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A “Calvinist” Theory of Matter? Burgersdijk and Descartes on *res extensa*

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The Version of Record of this manuscript has been published and is available in *Intellectual History Review* volume 28 (2018), issue 2. Published online 24 Novembre 2017.

<http://www.tandfonline.com/doi/full/10.1080/17496977.2017.1374058>

Abstract

In the Dutch debates on Cartesianism of the 1640s, a minority believed that some Cartesian views were in fact Calvinist ones. The paper argues that, among others, a likely precursor of this position is the Aristotelian Franco Burgersdijk (1590-1635), who held a reductionist view of accidents and of the essential extension of matter on Calvinist grounds. It seems unlikely that Descartes was unaware of these views. The claim is that Descartes had two aims in his Replies to Arnauld: to show the compatibility of *res extensa* and the Catholic transubstantiation but also to differentiate the *res extensa* from some views of matter explicitly defended by some Calvinists. The association with Calvinism will be eventually used polemically against Cartesianism, for example in France. The paper finally suggests that, notwithstanding the points of conflict, the affinities between the theologically relevant theories of accidents, matter and extension ultimately facilitated the dissemination of Cartesianism among the Calvinists.

Keywords: Descartes, Burgersdijk, *res extensa*, accident, Calvinist scholasticism, eucharist

A “Calvinist” Theory of Matter? Burgersdijk and Descartes on *res extensa*

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In 1651 Count Louis Henry of Nassau demanded that the Dutch universities issue public statements on Cartesian philosophy. The professors of the University of Groningen replied, among other things, that “long before Descartes, Orthodox theologians have supported several of his ideas,” such as “that the general nature and essence of body is extension; that an accident is not a being but something which belongs to a being.”¹ The letter was written by the rector of the university, Samuel Maresius and by the professors Matthias Pasor and Tobias Andreae. Theo Verbeek writes that the favourable view of Descartes in the letter suggests the involvement of Johannes Clauberg and Christopher Wittichius.² The relationship between Descartes and the Dutch Calvinists is a complex and much debated one. The established general view is captured by Stephen Gaukroger’s words that Descartes was opposed more by the Calvinists than by the Catholics, and that “the use of Cartesianism by a number of Calvinist theologians in the second half of the seventeenth century” is “perhaps most surprising of all, given Descartes’ strong adherence to Catholicism and his general avoidance of theological questions.”³

The *querelle* between the Voetians and the Cartesians is typically taken as paradigmatic. The Groningen professors seem to suggest a different picture. Descartes’s reductionist views on matter and accidents are favourably received and are not a threat to Calvinist orthodoxy: that is, they are compatible with and unproblematic for Calvinist orthodoxy. In their general, unqualified talk of ‘Orthodox theologians’ they seem to hint at a wide consensus on their position. While bearing in mind that the Groningen professors were actively seeking to cast Descartes in a positive light with the authorities, their claim is straightforward and worth investigating. Quite the opposite, these same views were deemed problematic by most Catholics, especially by the Roman Church establishment: most famously by Antoine Arnauld in the Fourth Objections to Descartes’s *Meditationes*.

The aim of this paper is to investigate one possible case of the “consensus” suggested by the Groningen professors: the metaphysics of matter and accidents of the Dutch Calvinist and Aristotelian Franco Burgersdijk (1590–1635). Though not a theologian, Burgersdijk was an influential philosophy professor and then rector at the University of Leiden until his death in 1635.⁴ Burgersdijk holds, like Descartes, that matter is extended *per se* and that accidents are inseparable from their substances. As a Calvinist, Burgersdijk rejects the Catholic explanation of transubstantiation, which hinges on the separability of accidents from their substances. Arguing from his Calvinist belief, Burgersdijk presents a reductionist account of matter and quantity, and insists that actual inherence in the substance is an essential property of accidents. Descartes argues that matter is extended *per se*. As a Catholic, he is committed to the dogma of transubstantiation but takes exception with the *philosophical* (i.e., scholastic) account. The agreement between Burgersdijk and Descartes is contingent: no unitary explanation can be given, for Descartes and Burgersdijk argued that matter is essentially extended for different reasons. Nevertheless, contingent and limited to the doctrine of matter and accidents as it is, this agreement might help to explain the remarkable absence of Descartes’s signature doctrine of the *res extensa* as an issue in the Dutch debates on Cartesianism. I suggest that the affinity between *res extensa* and Calvinist views might be relevant in two ways. First, in facilitating the reception of Cartesianism among the Calvinists, alongside the established argument of the traditional intellectually tolerant culture of the United Provinces. Secondly, in representing an additional pressing concern for Arnauld about the compatibility of *res extensa* and transubstantiation and, ultimately, a crucial obstacle to the dissemination of Cartesianism among the Catholics.

There are good arguments for the importance of Burgersdijk in this context. We are not very well informed on pre-Cartesian Dutch philosophy. Burgersdijk in particular has not been the object of extensive research,⁵ and he opens an interesting window on early seventeenth-century Dutch academic philosophy. More specifically for Cartesian studies, firstly, Burgersdijk was the teacher of Adriaan Heereboord (1613–1661) who developed an early scholastico-Cartesian philosophy after meeting Descartes in 1644.⁶ Secondly, Descartes himself enrolled at the University of Leiden when

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Burgersdijk was teaching there.⁷ It is then unlikely that Descartes was not aware of Burgersdijk's views and of possible affinities with his own (later) position.

