A New Philosophical Guide for the Sciences: Ontology without Reduction

Roy Clouser

Introduction: Science, Ontology, and Religion

Before getting round to exactly what sorts of reduction are avoided by the ontology I will sketch, let me clear up why this project is one appropriate for Metanexus—an organization concerned with the relation of science and *religion*. It is because although the relation of ontology to science is already a difficult enough subject, I will also be including how religion fits into this *ménage à trois*. Briefly stated, I will take the position that it is mainly through ontology that religious beliefs connect to theories in the sciences. In order to do that, however, I first need to define what counts as a religious belief.

Given the limited space allowed this article I can't go into all the reasons for concluding that there is one and only one definition that succeeds in characterizing the sort of belief that is central to all religions. But as I have given an extended defense of this matter elsewhere, I can only refer those interested in those reasons to that previous treatment.[1] For now, I must merely assert my findings. A religious belief is:

1. a belief in something as divine, or
2. a belief about how the non-divine depends on the divine, or
3. a belief about how humans come to stand in proper relation to the divine, where
4. "divine" means the self-existent reality which is the origin of all that is non-divine no matter how that is conceived.

[1] *The Myth of Religious Neutrality* (Notre Dame: University of Notre Dame Press, 2005), chapters 2 & 3.

It should be obvious that this definition does not rule out more than one divinity, does not presume that the divine reality is personal, and allows for many differing ideas both of how all non-divine reality depends on the divine and of how humans can stand in proper relation to the divine. It also leaves out any further description of the nature of the divine beyond its defining characteristics of being the self-existent (unconditionally non-dependent) origin of whatever is non-divine.[2] In this way the definition focuses upon *what it means to be divine*, rather than on the question as to which idea of *what is in fact divine* is the correct one. It highlights the fact that while religions hold many conflicting ideas concerning how to further describe the divine reality, they all agree—amazingly—on this idea of what it means to be divine.

This entails that *whatever* is believed to be the origin of all else is thereby regarded as divine. It will not matter whether one holding such a belief engages in worship or meditation, keeps holy days or sacraments, or follows any cultic practices as a member of any organization devoted to that belief. These factors don't matter because there are religions that include no such practices (branches of Hinduism and Buddhism, for example) so those can't be among the defining characteristics of religious belief. Moreover, there are traditions of religious belief with no ethics, no rituals of any kind, and no organization. Furthermore, there are religions in which the divine is not a being at all, let alone the Supreme Being (Hinduism and Buddhism again). These facts not only serve to show why some of the most popular definitions of religious belief don't work, but also to show why any such belief is religious no matter where it occurs. For it is not only cultic traditions, scriptures, and theologies that attempt to identify the divine. Divinity beliefs also arise in theories or are presupposed by them. What the definition shows is that advocates of a theory that takes matter/energy, or sense data, or mathematical entities and laws, etc., to be the nondependent origin of all else have a divinity belief every bit as much as those who believe the origin of all else is God, Brahman-Atman, or the Dharmakaya. The latter three beliefs hold that the divine transcends the cosmos, while the beliefs about the divinity of matter/energy, sense data, or mathematical laws are opposed to every idea of a transcendent divine origin. But such beliefs are no less religious for that disagreement.

[2] While I cannot repeat here the defense of this definition, I will point out that it has been held by virtually every pre-Socratic philosopher, Plato, Aristotle, and be many others after them. In the 20th century alone it was held by William James, Paul Tillich, Norman Kemp Smith, Hans Kung, Mircea Eliade, Will Herberg, Robert Neville, Herman Dooyeweerd, C. S. Lewis, and A. C. Bouquet. See note 23 on p. 333 of *Myth.*

Rather, they are instances of a Naturalistic strain of religious thought which denies transcendence and takes the divine reality to be some part (or all) of the cosmos.[3]

At this point you may well be thinking: "Even if this characterization of religious belief is correct, what has it to do with ontology or science?" The straightforward answer is that: 1) ontologies have always been constructed by first identifying what is divine and explaining all else in relation to it, and 2) there are conflicting interpretations of every scientific theory owing to contrary views of the nature of reality (ontology). What I'm pointing to is, therefore, a two step connection for the three components of our subject: scientific theories include or presuppose some ontology, while ontologies are regulated by one or another divinity belief which they either include or presuppose. And while ontologies are usually quite explicit about their identification of divinity, that identification may well be may be only a background assumption by the time its influence reaches a scientific theory. No matter. Explicit or not, it plays a decisive role in how an ontology is constructed and in the subsequent interpretation of any scientific theory under the influence of that ontology.

As an example of an ontology with a divinity belief at its heart, take Aristotle's identification of Form (secondary substance) as divine (Meta. 1064a33):

> Therefore about that which can exist independently and is unmovable there is a science …And if there is such a kind of thing in the world, here must surely be the divine, and this must be the first and most dominant principle.[4]

It should already be obvious that other ontologies are set up in much the same way. For it makes no difference whether such a divinity claim is made on behalf of the independence of Aristotelian substances, sense perceptions (Mach), logical laws (Russell), mathematical laws and energy (Heisenberg), or some unspecified but purely physical reality (contemporary materialists). In each case the claim is simply the same music in a different key: the theory purports to have identified the divine and explains and interprets all else with respect to how it depends on the divine.

---

[3] For this reason atheism has a relation to religion analogous to that which vegetarianism has to eating. If I know you're a vegetarian I know what you don't want to eat but not what you do want to eat. Just so, if I know you're an atheist I know what you don't believe to be divine but not what you do believe to be divine.

[4] Notice that Aristotle not only acknowledges the essential characteristic for divinity (independent existence and being the dominant principle), but adds another that is not part of the definition: changelessness. In this way he both puts his finger on what all divinity beliefs have in common and also campaigns for his particular idea of divinity.

