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Staunch Transubstantiation and the Metaphysics of Middle-Sized Things: A Reply to Howard Robinson*

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Abstract. An Aristotelian natural philosophy, with its account of substantial form as the organizing and unifying principle of all substances, including living human beings, is essential to a coherent and theologically accurate formulation of the Catholic doctrine of transubstantiation. I demonstrate this fact by considering a recent proposal by Howard Robinson, which attempts to re-formulate the doctrine within a Cartesian or substance dualist framework. Robinson's proposal cannot explain the presence of the sensible qualities of the bread and wine, nor the presence of Christ's body, blood, soul, and divinity, as required by the Council of Trent.

Keywords: transubstantiation, hylomorphism, dualism, substantial forms, accidents.

Contribution. I bring a new approach to the philosophy nature, reviving the tradition of Aristotelianism, to a theological issue of great interest to many Christians, namely, the understanding of Holy Communion.

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Introduction

Aristotelian natural philosophy, also known as "hylomorphism," has the capacity to treat middle-sized things, like human beings, wafers of bread, and goblet-filling bits of wine, as first-class citizens of our ontology, that is, as *substances*. Substances, on this view, are unified wholes composed of matter and form, whose substantial forms impose certain powers and potentialities upon their material parts.. The nature of a substance is determined simultaneously in both bottom-up (parts to whole) and top-down (whole to parts) directions. Christian philosophers from the time of Thomas Aquinas, have used this Aristotelian framework to elucidate theological doctrines, including the nature of the Eucharist. Howard Robinson's foray into the theology of the Eucharist from a non-Aristotelian (specifically, a Cartesian and micro-physicalist) perspective illustrates the difficulties that should a perspective entails. Only something very much like hylomorphism can accommodate the central importance that such doctrines as the Incarnation and the sacraments place on the ordinary, corporeal objects of everyday life. The liturgical and sacramental life is grounded not in the cosmic or the microscopic but in embodied, accessible, medium-scale realities, of which the Eucharist is both a paradigm and a metaphysical test.

1. The Sensible Qualities of the Host

During the Roman Rite which is known as 'the Mass', the priest utters the words of consecration—"This is my body… This is my blood"—over the bread and wine. According to Catholic doctrine, at this moment, the substances of bread and wine are transformed into the body and blood of Christ, while their sensible appearances remain. After consecration, the Host still appears white, circular, flaky, bready in taste, etc. Logically, there are just four options:

1. These sensible qualities are illusory. Nothing there is really white, circular, flaky, etc.

2. These sensible qualities inhere in a piece of bread. Consequently, the bread is still in actual existence, and somehow the piece of bread is simultaneously also the body of Christ.
3. The sensible qualities inhere in the body of Christ alone.
4. The sensible qualities inhere in nothing at all but are sustained in existence of direct divine fiat.

Options 1 through 3 involve theologically or philosophically unacceptable consequences. Option 1, which treats the sensible qualities as mere illusion, requires God to be a cheap conjurer and deceiver. Could a Cartesian rely on modern science to argue that all the world's sensible qualities, not just those of the Host, are utterly illusory? Galileo and Locke attempted something like this with respect to the secondary qualities of color, smell, and taste. However, the "qualities" that are at stake in transubstantiation include the primary qualities of size and shape, and these Cartesians can hardly dismiss.

But one could take another tack, one suggested to me by an anonymous referee. One could admit that the qualities and quantities are not illusory, while denying that they must "inhere in" anything like an Aristotelian substance. Sensible qualities are sustained by a system of physical properties and states (like mass and charge) that seem quite abstract and functional in their characterization. But the problem at hand does not turn on the technical details of Aristotle's categories and his theory of inherence. There are bodies, including human bodies, that evidently possess a range of quantitative and qualitative properties. Are the apparent properties of the Host properties of nothing at all? The Cartesian and Thomist will concur in dismissing this possibility.[1]

Options 2 and 3, which claim that the accidents inhere either in the bread or in the body of Christ, require the human body of Christ to take on accidents that are clearly incompatible with the integrity of His human nature. Both options entail that Christ's body possesses many thousands of tons of mass, including tons of undigested carbohydrates, water, and