Reductionist views on matter and accidents were defended before Burgersdijk and Descartes. Helen Hattab and Christoph Lüthy have investigated the philosophy of David Gorlaeus (1591–1612), the controversial Dutch Arminian and atomist. A similarity between Gorlaeus and Burgersdijk is that Gorlaeus' anti-scholastic, reductionist, and atomist metaphysics seems to have been influenced by the Reformed faith.⁸ In drawing a comparison between Gorlaeus and Descartes, Hattab suggests that the affinities between the two could also be explained "by the fact that he [Descartes] was exposed to the same theories taught at the universities of Franeker and Leiden and adopted some of the same elements."⁹ Lüthy argues for the influence on Gorlaeus of his teacher Henricus De Veno in Leiden.¹⁰ The investigation of Burgersdijk, an important professor in Leiden just at the time of Descartes's arrival in the United Provinces and a different type of intellectual from Gorlaeus, sheds further light on this narrative. Unlike Gorlaeus, Burgersdijk defended reductionist views on matter and accidents still within the scholastico-Aristotelian substance/accident metaphysics. Further research will help assess how popular these views were.

The paper is divided into three sections. In the first one, I contextualise Burgersdijk and Descartes by introducing the Catholic and Lutheran views on accidents and matter. I argue that the Catholics Eustachius a Sancto Paulo (1573–1640) and Francisco Suárez (1548–1617), and the Lutheran Christoph Scheibler (1589–1653) were committed to the same view. In the second section, I expound Burgersdijk's views in details. In the third section I argue that Descartes pursued the compatibility of *res extensa* and transubstantiation as well as the differentiation from the Reformed view by means of a theory of knowledge of material substances via matter in motion, which dispenses with sensible species. The conclusion makes a brief reference to additional sources for and against *res extensa*: Gijsbert Voet (1593–1680), Paul Voet (1619–1677), Gilbert Jack (circa 1577–1628), and the French Jesuit Père le Valois (1639–1700). Whereas there is no general agreement among the Calvinists on *res extensa*, the association with Calvinism was used polemically against the Cartesians in France.

The Catholic and Lutheran view¹¹

According to the Catholics, the miracle of the Eucharist consists in the bread and wine being transubstantiated into the body and blood of Christ respectively. The scholastic "explanation" is that the accidents of bread and wine persist in existence by divine intervention while their natural substances are replaced by the new subjects of inherence, the substances of body and blood.¹² According to the Lutherans, the substances of bread and wine are made to coexist with the body and blood of Christ in the host.¹³ Given these theological differences, it is perhaps surprising to find the same philosophical argument in Catholic and Lutheran scholastics. The shared view is that in order to make sense of the real presence, under specific circumstances the accidents are separable from their natural substances: that is, they can exist without them. Cees Leijenhorst has investigated this argument in the Lutheran commitment to the view that a substance can be separable, under certain circumstances, from its local place.¹⁴

This is the position of the Jesuit Francisco Suárez with respect to quantity:

*The conclusion that quantity is really different from substance is to be approved. And that has to be held universally; although it is not possible to demonstrate it sufficiently by natural reason, we are convinced that it is true by Theological principles, in particular because of the mystery of the Eucharist.*¹⁵

Suárez claims that 1) the accident of quantity is really different from substance: they are in a relation as between two things, and one can be without the other; and 2) this conclusion is not reached by natural reason, but only by the theological evidence of transubstantiation. In order for the *same* accidents to exist before and after the miracle, the accidents have to be separable from their natural substances (bread and wine). Only those things which are really different can exist independently of one another; so, the accidents (in Suárez's passage, quantity) and substance are really different. The theological premise plays the central role in the argument: natural reason does not guide us to this conclusion, but it can explain how the miracle is *possible*.

Eustachius a Sancto Paulo explains the distinction between the aptitudinal and actual inherence of

accidents:

Aptitudinal inherence belongs to the formal reason of the accident; truly, actual inherence is different from the nature or essence of the accident at least by the nature of the thing. [...] inherence properly called, which is actual inherence, is different from the nature of the accident.¹⁶

By definition, an accident inheres in something else: some sort of inherence has to belong to it. The distinction between aptitudinal and actual inherence explains how the accidents can exist without their substance. An accident aptitudinally inheres when it is in potency toward inhering in a substance, even if it is not the case that it presently inheres. On the contrary, actual inherence is a matter, so to speak, of empirical evidence: whether an accident actually inheres (that is, in a given substance, at a given time) cannot be found by sole inspection of the essence of the accidents. It is the case that some accidents do not inhere in a substance, as in transubstantiation. Given the principle that something is essential to something else if it cannot be separated from it, the theological evidence dictates that only aptitudinal inherence is essential to the accidents because it is the only type of inherence the accidents always retain. So, aptitudinal inherence is predicated of all the accidents necessarily, whereas actual inherence is predicated contingently of accidents. Actual inherence is just a specific mode of existence of the accidents, which can be subtracted from them.

What I call the ‘standard Catholic view’ can be summarized in two points: 1) accidents are really distinct from their substance (real accidents); and 2) theology, not natural reason, motivates the choice for this view. The analysis of the accidents is central because quantity and extension are accidents of their substance, matter: so, whatever relation occurs between quantity/extension and matter, it is a substance–accident relation.¹⁷

Christoph Scheibler argues from a Lutheran perspective.¹⁸ The coexistence of the host and the body of Christ in the same place rules out the impenetrability of bodies, which is grounded on extension in place. Scheibler is committed to the view that a body can exist supernaturally separate from its natural extension in place. Since extension in place and local place are accidents of substances, the accidents are separable from their substances. A body which God makes coexist in the same place with another retains its spatial extension only aptitudinally, not actually: God subtracts actual spatial extension because it would prevent coexistence in the same place. The body is then only aptitudinally (that is, potentially) extended in place. Extension in place is an accident of matter, and since matter is separable from actual extension in place, only aptitudinal extension in place is part of the essence of matter.

Catholic and Lutheran scholastics maintain that accidents naturally inhere in act in their substance: this is the sense of Eustachius’s remark that actual inherence is “inherence properly called.” Yet, this natural view has an exception: faith instructs us that an accident can exist *supernaturally* without its actual inherence in its natural substance.

