

## A Brief Introduction to Scholastic Ontology

(excerpt from “Suarez on Metaphysical Inquiry, Efficient Causality, and Divine Action”)

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### *The big picture*

We are now ready to delve into the ontological presuppositions of Suarez’s treatment of divine causality in Disputations 20-22. My presentation of scholastic ontology will focus on the notions of substance and accident and on the types of ontological composition commonly invoked by scholastic metaphysicians, along with the principal motivations for positing these types of composition. I will also mention in passing a few of the controversies on particular points that arose among the scholastics in the later medieval period, especially after the time of St. Thomas.

Like other medieval Aristotelians, Suarez takes efficient causality to be a relation holding between agents and their effects at the very time at which the effects are produced.<sup>1</sup> In a typical case (excluding for the moment creation *ex nihilo*) one substance (the agent) acts upon another (the patient) in such a way as to produce or conserve an effect, where the effect is itself either a substance or an intrinsic determination or modification of a substance, that is, an accident. More technically, the agent’s action on the patient is simultaneously (a) the exercise of an active causal power on the part of the agent and (b) the actualization within the patient of a formal determination for which the patient, given its intrinsic constitution at the time of the action, has a proximate antecedent potentiality or passive power. Accordingly, we can distinguish active from passive causal powers. A substance’s active causal powers delimit the range of effects it is capable of directly producing or conserving when it acts upon suitably disposed patients in appropriate circumstances, whereas its passive causal powers delimit the range of

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<sup>1</sup>Suarez draws a distinction between (a) an efficient principle *ut quod*, that is, the substance which exercises a power and to which the resulting action is ultimately attributed and (b) an efficient principle *ut quo*, that is, the power or faculty by which such a substance operates. So, one can also think of efficient causality as a relation between agents-*cum*-powers and their effects. I mention this distinction in part because several of the questions concerning efficient causality that Suarez deals with in Disputations 17-19 center around the principle *ut quo*, and it is important to understand from the beginning that Suarez takes such principles to fall under his general characterization of efficient causal principles.

effects that might be produced or conserved when it is acted upon by suitably situated agents in appropriate circumstances.

This general portrait of efficient causality, which I will flesh out in Part 3, has two noteworthy ontological corollaries. The first is that, contrary to one influential opinion in contemporary metaphysics, it is substances and accidents, rather than events, that serve as the relata of the basic causal relation.<sup>2</sup> Though it does not follow forthwith that from an Aristotelian perspective talk of so-called ‘event causation’ is utterly wrongheaded, it does follow that all instances of event causation are reducible to the actions of power-laden agents on appropriately susceptible patients.<sup>3</sup> Indeed, the medieval Aristotelians, sensibly to my mind, conceive of the whole natural world, inanimate as well as animate, as a dynamic system of interrelated and interacting entities endowed by nature with causal tendencies and susceptibilities and always poised to produce their proper effects in the right sort of circumstances. It follows that ‘agent causation’ is not limited just to substances endowed with sentience or intelligence, and that the free agency of intellectual substances is simply a higher-order manifestation of a feature that pervades the physical universe as a whole.

The second corollary is that some type of a substance/accident ontology is fundamentally correct. A substance is conceived of as a ‘this-such’, that is, a basic unified entity with an essential nature constituting it as a member of some lowest-level natural kind. (Artifacts that incorporate such basic entities into a unified system may be thought of as substances in an improper and extended sense.) Since

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<sup>2</sup>Below I will invoke Suarez’s distinction between an agent’s ‘formal effect’ or ‘formal terminus *ad quem*’, which is the substantial or accidental form produced by the agent, and what we might call its ‘complex effect’, which is the form-*cum*-matter composite in the case of unqualified (or substantial) change and the substance-*cum*-accident composite in the case of qualified (or accidental) change. We can draw a similar distinction between the formal terminus *a quo* of a change, which is the privation of the form taken by itself, and the complex terminus *a quo*, which is the subject (or matter) of the change along with the privation. The complex effect is something like a state of affairs, and so in this sense states of affairs might be thought of as the terminus of an exercise of efficient causality. However, all such states of affairs supervene on the basic communication of being to substances and accidents.