Even this much already speaks reams about the science/religion relation. It shows why it is not the case that they are two independent projects each having equally independent authorities. It shows why it is either impossible or unnecessary to try to harmonize them (no theory *needs* to be harmonized with its own controlling divinity belief, and no theory *can* be harmonized with a divinity belief contrary to the one it presupposes.) But we can't go into all that here. The reason it is important to establish these points about divinity beliefs in the present context is just this: the most objectionable cases of reduction in the sciences result from a reductionist ontology, which is, in turn, the inevitable result of identifying something within the cosmos as divine. Even from that brief statement it should already be clear, therefore, that the objectionable senses of "reduction," the senses I'm saying it would benefit the sciences to avoid, do not have to do merely with analyzing something into its most basic constituents (as in the case of the caloric theory of heat being "reduced" to the mean kinetic energy of molecules). No, the objectionable sorts of reduction theories are those which diminish the importance of, or annihilate the reality of, entire swaths of human experience. So I must repeat that the driving force behind such theories is their identification of the divine with some aspect of the cosmos. For whatever in the cosmos is viewed as the self-existent origin of everything else, is thereby over-estimated as to its importance while all else is correspondingly underestimated or denied altogether. The divine is either regarded as more real than what depends on it, or entire aspects of the non-divine world are collapsed to the divine or dismissed as illusion (or both). There are several strategies for such theories, and variations of each. But perhaps the following rough approximation will be sufficient to convey some of the main types of such objectionable reductions:

1. Meaning Replacement: the nature of the cosmos includes properties of kind X exclusively and is governed only by the X kind of laws. This is defended by arguing that all terms with allegedly non-X meaning can be replaced by X terms with no loss of meaning, while not all X terms can be replaced by non-X terms. (Berkeley, Ayer, and Carnap defended phenomenalism this way.)

2. Factual Identity: while the terms of non-X vocabularies cannot be replaced by X terms with no loss of meaning, non-X terms *refer* only to X properties and laws all the same. The selection of X is defended by arguing that the only or best explanations for anything whatever always have X terms for their primitive terms and X laws as their basic laws. (JJC Smart defended materialism this way.)

3. Causal Dependency: the nature of the cosmos is basically (but not exclusively) made up of X (or X & Y) kinds of things. This is defended by arguing that there is a one-way dependency of non-X properties and laws upon entities whose nature is exclusively of the X (or X & Y) kind. (Aristotle and Descartes each defended their ideas of substance this way.)

4. Epiphenomenalism: is similar to 3 except that the non-X properties are considered less real than in causal dependency theories, so that it is denied that there are any non-X laws at all. (Huxely and Skinner argued that states of consciousness are epiphenomenal upon bodily processes or behavior.)

My thesis, then, is that from the standpoint of any of the world's major religions, every form of Naturalistic religion is false and therefore every type of ontological reduction is to be eschewed. For all the major world religions agree that the cosmos is not divine, either in part or whole. Therefore, in sketching what a non-reductionist ontology would look like, I will be sketching one version of a theory of reality that assumes the divine to transcend the cosmos. It will thus be based on a strategy contrary to reduction: rather than looking for ways to reduce the rest of the cosmic reality to some alleged self-existent realities within it, this theory will take as its guideline the principle that whenever any explanation begins to drift in the direction of denying or diminishing any aspect of the cosmos, it needs to correct course.

This may sound very strange when compared with the way most Theists (especially Christians) have traditionally gone about making ontologies. Rather than drop reduction as a strategy, most of them attempted instead to baptize it. Their ploy is a simple one: do ontology like a Naturalist by defending a theory that says all the rest of the cosmos depends on X but then add that X, in turn, depends on God. Instead of starting with belief in God and asking what ontology should look like, this ploy bids Theists continue with the Naturalist strategy and then pin God onto the end of their theory like the tail on the birthday party donkey. That tradition of explain-like-a-Naturalist-but-be-a-theist-anyway is deeply entrenched in western thought, so it will take dynamite to put a dent in it. Therefore, before sketching what a non-reductionist ontology could look like, I intend to supply that dynamite in the form of an argument that will show what is wrong—hopelessly wrong—with any (ontological) reduction as a strategy for theory making. It will show why Theists have been mistaken in thinking there is anything of value to be gained by retaining the Naturalist strategy. I will then sketch what I see as the main points of a non-

reductionist ontology,[5] and the articles that follow this one will then demonstrate some of the benefits of doing various sciences from its standpoint. They will apply it to math (Strauss), physics (Strauss), economics (Sienra), politics (Skillen), and ethics (Schuurman).

A Non-Reductionist Argument

All ontologies have assumed from the outset that we experience a number of basic *kinds* of properties possessed by the concrete things, events, and states of affairs presented to us in experience. They have also noticed that the properties of each kind are ordered; there are necessary connections (laws) that hold among those properties. So in the history of ontology, thinkers have distinguished various kinds of properties-and-laws such as: quantitative, spatial, physical, biotic, sensory, and logical—to name but a few. I mention these because they have been the featured stars of the most famous ontologies; they have been the slate from among which Naturalists have selected their candidates for the nature of the divine. For example, the Pythagorean ontology said all is quantitative (numbers and their relations), while other theorists regarded space as the infinite, eternal, self-existent reality that generates all else (Wheeler). There have been many versions of physicalism of course, and there have been phenomenalists whose ontology proclaimed that all is sensory perceptions or feelings (Hume and Mach). Logical properties and laws have also often been regarded as a divine basis for everything else, though usually in combination with another—equally divine—kind of reality. So there have been ontologies that explained all experienced reality to depend on, e.g., logical order acting on sensory input (Kant). Of course, many other mix and match combinations have either been proposed or could be. (For the sake of linguistic economy, from now on I'm going to call these basic kinds of properties and laws *aspects* of the concrete things presented to our experience.)