Abstracting from the scholastic technical terminology, the main point is that the regularities of the natural world admit an exception. Philosophy *and* theology together explain reality, with the miracle of the Eucharist acting as a limiting case for the philosophical “natural view”. The modality of the claim is what differentiates Eustachius, Suárez, and Scheibler from Burgersdijk and Descartes: whereas according to the latter accidents *necessarily* inhere in their substance, according to the former it is *possible* that they do not inhere.

Franco Burgersdijk: Calvinist metaphysics of matter and accidents

The Calvinist reading of the Eucharist rejects both the Catholic real presence and the Lutheran corporeal presence. The Eucharist no longer constitutes *the* exception to the “natural view” that accidents essentially inhere in their substance and that matter is always extended because no physically relevant miracle occurs. Calvinist scholastics thus rejected the Catholic and Lutheran philosophical arguments along with the theological ones.

Burgersdijk’s theory of accidents and matter is found in the *Institutionum metaphysicarum*, especially Book 1, chapter 7 (‘De modis Entium’), chapter 14 (‘De speciebus et gradibus Unitatis’), chapter 15 (‘De Diversitate sive Distinctione et convenientia’), and Book 2, chapter 17 (‘De

Accidente’).¹⁹ Burgersdijk holds that matter is extended *per se*. He reaches this conclusion by denying that quantity is 1) an accident and 2) a mode of matter. The view that quantity is an accident of matter is central to the Catholic and Lutheran views: only qua accident can quantity be separable from matter. It is worth expounding Burgersdijk’s philosophy in some details considering how little known it is.

Burgersdijk claims that only some qualities are ‘real’ or ‘true’ accidents and equates ‘accidents’ with ‘real accidents’ (2, 17, 6 and 12). In order for an accident to be ‘real’, it has to be “really distinct from the substance in which it inheres.” The only accidents that Burgersdijk accepts are a certain type of real qualities so he defends a version of the ‘real accidents’ theory.²⁰ Since only certain types of qualities are real accident, and quantity by definition is not a quality, it is concluded that quantity is not a real accident. Which is the same to say that quantity is not an accident at all.

Accidents are those beings “which are attributed to substances and nonetheless are not included in their definitions.”²¹ It is essential to accidents that they inhere in a substance: they are “in something, not as parts [of it]” (*in aliquo, non ut pars*). The type of inherence here is not potential or aptitudinal, but actual. An accident cannot exist without the substance in which it inheres, because its being is ‘being-in’ (*ejus esse est inesse*).²² The impossibility of a separate existence is entailed by the essence of the accident: in fact, an accident depends on its substance with respect to 1) affecting the substance: ‘accident’ is something which affects something else, in a functional definition; and 2) conservation: an accident is maintained into existence by its substance. So, the accident is wholly defined in relation to its substance.

Burgersdijk’s strategy against the Catholic view is a *reductio*: he reaches the conclusion that matter is extended *per se* by showing that the assumptions that 1) accidents can exist without their substances, and 2) quantity is an accident or a mode, lead to contradiction. On Burgersdijk’s account, an accident: (i) essentially inheres in a substance and (ii) is really distinct from the substance. The standard Catholic view would typically reject point (i): as we have seen, in order to be separable an accident cannot inhere in its substance essentially; and accept point (ii), with the crucial qualification that real distinction entails (the possibility of) separate existence.

Regarding point (i), Burgersdijk replies to the Catholic view in sections 17–18. The Catholic view concedes that although an accident cannot naturally exist without a substance, nonetheless by God’s causality (*concursum extraordinarium*) an accident can exist without its natural substance. Burgersdijk believes that this involves a contradiction in the nature of accidents and an offense to God. The contradiction arises from the confusion between substance and accident. Every being is either a substance or an accident: that is, the distinction substance–accident is jointly exhaustive of all possible modes of existence. So, what does not inhere in a substance is not an accident and is, by definition, a substance. ‘Subsistence per se’ and ‘subsistence in something else’ are in immediate opposition, and an accident which did not inhere in its subject would be an ‘accident non-accident’.²³ Only substances have independent existence, so the Catholic ‘real’ accidents would contradict the nature of the accidents by ascribing to them a mode of existence proper of substances. Secondly, this line of argumentation constitutes an offense to God. The type of divine intervention invoked by the Catholics would entail that God acts as a material cause because God supplies for the missing material cause of the accidents: their natural substance. If God replaces the material cause, then God becomes the subject of the accidents; also, material causality is the least perfect causality, so it signifies an imperfection unworthy of God.²⁴ Thus, Burgersdijk argues against the Catholic scholastic theory of accidents from a Calvinist standpoint: accidents cannot exist without their natural substances and the type of miracle invoked by the Catholics is unworthy of God.

On Burgersdijk’s view, quantity is not an accident of matter; even if it were, it would not be separable from matter because no accident is. Regarding point (ii), Burgersdijk denies that ‘real difference’ entails ‘separate existence’. In Book 1, chapter 15 he lists two types of distinctions: *rationis* (‘of/by reason’) and *ex natura rei* (‘on account of the nature of the thing’). Distinction *ex natura rei* is grounded in the nature of things, independent of the intellect, and includes real and modal distinction. Our intellect perceives this distinction in virtue of the separateness of the two terms of the distinction: it follows that “those things which are separable, are also distinct based on the nature of the thing.” Two things are ‘separable’ if they can exist “in different places and times,” like those things which are really distinct subjects or *in* really distinct subjects.²⁵ Crucially, this distinction is not coextensive with “existing without the other” (*existere sine altero*), for there are distinctions of

reason in which “one being is without the other.”²⁶ Burgersdijk concludes that we should not equate ‘separability’ with ‘independent existence’, even if “many quite rashly claim so” (*a multis temere sit assertum*): he arguably has the Catholics in mind here.²⁷ So, two things which are distinct *ex natura rei* are not necessarily separable (in the sense of independent existence). This is precisely the case of the ‘real’ accidents in Burgersdijk’s sense: even if they are distinct *ex natura rei* from their substance (because they have different essences), they cannot exist *independently* of them. The reality of the accidents does not commit Burgersdijk to the separability claim, which grounds the Catholic analysis of transubstantiation.²⁸

What marks Burgersdijk’s theory of accidents as ‘Calvinist’ is the rejection of the Catholic scholastic definition of accident as separable from their substance. Burgersdijk holds a reductionist account of accidents: a property of a substance is either a real accident or a mode.²⁹ Yet, beyond verbal agreement, he profoundly revises the Catholic ‘real accidents’ to include only certain types of quality and to exclude separate or independent existence. So, *if* quantity were a (real) accident, then it would essentially inhere in its substance, *contra* the Catholics.