<sup>3</sup>For an extended critique of the claim that events are the basic relata of the causal relation, see Dorothy Emmet, *The Effectiveness of Causes* (Albany, NY: State University of New York Press, 1985), pp. 6-41. Though Emmet stands squarely within the Aristotelian tradition on this issue, she does express reservations, to be noted shortly, about the Aristotelian notion of substance and its concomitant essentialism.

from an Aristotelian perspective the paradigmatic examples of substances are complex living organisms, the version of substance/accident ontology employed by Suarez and other scholastics is anti-reductionistic. That is, a formal or structural principle (called the ‘substantial form’) may subsume substances of a lower order (called the ‘proximate matter’) into a higher-order unity with its own distinctive substantial being or *esse* and with distinctive properties that are irreducible to the properties of the individual substantial constituents or of a mere coincidental aggregation thereof. In such a case the lower-order entities lose their independent status as substances and, at least for the time being, assume the status of ‘virtual parts’ of the new substance through the active and passive causal powers with which they endow that substance.<sup>4</sup>

A substance functions as the ultimate metaphysical subject or substratum of its accidents, where an accident is an intrinsic formal perfection (or determination or modification) that is ontologically distinct from the substance it modifies and is an individual entity in its own right with its own ‘accidental’ (as opposed to ‘substantial’) being or *esse*. In general, an accidental entity (in technical terminology, an ‘accidental form’) is apt by its nature to bear the transcendental dependence-relation of *inherence* to a substance that has substantial being of a sort consonant with its serving as the subject of such an accident.<sup>5</sup> Some of a substance’s accidents, including its basic active and passive causal powers, are ‘inseparable’ accidents that flow directly from the substance’s nature or essence as definitive of its natural kind, while others are ‘separable’ accidents that are consonant with its nature but not endemic to

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<sup>4</sup>St. Thomas deals with the constitution of material substances out of elemental substances in two shorter works which are now available together in English translation, accompanied by an illuminating commentary. See Joseph Bobik, *Aquinas on Matter and Form and the Elements: A Translation and Interpretation of the De Principiis Naturae and the De Mixtione Elementorum of St. Thomas Aquinas* (Notre Dame, IN: University of Notre Dame Press, 1998).

<sup>5</sup>The reason why an accident’s inherence in a substance is a *transcendental* or *transcategorical* relation rather than a *categorical* relation—that is, a relation that falls under the Aristotelian category of relation—is that categorical relations *presuppose* that the related substances have a full complement of accidents, whereas the relations of inherence that a given substance’s accidents bear to it *logically precede* and *result in* the substance’s having a full complement of accidents. For analogous reasons, the relation of *union* between the form and matter that constitute a given substance is a transcendental relation.

it.<sup>6</sup>

In this connection I should also note that even within the confines of a substance/accident ontology disagreements have arisen historically over the exact ontological status of accidents. Suarez himself, for instance, distinguishes among more and less dependent types of accidental entities. Whereas he treats sensible qualities, habits, causal powers, and three-dimensional quantity as ‘full-fledged’ accidents that are *really distinct* from substances and can thus, albeit only by God’s power, exist without a subject of inherence, he regards motion, position, acting, and being acted upon as mere ‘modes’, incapable in principle of existing independently of a subject and thus only *modally distinct* from the things in which they inhere.<sup>7</sup> (Modes seem to be something like states of substances.) What’s more, he holds that relations, though they are real and not merely conceptual entities, do not constitute a separate and irreducible category of real beings at all.<sup>8</sup> Yet each of these claims is contested in whole or in part by other within Suarez’s intellectual tradition. I raise this issue only to intimate the range of possible substance/accident ontologies, and I will not pursue it any further here except to mention that an indispensable element of Suarez’s own account of efficient causality is the claim that every proper effect of an efficient cause is an individual entity that has real being (*esse*) of some sort or other; that is, every proper and direct (*per se*) effect of an efficient cause must be either a substance or a full-fledged accident or at least a mode.

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<sup>6</sup>What I have just said should serve to caution contemporary readers against assuming that substances have all their accidents contingently rather than by their nature. According to the scholastics, a substance’s inseparable accidents are such that the substance cannot exist without them—or, at the very least, cannot exist without them *naturally* or in the absence of some extraordinary divine action. The scholastics thus use the term ‘accident’ in a way different from that in which the term ‘accidental property’ is normally used in contemporary analytic metaphysics, where an accidental property of a substance is one which does not belong to a substance by its nature.

<sup>7</sup>For a brief explanation of the types of distinction according to Suarez, see note 5 to *DM* 20.1 below. Also, see Barry Brown, *Accidental Being: A Study in the Metaphysics of St. Thomas Aquinas* (New York: University Press of America, 1985) for a revealing look at the internal dispute among Thomists over the status of accidental being in St. Thomas’s metaphysics.