[1] Another anonymous referee informed me that some medieval, pre-scholastic theologians, following Radbert Paschasius, held that Christ was "sensibly" present in the Host, suggesting that the qualities we seem to see are mere illusions. However, this strikes me as a non-starter, and I believe Robinson would agree.

fats. They entail that His body is scattered across the face of the earth in millions of white, circular disks. They also entail that one cannot receive the blood of Christ under the species of bread, or the body of Christ under the species of blood, since the former are parts of Christ's extended body but not of His blood, and the latter parts of His extended blood but not His body. According to the *Catechism of the Catholic Church* (par. 1377), "Christ is present whole and entire in each of the species and whole and entire in each of their parts." This teaching is rooted in the authoritative formulation of the Council of Trent: "If anyone denies that, in the venerable sacrament of the Eucharist, the whole Christ is contained under each species and under each part of either species when separated, let him be anathema" (Decree on the Most Holy Eucharist, Session XIII, Canon III; Denzinger-Schönmetzer 1641). In Thomas Aquinas's explanation, Jesus' blood is present in the species of wine by virtue of the words of institution (the "power of the sacrament"), while the body and soul are present there by way of "real concomitance," since body, blood, and soul form one, inseparable substance (ST III, Q76 a2). In a Cartesian framework, there is no such thing as real concomitance, and so the presence of the whole Christ under both species cannot be explained.

Could Robinson respond (as suggested by the same referee) that the whole of Christ is present in each part of the Host by virtue of the fact that the whole of Christ can "act through" each part of the Host in a peculiarly sacramental action? This is a very attenuated notion of presence, one that amounts to a kind of instrumental causation. Christ said, "This *is* my Body," not "This is an instrument through which my Body acts." I am not claiming that the "is" here is one of strict identity, as though Christ's body were identical to this Host and to nothing else, but the presence of the whole Body of Christ in each part of the Host must be direct and unmediated.

So, only option 4 is theologically and philosophically viable. But option 4 requires that we take accidents seriously as an ontological category, and this is something that only a hylomorphist can do. Certainly, option 4 makes no sense for the Cartesian. The closest a Cartesian can come to the category of accident is that property or feature (in the modern sense), but

it makes no sense to suppose that a property could exist without a bearer. So it seems that Robinson is constrained to adopt Option 3, even though it is theologically inadequate. This is confirmed by Robinson's text. He affirms that the material substances involved in the Eucharist become "a substantially new entity" by a change in God's intentions, while retaining an unchanged set of "manifest physical properties" (Robinson, 10). The new entity that they become is the body and blood of Christ, which must therefore be the subject of these "manifest physical properties."

Could the Cartesian adopt a trope theory? Tropes are the closest thing to Aristotelian accidents in contemporary analytic metaphysics. On such a view, a piece of bread is nothing but a bundle of tropes (individual accidents). Since the tropes persist, this means that the bread and wine also persist, forcing us to option 2.

"Body, Blood, Soul, and Divinity"

There is an additional problem for the Catholic Cartesian: how can the *human soul* of Christ be present in the Host?[2] There is no sensory or motor connection between the Host and the soul of Christ. So, even if His body is present there, there seems to be no sense for the Cartesian in which His soul is also present there, any more than the Cartesian soul is present in His hair or fingernails.

One last problem for the Cartesians: they cannot suppose that Christ's *divine nature* is present in the consecrated Host. For the Cartesian, human persons (including Christ) are immaterial souls. They have a special relationship to a body, but the living body is not *identical* to the person. Consequently, if Christ's body and blood are present under the species of the Eucharist, this does not make the person of Christ present there. But it is the Person that is united (in the hypostatic union) to the divine nature. Where the Person is, the divine nature is. For the hylomorphist, Christ the Person is identical to His living body, and so both He and the hypo-

[2] "In the most blessed sacrament of the Eucharist 'the body and blood, together with the soul and divinity, of our Lord Jesus Christ and, therefore, the whole Christ is truly, really, and substantially contained.'" *The Catechism of the Catholic Church*, par. 1374; Council of Trent (1551), 13th Session, Canon 1.

statically unified divine nature are present wherever His body.[3] Not so for the Cartesian. Therefore, on the Cartesian model, Catholics would indeed be guilty of idolatry when they adore the body of Christ in the sacrament.