We have seen that for Burgersdijk quantity is not an accident. Following Porphyry, the scholastics traditionally posited a third type of being between substances and accidents: *modes*. Whereas we can conceive of a substance without an accident, we cannot conceive of a substance without a mode. The essence of a mode is not identical with the essence of the substance but it depends on it essentially. Unlike the accidents, all scholastics agree that modes cannot have a separate existence, not even by divine power. A mode seems to be a good candidate to explain the relation quantity has to matter, once the accidental relation has been discarded. Burgersdijk’s theory of modes is found in Book 1, chapter 7. A mode is “a positive, inner and absolute appendix, by which the modified thing is limited, both in terms of its being and in terms of its becoming.”³⁰ This excludes it from the number of beings: in fact, since substance and accidents are jointly exhaustive of ‘being’, there is no logical space for a third type of being. Burgersdijk’s example is ‘self-subsistence’. This mode distinguishes a substance from an accident, because only a substance can exist *per se*. This mode cannot be the same as the substance because it does not signify the substance, and because the composition entails a distinction of the natures to be composed;³¹ neither can it be the same as an accident, because an accident cannot distinguish a substance from an accident (while the modes do). So, modes are not ‘real’ beings, that is, they are neither substances nor accidents. They are *ways* in which the substances is, and provide ‘limitation’ or ‘determination’ to the substance.

It is Burgersdijk’s contention that quantity is neither a mode nor an accident of matter. The main argument is found in Book 2, chapter 17, section 6. By elimination Burgersdijk argues that quantity is neither a mode nor an accident because, if it were, an extended body would not be such in virtue of the causal power (*vis*) of its own substance, but in virtue of the power of something different from it: quantity. This seems counterintuitive. Assuming *ex hypothesi* that a body is extended in virtue of its quantity, if we subtract quantity we *also* eliminate the body; in like manner, a hot body is no longer ‘hot’ without the causality of heat. The contradiction lies in imagining an extended body which could become unextended while still being a body. The second argument is that if quantity were a mode or an accident of a body, then the body would have to presuppose quantity, for quantity is not received in that which is not quantified already. The body would be somehow already quantified independently of quantity. Nor does being ‘quantified in potency’ suffice here: in fact, a body would not be extended in act, that is, it would not be extended in virtue of its own nature but only in virtue of that by which its potency is actualized. In both arguments, understanding quantity as an accident or a mode leads us back to the substance.³²

Burgersdijk concludes that the bond between a body and its extension has to be stronger than the accident–substance and mode–substance relations. The conclusion is that quantity *is* matter: or better, that matter is quantified *per se*, and that only a distinction of reason, one which is produced by our intellect and does not obtain in nature, occurs between them. Burgersdijk draws an analogy of proportion: Quantity : Matter = Truth : Being. Quantity is a ‘transcendental’ of matter, just like ‘true’ is a transcendental of being: wherever matter is, it is essentially quantified, in the strong sense of ‘extended in place’.

To conclude this section, Burgersdijk holds that: 1) quantity/extension is neither an accident nor a mode of matter; 2) matter is essentially quantified though not identified with extension; 3) accidents essentially inhere in their substance and only some qualities are accident; 4) all accidents are ‘real’

accidents; 5) the ‘reality’ of accidents does not entail (metaphysical or physical) separability from their natural substance.³³

III. Descartes: *Res extensa* and Transubstantiation

We have seen the Catholic view in the works of Eustachius and Suárez, a philosophically equivalent position in the Lutheran Scheibler and a different scholastic position in the Calvinist Franco Burgersdijk. In his view, accidents necessarily inhere in their substance and matter is extended *per se*. Descartes was a Catholic, so he was committed to transubstantiation. As an anti-scholastic, he rejected the philosophical explanation of the possibility of the Eucharistic miracle, against the Catholic scholastics. Rather, he argued that matter is essentially extended, much like Burgersdijk, who grounds this view in his Calvinist faith. With the publication of the *Meditationes de Prima Philosophia* (Paris: 1641) and the *Principia Philosophiae* (Amsterdam: 1644), and during the Dutch controversies of the 1640s, Descartes addressed a Calvinist readership which was discussing some versions of *res extensa* and was familiar (as he himself must have been) with the fact that at least one important Leiden professor had argued for it from a Calvinist perspective.³⁴

Crucial stimulus came from Antoine Arnauld. In the Fourth Objections to the *Meditationes* addressed to Descartes in 1641, he questioned the compatibility of *res extensa* and transubstantiation.³⁵ Arnauld’s first impression was that “the Church’s teaching concerning the sacred mysteries of the Eucharist cannot remain completely intact.”³⁶ With the caveat that a philosophical explanation of the miracle was not to be pursued nor included as an article of faith, Arnauld remained open to the possibility that Descartes could preserve the dogma of the real presence as much as traditional scholasticism did. It is beyond the scope of this paper to assess whether Descartes’s solution is consistent with Catholic orthodoxy;³⁷ my argument is that the *res extensa* without the supporting argument that we know material substances via ‘matter in motion’ is vulnerable to charges of Calvinism.