<sup>8</sup>See *DM* 47.2 for Suarez’s discussion of the ontological status of relations and of the various positions of his predecessors on this issue. For a good contemporary treatment of the high medieval dispute over relations, see Mark Henninger, S.J., *Relations: Medieval Theories 1250-1325* (Oxford: Oxford University Press, 1989)

### *Types of Composition*

Scholastic ontology in general, and Suarez's ontology in particular, is in a broad sense a form of 'constituent' ontology. By this I mean that it aims at a general characterization of substance in terms of various types of constituents (entities or virtual entities) which are in some straightforward sense intrinsic to a substance and yet compatible with its status as a unified whole.

Any plausible ontology of material substances must of course acknowledge that such substances are wholes having 'integral' or 'quantitative' parts and that they can thus be characterized as 'composite' in that sense. However, scholastic ontology goes beyond this sort of obvious material composition by positing four further types of composition. I will first identify them and then briefly explain the motivations for positing them.

As intimated above, each material substance is conceived of as an individual nature (or essence) characterized by accidents. The nature or essence constitutes the substance as a member of a given natural kind and can itself be thought of as composite in either of two ways.

First, a material substance is composed of its 'essential' parts, namely, substantial form and matter, including both primary matter (pure potentiality) and the more elemental types of matter, describable at several different levels, that are subsumed by the form of the whole substance.<sup>9</sup> These parts are expressed in the substance's 'natural' or 'physical' definition.

Second, a material substance is composed of its 'metaphysical' or 'logical' parts, namely, genus and specific difference. These parts are expressed in the substance's 'real' or 'metaphysical' definition.

Whereas the essential and metaphysical parts of a substance in some sense constitute it as an individual nature or substance, the accidents of a substance—both those that emanate directly from the essence and those that are had (or may be had) by some but not all of the substances within a given

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<sup>9</sup>Within Aristotelian science one can describe the so-called proximate matter of a substance at either the level of the four elements (water, air, fire, earth) or the level of minerals, which are substantial entities constituted by differing proportions of the four elements. Within modern physical theories the levels are different and more numerous (for example, cell, molecule, atom, proton, quark, and so on), but the basic philosophical point remains the same. See Joseph Bobik, *Aquinas on Matter and Form and the Elements*, for a thorough discussion of this issue.

natural kind—bring to realization or actuality various potentialities that the substance has as so constituted. Thus the scholastics speak of a ‘physical composition’ of substance and accidents that presupposes the physical composition of matter and form.<sup>10</sup>

Finally, in order to capture the difference between a being that is wholly independent of any other being for its existence (God) and beings that depend on another for their own proper existence and the existence of each of their constituents, the latter are further said to be composed ‘physically’ of being (*esse*) and essence (*essentia*), where in this usage the term ‘essence’ is taken broadly to include a substance’s nature (‘essence’ in the narrower sense) along with all its accidents and parts.

Before I explain the principal motivations for positing these modes of composition, I want to make two clarificatory points.

First, I do not mean to give the impression that there was unanimity among the scholastics about how to think of the various entities or types of composition just listed. For instance, most scholastics—Duns Scotus, as we shall see, is a notable exception—take the composition of genus and difference to be a conceptual (as opposed to real) composition with a real foundation in the essential parts of the relevant substance. A similar disagreement infects the distinction between *esse* and *essentia*, though here it is crucial to point out that the very meaning of the concepts ‘real composition’ and ‘conceptual composition’, along with their correlatives ‘real distinction’ and ‘conceptual distinction’, are themselves the subject of lively debates.<sup>11</sup> And I have already alluded to the debates about the ontological status of accidental entities.

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<sup>10</sup>Immaterial substances are conceived of by analogy to material substances. So, according to the dominant scholastic view, they have only form (and not matter) as a ‘physical’ constituent. However, they still have substance/accident composition, because their immaterial accidents (certain acts of intellect and will) are perfections that they have only potentially by nature. Interestingly, the traditional hierarchy of angels is accounted for along these lines. The natural perfection of angels is measured by how much intellectual perfection (or knowledge) they have by nature and how much of their intellectual perfection is acquired as the accidental actualization of natural potentialities. The more angels know by their nature or essence (and not via accidental acts of intellect), the more they resemble God in intellectual perfection and the higher up they are in the hierarchy of immaterial substances.

<sup>11</sup>Suarez, for instance, devotes all of Disputation 6 to clarifying, in his own particular way, the different kinds of identity and distinction.