In every one of these ontologies, one (or two) aspect(s) of experienced reality is (are) supposed to portray the nature of that on which all else in the cosmos depends. Those ultimate realities—be they numbers, atoms, sense perceptions, form/matter substances,

[5] The source of the ontology I will sketch is that of the Dutch philosopher, Herman Dooyeweerd (1894—1977). Its most complete exposition is in his major opus, *A New Critique of Theoretical Thought* originally published in 1956 and republished by the Mellen Press, Lewiston, NY, 1997 (4 vols), hereafter referred to as *NC.*.

or whatever—are thus supposed to exist independently of all else in order to be the metaphysical cause of all else.[6]

But suppose there is good reason to think that *no aspect can so much as be conceived as independent of all the other kinds.* In that case, no *kind* of entity in the cosmos could be defended as having independent existence. It would mean that despite the 2700 year-long parade of such proposals, none of them ever made any sense at all! To see why this is so, we need not indulge in abstruse and arcane metaphysical speculation. In fact, the argument for this point is not propositional at all. It is a thought experiment. The experiment is to try to frame an idea of any aspect, or of any property or law in any aspect, as having the independent status that has been claimed for it. That is, try to form an idea of any of them existing in isolation from all the properties and laws of the remaining aspects. I ask you now to perform that experiment. Let's start with an example from physicalism, the theory that claims that everything in the cosmos is either: 1) exclusively physical or 2) caused by exclusively physical entities.

Consider the physical property of weight. To begin the experiment you must abstract that property from every concrete thing that has it—which is how it is conceived in physics. That's not hard to do. But the heart of the experiment is to begin stripping from your idea of weight all connections to properties of other (non-physical) kinds. So strip from it every connection to number and space (so you are now trying to conceive of weight that has no quantity and is nowhere). Next strip away all connections to the properties and laws of sensation, so that it is *in principle* not perceivable. Now do likewise with logical properties and laws so that weight is no longer distinguishable from anything other than itself. Finally, deprive your idea of every relation to linguistic properties and laws so that it is not able to be referred to in language.[7] This same experiment can be performed with respect to the entire physical aspect, not just particular properties or laws that fall within it. To confirm this, try the experiment again and see if you have anything left to your idea of what it

---

[6] I use the term "metaphysical cause" to distinguish it from the weaker sense of "cause" that is usually sought in the sciences. For science it is enough to know that, say, heating a copper wire makes it glow green. The heating, however, is merely the *occasion* for the green glow. To be its metaphysical cause, it would have to be *the reason there are such things as green glows in the cosmos*.

[7] Obviously I am taking as genuine properties of things the features which they possess only passively. So while no (nonhuman) objects of experience are active with respect to their sensory, logical, or linguistic features, it impossible that they do not have them passively in relation to us. To deny this is to assert that although they have no sensory, logical,. or linguistic properties whatever, we nevertheless perceive, conceive, and speak of them.—which assertion is outright self-contradictory. This active/passive distinction will be explained more fully in the section on a non-reductive ontology.

means to be physical once all connection to quantity, space, sensation, logical, and language are ruled out.

When I perform these experiments I find I'm left with no ideas whatever. The idea of weight has evaporated before my mind, as has the idea of being physical. Of course, if you get a different result, then this argument will fall flat. And I'll accept the report of anyone who says so—provided the person claiming to get that different result can tell me what it is.

Needless to say, it's not just the physical aspect of the cosmos that this outcome is true of; the experiment undercuts phenomenalism as well as materialism. What, for example, is left of our idea of, say, our perception of red when that property is stripped of all connection to properties of other kinds? What is red that has no quantity, no spatial extension, no physical basis, and is not logically distinguishable from anything else? Or what is left of logic itself if deprived of all connections to non-logical properties? Without quantity there could be no existential quantifiers or set members; without the logical sense of space, there would be no domain for quantifiers; without language there could be no propositions to serve as premises or conclusions. Even the fundamental axiom of non-contradiction contains unavoidable references to non-logical properties by requiring that nothing can be true and false in the same *sense* at the same *time*. For the "sense" of whatever is being judged denotes non-logical properties, as does "time."

In this way it turns out that all the claims to have found something in the cosmos that can be the independently existing metaphysical cause of all the rest are nonsense. When theorists have talked about purely physical objects, purely sensory percepts, and purely logical concepts, they have literally had no idea what they were talking about. Rather, those expressions are like talking about square circles: we can say the words, but we have no idea whatever of what they could mean. The truth is that reductionist theories have given the spurious appearance of success only because, after having proclaimed their candidate for divinity as the purely X, they then proceeded to treat X as multi-aspectual. Their illusion of explanatory power is based squarely on sheer equivocation.[8]

[8] Occasionally it is objected that perhaps the reduction theories don't *really* mean to claim that their divinity candidates are purely X, or that at least they *need* not do so. But in that case, whatever they propose as the divine realities would themselves depend upon *whatever makes it possible and actual that properties of different kinds combine in those realities.* In other words, ontology is thereby shifted from the question as to which entities in the cosmos are the ones all the rest of it depends on, to the question of what makes possible any multi-aspectual entity. And that can't be answered by appeal to another entity in the cosmos!

