion alone;

⁷ I have found the studies of such present-day Aristotelian metaphysicians as David S. Oderberg (*Real Essentialism*, New York: Routledge, 2007, ch. 4) and Tuomas E. Tahko (“Metaphysics as the First Philosophy,” in Edward Feser (ed.), *Aristotle on Method and Metaphysics*, New York: Palgrave Macmillan, 2013, pp. 49–67) very helpful for discerning this basic philosophical view: strikingly, there is again an explicitly heightened sensitivity to the need for entities having this principled role.

⁸ This is my understanding of the key distinction presented by Pasnau (*Metaphysical Themes*, ch. 24); see also Helen Hattab, *Descartes on Forms and Mechanisms*, Cambridge: Cambridge University Press, 2009, pp. 2–3.

⁹ This holds despite the fact that, in Aristotelian empiricism, the knowledge of substantial forms is a relatively complicated issue: they cannot be conceived by the senses and have to be posited as the best explanation for perceived effects and changes in natural things. For discussions on this, see, e.g., Shields, “The Reality of Substantial Form,” pp. 46–47, 60–61; Marleen Rozemond, *Descartes’s Dualism*, Cambridge, Mass.: Harvard University Press, 1998, p. 135.

¹⁰ Galileo Galilei, *The Assayer* VII.1 (*The Essential Galileo*, ed. and trans. Maurice A. Finocchiaro, Indianapolis: Hackett, 2008, p. 183).

¹¹ Doug Jesseph, “Hobbesian Mechanics,” *Oxford Studies in Early Modern Philosophy* 3 (2006), p. 119.

“mutation can be nothing else but motion of the parts of that body which is changed.”¹² Given this, even though Hobbes designates how such notions as form and essence are to be understood in his system,¹³ there seems to be ultimately left *no* genuine work to be done for them.¹⁴ It is quite revealing that Hobbes talks about “*that confusion of words* derived from the Latin verb *est*, as *essence, essentiality, entity, entitative* [...] philosophy has no need of those words *essence, entity*, and other the like barbarous terms.”¹⁵ It is difficult to see how there could be anything even remotely resembling substantial forms in this kind of materialist kinematism.

However, despite the preeminence of the mechanical sciences and the explicit criticism of substantial forms by major early modern thinkers, we should not consider Hobbes’s position as one that would particularly well represent his age: on the contrary, his parsimonious philosophy avoids to an exceptional degree introducing elements that would address the central questions to which substantial forms, with their two aspects, were responses. Hobbes’s rationalist colleagues were less driven by ontological parsimony and more concerned about developing systems with metaphysical explanatory power.¹⁶

In this paper I examine the early modern rationalist thought through the framework of the two aspects, physical and metaphysical, of substantial form to show that the rationalists display an increasing sensitivity to metaphysical questions substantial form was designed to answer—despite the fact that the notion itself was in such a disrepute, and no doubt discarded in its Aristotelian form. This indicates that the original idea behind the introduction of substantial forms was considerably less mysterious than the proponents of mechanistically oriented natural philosophy may have been willing to admit, and that the early modern fate of the contested notion was much more nuanced an issue than often has been assumed. In fact, there is a significant philosophical lesson to be learned: the framework of the two aspects of substantial form—with which we can throw a cross-light on the thought of the three early modern rationalists to illuminate the differing conceptual architectonics of their philosophies—allows us to discern something rather profound about what is required to build a

¹² Thomas Hobbes, *Concerning Body* II.9.9 (*The English Works of Thomas Hobbes* I, ed. William Molesworth, London: John Bohn, 1839, p. 126).

¹³ In *Concerning Body* II.8.23, Hobbes equates the two notions: “And the same essence [that accident for which we give a certain name to any body], in as much as it is generated, is called the FORM” (*English Works* I, p. 117).

¹⁴ Cf.: “Hobbes systematically interpreted them [the key concepts in first philosophy] in purely physical terms” (Jesseph, “Hobbesian Mechanics,” p. 127).

¹⁵ *Concerning Body* I.3.4 (*English Works* I, p. 34, the first emphasis added).

¹⁶ On the parsimoniousness of Hobbes’s thought, see Jesseph, “Hobbesian Mechanics,” esp. pp. 128, 152.

workable metaphysics. For Descartes, this meant assigning the soul a notable metaphysical task formerly assigned to substantial form; for Spinoza, advancing a theory of essences motivated by the philosophical concerns behind both aspects of substantial form; for Leibniz, developing a philosophy of forces that deliberately aimed at—and arguably succeeded in—reshaping our understanding of the relationship between natural philosophy and metaphysics.

Descartes, substantial form, and identity

In the Cartesian framework, natural things are bodies the essence of which is extension. Other features of bodies are basically modifications of extension, and bodies are constituted simply by “extension in length, breadth and depth.”¹⁷ Descartes offers several arguments against the doctrine of substantial form,¹⁸ but here I take up only the one I consider central for the present purposes: substantial forms are to be discarded as useless and unknown, for they are not needed in explaining natural phenomena or found amongst the qualities of matter. The famous passage from a January 1642 letter to Regius reads:

I fully agree with the view of the learned Rector that those “harmless entities” called substantial forms and real qualities should not be rashly expelled from their ancient territory. Indeed, up to now we have certainly not rejected them absolutely; we merely claim that we do not need them in order to explain the causes of natural things. We think, moreover, that our arguments are to be commended especially on the ground that they do not in any way depend on uncertain and obscure assumptions of this sort. Now in such matters, saying that one does not wish to make use of these entities is almost the same as saying one will not accept them; indeed, they are accepted by others only because they are thought necessary to explain the causes of natural effects. So we will be ready enough to confess that we do wholly reject them.¹⁹

Here Descartes is clearly referring to the physical aspect of substantial form, and despite the fact that he expresses his point in the sensitive issue in a rather convoluted manner, the message is clear: substantial forms are to be avoided

¹⁷ René Descartes, *Principles of Philosophy* II.11 (*The Philosophical Writings of Descartes* I, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, Cambridge: Cambridge University Press, 1985, p. 227).

¹⁸ For helpful discussions of Descartes’s arguments, see Rozemond, *Descartes’s Dualism*, ch. 4; Hattab, *Descartes on Forms and Mechanisms*, esp. ch. 1; Daniel Garber, *Descartes’ Metaphysical Physics*, Chicago: University of Chicago Press, 1992, ch. 4.

¹⁹ René Descartes, *The Philosophical Writings of Descartes* III. *The Correspondence*, trans. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny, Cambridge: Cambridge University Press, 1991, p. 207; see also pp. 122, 205.

in explaining natural phenomena. In the Sixth Replies, Descartes argues that ideas of such things as substantial forms are formed by conflating mental and corporeal entities so that it seems as if bodies have minds that make them behave in certain ways.²⁰

The new geometrical and mechanistic picture of the natural world thus seems to have no need, or even room, for substantial forms. There is, however, a complication, which concerns the traditional territory of substantial form, namely individuality. Now Descartes sets a very demanding criterion to the identity of corporeal things. In an important letter to Mesland from 9 February 1645, Descartes declares:

When we speak of a body in general, we mean a determinate part of matter, a part of the quantity of which the universe is composed. In this sense, if the smallest amount of that quantity were removed, we would judge without more ado that the body was smaller and no longer complete; and if any particle of the matter were changed, we would at once think that the body was no longer quite the same, no longer numerically the same.²¹

It is relatively easy to see how Descartes's geometrical corpuscularianism leads to this view: to put it roughly, if a body changes its quantity, or the components of which it consists alter, the obvious upshot is that the body is not the numerically same thing anymore.²² However, it is just as easy to see that the criterion is strict to a problematic degree. If any change for instance in the parts of the human body means that the body will no longer be the same body, the obvious corollary is that our bodies have an extremely short-lived, almost an ephemeral existence. In the letter to Mesland, Descartes acknowledges this: "I do not think that there is any particle of our bodies which remains numerically the same for a single moment."²³ This seems, in any ontology of substance,²⁴

²⁰ René Descartes, *The Philosophical Writings of Descartes* II, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, Cambridge: Cambridge University Press, 1985, pp. 297–298.