Second, it is important to understand the radical difference between constituent and non-constituent ontologies. In particular, we should note carefully the contrast between Aristotelian scholastic ontologies and the Platonistic ontologies currently popular in some analytic circles, and especially among analytic philosophers of religion. The latter characterize substances as being constituted by their relation to abstract entities (properties and essences) which (a) have their being and reality independently of those substances, (b) are in some obvious way extrinsic to them, and (c) are linked to them by the transcendental relation of *exemplification*. On these ontologies material substances seem to lack intrinsic composition of any sort other than, where applicable, the composition of quantitative parts.

The proponents of non-constituent ontologies find themselves in a difficult position when they try to assess scholastic doctrines that depend directly on constituent ontology for their intelligibility. This is well illustrated by the recent literature within analytic philosophy of religion on the scholastic understanding of the Catholic doctrine of divine simplicity.<sup>12</sup> The scholastics were able to fashion a substantive and metaphysically interesting account of the metaphysical gulf between the transcendent God and finite creatures by characterizing God as uniquely simple—that is, as wholly lacking in every type of composition found among created substances. More specifically, they claimed that in God there is no composition of quantitative parts, of form and matter, of genus and difference, of substance and accident, or of *esse* and *essentia*, and that this absence of composition is extensionally equivalent to absolute perfection.<sup>13</sup> However, each of these claims, if transformed without due care into the framework of a Platonistic non-constituent ontology, leads to patent absurdities, for example, that God has no

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<sup>12</sup>This doctrine is taught both by the Fourth Lateran Council and the First Vatican Council. See H. Denzinger and A. Schönmetzer, *Enchiridion Symbolorum*, 32nd ed. (Freiburg: Herder, 1963), #800 and #3001 (new numbering).

<sup>13</sup>This is the core of the negative theology characteristic of the best medieval thinkers. See especially St. Thomas, *Summa Contra Gentiles* 1, chaps. 14-28. In “The ‘Openness’ of God: A Reply to William Hasker,” *Christian Scholar’s Review* 28 (1998): 124-133, I have tried to explain clearly the strategic importance of this negative theology within the framework of St. Thomas’s natural theology.

accidental properties or that God just is a property.<sup>14</sup>

I turn now to the motivations for the four types of composition peculiar mainline Aristotelian scholastic ontology.

*Physical composition: matter/form, substance/accident, and esse/essentia*

The claim that there is physical composition stems from the analysis of genuine change.<sup>15</sup>

Aristotle posited three principles of genuine change: privation, form, and matter. The matter of a given change is that which perdures through the change and is modified by the agent of the change, whereas the form (or: composite of the relevant matter and form) is the terminus *ad quem* of the change and the privation (or: composite of the relevant matter and privation) is the terminus *a quo*.<sup>16</sup>

In the case of ‘qualified’ or ‘accidental’ change, this analysis requires that there be a composition of substance and accident, where the substance is the perduring ‘matter’ or substratum of the change and the accident that comes to modify the substance as a result of the change is the ‘form’. This accident or accidental form is the actualization of a characteristic which the substance in question lacked before the change but for which it had an antecedent potentiality. To complete the picture, the prior absence of the form for which the substance has a proximate capacity is the ‘privation’.

Accidents are assumed to fall into categories along the lines suggested by Aristotle, though, as noted above, among the later scholastics there were lively debates about the precise identity and

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<sup>14</sup>For a similar analysis of the recent literature on this topic, see Nicholas Wolterstorff, “Divine Simplicity,” *Philosophical Perspectives* 5 (1991): 531-552.

<sup>15</sup>Genuine change is here distinguished from the mere applicability over time of contrary predicates to the same substance, since the latter, sometimes called ‘Cambridge’ change in the philosophical literature, can occur without genuine change either solely because of the mere passage of time or solely because of genuine changes in substances other than the one in question. On a composition ontology an entity genuinely changes if and only if it acquires a new form. Platonistic ontologies have no similarly ready way of giving a general characterization of the distinction between genuine change and Cambridge change.

<sup>16</sup>The parenthetic descriptions are in fact the most complete and correspond to the complex terminus *ad quem* and complex terminus *a quo* described above in note 39 above. The unparenthesized descriptions, in contrast, correspond to the formal terminus *ad quem* (the form taken by itself) and the formal terminus *a quo* (the privation taken by itself).



ontological status of the entities signified by various types of accidental predicates.<sup>17</sup> Still, it is generally agreed that all such predicates signify entities of some sort, at least modes in Suarez's sense. And the three basic types of accidental change are (a) *alteration* (change with respect to quality), (b) *augmentation* and *diminution* (change with respect to quantity), and (c) *local motion* (change with respect to place). All changes with respect to the other Aristotelian categories are held to be reducible to or parasitic on these three.