This is why I said earlier that Theists (and others who hold the divine to be transcendent) should give up trying to maintain the reductionist strategy for theories. Instead of baptizing (or circumcising) theories that would otherwise be Naturalist, they should look for ways to trace out the inter-connections between properties of all kinds, and utilize laws of all the kinds in their explanations. There is no need for any intermediary between God and creation such that all creation depends on the intermediary and only it depends directly on God.[9] Moreover, as I will show shortly, from the standpoint of divine transcendence there is good reason to think that *every aspect is equally real.*

A Non-Reductive Ontology

We start this account the same way other ontologies began, that is, by distinguishing a number of large-scale kinds of properties-and-laws that are exhibited by the concrete objects of our experience. And although I'm going to use a particular list in what follows, I must immediately point out that the ontology to be developed does not depend on any particular list of them being correct. There have been, and are, thinkers who differ somewhat as to the correct list of aspects. That will make no difference to the case for a non-reductionist account of aspects regardless of which list of them is accepted. The list I will use to illustrate this ontology is this:

Fiduciary

Ethical

Justitial

Aesthetic

Economic

Social

Linguistic

Historical

Logical

Sensory

[9] This point was seen clearly by St Gregory Palamas when he said: "Christians cannot tolerate any intermediate substance between God and creatures, nor any mediating hypostasis." (*A Study of Gregory Palamas,* John Meyendorff (London: Faith Press, 1964), 130.

Biotic

Physical

Kinematic

Spatial

Quantitative

I have tried to avoid nouns in this list so as to avoid giving the impression that they designate classes of *things.* This has resulted in some odd terms and special meanings for some familiar terms, so I need to comment on them. I will also comment on the order of the aspects on this list, from bottom to top.

The term "quantitative" is used to designate the "how much" the quantitative properties) of things, and should not be taken to refer to an ideal realm of numbers or to abstract systems of mathematics devised for calculating quantity. Abstract systems are our ways of calculating quantities, but the quantitative properties are given to experience rather than invented as the systems are. (There is evidence that animals have a sense of quantity even though they don't invent symbols to represent quantities or discover and formulate laws relating them.)[10]

"Kinetic" is used for the movement of things—their motion in space. Many scientists include kinetic laws within physics, but Galileo disagreed and a number of contemporary scientists do as well.[11]

The term "sensory" is used of the qualities of both perceptions and feelings; it designates the properties and laws of human (and animal) *sensitivity.* The term "historical" is familiar but needs explaining anyway. It does not here refer to everything that has happened in the past, because that's not what historians are interested in. What does interest them is whatever in the past is of *cultural* importance. So what this term picks out is the activity and transmission of culture forming power. (Other thinkers have used "cultural", "formative," or "technical" for this aspect.) What is focused upon by it is the human ability to form artifacts from natural materials. This includes the formation of language, theories, music, and social organizations as well as such things as clothes, books, and houses. Likewise the term "ethical" is familiar, but in need of clarification. Most often "ethical" is

[10] See Tobias Dantzig, *Number: The Language of Science* (Garden City, NY: Doubleday, 1954), 2-3.
[11] Planck and Einstein, for example. See Einstein's remarks in "Autobiographical Notes" in *Albert Einstein, Philosopher-Scientist,* Ed. P.A. Schlipp (New York: Harper Torchbooks), 43.

used indiscriminately for what I want to say are different senses of right and wrong. Here, however, it will not mean acts that are unjust, but acts that are unloving. The term "justitial" is the designation for the kind of properties and laws that hold for things or acts that conform to or violate the norm of *fairness,* while "ethical" will refer to things or acts that fulfill or violate the norm of *beneficence.*[12] Finally, *fiduciary* is my term for the reliability or trustworthiness that people, things, organizations, etc., may have. It is often overlooked as a genuine kind of properties and laws, but is nevertheless an important one. The difference between a concept and a belief, for example, is precisely the propositional attitude of trust: a concept may be ever so clear but not trusted to correspond to reality. If it is so trusted, it is more than a concept, it is a belief.

Our non-reductionist ontology starts with regarding the properties of each kind and the laws relating those properties as correlates: there are no utterly unordered properties and there are no aspectual laws that do not order properties of that kind. (There are other sorts of laws besides aspectual laws, of course, and I will explain those in due course.) But for now the point is that things do not generate laws nor laws generate things, so neither is more real than the other. This means that in addition to regarding laws as correlates of what they govern, this ontology sees the law-order of reality is a distinct component of the cosmos, not reducible to either the subjects or the objects they govern. They are not, therefore, merely our generalizations over the ways things with fixed natures behave, as the objectivist would have it. Nor are they the order we impose on what we experience, as the subjectivist maintains. Law-order is sui generis with respect to both knowing subjects and known objects; it governs and connects both but is reducible to neither.[13] Hence my title for this philosophy: the Law Framework theory. In this way one of the first benefits of regarding laws and what they govern as correlates is that it frees us from the old dilemma of objectivism vs. subjectivism. Neither the knowing subject nor the objects known are the source of the orderliness of the world we experience. For a Theist, that status should belong to God alone.

---

[12] The order within the aspects lower on the list are regarded as rigid laws, while the order within the aspects more closely associated with human social life are considered *norms.* Unlike rigid laws such as gravitation, the norms of language, politeness, economics, aesthetics, justice, and ethics constitute a normative order that humans have the freedom to violate.

[13] For there to be objects with fixed natures there would already have to be (at least) aspectual laws governing how the properties of each aspect relate to one another. And for law-regularities to be imposed by knowing subjects on their experience there would already have to be law-like regularities governing the knowing process. For these reasons, objectivism and subjectivism both point—despite their intentions—to a distinct law side to reality not having its origin in either the object or the subject.