²¹ *Philosophical Writings* III, pp. 242–243.

²² For discussion on the vexed issues pertaining to Descartes's view of individuation of bodies, see, e.g., Vlad Alexandrescu, "The Double Question of the Individuation of Physical Bodies in Descartes," in Vlad Alexandrescu (ed.), *Branching Off: The Early Moderns in Quest for the Unity of Knowledge*, Bucharest: Zeta Books, 2009, pp. 69–94; Emily Grosholz, "Descartes and the Individuation of Physical Objects," in Kenneth F. Barber and Jorge J. E. Gracia (eds.), *Individuation and Identity in Early Modern Philosophy: Descartes to Kant*, Albany: State University of New York Press, 1994, pp. 41–58.

²³ *Philosophical Writings* III, p. 243.

²⁴ For a discussion that helpfully contrasts the Cartesian substance–mode ontology with the Aristotelian substance–accident ontology, see Calvin Normore, "Descartes and the Metaphysics of Extension," in Janet Broughton and John Carriero (ed.), *A Companion to Descartes*, Malden, Mass.: Blackwell, 2008, pp. 271–287.

a highly radical, even counterintuitive result. Perhaps due to this, Descartes indicates that there is also a less strict way to view the identity of corporeal things. Earlier in the same letter, he writes:

[W]e can say that the Loire is the same river as it was ten years ago, although it is no longer the same water, and perhaps there is no longer a single part of the earth which then surrounded that water.²⁵

This example is presented after a discussion of transubstantiation; the criterion of diachronic identity endorsed is “identity or similarity of the dimensions.”²⁶ This dimensional criterion is considerably less strict than the one concerning bodies “in general,” and it is not altogether clear how the two criteria relate to each other. Be this as it may, Descartes elaborates or endorses *neither* of them when he discusses the identity of *human* bodies. Instead, he opts for a strategy of a completely different kind:

But when we speak of the body of a man, we do not mean a determinate part of matter, or one that has a determinate size; *we mean simply the whole of the matter which is united with the soul* of that man. And so, *even though that matter changes, and its quantity increases or decreases, we still believe that it is the same body, numerically the same body, so long as it remains joined and substantially united with the same soul*; and we think that this body is whole and entire so long as it has in itself all the dispositions required to preserve that union. Nobody denies that we have the same bodies as we had in our infancy, although their quantity has much increased and [...] there is no longer in them any part of the matter which then belonged to them, and even though they no longer have the same shape; so that *they are numerically the same only because they are informed [qu'a cause qu'ils sont informez] by the same soul*.²⁷

Now this criterion has the extremely welcome feature of offering the kind of explanation that may successfully explain the commonsensical idea that the human body stays numerically the same through various changes, even from infancy to old age, by offering a rather robust sense in which a body may be said to be a unity that has identity over time not threatened by various small-scale (or even larger-scale) corpuscular changes it may undergo. However, here Descartes comes very close to the standard scholastic understanding of the soul as the substantial form of the human body. More precisely, the soul has a role matching one of the metaphysical tasks in which substantial forms were involved: it determines the identity of the thing, in this case that of the

²⁵ *Philosophical Writings* III, p. 242.

²⁶ *Ibidem*.

²⁷ *Philosophical Writings* III, p. 243, emphases added.

human being. This, in itself, is not a new observation. Pasnau has recently made it concerning diachronic identity,²⁸ although he eventually contends that “[t]he vast preponderance of evidence favors discounting those letters, and so regarding Descartes as an unqualified opponent of the doctrine of substantial form.”²⁹ Paul Hoffman, in turn, defending a hylomorphic reading of the Cartesian mind–body union, has argued on grounds of the passage above that “the Cartesian mind can be said to actualize the human body” in a way comparable to the Thomistic soul.³⁰ Moreover, it is well-known that in the very same letter to Regius in which Descartes rejects substantial forms as useless, he nevertheless calls soul “the true substantial form of man,”³¹ which might be taken as a sign that the later letter to Mesland deliberately endorses and elaborates a theory of soul as the substantial form of body.

I would like to make four points about this extremely nuanced issue. First, the passage from the letter to Mesland says little if anything about *the nature of the union* of mind and body; rather, be the nature of that union what it may, hylomorphic or not,³² the focus is on the *identity* of the human body.

Second, the fact that Descartes *calls* the soul the substantial form of man does not, in itself, amount to much.³³ In the letter, he is telling Regius how to express his views cautiously not to alarm the authorities; and as Marleen Rozemond puts it, “Descartes had strong political reasons for saying that the soul is a substantial form,” “[f]or the Church had stated as official doctrine at the Lateran Council of 1513 that the intellectual soul is the form of the human body.”³⁴ Given this, it seems probable that here Descartes is himself following the advice he gives to Regius: “I should like it best if you never put forward any new opinions, but *retained all the old ones in name*, and merely brought forward new arguments.”³⁵ This prompts the focal question: what is the positive

²⁸ *Metaphysical Themes*, pp. 570–571. See also Roger Ariew and Marjorie Grene, “The Cartesian Destiny of Form and Matter,” *Early Science and Medicine* 2:3 (1997), p. 316.

²⁹ *Metaphysical Themes*, p. 573.

³⁰ Paul Hoffman, “The Unity of Descartes’s Man,” *The Philosophical Review* 95:3 (1986), p. 358.

³¹ *Philosophical Writings* III, p. 208.

³² I thus agree with Rozemond’s observation: “[I]n the letter to Mesland Descartes is not at all concerned with the question of the unity of the human being” (*Descartes’s Dualism*, p. 163). My overall impression is that even though Descartes sometimes speaks about the mind–body union in traditional Aristotelian terms, he is still quite far removed from endorsing a basically hylomorphic view of the union. Rozemond (*Descartes’s Dualism*, ch. 5) convincingly locates the crux of the issue to lie in the fact that the Cartesian mind and body are not *incomplete without* (and *dependent on*) each other the way the hylomorphically conceived soul and body are.

³³ See also Pasnau, *Metaphysical Themes*, p. 596.

³⁴ Rozemond, *Descartes’s Dualism*, p. 164.

³⁵ *Philosophical Writings* III, p. 205, emphasis added. See also Rozemond, *Descartes’s Dualism*, p. 153.

philosophical work the notion of substantial form does? It seems that the answer is: none. Descartes invokes it while arguing, partly polemically, that “it is not those who deny substantial forms but those who affirm them who ‘can be forced by solid arguments to become either beasts or atheists.’”³⁶ For philosophical purposes, he might just as well only talk about the immortal and incorporeal soul immediately created by God, and have all his argument requires.³⁷

Third, and to return to the Mesland letter, I think that Pasnau is right that the passage concerning the identity of the human body does not warrant the claim that the soul, as substantial form, would *cause* the continuation of the body’s existence.³⁸ In fact, a well-known article in the *Passions of the Soul*, I.5, speaks against this:

It is an error to believe that the soul gives movement and heat to the body. [...] [W]e ought to hold, on the contrary, that the soul takes its leave when we die only because [*qu’à cause que*] this heat ceases and the organs which bring about bodily movement decay.³⁹

Here as in the letter to Mesland, it is difficult to discern the force of the “because” (*à cause que*) involved—it certainly points toward causal activity, but hardly in a conclusive way. In any case and at the very least, the quoted article of the *Passions of the Soul* makes it completely clear that, for Descartes, soul does *not* play a direct causal role in keeping the body in existence. In fact, the persistence of the union seems to have little to do with causality either from mind to body or vice versa, but rather with compatibility. It thus seems evident that the so-called physical aspect of substantial form is not attributed to the rational soul.