However, Aristotle insisted, apparently in keeping with common sense but contrary to the received wisdom of his philosophical predecessors (Parmenides, Empedocles, Anaxagoras, and the atomists) that at least some ultimate realities, that is, substances, could themselves come into and pass out of existence through genuine change—more specifically, through 'generation' and 'corruption'. If such unqualified or substantial change is possible, there must be within generated substances an essential composition of matter and form, so that the same matter can successively enter into the constitution of different substances and even of different natural kinds of substances. In order to safeguard the unity of generable and corruptible substances—especially living substances such as plants and animals—the scholastics held that in unqualified change a substantial form is united with 'primary' matter (or pure potentiality) to form an individual nature or substance. One reason for this claim is the conviction that *all* the matter of a generated substance, at whatever level of description (from primary matter to elemental matter right through to the so-called 'proximate matter' of the change), is structured by and subordinated to the form of the whole substance. Conversely, in corruptive action this formal unity is lost and the matter of the corrupted substance comes to exist 'under' some other form or forms. So whereas qualified change demands a composition of substance and accident, unqualified change demands a composition of substantial form and primary matter.

The composition of substantial form and primary matter, on the one hand, and the composition of

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<sup>17</sup>Just for the record, the nine accidental categories are quality, quantity, relation, time, place, action, passion, position, and 'having'.

substance and accident, on the other, are best seen as specifications of the more generic Aristotelian composition between ‘act’ and ‘(passive) potency’. For in each case of genuine change a determinable or perfectible ‘matter’ (the principle of potentiality) is made determinate or brought to completion in some relevant way by a ‘form’ (the principle of actuality) which is communicated to it by an agent or agents. This form, be it substantial or accidental, is called the ‘formal terminus’ of the change in order to distinguish it from the whole resulting composite of matter and form (in substantial change) or of substance and accident (in accidental change). And it is precisely the complementarity of a given actuality and a potency with respect to that actuality that ensures that compositions of substantial form and primary matter and of substance and accident are unities rather than mere aggregations of disparate parts. As Aristotle puts it, “The potential and the actual are somehow one” (*Metaphysics* 8.6, 1045b21).

St. Thomas’s distinction between *esse* and *essentia*, which I will discuss at more length in Part 3, is yet another specification of this general distinction between act and potency and is meant in part to accommodate the possibility of an exercise of efficient causality that is not a modification of a prior substance or a prior matter, but is instead an actualization *ex nihilo* of a substance with all its accidents and parts (*essentia* in the broad sense). Here the notion of a principle of potentiality (*essentia*) is stretched to its limit, since the essence in this broad sense does not exist with real potentiality prior to the relevant exercise of efficient causality, and hence is not acted upon by the agent. This is why the creation *ex nihilo* of a substance with its accidents is not, strictly speaking, a genuine change. Nonetheless, given that a substance and all of its constituents stand in radical dependence on the First Cause for their existence, we can think of the essence in this broad sense as ‘receiving’ *esse* in a way analogous to the way in which primary matter receives substantial form and to the way in which a substance receives accidental perfections. What’s more, given this view of creation, it follows directly that annihilation, unlike corruption, cannot involve action on a patient but can be effected only by the suspension or cessation of that creative action which confers *esse* at once on the substance and all its

accidents and parts.<sup>18</sup>

On the basis of what has been said, we can map the three principal genera of efficient causality onto the three major specifications of the actuality/potentiality distinction:

Type of Efficient Causality	Actuality	(Passive) Potentiality
<b>qualified change (alteration, augmentation/diminution, local motion)</b>	accidental form	substance
<b>unqualified change (generation and corruption)</b>	substantial form	primary matter
<b>creation/annihilation</b>	<i>esse</i>	<i>essentia</i>

In each case the relevant composition of act and potency can be thought of as the complex *terminus ad quem* of the corresponding type of efficient causality.

*Metaphysical composition: genus/specific difference*

As we have seen, the postulation of the modes of physical composition arises from the analysis of change. In contrast, the postulation of so-called ‘metaphysical’ composition arises from a broadly realist conception of scientific inquiry and scientific explanation. Given that inquiry begins with a taxonomy of natural kinds ordered according to genus and species (reminiscent of the logical structure of Aristotle’s category of *substance*), and that the goal of scientific inquiry is to attain systematic knowledge of the natures of individual substances, questions arise about the metaphysical presuppositions that undergird (i) the use of natural kind terms, (ii) the formulation of tentative ‘real’ definitions of natural kinds in terms of genus and specific difference, and (iii) the assertion of predications which have as their subjects natural kind terms and as their predicates various terms signifying (discovered) dispositional qualities that ‘emanate from’ the relevant natures or essences—as, for example, ‘Salt is soluble in water’. Such statements (‘laws’ in one acceptance of that term) are in some obvious sense about natural kinds rather than primarily about singular instances of those kinds, and

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<sup>18</sup>This is a point emphasized by Suarez in *DM* 18.11.

they tie natural kinds with metaphysical necessity to structural features, active causal powers and tendencies, passive causal susceptibilities, and so on.