Why was Arnauld doubtful of *res extensa* upon reading the *Meditationes*? Arnauld took issue with the modality of the ascription of extension to matter. In the famous example of the wax in the Second Meditation, Descartes concludes that the wax “surely [...] is nothing other than a thing that is extended, flexible, and changeable.”³⁸ The overall narrative of the *Meditationes* led Arnauld to the conclusion that extension in length, breadth, and depth is the nature of matter; that is, there is an identity between matter and extension. Shortly after the passage of the Fourth Objections quoted above Arnauld lists ‘extension’ among those properties which the Catholics believe are subtracted from the substance of bread, and exist without it.³⁹ A relation of identity between matter (substance) and extension (accident) would make this subtraction impossible, and contradict the Catholic reading of the Eucharist. Robert Pasnau has argued for two interpretations of the relation between matter and extension in Descartes: on the first view, extension is the principal attribute of matter; on the second, matter is “something beneath the principal attribute – a still deeper underlying subject.”⁴⁰ The main point is Descartes’s claim, defended in all his works and compatible with both views, that only a conceptual distinction occurs between matter and extension. It is an accepted principle that conceptual distinction entails the identity of the *relata*.⁴¹ According to the Catholic view extension, as an accident of matter, is separable from it, so it follows that it is really different from it. On the Calvinist view as in Burgersdijk, extension is not an accident and matter is extended *per se*. Although Descartes did not argue that matter is essentially extended for the same reasons as Burgersdijk did (hence the contingent agreement), Descartes’s view must have seemed to Arnauld not only *prima facie* incompatible with transubstantiation, but also dangerously close to some Calvinist views. As a Jansenist, Arnauld was familiar with charges of Calvinism, levelled by the establishment of the Catholic Church.⁴² In light of Arnauld’s own appreciation of Descartes’s philosophy, it is a fair assumption that behind his request to Descartes to show the compatibility of the doctrine of *res extensa* with transubstantiation there was also the desire to differentiate the *res extensa* from a possible Calvinist view. I now turn to Descartes’s reply.

In the Fourth Replies, Descartes set out to convince Arnauld that his philosophy provides an explanation of transubstantiation which is at least as theologically sound as the scholastic one.⁴³ The crucial point is the preservation of the real presence in the host. Descartes’s strategy amounts to the non-scholastic explanation of our sensible knowledge in terms of ‘matter in motion’. The properties of an object are not manifest to us via sensible species (the forms of the properties in their intentional

mode of being); rather, the properties are the arrangement of the external surface of the object which affects our sensory system in such and such a way. The perception of certain properties of an object is thus explained by the corresponding arrangement of matter in the object. This theory opens up a way of making the *res extensa* compatible with transubstantiation. According to Descartes's tentative explanation of the miracle (Descartes always regarded his explanations of transubstantiation as *possible* explanations, and Arnauld received them as such), it is sufficient that God maintains throughout transubstantiation the *same* external surface of the host for us to *perceive* the host in the same way. The external surface is just a mode of the substance: it is the way we perceive the substance, not the way the substance is. So, it can be preserved without the substance, saving the compatibility of *res extensa* and transubstantiation.⁴⁴ God could not preserve matter without extension though, because extension is the way we understand matter and the way matter is. Descartes and Arnauld agreed that the acceptance of the Catholic dogma does not entail the acceptance of a specific philosophical theory which seeks to make the miracle intelligible, so they believed that Descartes's novel explanation could be acceptable, even though it dispenses with scholastic concepts.

One assumption is common between Descartes and the scholastics: we know substances only via their accidents. We do not know the substances directly, i.e., by knowing or intuiting their essences immediately. Our knowledge of the essence of a substance is thus inferred from the knowledge of their accidents. Descartes holds that "we can, however, easily be made aware of a substance by any of its attributes," and that "we do not come to know a substance immediately, through being aware of the substance itself; we come to know it only through its being the subject of certain acts."⁴⁵ In the Second Meditation we can see how Descartes deploys this theory of knowledge in the example of the wax. We come to know what the wax is essentially (something "extended, flexible, and changeable") by the elimination of those very properties which first make that substance known to us. This process goes on until we find what is truly essential to the wax and cannot be further subtracted from it: extension. Descartes contends that this conclusion is reached by the sole inspection of the mind. Burgersdijk and Descartes agree on the knowledge of material substances via their accidents and on the view that matter is extended *per se*, but the differences are relevant: Burgersdijk still holds the scholastic theory of sensible and intelligible species,⁴⁶ rejected by Descartes. He believes that his view of matter makes sense of 'good philosophy', that is, Aristotelian philosophy, and also, crucially, of the Calvinist faith.

Let me recall the two problems faced by Descartes: the *res extensa* seems to be 1) incompatible with transubstantiation and, without some further qualifications, 2) too close to views defended on Calvinist grounds. In the Fourth Replies, Descartes achieves the desired compatibility with transubstantiation and differentiation from the Calvinist view by adding a novel theory of sensible knowledge, not originally included in the *Meditationes*. Although this theory of knowledge is motivated by the discussion of transubstantiation, it is not an *ad hoc* argument. Descartes offers a general theory of sensible knowledge which does not serve the sole purpose of making the miracle philosophically intelligible. Belief in the theory does not depend on belief in the miracle, though it is reinforced by its explanatory power of transubstantiation. The Catholic and Lutheran scholastic separability claim (and this is an important difference) is only based on (theological) evidence from the very miracle it sets out to explain. Without the miracle, Eustachius, Suárez, and Burgersdijk agree that the separability claim is unnecessary.⁴⁷

From the standpoint of the theory of matter alone, Descartes's *res extensa* is different from contemporary Catholic and Lutheran views while it is not from Burgersdijk's. Despite Descartes's unwillingness to treat theological material, the supporting arguments are thus crucial to his dialectic. It is only in virtue of the conjunction of the *res extensa* doctrine and the theory of sensible knowledge that compatibility with transubstantiation and difference from the Calvinist view are achieved. Yet, either conjunct can be held independently of the other: the view that matter is extended *per se* does not entail any specific theory of knowledge and the contrary holds too. When taken in isolation from the supporting arguments then, the *res extensa* is theologically equivalent to a Calvinist view of matter.