Furthermore, according to this theory all concrete things are governed by all the aspectual laws simultaneously, so every concrete thing has some properties of every aspectual kind simultaneously. This point can only make sense, however, if we distinguish two ways in which a thing may possess a property: actively and passively.[14] So the theory speaks of them as the two ways a thing can exist and function under the laws of an aspect. For all the difference between them, however, these two ways are not mutually exclusive. The theory sees all things as functioning passively in every aspect all the time, so that it is only active functions that a thing may lack in certain aspects. In fact, it is the appearance of active functions that is reflected in the order of the aspect list given above, whereby a thing may have active functions in aspects lower on the list but lack them in aspects higher on the list. The order is thus one in which active functions in lower aspects are preconditions for—but not metaphysical causes of—active functions in aspects higher on the list.

Consider the example of a rock. According to the distinction being proposed, the rock functions actively in the quantitative, spatial, kinematic, and physical aspects. That is, it possesses properties of each of those aspects and is subject to the laws of each in a way that does not depend upon the rock's relations to the active functions of other things. The rock does not function actively in the higher aspects, however. It is not biotically alive, it does not sensorily perceive, think logically, or use a language. But were the rock not subject to the laws of biology, it could not function passively in the life processes of living things. (It could not even be biotically safe or dangerous.) But rocks clearly can have passive biotic functions without being alive. They can be swallowed by a bird and take part in grinding the food in its gizzard; they can be the wall of an animal's den; they can be the hard surface on which a bird drops a clam in order to open its shell. Likewise, although a rock has no active sensory function, it can be passively perceived by animals and humans that do have such an active function. But unless it were passively governed by sensory laws and possessed passive sensory properties, the rock could not be seen as having any color. Unperceived it has no color *actively;* but unless it possessed the passive potential to appear a certain color, that color could not be actualized in relation to a being with an active sensory function. Ditto for its logical properties. Were the rock not subject to the laws of non-contradiction, identity, and excluded middle, and so possess passive logical properties, we could not form a concept of it. (Be sure not to confuse "active" with "actual" here. Passive properties can be either potential or actual, while active properties

[14] Dooyeweerd's terms for these ways are "subject functions" and "object functions" which has led to much confusion since "subject" and "object" are then used equivocally.

are always actual.)[15] Just so, a rock has passive properties that are linguistic (it can be spoken of), economic (it can be valued, bought, and sold), justitial (it can be someone's property or a murder weapon), and so on.

Even at this early stage of explanation, it is possible to see some of the benefits of this theory. Consider only its results for sensory perception. A stick, it says, has the passive dispositional property of appearing brown to normal perception in normal light. When this passive potentiality is actualized in relation to a perceiver it actually appears brown. By the same token, however, the stick has the passive sensory dispositions of appearing bent in water and smaller at a distance. Thus there is no need to postulate that what is bent or smaller is something other than the stick. No need, in other words, to be led into the dead-end of thinking that what we really experience are only internal "sense data" and never the externally real stick. On the sense data theory, the existence and nature of the real stick are forever unknowable. But on the Law Framework Theory we are not isolated from the world and locked into ourselves for the mistaken reason that all we know are our own internal states. At the same time, however, this theory allows us to appreciate the element of truth in both objectivism and subjectivism. For example, we agree with the subjectivist that apart from being perceived the stick does not *actually* (manifestly) have brown color. But we deny the subjectivist hypothesis that such qualities are therefore created by us wholesale or exist only in our minds. Thus the theory allows us to agree that manifest sensory qualities are not actually inherent in objects, without being committed to a wholly subjectivist explanation of them. Likewise, we can agree with the objectivist denial that, say, "beauty is in the eye of the beholder" or that economic worth is entirely our own invention. From the Law Framework point of view, were not economic and aesthetic norms embedded in the law-side of reality and did not objects have such properties passively in correlation to those norms, we could not experience anything in those ways. For instance, were a rock not subject to the norms of supply and demand and diminishing returns, we could not actualize an economic value for it. It is the passive potential of the rock that we actualize when we value it.

The proposal of a distinct law-side to reality and difference between active and passive functions, also shows why it is not plausible that entire aspects emerge or supervene; the element of truth in such views is that the active functions of things do emerge in higher aspects. But they can only do so in relation to the laws and passive properties already

[15] See *NC*, III, 78.

true of things in that higher aspect. What sense would it make, for example, to claim that the cosmos originally had only physical properties and laws, while later on sensory and logical properties emerged? Were there no sensory laws already governing passive sensory potentials, nothing in the original cosmos could be depicted or imagined by us because nothing could have had any appearance at all. And were it not governed by logical laws from the start, the emergence of new active functions would not have been logically possible! Nor can there be a plausible account of how living beings could have arisen were there not biotic laws to make possible passive biotic potentials that could come to be actualized by combinations of non-living things.

In this way the active/passive distinction removes the temptation to deny that aspects are all equally real on their passive property and law sides, and paves that way for a more plausible theory of what I will call “strong emergence”: 1) active functions in aspects lower on the list are preconditions for things to acquire active functions in aspects higher on the list; 2) the order of preconditionality is not a causal order, so there is no postulation of causes lacking all homogeneity of cause and effect; 3) in fact, every concrete thing, event, or state of affairs has some properties of every aspect. Thus when this theory denies that everything is exclusively physical, e.g., it does not do so by way of maintaining that there are utterly non-physical things. Rather, it does so by maintaining that all things have passive properties in every aspect of reality, and active properties in at least several aspects.