All the scholastics agree that each ‘secondary substance’ or natural kind has a composite real definition that is grounded in the real structure of the individuals belonging to that natural kind. The question then arises: Does the use of these ‘real’ definitions in scientific inquiry presuppose a distinctive metaphysical constituent of a substance corresponding to each element in the definition of its natural kind? To take a simple hackneyed example, is there within a human being a distinctive pair of ‘metaphysical’ constituents corresponding to the genus (*animal*) and specific difference (*rational*) expressed in the real definition of the natural kind *human being*?

Duns Scotus, for one, argued that there must be distinctive constituents of this sort (he called them ‘formalities’) if successful scientific inquiry is to be possible. That is why he thought of these formalities as ‘metaphysical’ constituents in a straightforward sense and held that the distinction between the genus and specific difference is just one more specification of the distinction between potency (genus or common nature) and act (specific difference). He was then faced with the problem of relating these metaphysical constituents of a substance to the essential constituents (matter and form) of the same substance—no mean task, since each set of constituents is exhaustive and yet cannot be directly mapped on to the another.<sup>19</sup>

However, most other scholastics, Suarez included, denied that substances have distinctive metaphysical constituents in addition to their essential constituents. On their view, the problem is to explain how the various *logical* or *conceptual* constituents of natural kind concepts and of their definitions are grounded in the physical constituents (matter and form) of the relevant substances. And so they thought of the distinction between genus and specific difference as a merely analogical extension

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<sup>19</sup>In addition, Scotus claimed that among the metaphysical constituents or formalities of a given substance there must be an ‘individual difference’ (as opposed to ‘specific difference’) which ‘contracts’ the species that the substance shares with other members of the same natural kind and thus makes the substance distinct from those others.

in the conceptual order of the distinction between potentiality and actuality.

*On behalf of scholastic ontology*

Of course, it is hardly necessary to point out that broadly Aristotelian constituent ontologies of the sort developed by the scholastics are viewed (if at all) with deep suspicion by many contemporary philosophers, including, ironically, some of the very thinkers whom I would on other grounds label neo-Aristotelians. So even though this is not the place to explore the relevant issues in any great depth, I do want to indicate briefly why, to my mind, certain standard objections to scholastic ontologies are not very impressive, especially when seen in the light of recent developments in analytic metaphysics and epistemology.

Let's look first at the Aristotelian conception of substance. An initial reservation has to do with the role of a substance as the subject or substratum of accidents. Dorothy Emmet, after having argued in a typically Aristotelian vein that it is 'continuants' rather than 'occurrents' that are efficient causes in the most basic sense, nonetheless refuses to identify continuants with substances:

[The distinction between 'continuants' and 'occurrents'] answers to the traditional distinction between substances and events. The 'continuant', however, need not carry the metaphysical implications which sometimes were seen in 'substance', as being a substratum distinct from its qualities. A continuant need only show a persistent character recognisable over time. 'Occurrents' are changes in a continuant, for example this particle as moving from *A* to *B* at time *t* ... When one continuant is seen as external to another and acting on it, this is *transeunt* causation. When there is a change of state within a single continuant, this is immanent causation. Changes within a system taken as a whole are cases of immanent causation. But a system may be seen as composed of parts which are subcontinuants, and where changes in the system can be explained as due to the action of these on each other, they can be seen as cases of *transeunt* causation.<sup>20</sup>

Having already seen that the paradigmatic instance of an Aristotelian substance is a living organism, we might well wonder what distinguishes Emmet's continuants from Aristotelian substances. To be sure, an Aristotelian substance is said to have qualities and other accidents that are ontologically distinct from it in one way or other. But Emmet herself acknowledges that a continuant may undergo

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<sup>20</sup>*The Effectiveness of Causes*, p. 77.

qualitative and other sorts of change while remaining numerically the same continuant. Though it does not follow directly that qualities and other accidents must be individuals that are really distinct from the substances they characterize, the only plausible alternative, as far as I can tell, is to countenance something like ‘states’ of substances or continuants. And even if such states are not full-fledged accidents, they must nonetheless be assigned an ontological status distinct from that of the substances themselves. (Indeed, as noted above, Suarez’s ‘modes’ might reasonably be construed as states that have a less robust sort of being than full-fledged accidents have.) So while I myself doubt that all Aristotelian accidents could plausibly be conceived of as mere states or modes, my main contention here is simply that the issue raised by Emmet is really one that is internal to scholastic constituent ontologies and does nothing to undermine the viability of such ontologies in general.