However and finally, from all these negative points it does not follow that the soul would not have a *metaphysical* role to play: even if the soul were not the physico-naturalistic *cause* of the body’s diachronic identity, *it still seems to be the feature crucial for the identity, both synchronic and diachronic, of the human body*. This claim is corroborated by a later letter to Mesland, in which Descartes

³⁶ *Philosophical Writings* III, p. 208. As Rozemond (*Descartes’s Dualism*, p. 127) notes, Descartes takes this phrase from Voetius, the Rector of the University of Utrecht, who had attacked Regius for the rejection of substantial forms.

³⁷ In the Fifth Replies, Descartes grants that the soul, or mind, can be called “the principal form of man,” but does not use the notion of substantial form to explicate his stand—in fact quite the contrary: “Our job, however, is not to change the names after they have been adopted into ordinary usage; we may merely emend their meanings” (*Philosophical Writings* II, p. 246).

³⁸ Pasnau, *Metaphysical Themes*, pp. 571–572.

³⁹ *Philosophical Writings* I, p. 329. See also the *Passions of the Soul* I.6: “[D]eath never occurs through the absence of the soul, but only because one of the principal parts of the body decays” (*Philosophical Writings* I, p. 329).

states that “the numerical identity of the body of a man does not depend [*ne depend pas*] on its matter, but on its form, which is the soul.”⁴⁰ Certainly, as Descartes explains in the preface to the *Description of Human Body*, only bodies functioning in certain ways in fact partake in mind–body unions,⁴¹ but the key question is whether or not the rational soul “informs” or is united to a certain complex body. If it is united, the body in question—a complex corporeal entity consisting of a wide variety of different parts—is a particular human body, not any ordinary piece of matter. This means that the Cartesian soul takes on a key individuating task traditionally assigned to substantial form.⁴²

Descartes thus seems—despite his critical attitude toward the doctrines of substantial form in natural philosophy and the fact that the Cartesian soul is not causally responsible for the identity of its body—a reluctant witness of the need for an entity having one of the metaphysical tasks the Aristotelians designated to substantial form when he attempts to delineate a plausible account of the identity of the human body. One might defend Descartes by saying that this neither violates his mind–body dualism in which the soul is a separate substance nor posits the soul as an unknowable agent causing natural effects. But still, one also might well find it unsatisfying to introduce to the “new” Cartesian philosophy anything that significantly resembles the “obscure” substantial forms. Be one’s view on this as it may, that is the road Descartes ultimately opts for when he elaborates his account of human individuality. This might well be just the price he has to pay for locating the essence of being human in a mental substance decidedly detached from corporeal nature.

Spinoza’s essentialism and the two aspects of the form

Spinoza’s contribution to the debate concerning substantial forms would at first sight seem to be extremely straightforward and brief, especially compared to all the ink he spills to attack final causes.⁴³ Already in the early *Metaphysical Thoughts* (II.1), Spinoza contends:

⁴⁰ *Philosophical Writings* III, p. 279.

⁴¹ *Philosophical Writings* I, p. 315.

⁴² As an anonymous referee emphasized, this does not mean that Descartes’s metaphysics of identity over time *in general* requires something resembling substantial form; what I argue is that his system employs an item with *one*—albeit especially significant—task formerly allocated to substantial form, namely the individuation of human beings. See also Normore, “Descartes and the Metaphysics of Extension,” p. 285.

⁴³ See esp. *Ethics* I, appendix (Benedict de Spinoza, *The Collected Works of Spinoza* I, ed. and trans. Edwin Curley, Princeton: Princeton University Press, 1985, pp. 439–446).

We have already pointed out that there is nothing in Nature but substances and their modes. So, it is not to be expected here that we should say anything about substantial forms and real accidents, for these things, and others of the same kind, are clearly absurd.⁴⁴

Also, his correspondence contains some quick and harsh words about the doctrine of substantial form. In a 1663 letter to Oldenburg, Spinoza refers to “that childish and frivolous doctrine of Substantial Forms and Qualities,”⁴⁵ while in a later letter to Boxel he states,

[i]t’s no wonder that the people who invented occult qualities, intentional species, substantial forms, and a thousand other trifles contrived ghosts and spirits.⁴⁶

Of course, this leaves unclear what, exactly, makes doctrines espousing substantial forms so repugnant to Spinoza’s ontology of substance and mode. The primary reason for this is, I think, that Spinoza considers his system to be at odds with any form of hylomorphism: even though our mind has our body as its object,⁴⁷ soul is still not the form of the body, let alone thought the form of extension. A finite mind and the parallel finite body are simply one and the same thing considered under different attributes,⁴⁸ and regardless of how exactly this unity-conceived-under-different-attributes should be understood, it is clear that each and every attribute has its own kind of principles or laws of operation—and this holds also of extension, which has many important features “prime matter” lacks—⁴⁹ which principles generate the variety of individuals within the attribute. Another reason might be that Spinoza’s aprioristic way of doing philosophy, strongly stressing intellectual cognition that moves from causes to effects,⁵⁰ goes decidedly against the *a posteriori* way in which the Aristotelian natural philosophy postulated substantial forms as best explanations of the observed effects in the physical world.⁵¹

⁴⁴ *Collected Works* I, pp. 315–316.

⁴⁵ Letter 13 (*Collected Works* I, p. 208).

⁴⁶ Letter 56 (Benedict de Spinoza, *The Collected Works of Spinoza* II, ed. and trans. Edwin Curley, Princeton: Princeton University Press, 2016, p. 423).

⁴⁷ *Ethics* II, proposition 13 (*Collected Works* I, p. 457).

⁴⁸ *Ethics* II, proposition 7, scholium (*Collected Works* I, pp. 451–452).

⁴⁹ Pace Charlie Huenemann, “Spinoza and Prime Matter,” *Journal of the History of Philosophy* 42:1 (2004), pp. 21–32; for my detailed criticism of Huenemann, see Valtteri Viljanen, “Spinoza’s Essentialist Model of Causation,” *Inquiry* 51:4 (2008), pp. 414–415.

⁵⁰ See, e.g., *Ethics* II, proposition 10, scholium (*Collected Works* I, p. 455); *Treatise on the Emendation of the Intellect* §§ 19–22 (*Collected Works* I, pp. 12–14).

⁵¹ See note 9 above.

Whether Spinoza realized it or not, all this does not mean that his system does not contain elements rooted in the philosophical intuitions behind the introduction of substantial forms. We should bear in mind that in Aristotelian essentialism, substantial form is one of the two ingredients in a (natural) thing's essence; sometimes Aristotle even simply equates form with essence.⁵² An examination of Spinoza's specific brand of essentialism—an essentialism perhaps strikingly far removed from that of Descartes, and worlds apart from the reductive kinematism of Hobbes—shows it to have very notable affinities to the traditional doctrines of form as a cause, and even to the doctrines of substantial form. To show that Spinoza is in fact quite sensitive to the same concerns the Aristotelians were, I will again make four points, of which the first two are of more contextual, the latter two more systematic in nature.