The Natures of Things

The Law Framework Theory is well aware, however, that merely pointing to the difference between the active and the passive possession of properties will not, all by itself, get us far in delineating the natures of specific types of things. For that, we need to focus on the way the properties and laws of one particular aspect always characterize a thing’s nature more centrally than other aspects do. So the theory speaks of the aspect central to a thing’s nature as “qualifying” it. For example, with reference to the chart given previously, it says that a rock is physically qualified, a plant is biotically qualified, while an animal is sensorily qualified. A qualifying aspect, then, is the one that: 1) is central to the nature of a thing, 2) the one whose laws govern the internal organization of the thing taken as a whole, and 3) is the highest aspect on the list in which the thing functions actively (this third requirement is true of natural things but not of artifacts as I will explain shortly).

The idea of a qualifying function has several advantages that recommend it. First, it is an empirical theory open to confirmation, disconfirmation, and revision. It is not a rule to be followed whether or not things fail to fit it. Second, it confirms and corresponds to the way we begin to classify natural things in ordinary language when we speak of them as animal, vegetable, or mineral. In confirming and accounting for that classification, it is on the way to an ontology that recognizes irreducible levels in reality, levels that are strongly emergent with respect to one another. It also differentiates between the ways we speak in ordinary language of things as "physical" as opposed to the way many reductionist theories do. Ordinary language refers to a thing as physical to mean that it is real rather than imaginary, or that it has physical properties. It never means a thing is exclusively physical since nothing is ever experienced that way. So the Law Framework theory adds to the ordinary language view by pointing to the way a thing can be physically qualified. By contrast, an act of perception can be sensorily qualified. The act has other active functions which don't qualify it, of course. It actively possesses quantity, spatial location, motion, and includes physical and biotic processes. And passively it can be conceptualized, trained, named, respectful, worth money, just, loving, or trustworthy. But it is qualified by sensory properties and internally governed by sensory laws. In the same way, other acts of humans can be qualified economically (buying and selling), biotically (eating), aesthetically (dancing), or justitially (making a law or judging a court case). Yet they will all occur under the governance of the laws of every aspect and have passive properties in every aspect, which is why they can be studied from the standpoint of any aspect.

Yet another advantage that recommends the idea of a qualifying function is the way it enables us to draw the important distinction between wholes comprised of parts and wholes comprised of sub-wholes (as well as parts). As is well known, Aristotle held that something is to be taken as a part of a whole provided that it: 1) participates in the internal organization of the whole, and 2) it is either unable to come into existence or to function apart from the whole. This, while true as far as it goes, is not an adequate definition. Human beings surely function in the internal organization of social communities and cannot come into being apart from the social community of their parents. But humans are not merely *parts* of families, schools, businesses, states, or clubs. The supplementary criterion that needs to be added to Aristotle's is that a part must share the same aspectual qualification as the whole. For example, it would not be accurate to call a rock a *part* of a garden because a rock is physically qualified while a garden is an aesthetically qualified whole. The rock is included in the internal organization of the garden, of course, but

because it has a different aspectual qualification it is included in it not as a part but as a sub-whole within a greater whole.

Capsulate Wholes

In this way the idea of a qualifying function enables us to draw the distinction between part/whole relations and sub-whole/whole relations. So the Law Framework theory speaks of the larger whole as "encapsulating" a sub-whole, and the larger whole as a "capsulate whole".[16] This turns out to be a valuable distinction, and thus further recommends the idea of a qualifying function. Take, for instance, the example of a marble sculpture of a human body. How are we to understand the relation of the marble to the statue as a whole? It cannot possibly be a part of the whole; the parts of the statue are its arms, legs, torso, etc. Even on the traditional view the marble can't be part of the statue because it can exist apart from the statue. In addition, it makes no sense to speak of the marble as functioning in the internal organization of the statue, any more than it makes sense to say that the statue is nothing over and above the marble. But the idea of a capsulate whole does much better. According to it, the marble is a physically qualified sub-whole included in the larger capsulate whole that is the aesthetically qualified work of art. Moreover, the relation between the marble and the finished art work displays another constant feature of the relation of a sub-whole to capsulate whole: no amount of knowledge of its sub-wholes can yield any knowledge of a capsulate whole.

Here are additional examples of the same point. The atoms that are included in a plant are not parts of the plant but sub-wholes encapsulated within it. They can exist and function apart from the plant, they are physically qualified while the plant is biotically qualified, and no amount of knowledge of the atoms could yield knowledge of the nature of plants. (This is further confirmation of a point I made earlier, namely, that the idea of capsulate wholes supports the broader idea of strong emergence—of irreducible levels of reality.) By contrast the cells included in the plant are parts of it. They have the same biotic qualification, and cannot come into existence or function apart from the plant. On the other hand the relation of atoms to a molecule would be a capsulate relation. The atoms of hydrogen and oxygen that combine to form a water molecule are sub-wholes within the capsulate molecule even though they do have the same (physical) qualification. That is because the atoms can exist and function apart from the molecule, and because

[16]Dooyeweerd's own terms for this idea were "enkapsis" and "enkaptic whole." I have simply Anglicized them.

no amount of knowledge of the atoms will predict that water would freeze at 0 centigrade, expand when it freezes, or feel wet.

Another characteristic of capsulate relations is that, in every case we can think of, a sub-whole included in a larger capsulate whole has its qualifying function subsumed by the greater whole and contributes to the functioning of that larger whole (think of the stone in a bird's gizzard, or a rock in a garden). Moreover, while every capsulate whole will have properties none of its sub-wholes possess, some may have a qualifying function all its sub-wholes lack. This is an additional reason why sub-wholes cannot be considered *causes* of the greater wholes encapsulating them. They are necessary conditions for the capsulate wholes but are never sufficient for them.