I have argued that there are two related concerns in Arnauld's Fourth Objections. On the one hand, the *res extensa* ought to be a natural philosophical and metaphysical theory acceptable to a Catholic. On the other hand, Arnauld and Descartes could not have been unaware of the contemporary Calvinist philosophers who also maintained that matter is extended *per se*. Descartes's arguments for the

compatibility of the *res extensa* with transubstantiation seek the double result of securing Catholic orthodoxy and differentiation from a Calvinist view. Descartes seeks such a differentiation with the argument that our sensible knowledge is explained by matter in motion. The *res extensa* view can be (and in the *Meditationes* is) held without the argument of the Fourth Replies. The analysis of Burgersdijk's view of matter has thus highlighted that Descartes's *res extensa* was not just at risk of being incompatible with Catholic orthodoxy but also at risk of being identified with a view explicitly argued for on Calvinist grounds.

Conclusion

As a Catholic and a Jansenist, Arnauld was particularly sensitive to the charges of Calvinism. It is plausible that the fact that a view very close to Descartes's was defended *as* Calvinist on the grounds of the rejection of transubstantiation would have had implications for Arnauld's acceptance of Cartesianism. On the topic of *res extensa*, the association of Cartesianism and Calvinism emerges polemically in the second half of the seventeenth century. One famous example is the *Sentimens de M' Des Cartes touchant l'essence et les proprietes du corps, opposez a la doctrine de l'Eglise, et conformes aux erreurs de Calvin* (Paris: Ê. Michallet, 1680), by the French Jesuit Père le Valois, under the pseudonym of Louis de la Ville. Le Valois contends that "Calvin and the Calvinists claim, like Mr Descartes and the Cartesians, that the essence of the body is placed in the three dimensions and in an absolutely impenetrable extension."⁴⁸ Nicolas Malebranche, Pierre Bayle, and Jean-Robert Chouet felt compelled to publicly respond. The reactions were different: the Catholic Malebranche defended transubstantiation from a Cartesian perspective. The Calvinist Jean-Robert Chouet was unwilling to mix Cartesian philosophy and the debate on the Eucharist. The Calvinist Pierre Bayle instead agreed with Père le Valois on the association between Cartesianism and Calvinism, and also approved of it.⁴⁹ On the *res extensa*/Calvinism association, Bayle's position is similar to Burgersdijk's.

What are we to make of the idea of a Dutch Calvinist "consensus" on a specific view of matter? By no means all Calvinist philosophers and theologians agreed on this view, nor considered it as a consequence of their faith. The *res extensa*, one of the foundational views of the *Meditationes*, had been defended prior to Descartes by – amongst others – David Gorlaeus and Franco Burgersdijk, from perspectives as diverse as anti-scholastic atomism and academic Aristotelianism. Gijsbert Voet does not seem to argue for the separate existence of matter before information.⁵⁰ Gilbert Jack (Jaccheus), professor of philosophy in Leiden in the 1610s and 1620s, taught that "it is probable that [quantity and the material substance] are really different."⁵¹ On the contrary, Gijsbert Voet's son Paul Voet defends a version of the Scotistic view that matter is endowed with a metaphysical or entitative act and that it has an essence on its own: matter is "a substance, endowed with extension of parts."⁵² Concerning the attribution of extension to matter, he claims that: "then, as it is clear, matter is not itself *extension*, yet it is truly extended, and extension is either its substantial mode, or its proper accident."⁵³ Burgersdijk would agree with the first part of the claim, whereas the view that extension is the proper or principal attribute of matter has been ascribed to Descartes.⁵⁴

Considerations from Calvinist orthodoxy were important: Burgersdijk makes it clear in arguing for a reductionist account of matter and against the separability claim – solely dictated by the scholastic explanation of the dogma of transubstantiation. Paul Voet claims that "we should not listen to the *Scholastics*, who claim that this condition [being extended as the condition for receiving forms] can be subtracted from matter by *divine power*, while matter still concurs as the material cause."⁵⁵ Neither Burgersdijk nor Paul Voet argued for theories of the *res extensa* out of appreciation for Cartesianism; rather, they thought them coherent with the Calvinist rejection of transubstantiation and dictated by good scholastic philosophy. The Groningen professors' generalisation that "long before Descartes, Orthodox theologians have supported several of [Descartes's] ideas" does not seem to portray the totality of Dutch Calvinist philosophers but it is supported by at least some cases. Hence, Descartes found in the Dutch audience one which was familiar with the *res extensa* view and, importantly, not entirely hostile to it. A more extensive investigation of Dutch pre-Cartesian philosophy, especially academic, will help shed further light on how wide this alleged "consensus" was.

In the complex and multifaceted relations between Cartesianism and Calvinist scholastic philosophy agreement was possible on some specific issues. Descartes and Burgersdijk agree on the nature of matter and accidents, although not for the same reasons. It is plausible to think that agreement on such central views could facilitate the reception of Cartesianism in the United Provinces

(and the Calvinist countries in general) and contribute to its early success. On the central issue of the Eucharist, the Calvinist scholastics did not identify in Descartes's metaphysics and natural philosophy a "Catholic" philosophy, but long-held Calvinist scholastic views.

Acknowledgements

This work was supported by the Leverhulme Trust under Grant F/00 179/BC. I am deeply grateful to the members of the Leverhulme project *Scottish philosophers in 17th-century Scotland and France* for the many discussions on seventeenth-century intellectual history and philosophy, and for feedback on the present paper whose shortcomings are mine only. A special mention goes to the PI, Alexander Broadie. I am also very grateful to the anonymous reviewers of the *Intellectual History Review* for providing helpful comments and suggesting very important improvements.