First, we should keep in mind that the Aristotelian substantial form is the formal cause of the properties of the substance and consider the way in which for Spinoza geometrical objects serve as the paradigmatic examples of things:

[F]rom God's supreme power, or infinite nature, infinitely many things in infinitely many modes, i.e., all things, have necessarily flowed, or always follow, by the same necessity and in the same way as from the nature of a triangle it follows, from eternity and to eternity, that its three angles are equal to two right angles.⁵³

Spinoza uses a geometrical example to illustrate how the world with all the finite modifications is produced: the same way in which a certain property follows from the nature or essence of a triangle. Now as Paolo Mancosu states, the essence of a geometrical figure was still in the seventeenth century customarily seen as the *formal* cause of its properties:

The scholastic tradition would have assumed this [the proof concerning a triangle's angles] to be a causal proof by maintaining the triangle must have an essence (given by a definition) that determines, as in a formal cause, the rest of its properties, in particular, the sum of the internal angles is equal to two right angles.⁵⁴

⁵² See *Metaphysics* 1032b1–2, 1035b32 (*The Complete Works of Aristotle* II, ed. Jonathan Barnes, Princeton: Princeton University Press, 1984, pp. 1630, 1635). As Robert Pasnau, "Form and Matter," in Robert Pasnau and Christina Van Dyke (eds.), *The Cambridge History of Medieval Philosophy* II, Cambridge: Cambridge University Press, 2010, p. 643 n. 11, points out, Averroes notably identifies essence with substantial form.

⁵³ *Ethics* I, proposition 17, *scholium* (*Collected Works* I, p. 426).

⁵⁴ Paolo Mancosu, *Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century*, Oxford: Oxford University Press, 1996, p. 14.

Thus, strange as this may sound to us, the exemplarity of geometrical objects strongly suggests that the causal activity of all Spinozistic things should be conceived in terms of a prominent type of formal cause,⁵⁵ namely in terms of an essence that is the cause of its bearer's necessary properties (in traditional parlance, *propria*).⁵⁶ Moreover and in fact, it is quite unlikely that Spinoza would have been unaware of the fact that geometry was widely considered to be intrinsically linked to formal causality. Be this as it may, the important lesson to be learned from this is that *one can reject hylomorphism without rejecting every aspect of formal causality*: adopting a model of causality at least partly deriving from the formal causality pertaining to geometrical objects—which have nothing to do with matter or the material cause—is completely consistent with the denial of hylomorphism.

Second, Spinoza uses terminology traditionally connected to the operation of the (substantial) formal cause. We have already seen that he claims that all modifications “have necessarily flowed [*effluxisse*], or always follow” from the essence of God-or-Nature. His 1676 letter to Oldenburg explicitly refers to this as emanation:

The good which follows from virtue and the love of God will be just as desirable whether we receive it from God as a judge or as something emanating from the necessity of the divine nature.⁵⁷

The point here is that Spinoza's God is not to be regarded as an anthropomorphic and transcendent agent who has a free will with which he chooses from various ends: things are what they are and the way they are because they necessarily follow, or emanate, from God's nature. This is very much reminiscent of the way in which many scholastics saw certain properties (such as heat or risibility) necessarily to follow from the substantial forms of natural things (such as fire or man). Spinoza even once calls the human mind the formal cause of its (adequate) ideas: “The third kind of knowledge depends on the mind, as on a formal cause [*tanquam a formali causa*], insofar as the mind is eternal.”⁵⁸ However, I do not wish to press this terminological point too heavily. For the present purposes it suffices to point out that here the contrast is hardly to the final cause; the passage invites the reader to reconsider what

⁵⁵ As an anonymous referee pointed out to me, *scientia* was traditionally seen to require the knowledge of causes; now geometry most definitely is a *scientia*, and the only kind of causes it can concern are formal ones.

⁵⁶ For my full account of this, see Valtteri Viljanen, *Spinoza's Geometry of Power*, Cambridge: Cambridge University Press, 2011, chs. 1–2.

⁵⁷ Letter 75 (*Collected Works* II, p. 471); see also letter 43 (p. 387).

⁵⁸ *Ethics* V, proposition 31 (*Collected Works* I, p. 610).

exactly is the nature of “efficient” causality in Spinoza. It seems clear that it is, at least to a notable extent, molded after what was traditionally called the formal cause.⁵⁹

Third, we have noted the scholastic way of regarding natural agents as physical causes that bring about certain effects by their forms. For Spinoza, all things, including God, are natural and, more importantly, causally efficacious in virtue of their natures or essences: “Nothing exists from whose nature some effect does not follow.”⁶⁰ The contrast to Descartes’s conception of extension, which does not seem to have anything dynamic in it, is as striking as the philosophical intuition behind Spinoza’s tenet is easy to grasp: it surely is difficult to understand what it would mean for a real entity not to always have at least some effects on its surroundings (and perhaps on itself). At the very least, it must be capable of occupying a certain region of space or extension.

Finally, from early on Spinoza is very much alive—considerably more so than Descartes and Hobbes were—to the philosophical demand for features responsible for the way in which the world is structured; features that make things what they are, namely particular entities with certain core features. This, I believe, pushes him toward assigning essences a task corresponding to the metaphysical aspect of substantial forms. Two passages—one early, the other late—are enough to show this despite the fact that their precise meaning is a matter of some interpretation:

Understand the definite nature, by which the thing is what it is, and which cannot in any way be taken from it without destroying it, as it belongs to the essence of a mountain to have a valley, or the essence of a mountain is that it has a valley. This is truly eternal and immutable, and must always be in the concept of a mountain, even if it does not exist, and never did.⁶¹

I say that to the essence of any thing belongs that which, being given, the thing is [NS: also] necessarily posited and which, being taken away, the thing is necessarily [NS: also] taken away; or that without which the thing can neither be nor be conceived, and which can neither be nor be conceived without the thing.⁶²

⁵⁹ See esp. Viljanen, “Spinoza’s Essentialist Model of Causation”; but also Karolina Hübner, “On the Significance of Formal Causes in Spinoza’s Metaphysics,” *Archiv für Geschichte der Philosophie* 97:2 (2015), pp. 196–223.

⁶⁰ *Ethics* I, proposition 36 (*Collected Works* I, p. 439).

⁶¹ *Short Treatise* I.1 (*Collected Works* I, p. 61).

⁶² *Ethics* II, definition 2 (*Collected Works* I, p. 447). For my account of Spinoza’s detailed theory of essences and their conceptual concomitants (namely definitions) in both early and mature Spinoza, see Valtteri Viljanen, “Spinoza’s Essentialism in the *Short Treatise*,” in Yitzhak Y. Melamed (ed.), *The Young Spinoza: A Metaphysician in the Making*, Oxford: Oxford University Press, 2015, pp. 183–195 and Viljanen, *Spinoza’s Geometry of Power*, pp. 8–12.

These passages say, at the very least and to my mind uncontroversially, that essences constitute things, make them what they are.⁶³ Given this, it is understandable that, as I read it, in the following passage Spinoza designates essences as the metaphysical ground of individuality so that as long as there is a certain essence there is a certain individual (say, what we call Bucephalus the horse) whose level of perfection can—and often does—change; but should that essence be replaced by another essence, there is not mere change *in* the individual anymore but a change *into* another individual altogether (to, say, what we call a stink bug):

[W]hen I say that someone passes from a lesser to a greater perfection, and the opposite, I do not understand that he is changed from one essence, or form, to another. For example, a horse is destroyed as much if it is changed into a man as if it is changed into an insect.⁶⁴

Here Spinoza even talks about “essence, or form,” which intriguingly suggests that he is aware of his essences taking over a major role previously played by substantial forms.