It's clear that hylomorphism is needed to explain why the bread and wine are no longer present, and why the bread-y and wine-y accidents are neither illusory nor inherent in Christ's body. It would be absurd to say, as Dummett and Robinson suppose the Thomist does say, that the Host becomes *part of* the substance of Christ's body, while lacking all the proper accidents of that body and retaining those of bread. But that is not in fact Thomas's account. Thomas supposes that the body of Christ is not located as a corporeal substance where the Host is located (*Summa Theologiae* III Q76, a5-6). There is in fact no substance located there (in the strict sense) – neither a bready substance nor the body of Christ. How then is the body of Christ present there?

I will make a suggestion here that admittedly goes beyond Thomas's text. It seems that the whole living body of Christ (matter, substantial form, and accidents) acts *as if* it were the substantial form of a new substance. And the quantitative accidents of the bread act *as if* they were the prime matter of the new substance (*ST* III, Q77 a5). The quantitative accidents are able to individuate the material parts of the Host due to their historical/causal connection with the prime matter of the bread and wine (ST III Q77 a1 ad 3). All the other accidents inhere in the quantitative accidents, as they would inhere in the parts of the prime matter.[4] But the Host is not thereby a real substance, but only

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[3] See Aquinas, *De Ente et Essentia*, paragraphs 28 and 29, in which he distinguishes two senses of 'body' ('corpus'). In the first, body excludes the substantial form, and, in the second, a body is simply a genus of substance. In the first sense, a corporeal substance (including a human being) *has* a body (as a metaphysical component). In the second sense, a human being *is* a body. For the Cartesian, human beings neither *have* nor *are* bodies (in Thomas's two senses). Instead, a human being is a soul extrinsically united in some fashion to a body.

[4] It is important to recognize that the accidents that remain include the *proper accidents* or propria that ordinarily flow with necessithy from the form. This is why there are only accidents "all the way down," as Robinson puts it. The only "essential property" of a substance is (in the strict sense) the presence of a substantial form of the appropriate kind. This is not, as Robinson suggests, a "contrived device" but rather part and parcel of standard Aristotelian ontology.

a *quasi*-substance.[5] The whole body of Christ is present in every part of the Host, just as the substantial form is present in every material part of a corporeal substance (*ST* III, Q76 a3). The body is present not as a substance in the place of the Host nor as a whole including the Host as a proper part, but as a *metaphysical principle* of the existence and persistence of the accidents. Obviously, this is not something that can happen naturally, apart from special fiat of the Omnipotent One. Jesus' divine nature is directly the ground of the existence of the accidents, with no created substance interposing.

2. Hylomorphism and Epiphenomenalism

The account of transubstantiation defended above depends on the viability of hylomorphic metaphysics—not merely as a theological tool, but as a live and coherent framework for understanding nature itself. Yet one might reasonably ask whether such a framework, inherited from Aristotle and Thomas Aquinas, has any real traction in the context of contemporary science. Hasn't modern physics, with its mathematically precise laws and reduction to fundamental particles, rendered notions like substantial form and prime matter obsolete, etc? This is what Robinson seems to suggest.

On the contrary, Simpson and others (myself included) have argued elsewhere that hylomorphism has not been refuted, but rather *neglected*, and that recent developments in quantum theory and philosophy of science open a door for its serious reconsideration.

Traveling forms is one way of interpreting quantum theory within a hylomorphic framework. The traveling forms model presupposes that our philosophy of nature includes the typical commitments of the Aristotelian tradition, including causal powers grounded in essences that encoded in substantial and accidental forms (see Koons 2021a, 2021b, 2022a, 2022b). That Aristotelian tradition is inconsistent at a fundamental level

[5] This is a crucial point. When we eat the Host, we eat the Body and Blood of Christ, not a set of sensible qualities and quantities, nor a substance of which those qualities are the matter.

with any kind of epiphenomenalism. If the traveling forms interpretation is going to be genuinely hylomorphic, it would have to be compatible with the idea that the rational and volitional powers of human beings are capable of real influence over the course of physical events. And, if one reads my chapter and Alex Pruss's chapter carefully (Koons 2017, Pruss 2017), it is clear that the interpretation is compatible with such real influence. Whenever a quantum-to-classical interaction takes place, resulting in a new branch in the structure of the world, only one branch contains actual substances and accidents. The other branches exist only in the realm of pure potentiality. And it is substances, including human beings, that determine which branch shall become actual.[6]