Of course, if an Aristotelian substance were a Lockean ‘I know not what’ or, in modern parlance, a ‘bare particular’ that underlies its accidents without having any characteristics or formal determinations in and of itself, then it would indeed be ontologically suspect. But neither Suarez nor any other faithful Aristotelian thinks of a substance in this way. As emphasized above, an Aristotelian substance is a ‘this-such’—an oak tree or an aardvark or a hydrogen atom, for example—and not a bare ‘this’. The ‘such’ of ‘this-such’ points precisely to the inseparability of a substance from the formal determination (in technical terminology, the substantial form) that constitutes it as a member of a given natural kind. Thus, when a substance is said to ‘underlie’ or to ‘be the subject of’ its accidents, this way of talking represents little more than a generalization over ordinary accidental attributions such as ‘This oak tree is eighty feet tall’ or ‘Aardvarks have a tendency to seek out and devour insects’. In short, it is only individuals belonging to a natural kind that can serve as the ultimate subjects of accidents.

Admittedly, the claim that an observable material substance underlies its *sensible* or *perceivable* accidents carries with it the implication that such a substance possesses a metaphysical depth that goes beyond what is immediately evident from ordinary sense perception. But it is hard to fathom why anyone antecedently sympathetic to scientific realism should be bothered by this. Moreover, just as on Emmet’s

view continuants have parts (subcontinuants) that act on one another, so too on the standard Aristotelian picture complex natural substances have what I have called ‘virtual’ or ‘powerful’ parts that serve as instruments in producing and conserving effects within the substance itself as well as outside it. However, one implication of Aristotelian anti-reductionism is that such action must be attributed ultimately to the substance as a unified whole whose principle of organization (substantial form) directs and modifies the operations of its parts. Otherwise, complex substances such as living organisms (or, for that matter, chemical elements or physical atoms when they exist in isolation) would be mere coincidental aggregations of substances rather than individual substances in their own right.

A second reservation about the Aristotelian conception of substance centers around its unabashed commitment to essentialism. In expressing her disapproval of the theory of causal powers set forth by Rom Harré and Edward Madden, Emmet has this to say:

[I should not] want to talk about continuants as having ‘intrinsic natures, shown in causal powers’. This seems to me to savour of a hankering after Aristotelian real definitions, which are then made effective as formal causes; it does not allow enough for radical changes in continuants. Rather than talking about ‘natures’ I should prefer to think of a thing having, in Locke’s phrase, a ‘real internal constitution’, maintained dynamically, partly through internal homeostatic ‘feedbacks’, in which an aberration at one stage may be corrected at the next ... This carrying forward of a pattern, perhaps in a rhythmic reiterative form, may go both for fundamental particles, the distribution of whose activities is given in the mathematics of wave mechanics, and also for organisms, and for whatever other natural units there may be in between.<sup>21</sup>

Once again, I fail to discern a significant difference between Emmet’s continuants and Aristotelian substances. After all, even on the Aristotelian conception accidental changes can be quite dramatic, and any account of substances or continuants will have to accommodate the fact that some changes are so radical that the original continuants do not survive them. In addition, an Aristotelian substantial form, at least in the case of a wholly material substance, just is—or, perhaps better, immediately results in—a “real internal constitution,” assuming, once again, that the sort of constitution Emmet has in mind goes beyond that of a mere coincidental aggregation of independently acting

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<sup>21</sup>*The Effectiveness of Causes*, pp. 84-85.

substances. But her invocation of ‘homeostatic feedback’ and ‘dynamic maintenance’ points clearly to a more stringent sort of unity on the part of her continuants.

Beyond this, it is worth noting that one of the most striking features of recent analytic philosophy has been the resurrection of metaphysical essentialism.<sup>22</sup> Talk of natures and essential properties abounds in places where only a few years ago it would have been deemed wholly archaic and out of step with the modern (empiricist) mind. Of course, this development is not, taken just by itself, an argument in favor of essentialism; however, it is clear at least that the friends of scholastic constituent ontologies are not nowadays in the position of having to shoulder by themselves the burden of defending essentialism.