Especially on the basis of the two lastly mentioned points, I would argue that Spinoza’s understanding of essence is to a notable degree similar to the more traditional Aristotelian doctrines of form: for Spinozistic things, essences—the key operative ingredient of which was, for the Aristotelians, substantial form—are *both* centres of causal efficacy *and* individualizers. Spinoza does not really explicate how these two roles relate to each other; given that he designates striving (*conatus*), which is power,⁶⁵ as the actual essence of finite things,⁶⁶ it can be argued that to be a thing is to be causally efficacious in a certain way. The relationship between metaphysics and physics is left

⁶³ The liveliest controversy has been generated by a question we can fortunately set here aside, namely whether Spinoza’s essences are exclusively individual (i.e. unique to their possessors) or also general (i.e. common to many things); see, e.g., Christopher P. Martin, “The Framework of Essences in Spinoza’s *Ethics*,” *British Journal for the History of Philosophy* 16:3 (2008), pp. 489–509; Karolina Hübner, “Spinoza on Essences, Universals, and Beings of Reason,” *Pacific Philosophical Quarterly* 97:1 (2015), pp. 58–88; Valtteri Viljanen, “Spinoza’s Ontology Geometrically Illustrated: A Reading of *Ethics* IIP8S,” in Beth Lord (ed.), *Spinoza’s Philosophy of Ratio*, Edinburgh: Edinburgh University Press, 2018, pp. 11–15.

⁶⁴ *Ethics* IV, preface (*Collected Works* I, p. 545–546).

⁶⁵ *Ethics* III, proposition 6, demonstration (*Collected Works* I, p. 499). I examine striving as power and discuss different positions on the issue in Valtteri Viljanen, “On the Derivation and Meaning of Spinoza’s *Conatus* Doctrine,” *Oxford Studies in Early Modern Philosophy* 4 (2008), pp. 89–112.

⁶⁶ *Ethics* III, proposition 7 (*Collected Works* I, p. 499).

considerably more unclear still.⁶⁷ However, what should be clear by now is that Spinozistic essences occupy both the physical and the metaphysical domains of the territory left vacant by the demise of substantial forms.

All this strongly suggests that there is a story to be told about causation much more profound than the familiar mechanistic one: obviously, Spinoza's essential causation is not about impacts of bodies (and still less about regular succession of event types). More specifically, it seems that something very much akin to formal causation is involved in determining the essence–property structure of all things—also of geometrical objects, even though no efficient (or final and material) causality pertains to them. Indeed, it is precisely the “*following*” (from essences to properties) pertaining to *geometrical* objects that is meant to give us the right idea of necessity and intelligibility involved in causation; the scholastic doctrines of emanation (e.g. coldness is considered to emanate from the essence of water) are incapable of revealing this. For Spinoza, in real (that is, natural) things, this “formal” structure (that is, being structured in a way that fundamentally matches the inner essence–property structure we can find in geometrical objects) is as it were converted into real (or “natural”) efficacy. Spinoza's doctrine of essentialist causation thus involves an original coupling of formal and efficient causality, and, more generally, his anti-hylomorphist ontology is certainly novel enough for its essentialism not to be a mere rehash of old doctrines. Moreover, Spinoza's naturalism boldly denies any distinction between natural and non-natural things, and his rationalism quite drastically diverges from the empiricism of the Aristotelians. However, I hope to have shown that in the big picture, Spinoza shares with the Peripatetics the sensitivity to certain key philosophical intuitions to the extent that he is willing, and able, to incorporate into his system entities having both of the two core tasks substantial forms had in hylomorphism. This is in line with the fact that the distinction between natural philosophy and metaphysics is in Spinoza's system, as it is in Aristotelianism, relatively difficult to draw.

⁶⁷ In the so-called Physical Digression of the second part of the *Ethics*, Spinoza famously indicates that the identity of a complex body depends on “a certain fixed manner” in which its constituents “communicate their motion to each other” (*Ethics* II, lemma 3, axiom 2, definition; *Collected Works* I, p. 460), but he says nothing about how this physical notion of an individual relates to the obviously more general, i.e. metaphysical, notion of a finite thing the essence of which is striving to “persevere in its being” (*Ethics* III, proposition 7; *Collected Works* I, p. 499). This has understandably resulted in differing interpretations; see, e.g., Daniel Garber, “Descartes and Spinoza on Persistence and Conatus,” *Studia Spinozana* 10 (1994), pp. 58–63; Don Garrett, “Spinoza's Theory of Metaphysical Individuation,” in Kenneth F. Barber and Jorge J. E. Gracia (eds.), *Individuation and Identity in Early Modern Philosophy: Descartes to Kant*, Albany: State University of New York Press, 1994, p. 97.

Leibniz and substantial form as force

I have argued that Descartes's and Spinoza's relationship to the notion of substantial form is not as clear-cut (that is, unproblematically negative) as one might be tempted to assume. Leibniz's case is in an important sense much more straightforward; after all, he does make deliberately Aristotelianism-invoking declarations of approval of substantial form, such as the following in a letter to Jacquilot from 22 March 1703:

[T]he mind acts and [...] matter is passive, since in every corporeal substance I conceive two primitive powers, that is the entelechy or primitive active power, [...] which is, in general terms, the substantial form of the ancients, and then the primary matter or primitive passive power which provides resistance. Thus, it is properly the entelechy which acts, and the matter which is passive, but the one without the other is not a complete substance.⁶⁸

That the great polymath really did champion the doctrine of substantial form can hardly be doubted,⁶⁹ but it may still be asked, *how* exactly did he understand that doctrine to work in the context of his metaphysics of substance? An answer aspiring to be anywhere near to complete would have to be a very long one. For the present purposes it suffices to highlight two intertwined points to bring out the way in which Leibniz diverges from the well-trodden Aristotelian path, summarize the view that emerges, and finally assess Leibniz's relationship to the two aspects of the scholastic notion of substantial form.

We should begin by acknowledging that the all-important question is how we should understand the Leibnizian notion of *force* as it is presented for instance in "Specimen of Dynamics" of 1695, for precisely that notion is given explanatory priority: "Whether we call this principle [of corporeal things] form or entelechy or force does not matter, as long as we remember that it

⁶⁸ Gottfried Wilhelm Leibniz, *Die philosophische Schriften von Gottfried Wilhelm Leibniz* III, ed. C. I. Gerhardt, Berlin: Weidmann, 1887, p. 458; translation by Daniel Garber in Daniel Garber, "Leibniz and the Foundations of Physics: The Middle Years," in Kathleen Okruhlik and James Robert Brown (eds.), *The Natural Philosophy of Leibniz*, Dordrecht: Reidel, 1985, pp. 70–71. In a 1686 letter to Arnauld, Leibniz formulates his view as follows: "Substantial unity requires a complete indivisible being [...]. Such a thing could never be found in either shape or motion, [...] but only in a soul or substantial form, something like what I call myself" (Gottfried Wilhelm Leibniz, *Philosophical Texts*, ed. and trans. R. S. Woolhouse and Richard Francks, Oxford: Oxford University Press, 1998, p. 118).