Robinson takes my version of the traveling forms interpretation to be committed to epiphenomenalism, because I claim that the interpretation is compatible with the supervenience of the mental on the physical (Robinson, 5). When I wrote that mental properties might supervene on physical properties, however, I stated that this was so only when the physical properties included facts about the actual existence of composite substances and their integral parts (Koons 2022b, 97). Robinson interprets this to mean that mental states supervene on physical ones "in the branches in which forms exist," (Robinson, 5) but this is neither what I stated nor what I intended. Intentional actions can affect the physical properties of things by determining *which* branch is actual. Similarly, chemical, thermodynamic, and biological forms are very far from causally inert on this account. They ground the causal powers that enable substances to determine which branches become actual, and in doing so, they *define* the branches themselves. As Everettians exist, branches do not exist within a spare ontology of quantum wavefunction realism. They depend for their very definition on extra-quantal information. For the hylomorphist, this extra information is provided by substantial forms (not by merely human interpretation or convention).

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[6] Recognition of the role of potentiality and actuality resolves a worry raised by the anonymous referee: what guarantees that a collapse of the wave function at one point in space and time is coordinated with collapses elsewhere? The actual world is unique, and so the actualization of a potential anywhere results in something actual everywhere.

To understand Aristotle's metaphysics and philosophy of nature, one must grasp the significance of his distinction between actual and potential beings. Things with potential being are parts of reality. They are not merely figments of our imagination or contents of mentally constructed fictions. In this respect, as Werner Heisenberg recognized (Heisenberg 1958, 16), quantum theory represents the resurrection of the Aristotelian category of *real but merely potential*. We cannot give a fully account of physical reality without describing the disposition and evolution of the merely potential states and trajectories of matter. However, there is one and only one actual world, and that one actual world is prior both in definition and in metaphysical grounding or determination. Ultimately, every mere potentiality is grounded in some actuality, and not vice versa. It is the uniqueness of the actual world that the Everettian interpretation cannot capture, and this is what leads to its failure to make sense of objective probabilities.

Since the merely potential branches contain no actual composite things, and since organisms and people are essentially composite, those branches contain no actual organisms or people. Since mental and biological accidents depend on substances, there are no mental or biological states actualized in any such branch. Such branches contain only potential people with potential life and potential mental states. Actual consciousness and acts of free will can only occur in the one actual branch.

As Robinson notes, however, the Travelling Forms theory is not the only hylomorphic approach to contemporary physics which has emerged in recent years. It is not even my preferred model. In Koons 2022a and 2022b, I have defended a neo-Bohrian account according to which substantial forms ground chemical and thermodynamic properties that do not supervene on the quantum wavefunction or indeed on the microphysical facts as a whole. This account engages with the Contextual Emergence model of Ellis and Drossel (Drossel and Ellis 2018). An alternative hylomorphic interpretation of quantum mechanics has also been proposed by William Simpson, which also engages Drossel's and Ellis's contextual collapse theory (Simpson 2023, chp. 3; Simpson 2021), which Robinson also singles out for criticism.

In contrast to the traveling forms model, which emphasizes a branching structure in which only one branch becomes actualized through interaction with substantial forms, Simpson's approach treats the collapse of the wave function as *an event that alters the underlying quantum potentialities of the situation*, as opposed to an event merely conferring actuality on one set of those. In this alternate picture, there is no universal quantum wavefunction, but rather *context-dependent* wavefunctions that require the metaphysical grounding of actual substances.[7] On his view, the potentialities encoded in the quantum state are genuine Aristotelian potencies, and these potencies are brought into actuality through interactions with substances whose formal natures constrain the microscopic dynamics. This maintains the key insight that actuality and potentiality are both real and co-constitutive of physical explanation, whilst avoiding the temptation to elevate the status of merely potential branches, a possible defect of the traveling forms model.