Type Laws

This last point leads to the question as to what accounts for the ways properties of different aspectual kinds, as well as sub-wholes with different qualifying functions, combine to form things of a particular type. Put another way: why is it that some combinations of properties, parts, and sub-wholes seem not to be possible while others are? The answer, says the Law Framework theory, is yet another sort of laws, laws that range across aspects. These I call "type laws": laws that make possible the combining of properties, parts, and sub-wholes so as to form individual things of a specific type.[17] This idea further refines our focus upon the natures of things. It is not enough to point to the different qualifications things may have, or to notice that some things are composed of sub-wholes as well as parts. We must go a further step and differentiate types of things according to their type laws.

Please notice, however, that "differentiating according to type law" is not intended to suggest that we can gain knowledge of such a law prior to experiencing things of the type

---

[17]Dooyeweerd's own term for this was "individuality structure" (see. *NC,* III). But this term has so often been misunderstood to mean the internal organization of a concrete individual rather than the law that makes possible its type, that I have coined "type law" as a substitute.
There are, of course, what are called "causal laws" in reality as well as aspectual laws and type laws. But the Law Framework theory prefers to call them "causal relations" because, although they are parts of the order of reality, they are multi-aspectual and have aspectual qualifications. Moreover, there are no causal relations in the three lowest aspects; they arise first in the physical. But although founded on the physical, there are causal relations qualified by each of the aspects above the physical. For example, reproduction is a biotically qualified cause, entailment of a conclusion by premises is a logically qualified cause, and the scarcity of a commodity is an economically qualified cause.

it makes possible. Rather, we postulate such laws to account for the combinations of properties of different aspectual kinds, and of sub-wholes with different aspectual qualifications, that we find within individual things of the same type. On this view, then, a concrete thing is *an individual structural assemblage of properties, parts, and perhaps sub-wholes, determined by a type law and qualified by the aspectual laws that govern its internal organization.* An individual concrete thing is not, therefore, a heap or bundle of parts and properties, while at the same time it is nothing over and above a law-structured combination of those parts and properties. In connection with the idea of a type law, it is worth noting that not all the combinations we can think of are really possible. We can think of combinations forming things which, while not self-contradictory, are nevertheless not possible: a talking rock, a flying horse, etc. The explanation is that these are not possible because there is no type law for them. On this view, then, there is a difference between "impossible" and "not possible:" while we can speak of things that are *impossible* because they would violate a law (a square circle, a self-levitating stone), there are also others that do not violate any law but are *not possible* because there is no type law for them (a singing tree).

It should also be noticed that unlike aspectual laws, type laws do exist prior to the things they make possible and are not strictly correlative to them. On this theory there are not only type laws for every type of natural things but every type of artifact as well.[18]

Artifacts

So far I have applied the concepts introduced by the Law Framework theory only to natural things, because the natures of artifacts are more complex. They require more than the specification of the qualifying function of their natural material and their type law if we're to account for what the natural material has *become.* For example, the stones used to build a house would, by themselves, have no more than a physical qualification. But once they have undergone human formative control and been transformed into a house, the new whole that encapsulates them acquires an additional *social* qualification despite the fact that all its parts and sub-wholes have only a passive function in that aspect. Unless we recognize that such a transformation has occurred, however, we would not

[18] *NC*, III, 106.

recognize the stones *as formed into a house,* and so would miss what they have become.[19]

In this way two new components are added to the theory in order to identify the nature of an artifact. First, it recognizes that an artifact, unlike a natural thing, may be qualified by an aspect in which it has only a passive function. Secondly, it expands the idea of what qualifies the nature of an artifact to include the aspect qualifying the *process of transformation by which it was produced,* as well as the aspect qualifying the *kind of plan which guided its formation.* The aspect qualifying the process of an artifact's formation is called the artifact's *foundational function,* while the aspect qualifying the plan which guided its formation is called its *leading function.* So with respect to the example of stones formed into a house, the theory says that the foundational function of the house is *historical* (or cultural) because that process is qualified by the human ability to transform natural materials. But what then is its leading function? One plausible candidate would be to say it is biological. And there is no doubt that a house serves biological needs. We would form them very differently were our bodies significantly different from what they are. But a house is more than bare biological shelter—which is why it differs from a mere lean-to or hut. It provides a place for social exchange and accommodates the need for privacy. And the varying sizes and shapes of its rooms usually reflect a difference in social status among its occupants. In fact, if a building lacked these features we wouldn't call it a house. For these reasons, the theory says that the leading function of a house is *social.*[20]

There is not the space here to give many further examples of how these concepts serve to bring the natures of artifacts into focus, but here are a few. A book would be said to have a historical foundational function and a linguistic leading function. The poetry signified in the book, on the other hand, would have a historical foundational function and an aesthetic leading function.[21] Likewise, a painting or sculpture would also have an aesthetic leading function. By contrast, a warehouse, with its loading platforms and storage areas, shows an historical foundational function and an economic leading function. Of course, a

---

[19] Animals also form artifacts, and the account of these is somewhat different. For brevity's sake I deal here only with human artifacts. For the full account see *NC,* III, chapters 2 & 3.

[20] Since the aspect qualifying the leading function of an artifact is the one that qualifies the plan that guided its formation, the idea of a leading function cannot be divorced from the idea of purpose. What is intended, however, is not any subjective purpose a person may have toward an artifact but the purpose embedded in its plan. So although someone may use a chair as a ladder or marry for money, the purpose embedded in such artifacts remains social and ethical respectively, despite being perverted by a subjective purpose. See *NC,* III, 143, 574.

[21] More precisely, the words of the poem are linguistically qualified while the *event* of reading the poem is aesthetically qualified. See *NC,* III, 110, 111.

bank has the same leading function. What distinguishes a warehouse from a bank is the type law of each; the law that determines the internal relations of the properties, parts, and sub-wholes such that it conforms to its type. This is why a fuller account of an artifact's nature must include its type law as well as its qualification by its foundational and leading functions.