⁶⁹ For informative and to an important degree autobiographical summaries of how Leibniz came to the conclusion that substantial forms are not to be discarded, see his *Discourse on Metaphysics* § 11 (Gottfried Wilhelm Leibniz, *Philosophical Essays*, trans. Roger Ariew and Daniel Garber, Indianapolis: Hackett, 1989, p. 43) and "New System" (*Philosophical Essays*, p. 139).

can only be explained through the notion of forces.”⁷⁰ So (substantial) form should be understood in dynamic terms; more exactly, the derivative physical forces are rooted in the primitive ones, substantial form being the primitive active force.⁷¹ Despite the fact that this framework contains some indisputably novel elements, it is in itself by no means non-Aristotelian in character: the substantial form of the scholastics can be seen as a primitive power from which flow powers and faculties through which natural substances cause effects on themselves and on other substances.⁷² However, Leibniz is quite critical of the Aristotelian conception of the activity of substances:

But inactive faculties—in short, pure powers of the Schoolmen—are also mere fictions, unknown to nature and obtainable only by abstraction. For where will one ever find in the world a faculty consisting of sheer power without performing any act?⁷³

The claim is thus that the scholastic conception of powers as faculties is fundamentally misguided in allowing powers that can remain merely potential, be never exercised.⁷⁴ Instead, substantial force is “endowed with *conatus* or *nisus*, attaining its full effect unless it is impeded by a contrary *conatus*.”⁷⁵ Clearly, force properly understood has *conatus* character and can never be causally inefficacious.⁷⁶

Second, Leibniz makes the well-known and difficult claim that derivative forces are limitations or modifications of primitive forces, for instance in the following fashion:

And just as shape is a certain limitation or modification of passive force or extended mass, so derivative force [...] is a modification [...] of something

⁷⁰ *Philosophical Essays*, p. 125. As Leibniz states in the “New System”: “Their [substantial forms’] nature consists in force” (*Philosophical Essays*, p. 139). The idea that the notion of force is preeminent for Leibniz has recently gained increasing traction; for discussions that argue that Leibniz is to be seen first and foremost as a force ontologist, see Julia Jorati, “Leibniz’s Ontology of Force,” *Oxford Studies in Early Modern Philosophy* 8 (2018), pp. 189–224; Peter Myrdal, “Leibniz and the Metaphysics of Powers,” *Journal of the History of Philosophy* 62:3 (2024), pp. 395–420.

⁷¹ “Specimen of Dynamics” (*Philosophical Essays*, pp. 119–120).

⁷² See, e.g., Des Chene, *Physiologia*, pp. 157–161, 216–217.

⁷³ Gottfried Wilhelm Leibniz, *New Essays on Human Understanding*, ed. and trans. Peter Remnant and Jonathan Bennett, Cambridge: Cambridge University Press, 1996, p. 110.

⁷⁴ For analyses of Leibniz’s relationship to Aristotelian powers and faculties, see Jorati, “Leibniz’s Ontology of Force,” pp. 203–207; Myrdal, “Leibniz and the Metaphysics of Powers,” pp. 399–410.

⁷⁵ “Specimen of Dynamics” (*Philosophical Essays*, p. 118).

⁷⁶ Myrdal, “Leibniz and the Metaphysics of Powers,” pp. 406–413 defends a related interpretation according to which Leibnizian force is essentially activity that grounds striving.

active, that is, of a primitive entelechy. Therefore, derivative and accidental or changeable force will be a certain modification of the primitive power that is essential and that endures in each and every corporeal substance.⁷⁷

I would suggest that we understand this passage is as follows. The way in which a modification—traditionally, a subclass of properties—is transparent of that which it modifies (it lets the modified nature “shine through” as it were so that one cannot conceive of the modification without conceiving of what is being modified) is in an important sense different from the way in which the Aristotelian faculties (such as intellect, will, perception, nutrition, etc.) and accidents are grounded in their substances: those faculties and accidents do not appear to be in the same way *conceived through* substantial form as such modifications as shapes are conceived through extension and derivative forces through the primitive forces of substances.⁷⁸ When combined with the doctrine explained above, of substantial form as primitive active force (matter equaling primitive passive force), the result is a view according to which what we have is always (active or passive) force, albeit modified in different ways. We may call this *the force-modification view* of substance.⁷⁹ Here the crux of the modification thesis can be explicated as follows. Since *causal efficacy*

⁷⁷ “On Body and Force” (*Philosophical Essays*, p. 254).

⁷⁸ Donald Rutherford, “Leibniz’s Principle of Intelligibility,” *History of Philosophy Quarterly* 9:1 (1992), pp. 37–39, 46–47 convincingly argues that all natural properties are, for Leibniz, explicable modifications of the natures of their bearers and that the commitment to what may be called the Principle of Intelligibility distinguishes Leibniz from the proponents of (such “occult qualities” as) faculties. Rutherford (“Leibniz’s Principle of Intelligibility,” p. 36) formulates the Principle of Intelligibility as follows: “Within the order of nature, for any entity *a* and any property *F* that is truly predicable of *a*, (i) there is a reason why *a* is *F*, (ii) this reason explains *a*’s being *F* in terms of *F*’s being an ‘explicable modification’ of the nature of *a*.” Now, as Rutherford (“Leibniz’s Principle of Intelligibility,” p. 39) points out, Aristotelians do not deny (i), the Principle of Sufficient Reason; but Leibniz’s Principle of Intelligibility is stricter than it. To my mind, this is because Leibniz understands modifications in terms of the geometrical model: in a letter to Bernoulli from 18 November 1698, Leibniz writes that we should conceive of derivative forces as arising from the primary forces “as shapes arise from the modification of extension” (*Philosophical Essays*, p. 169). Obviously, the idea is that one cannot conceive of a shape without conceiving of extension whose modification the shape is; but one can conceive of, say, hotness without conceiving of the substantial form of fire, even though the latter grounds the former.

⁷⁹ As far as I can see, the force-modification view is general to the extent that it makes no difference here whether Daniel Garber (“Leibniz and the Foundations of Physics”; *Leibniz: Body, Substance, Monad*, Oxford: Oxford University Press, 2009) is right in arguing that Leibniz endorsed the doctrine of corporeal substances during the period ranging approximately from the late 1670s to mid-1690s: from the dynamic point of view, the crucial thing is that Leibniz consistently explains his view of substance in causally efficacious terms. For more on the linkage between Leibniz’s dynamics and the intelligibility of properties as modifications, see Donald Rutherford, *Leibniz and the Rational Order of Nature*, Cambridge: Cambridge University Press, 1995, pp. 241–244.

forms the very nature of force—“a certain efficacy has been placed in things, a form or a force”—,⁸⁰ it is quite understandable that derivative forces in virtue of which bodies act on each other by producing motion cannot but be faithful to (that is, retain the basic character of) *the causally efficacious nature* of substances.⁸¹ Strikingly but consistently with this, Leibniz insists that even in physical collisions, bodies move *spontaneously* by their *own* causal efficacy, namely by their innate elasticity.⁸² In this unificatory overall picture of substances as constituted by forces, reality is in itself causally active, comprising simply of intrinsically powerful entities whose active and passive aspects are modified in certain ways.

These points make it clear that Leibniz reinstates substantial form its causal role; however, the philosophical landscape of which the force-modification view forms a major part is so dramatically different from that of the Aristotelians that things simply cannot remain the same. In this new landscape, a sharp, deliberate, and innovative distinction is made between the metaphysical and physical domains; accordingly, primitive forces are certainly causally efficacious, but strictly at the *metaphysical* level and—unlike in Aristotelianism—by no means needed to *explain* natural phenomena.⁸³ However, substantial form as primitive force is the true basis of derivative forces that form the core of physical phenomena: modifications are ontologically posterior to what they modify. As a consequence, obtaining the full *philosophical* picture of the world is not possible, according to Leibniz, without taking substantial form as primitive force into account even though substantial forms are to be expunged from natural philosophy.

An important corollary of the force-modification view helps us to appreciate the philosophical importance of the notion of form as force: the metaphysico-causal activity called “substantial form” is the *ground* of individual unity. As is well known, Leibniz argues over and over again that reality cannot be infinitely divisible but must have genuine unities as its basis. A key passage of the “New System” explains how this connects to the notion of substantial form:

⁸⁰ “On Nature Itself” (*Philosophical Essays*, p. 159). Cf. also: “Power in general, then, can be described as the possibility of change” (Leibniz, *New Essays on Human Understanding*, p. 169).