Simpson's hylomorphic interpretation of contextual wavefunction collapse theory avoids epiphenomenalism not by appealing to multiple unrealized branches, but by insisting that *ontologically basic causal powers reside in middle-sized substances* that participate in measurement contexts. The context—often including macroscopic instruments, biological observers, or environmental conditions—is not a mere aggregate of particles but a structured whole with formal and final causes. Thus, it is not the sheer mass of a system that triggers or accelerates collapse (as in GRW theory), but the presence of *teleologically structured wholes* with the metaphysical capacity to actualize and sustain determinate properties.[8] This reinforces the hylomorphic claim that *middle-sized things are*

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[7] Simpson has also explored a hylomorphic reading of Bohmian theory, which does not posit a collapse of the wave function but may admit a 'contextual' interpretation in its extension to quantum field theory. Work in progress.

[8] The teleology involved is of a minimal sort, the sort endorsed by Thomas Aquinas. Thomas asserts that every agent must act for an end, thereby claiming that every instance of efficient causation (acting) is also an instance of final causation (for an end). His reason for this claim is very simple: "For if an agent were not oriented to some effect, it would not do this more than that." (*Summa Theologiae* I-II, Q1, a2) In other words, the fact that the active causal power of an agent is directed to some specific form of manifestation (as the power of heating is directed toward things' becoming hotter) suffices for the agent to be acting for an end. This does not involve any supposi-

metaphysically and causally fundamental, not derivative of microscopic or mathematical abstractions. Simpson's model therefore complements and in some respects improves on the traveling forms interpretation, by situating quantum events within the teleologically rich, actualized structure of the manifest world.

Here is Robinson's summary of why he takes that version of hylomorphism to be empirically extravagant: "This means that a water molecule, for example, when integrated in an oak tree would not behave simply in a way that a chemist who had studied water molecules in a laboratory would have expected; and if the 'same' molecule should later find itself part of an elephant, its properties would vary again. Presumably the varieties of behaviour, though 'strongly emergent', would in some sense be 'water-appropriate', not completely alien from what the chemist would expect, however that idea might be managed. This is a bold empirical claim."

Maybe so. The effects could be subtle but there may be opportunities for testing these theories in the future. Our knowledge of the world of complex physical, chemical, and biological systems is still very much in its infancy. Yet it is worth noting that this kind of radical contextuality is hardly alien to the field. For example, consider Bohm's theory, in which the particles are piloted by a wave function. A Bohmian particle can be electron-like in its dynamical behaviour in one context and positron-like somewhere else. According to Dürr and Teufel, "the particle changes its spin as a person changes his or her shirt" (Dürr & Teufel 2009, 166). In the hylomorphic reading of standard non-relativistic Bohmian mechanics, the cosmos is a hylomorphic whole with a single form; the properties of the particles derive their properties from this form (Simpson 2021). They don't have any causal powers independently of form. If there is a coherent hylomorphic reading of quantum theories like Ellis's, which admit top-down causation at the level of middle-sized things, then it is not surprising that the forms of 'middle-sized' things should make a difference to the dynamical properties of their micro-constituents.

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tion that the end state is somehow better than the initial state, nor that natural things consciously strive for their ends.

In a similar way, the Copenhagen interpretation supposes that particles obey two different dynamical laws (Schrödinger vs. Born-rule-guided) depending on the context (e.g., whether or not a measurement event has occurred).

Finally, I would have thought that any substance dualist will be forced to make equally bold empirical claims, if not still bolder.

Conclusion

It may seem surprising that an account of natural philosophy developed by a pagan 2500 years ago should be both needed for a proper formulation of Eucharistic doctrine and for an adequate understanding of quantum mechanics. I don't think it is extravagantly so, when we take into account the fact that we have been created in God's image and placed in a natural environment designed by its Creator to be subject to our supervision (Genesis 1:26). Science itself ultimately depends on a kind of intuitive faith or natural piety toward the intelligibility of the world around us and our fitness to understand it. And Christian theology takes the reality of middle-sized substances, including human beings and our ordinary accoutrements, very seriously indeed, unlike the hyper-spiritualism of the Gnostics. If the middle-sized world with which we have to do were ultimately illusory, not only Christian theology but also natural science would be impossible. The sort of highly reflective and sophisticated common-sense realism that Aristotle exemplified continues to be the best key toward unlocking the secrets of nature and articulating the mysteries of faith.

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