A third reservation about the Aristotelian conception of substance is epistemological in nature: If material substances ‘underlie’ their sensible accidents, how can they be said to be observable? Are they not rather in principle unobservable? An Aristotelian might be tempted to reply glibly that substances are in principle unobservable only if oak trees and aardvarks are. Yet curt though it be, this response reflects an attitude that has become almost commonplace in current analytic epistemology. Rejecting the concession phenomenalists had made to skepticism regarding external objects, most contemporary epistemologists hold that it is perfectly proper for us to repose without further argument in our basic pre-theoretical conviction that we have sensory cognition of substances themselves as well as of their sensible characteristics. To be sure, epistemological realists of this sort must draw a distinction between the way in which substances are available to the senses and the way in which sensible characteristics like colors, shapes, sounds, and smells are. According to St. Thomas, for example, sensible accidents are the *per se* objects of the sensory powers and their acts of sensing, whereas substances (along with easily identifiable efficient causes) are *per accidens* or incidental objects of

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<sup>22</sup>Pioneers in this area include, among others, Saul Kripke, “Naming and Necessity,” pp. 252-355 in Donald Davidson and Gilbert Harman, eds., *The Semantics of Natural Language* (Dordrecht: Reidel Publishing Co., 1972); Alvin Plantinga, *The Nature of Necessity* (Oxford: Clarendon Press, 1974); and Roderick Chisholm, *Person and Object* (La Salle, IL: Open Court Publishing Co., 1976).



sensation. The idea is that material substances (and efficient causes) are sensed *in* and *through* the direct sensing of their accidents (and effects).<sup>23</sup> Far from calling into question the observability of substances, this is meant to be an explication of what it is for a substance to be observable.

A related consideration is that according to the Aristotelian scholastics our initial conceptual grasp of a sensible substance—by means of what Suarez and other medievals call a ‘quidditative’ concept and what contemporary philosophers call a ‘natural kind’ concept—provides us only with a starting point for inquiry into the nature of that substance, regardless of whether that inquiry is of the unsystematic sort typical of ordinary life with its overriding practical concerns or of the systematic sort peculiar to the theoretical natural sciences. In both cases it is only through further experience and experiment (both expressed by the Latin term *experimentum*) that we can learn about the characteristic effects of such substances and on that basis come to a knowledge of their powers and of the natures from which those powers emanate.

This point is intimately connected with the doctrine of ‘real definition’ impugned by Emmet in the last passage quoted above. The traditional empiricist resistance to an Aristotelian account of real (as opposed to merely nominal) definition seems to have been founded at least in part on the fear that such definitions are meant to serve as the basis of an *a priori* science that simply deduces the properties of substances from their definitions alone, without any further appeal to experience.<sup>24</sup> However, within an Aristotelian logic of discovery the role of real definition is in fact limited to establishing a preliminary taxonomy of substances which might order and guide further inquiry; and, even then, any taxonomy thus arrived at is able to be expanded and (at least partially) revised in light of future experience and

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<sup>23</sup>See, for example, *Summa Theologiae* 1, q. 17, art. 2, resp.

<sup>24</sup>St. Thomas, in arguing that it is reasonable to believe that some truths about God are in principle inaccessible to natural reason, points to the fact that we are not even very successful in coming to knowledge of those things to which our minds are proportioned: “The same thing is clear from the defects we experience daily in our cognition of things. For we are ignorant of most of the properties of sensible things, and in most cases we are unable to uncover completely the principles of those properties that we apprehend by the senses (*Summa Contra Gentiles* 1, chap. 3). This hardly sounds like a ringing endorsement of armchair science.

experiment.

Let me now turn briefly to accidents. As I mentioned above, Suarez's account of efficient causality presupposes that accidents—whether full-fledged accidents or mere modes—are dependent individuals that inhere in the substances that are determined or perfected by them. Accordingly, his substance/accident ontology differs from the more Platonistic substance/property ontologies popular among contemporary essentialists, where properties are thought of as abstract entities that concrete substances exemplify. Interestingly, Suarez is willing to countenance 'properties' of this sort as long as they are identified with ideas in the mind of God and as long as exemplification (or participation) is thought of as a relation that substances bear to those ideas by virtue of God's creative activity. However, he also insists that accidents are concrete individual entities in their own right. The issues here are difficult and complex, and I do not want to rule out the suggestion that an Aristotelian account of efficient causality can be reformulated without loss within the confines of a Platonist ontology of substance and property. Still, my own conviction is that such an ontology is too abstract and in some ways too coarse-grained to serve in this capacity, though I will not argue the point here.