⁸¹ As Leibniz explains in “Specimen of Dynamics”: “[B]y derivative force, namely, that by which bodies actually act on one another or are acted upon by one another, I understand, in this context, only that which is connected to motion (local motion, of course), and which, in turn, tends further to produce local motion” (*Philosophical Essays*, p. 120). For a recent analysis of the nature of motion and force in Leibniz, see Peter Myrdal, “Force, Motion, and Leibniz’s Argument from Successiveness”, *Archiv für Geschichte der Philosophie* 103:4 (2021), pp. 704–729.

⁸² For a helpful account of this, see Garber, *Leibniz*, pp. 201–204.

⁸³ Leibniz expresses this point in several places; see, e.g., *Philosophical Essays*, pp. 42, 119, 126, 139.

[A] multitude can derive its reality only from *true unities* [...]. Therefore, in order to find these *real entities* I was forced to have recourse to a formal atom [...]. Hence, it was necessary to restore, and, as it were, rehabilitate the *substantial forms* which are in such disrepute today, but in a way that would render them intelligible [...]. I found then that their nature consists in force, and that from this follows something analogous to sensation and appetite, so that we must conceive of them on the model of the notion we have of *souls*. [...] Aristotle calls them *first entelechies*; I call them, perhaps more intelligibly, *primitive forces*, which contain not only *act* or completion of possibility, but also an original *activity*.⁸⁴

Giving an account of unity thus requires reinstating substantial forms as active forces. As Daniel Garber helpfully observes, “[t]he recognition of forces, active and passive, led Leibniz, by a different path, to the same position that he was led to by considerations of unity and individuality, to the revival of substantial form in the physical world.”⁸⁵ In the passage above these two features—causality and unity—are closely intertwined, which is certainly appropriate and obviously reflects the fact that, as Garber puts it, “the two approaches to substance,” namely that which focuses on unity and that which focuses on force, “are, at root, concerned with a single notion of substance.”⁸⁶ This is undoubtedly true; but the metaphysically dense passage from the “New System” suggests something more still: by moving from unity to substantial forms and from substantial forms to primitive forces, the emphasis is put on causal activity. The idea would thus be that since the unifying substantial forms *are* constantly active forces, their causal efficacy is ontologically *prior* to unity. Perhaps it could be said that what makes a unified individual is being causally efficacious in a certain way; to put it as a slogan, *unification takes place through action*. This is also strongly suggested by the tenet that “to act is the mark of substances.”⁸⁷ Moreover, this activity is needed to explain not only the synchronic identity of thing; as Leibniz argues in “On Nature Itself,”

persisting things cannot be produced if no force lasting through time can be imprinted on them by the divine power. Were that so, it would follow that

⁸⁴ *Philosophical Essays*, p. 139.

⁸⁵ Garber, *Leibniz*, p. 115; see chs. 2–4 for the detailed story behind these two routes to substantial form.

⁸⁶ Garber, *Leibniz*, p. 138.

⁸⁷ “Specimen of Dynamics” (*Philosophical Essays*, p. 118). This idea, expressed in the passing already in reflections from the late 1670s as if it were self-evident, “I define substance as that which can act” (Gottfried Wilhelm Leibniz, *The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672–1686*, ed. and trans. Richard T. W. Arthur, New Haven: Yale University Press, 2001, p. 245), finds its way unscathed all the way to the *Principles of Nature and Grace*: “A substance is a being capable of action” (*Philosophical Essays*, p. 207).

no created substance, no soul would remain numerically the same, and thus, nothing would be conserved by God.⁸⁸

In other words, were not substances by their very nature causally efficacious forces, there would be no identity, synchronic or diachronic.⁸⁹

Taking stock of the aforesaid, the Leibnizian substantial form has both an individualizing and a causal aspect, but in a way that does *not* map onto the metaphysical and physical aspects of its Peripatetic predecessor. Ultimately, all the work from causality to individual unity is done by *the forces of the metaphysical level*, discernible in an *a priori* manner by reason.⁹⁰ All this allows us to draw two major conclusions concerning Leibniz's system: first, in an unprecedented fashion, it makes a clear distinction between the physical level (of natural philosophy) and the metaphysical level (of ontology); second, substantial form retains its metaphysical role—reconceptualized as ontologically primitive force—but is banished from the realm of natural philosophy.

Conclusion

The preceding discussion indicates that despite the fact that in the seventeenth century it was so fashionable to declare that substantial forms are absurd, occult, and nonsensical, early modern rationalism displays a steadily *increasing* sensitivity to philosophical issues around which the doctrines of substantial form traditionally revolved. The resulting philosophical line of development can be summed up as follows. His hostility toward the notion of substantial form notwithstanding, Descartes ends up assigning to soul one facet of the metaphysical role the Aristotelians assigned to substantial form when he designates the soul as the bare identity-fixer, with no causality involved, of the human body. In spite of his anti-hylomorphism, Spinoza takes things further by assigning essences both individualizing and causal roles reminiscent of those previously had by substantial forms while, however, leaving implicit much about the way in which the two roles relate to each other and being still less clear about the relationship between physics and metaphysics. Finally, there is Leibniz's view: in it, forces take up both individualizing and causal tasks, domains of natural philosophy and metaphysics are clearly distinguished from each other, and in metaphysics substantial forms are explicitly

⁸⁸ *Philosophical Essays*, p. 160.

⁸⁹ Here I agree with Jorati, "Leibniz's Ontology of Force," pp. 210–211.

⁹⁰ As Leibniz of "On Nature Itself" argues: "[F]orce is among those things which are reached, not by the imagination, but by the intellect" (*Philosophical Essays*, p. 159; see also pp. 125, 172, 180).

endorsed—reconceived as primitive forces in notable respects faithful to the Aristotelian idea of substantial forms as sources of causal efficacy and individual unity—even though there is no place for substantial forms in Leibnizian natural philosophy.

To conclude, it appears to hold for all of the three great rationalists that the question concerning *individuality* is philosophically such a pressing one that even though as progressive early modern thinkers—fully convinced of the superiority of the new mechanistic physics—they are anything but willing to accept any doctrine of substantial form as is, there is still an understandable philosophical need for something that does some notable parts of the work previously assigned to substantial forms. At the very least, one needs a theory of an identity-determiner, if the identity of things is not left a brute fact (or merely denied). In a sense, Descartes, Spinoza, and Leibniz all encountered the fact that the original motivation behind the introduction of substantial forms was anything but wholly ludicrous or irrational: regardless of how useless one finds substantial forms in natural philosophy, it is difficult to build a workable ontology without entities sharing significant features with the substantial forms of the Aristotelians. I have argued that this an important reason why philosophy and natural science came to be clearly distinguished from each other. Indeed, questions concerning the principled source of the identity of things may not fall under the purview of natural science; but with nothing playing an individuating role not unlike that of substantial form, questions also today considered to lie at the very heart of a branch of philosophy called metaphysics would only too readily be left simply without an answer.

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Works Cited

- Vlad Alexandrescu, "The Double Question of the Individuation of Physical Bodies in Descartes," in Vlad Alexandrescu (ed.), *Branching Off: The Early Moderns in Quest for the Unity of Knowledge*, Bucharest: Zeta Books, 2009, pp. 69–94.
- Roger Ariew and Marjorie Grene, "The Cartesian Destiny of Form and Matter," *Early Science and Medicine* 2:3 (1997), pp. 300–325.
- Aristotle, *The Complete Works of Aristotle* II, ed. Jonathan Barnes, Princeton: Princeton University Press, 1984.