Notes

¹ Verbeek, *Descartes and the Dutch*, 83–4.

² Both Clauberg and Wittichius studied at Groningen and had a positive attitude toward Cartesianism, which they sought to reconcile with Calvinist scholasticism. On Clauberg, see Verbeek, *Johannes Clauberg*.

³ Gaukroger, *Descartes. An Intellectual Biography*, 4.

⁴ Between 1620 and his death in 1635, he was there professor of logic, moral philosophy, and natural philosophy. His textbooks were widely read and reprinted in the Protestant world. Verbeek, *Descartes and the Dutch*, 37 et seq.

⁵ With the exception, to my knowledge, of Bos (ed.), *Franco Burgersdijk (1590-1635) Neo-aristotelianism in Leiden*. I disagree with van Ruler, "Franco Petri Burgersdijk and the case of Calvinism within the neo-scholastic tradition", 36–55, who identifies no specific "Calvinist" elements in Burgersdijk's metaphysics and portrays it as essentially Suarezian.

⁶ Verbeek, *Descartes and the Dutch*, 37.

⁷ Gaukroger, *Descartes. An Intellectual Biography*, 210. Descartes enrolled in 1630 as a student of mathematics.

⁸ Hattab, *Descartes on Forms and Mechanisms*, 161; Lüthy, *David Gorlaeus (1591-1612)*, 93.

⁹ Hattab, *Descartes on Forms and Mechanisms*, 161.

¹⁰ Lüthy, *David Gorlaeus*, 85–6.

¹¹ I have treated the Catholic, Lutheran and Calvinist theories of accidents in Gellera, "Calvinist metaphysics and the Eucharist." The present paper is a development and expansion of those arguments.

¹² As in the Canon 2 of 11 October 1551, at the Council of Trent: "conversionem totius substantiae panis in corpus et totius substantiae vini in sanguinem, manentibus dumtaxat speciebus panis et vini", cited in Daly, "The Council of Trent," 165.

¹³ I understand the Lutheran view of real presence as a commitment to consubstantiation. See Jensen, "Luther and the Lord's Supper," 323–325, 330.

¹⁴ Leijenhorst, "Place, Space and Matter in Calvinist Physics," 522.

¹⁵ Suárez, *Metaphysicarum disputationum libri duo*, 40, 2, 8: "Approbatur sententia reipsa distinguens quantitatem a substantia. Atque haec sententia est omnino tenenda; quamquam enim non possit ratione naturali sufficienter demonstrari, tamen ex principiis Theologiae convincitur esse vera, maxime propter mysterium Eucharistiae." [Translations are my own. Emphasis is original unless otherwise stated]

¹⁶ Eustachius, *Summa Philosophiae Quadripartita*, 4, Tractatus de principiis entis, 2, 8: "Inhaerentiam quidem aptitudinalem in formali ratione accidentis contineri; verum inhaerentiam actualem saltem ex natura rei ab accidentis natura seu essentia esse diversam [...] inhaerentia proprie dicta, quae est actualis, diversa [est] ab accidentis essentia."

¹⁷ For the analysis of the standard Catholic view, see Des Chene, *Physiologia*, 100. Since what quantity attributes to matter naturally is extension in place (p. 100), hereafter I shall equate quantity and extension.

¹⁸ Scheibler, *Metaphysica duobus libris*, 2, 6, 2 and 4.

¹⁹ Burgersdijk, *Institutionum metaphysicarum*: based on his lectures, was first published posthumously in 1637.

²⁰ Burgersdijk, *Institutionum*, 2. 17. 12: "Non sunt ergo alia accidentia dicta quam qualitates: sed an omnes qualitates pro accidentibus habenda, id est, pro Entibus reipsa distinctis a substantia cui insunt? Nullo modo [...] Qualitates primi et tertii generis vera esse accidentia existimo: atque secundi generis sunt modi sunt solum immediate efficientes ipsam rerum ουσΙΑΝ seu substantiam."

²¹ Burgersdijk, *Institutionum*, 2. 17. 1: "Quaecunque substantiis attribuntur, nec tamen in earum essentia aut

definitione continentur.”

22 Burgersdijk, *Institutionum*, 2. 17. 2: “In hac definitione tria recensentur primo ut insit in aliquod [...] secundo ut non insit ut pars, id est, ut non pertineat ad essentiam aut integritatem ejus cui inest: tertio ut separatim ab eo cui inest, nequeat existere, id est, ut ejus esse sit inesse.”

23 Burgersdijk, *Institutionum*, 2. 17. 17: “Accidens existere separatum implicat contradictionem. [...] Nam cum accidentis esse sit inesse, non erit accidens, quod non inerit substantiae: accidens ergo separatum existens, erit accidens non accidens; imo non solum erit non accidens, sed substantia: nam quod non est in subjecto, per se subsistit, et quod per se subsistit, est substantia. [...] Nam per se subsistere, et esse in subjecto, immediate opponuntur.”

24 Burgersdijk, *Institutionum*, 2. 17. 18: “Causalitas materiae aut subjecti involvit imperfectionem indigna Deo; sequitur enim, Deum subjectum esse accidentium, si ipse accidentia separata conservet causalitate materiali.”

25 Burgersdijk, *Institutionum*, 1. 15. 6: “*Distinctio ex natura rei rebus per se competit absque ope et respectu ad intellectum*. Haec distinctio ex separatione cognoscitur; nam *quaecunque separari possunt, distinguuntur ex natura rei*. Separari dicuntur, quae diversis locis aut temporibus existunt; ut quae sunt in subjectis reipsa diversis: non etiam ea, quorum unum existit sine altero.”

26 Burgersdijk, *Institutionum*, 1. 15. 6: the example is that ‘Alexander’ is also ‘the son of Philip’, but if Alexander ceases to be the son of Philip, he does not cease to be Alexander.

27 Burgersdijk, *Institutionum*, 1. 15. 6.

28 For example in Suárez, *Disputationes*, 16, 1, 2.

29 A reductionist view is also in *Institutionum*, 1. 25. 7, where Burgersdijk argues that there is no difference between substantial forms and accidents with respect to existence because they all depend on matter.

30 Burgersdijk, *Institutionum*, 1. 7. 1: “*Modus esse positiva quaedam, interna, et absoluta appendicula, qua res modificata, vel quoad esse, vel quoad fieri, ut ita dicam, limitatur.*”

31 Burgersdijk, *Institutionum*, 1. 14. 7.

32 Burgersdijk, *Institutionum*, 2. 17. 6: *Quantitas* [...] non nisi ratione distinguitur a substantia corporea, ad eamque ita se habet ut veritas ad Ens; ut ergo veritas non est accidens Entis, ita quoque magnitudo non est accidens corporis; si enim quantitas esset accidens corporis, corpus extensum foret non vi suae substantiae; sed vi et causalitate quantitatis; at hoc falsum est; nam si extenderetur corpus vi quantitatis, sublata quantitatis causalitate, corpus ne foret quidem; sicut corpus non est calidum sublata causalitate caloris; ac sublata causalitate quantitatis, corpus nihilominus foret quantum, quia si corporis quantitas esset accidens corporis, corpus quantitatem praesupponeret; quantitas enim non recipitur in eo quod quantum non est.”

33 The differences between Gorlaeus and Burgersdijk are now apparent. David Gorlaeus anticipated Descartes in rejecting hylomorphism and in defending a substance/mode metaphysics. As an atomist and an Arminian he was an outsider among the Dutch philosophers and the target of Gijsbert Voet’s hostility (Hattab, *Descartes on Forms and Mechanisms*, 159–160). Burgersdijk was a different type of intellectual: Aristotelian, academic, an establishment figure. He found the arguments for the essential extension of matter within Aristotelianism.

34 In fact, Descartes mentions the Calvinist position: “la transsubstantiation, qui les calvinistes reprennent comme impossible à expliquer par la philosophie ordinaire, est très facile par la mienne.” Descartes to Vatier, 22 February 1638, Descartes, *Oeuvres*, vol. 1, 564. Plausibly, Descartes had in mind the traditional Calvinist reluctance to mix theology and philosophy but also the Calvinist contention that the separability claim of the Catholics contradicts the natures of substance and accidents. Hence, the “impossibility to explain”.

35 On Arnauld’s position on Cartesianism and the relation between theology and philosophy, Nadler, “Arnauld, Descartes, and Transubstantiation,” 229–46.

36 Quoted in Nadler, “Arnauld, Descartes and Transubstantiation,” 232. Descartes, *Oeuvres*, vol. 7, 217.

37 The reaction of the Roman Church was hostile and Descartes’s works were put in the *Index librorum prohibitorum* in 1663.

38 Descartes, *Oeuvres*, vol. 7, 30–31.

39 Descartes, *Oeuvres*, vol. 7, 217.

40 Pasnau, *Metaphysical Themes*, 145.

41 Pasnau, *Metaphysical Themes*, 147.

42 Nadler, “Arnauld, Descartes and Transubstantiation,” 239.

43 Descartes confidently wrote: “Il n’y aura, ce me semble, aucune difficulté d’accommoder la théologie à ma façon de philosopher; car je n’y vois rien à changer que pour la transsubstantiation, qui est extrêmement claire et aisée par mes principes. Et je serais obligé de l’expliquer en ma physique...” Descartes to Mersenne, 28 January 1641, Descartes, *Oeuvres*, vol. 3, 295–6 (my emphasis). What to change “in his way of doing philosophy” is what I call below the “supporting view” of knowledge via matter in motion, which is not present in the *Meditationes*.

44 Descartes’s argument is in Descartes, *Oeuvres*, vol. 7, 248–56.

45 Quoted in Pasnau, *Metaphysical Themes*, 136–7. Pasnau calls this view the “veiled–subject doctrine.”

- 46 Franco Burgersdijk, *Collegium Physicum*, Disputatio 26.
- 47 See sections I and II of this paper.
- 48 “Calvin et les Calvinistes soutiennent, comme M. des Cartes et les Cartesiens, que l’essence du corps consiste dans les trois dimensions et dans une étendue absolument impenetrable.” Louis de la Ville/Père le Valois, *Sentimens*, 292.
- 49 Heyd, *Between Orthodoxy and Enlightenment*, 75; Adam, *L’eucharistie chez les penseurs français du dix-septième siècle*, 172–80; Ariew, *Descartes and the Scholastics*, 220.
- 50 Though the point might require further research. Goudriaan, *Reformed Orthodoxy and Philosophy, 1625-1750*, 240.
- 51 Jack, *Prima philosophiae*, VI.3
- 52 Voet, *Prima Philosophia Reformata*, 20, 2.8: “Substantia, partium extensione praedita.”
- 53 Voet, *Prima Philosophia Reformata*, 20, 2.8, 2: “Tum, ut constaret, materiam non esse ipsam extensionem, Verum esse extensam, et extensionem esse vel ejus modum substantialem, vel ejus accidens proprium.”
- 54 Hattab, *Descartes on Forms and Mechanisms*, 136–140, discusses this view. Pasnau, *Metaphysical Themes*, 145 and following, argues for this interpretation within a substance/accident metaphysics in Descartes.
- 55 Voet, *Prima Philosophia Reformata*, 20, 8.15: “Neque hic audiendi Scholastici, qui hanc conditionem a Materia per divinam potentiam abesse posse, censent, etiam dum ut causa materialis concurrat. Voet clearly has the Catholic scholastics in mind here.

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