- Dennis Des Chene, *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*, Ithaca: Cornell University Press, 1996.
- René Descartes, *The Philosophical Writings of Descartes* I–II, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, Cambridge: Cambridge University Press, 1985.
- René Descartes, *The Philosophical Writings of Descartes* III. *The Correspondence*, trans. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny, Cambridge: Cambridge University Press, 1991.
- Galilei, Galileo. *The Assayer*. In *The Essential Galileo*, ed. and trans. Maurice A. Finocchiaro, Indianapolis: Hackett, 2008, pp. 179–189.
- Daniel Garber, “Leibniz and the Foundations of Physics: The Middle Years,” in Kathleen Okruhlik and James Robert Brown (eds.), *The Natural Philosophy of Leibniz*, Dordrecht: Reidel, 1985, pp. 27–130.
- Daniel Garber, *Descartes’ Metaphysical Physics*, Chicago: University of Chicago Press, 1992.
- Daniel Garber, “Descartes and Spinoza on Persistence and Conatus,” *Studia Spinozana* 10 (1994), pp. 43–67.
- Daniel Garber, *Leibniz: Body, Substance, Monad*, Oxford: Oxford University Press, 2009.
- Don Garrett, “Spinoza’s Theory of Metaphysical Individuation,” in Kenneth F. Barber and Jorge J. E. Gracia (eds.), *Individuation and Identity in Early Modern Philosophy: Descartes to Kant*, Albany: State University of New York Press, 1994, pp. 73–101.
- Emily Grosholz, “Descartes and the Individuation of Physical Objects,” in Kenneth F. Barber and Jorge J. E. Gracia (eds.), *Individuation and Identity in Early Modern Philosophy: Descartes to Kant*, Albany: State University of New York Press, 1994, pp. 41–58.
- Helen Hattab, *Descartes on Forms and Mechanisms*, Cambridge: Cambridge University Press, 2009.
- Thomas Hobbes, *The English Works of Thomas Hobbes* I, ed. William Molesworth, London: John Bohn, 1839.
- Paul Hoffman, “The Unity of Descartes’s Man,” *The Philosophical Review* 95:3 (1986), pp. 339–370.
- Karolina Hübner, “On the Significance of Formal Causes in Spinoza’s Metaphysics,” *Archiv für Geschichte der Philosophie* 97:2 (2015), pp. 196–223.
- Karolina Hübner, “Spinoza on Essences, Universals, and Beings of Reason,” *Pacific Philosophical Quarterly* 97:1 (2015), pp. 58–88.
- Charlie Huenemann, “Spinoza and Prime Matter,” *Journal of the History of Philosophy* 42:1 (2004), pp. 21–32.
- Doug Jesseph, “Hobbesian Mechanics,” *Oxford Studies in Early Modern Philosophy* 3 (2006), pp. 119–152.
- Julia Jorati, “Leibniz’s Ontology of Force,” *Oxford Studies in Early Modern Philosophy* 8 (2018), pp. 189–224.
- Peter King, “The Problem of Individuation in the Middle Ages,” *Theoria* 66:2 (2000), pp. 159–184.
- Gottfried Wilhelm Leibniz, *Die philosophische Schriften von Gottfried Wilhelm Leibniz* III, ed. C. I. Gerhardt, Berlin: Weidmann, 1887.

- Gottfried Wilhelm Leibniz, *New Essays on Human Understanding*, ed. and trans. Peter Remnant and Jonathan Bennett, Cambridge: Cambridge University Press, 1996.
- Gottfried Wilhelm Leibniz, *Philosophical Essays*, trans. Roger Ariew and Daniel Garber, Indianapolis: Hackett, 1989.
- Gottfried Wilhelm Leibniz, *Philosophical Texts*, ed. and trans. R. S. Woolhouse and Richard Francks, Oxford: Oxford University Press, 1998.
- Gottfried Wilhelm Leibniz, *The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672–1686*, ed. and trans. Richard T. W. Arthur, New Haven: Yale University Press, 2001.
- Paolo Mancosu, *Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century*, Oxford: Oxford University Press, 1996.
- Christopher P. Martin, “The Framework of Essences in Spinoza’s *Ethics*,” *British Journal for the History of Philosophy* 16:3 (2008), pp. 489–509.
- Peter Myrdal, “Force, Motion, and Leibniz’s Argument from Successiveness,” *Archiv für Geschichte der Philosophie* 103:4 (2021), pp. 704–729.
- Peter Myrdal, “Leibniz and the Metaphysics of Powers,” *Journal of the History of Philosophy* 62:3 (2024), pp. 395–420.
- Calvin Normore, “Descartes and the Metaphysics of Extension,” in Janet Broughton and John Carriero (eds.), *A Companion to Descartes*, Malden, Mass.: Blackwell, 2008, pp. 271–287.
- David S. Oderberg, *Real Essentialism*, New York: Routledge, 2007.
- Robert Pasnau, “Form and Matter,” in Robert Pasnau and Christina Van Dyke (eds.), *The Cambridge History of Medieval Philosophy* II, Cambridge: Cambridge University Press, 2010, pp. 635–646.
- Robert Pasnau, *Metaphysical Themes 1274–1671*, Oxford: Clarendon Press, 2011.
- Marleen Rozemond, *Descartes’s Dualism*, Cambridge, Mass.: Harvard University Press, 1998.
- Donald Rutherford, “Leibniz’s Principle of Intelligibility,” *History of Philosophy Quarterly* 9:1 (1992), pp. 35–49.
- Donald Rutherford, *Leibniz and the Rational Order of Nature*, Cambridge: Cambridge University Press, 1995.
- Christopher Shields, “The Reality of Substantial Form: Suárez, *Metaphysical Disputations* XV,” in Daniel Schwartz (ed.), *Interpreting Suárez: Critical Essays*, Cambridge: Cambridge University Press, 2012, pp. 39–61.
- Benedict de Spinoza, *The Collected Works of Spinoza* I, ed. and trans. Edwin Curley, Princeton: Princeton University Press, 1985.
- Benedict de Spinoza, *The Collected Works of Spinoza* II, ed. and trans. Edwin Curley, Princeton: Princeton University Press, 2016.
- Tuomas E. Tahko, “Metaphysics as the First Philosophy,” in Edward Feser (ed.), *Aristotle on Method and Metaphysics*, New York: Palgrave Macmillan, 2013, pp. 49–67.
- Thomas Aquinas, *Selected Writings of St. Thomas Aquinas*, trans. Robert P. Goodwin, Upper Saddle River: Prentice Hall, 1965.
- Valtteri Viljanen, “On the Derivation and Meaning of Spinoza’s Conatus Doctrine,” *Oxford Studies in Early Modern Philosophy* 4 (2008), pp. 89–112.

- Valtteri Viljanen, "Spinoza's Essentialist Model of Causation," *Inquiry* 51:4 (2008), pp. 412–437.
- Valtteri Viljanen, *Spinoza's Geometry of Power*, Cambridge: Cambridge University Press, 2011.
- Valtteri Viljanen, "Spinoza's Essentialism in the *Short Treatise*," in Yitzhak Y. Melamed (ed.), *The Young Spinoza: A Metaphysician in the Making*, Oxford: Oxford University Press, 2015, pp. 183–195.
- Valtteri Viljanen, "Spinoza's Ontology Geometrically Illustrated: A Reading of *Ethics* IIP8S," in Beth Lord (ed.), *Spinoza's Philosophy of Ratio*, Edinburgh: Edinburgh University Press, 2018, pp. 5–18.