At this point it may seem as though all artifacts would have an historical (cultural) leading function. After all, they're all formed by humans, no? While there is a sense in which that is true, there are nevertheless humanly formed artifacts that have their foundation in an aspect other than the historical. To make this point clear, however, I must first explain that the theory also sees social communities as artifacts, formed when humans give specific organization to aspectually differentiated inter-human relations. These differ from non-social artifacts in that their "natural materials" are other human beings. That said, there appear to be (at least) two communities that should not be taken to have a cultural foundational function. These are marriage and family. The reason is that they are not free cultural creations in that they are rooted in our biotic, sexual, nature. Humans give these communities specific forms, to be sure. But it is our biotic make-up that drives the process of their formation and assures these institutions will be given some form or other.

Social Emergence: Sphere Sovereignty

We have already seen why many wholes cannot be analyzed only by distinguishing their parts, but need to be seen as capsulate wholes which include sub-wholes. This is especially true of social communities, since they include humans who are never merely their parts. In keeping with the Theism underlying this ontology, human existence is seen as centered in the "heart" or "spirit" of a person which functions in all the aspects alike but cannot be identified with any of them. Human nature thus has no aspectual qualification.[22] Humans are never, therefore, *parts* of a family, school, church, or what have you, but are sub-wholes encapsulated in them.

This last point is also true of the various communities with respect to one another: they are almost never parts of one another as they have different leading functions and display

[22] The terminology here is tangled. In fact, Bible writers never use "soul" for the center of human existence but for the life of the body—so that it is precisely the soul that dies. Most often they use "heart" for the identity of a person; the seat and source of a person's intellect, will, emotion, talents, dispositions, etc. On this biblical view, then, human nature is not to be identified with any aspectual functions. The human heart lies behind them all as the agent acting in them. So while humans alone have active functions in all the aspects, they have no qualifying function.

conformity to different type laws. So, for example, a family cannot be part of a state as is shown by the fact that its members can be citizens of different states. But what is even more important is that *neither can any of the major types of social communities be encapsulated within one another.*[23] Recall that when a sub-whole is encapsulated in a greater whole, the leading function of the greater whole overrides the qualifying function of the sub-whole (think of the stone in a bird's gizzard serving a biotic purpose). In the case of the major social institutions, subsuming one under another would mean that the one(s) subsumed would serve the leading function of the capsulate whole. Thus subsuming a business, school, or church under the state, for instance, would have the effect of overriding of the leading functions of the subsumed communities in favor of the state's leading function: justice. Since this would in effect vitiate the leading functions of families, businesses, schools, churches, etc., we must reject it. And that requires us to take a non-hierarchical view of society as a whole.

Here's the same point from a different angle, the angle of authority in human life. Is there one supreme source of authority in human social life? If so, what *kind* of authority is it? There have been many reductionist answers to this question. There are theories that have claimed that the source of authority is power, reason (or reason plus virtue), wealth, or superior will. But a genuinely theistic view must reject all such proposals. From the Theistic view, all authority originates with God who has built it into human life in plural ways. There is the authority of parents in a family, of owners in a business, of elected officials in the state, of clergy in a church, temple, or mosque, of doctors in a hospital, and so on. Such organizations are formed to promote and preserve aspectually distinct facets of life: ethical love (family), economic life (business), public justice (state), religious belief and practice (church, synagogue, mosque), biotic health (hospital), etc. Each of these communities has its own foundational and leading functions, its own type law, and its own type of authority.

This idea of multiple kinds of authority, each with its own proper domain or "sphere," was called "sphere sovereignty" by its great champion, Abraham Kuyper.[24] It stresses that no one kind of authority—and thus no single institution—is the source of all authority in life or the supreme authority over all other kinds. Rather, social institutions of each distinct type

---

[23] There are instances of communities being sub-wholes within a greater capsulate whole, but that is never true of the major institutions of society. The examples are all of auxiliary organizations formed to serve another community such as a PTA formed to serve a school, or a fund-raising group organized to support a charity or hospital.

[24] One of the clearest expositions of this idea was given in his "Lectures on Calvinism", which were the Stone Lectures at Princeton Seminary for 1898.

have a sphere of competence which corresponds to their leading function, so that each has a relative immunity from interference by authorities of different types or which arise in organizations with different leading functions. In practice this means, for example, that parents set children's bedtimes not governments, churches set requirements for membership in them not courts, courts interpret the criminal law not churches, schools set educational requirements not parents, and businesses decide what products or services to produce not schools, and so on. Moreover, while a school may be supported by a family, state, church, or business, it may not be *run* by them. If that is what is meant by "state school", then the idea is as self-contradictory as "state church" or "state family."[25]

One of the most important results of this social norm is that the idea of distinct, limited authorities is the one that can best restrain the power of government so as to avoid a totalitarian state. The idea of democracy alone cannot do that. For where government is viewed as all-controlling, giving everyone a vote as to who makes the laws will only result in a tyranny of the majority. And notice that the sphere sovereignty idea not only protects individual rights by limiting the authority of government, but does the same for non-governmental communities as well. Moreover, these communities are then not only protected relative to the state but relative to one another. Sphere Sovereignty is therefore the social principle that embodies a strongly emergent view of social life as a distinct level of reality. And more than that, by standing in opposition to all reductionist attempts to subsume all authorities under some one kind, it also reconfirms the non-hierarchical view of the social institutions exercising the differing kinds of authorities.

Conclusion

The Law Framework ontology may fairly be called one of "strong emergence" or simply "non-reductionist." This is because it insists not only that no large-scale kind of properties-and-laws is identical with another or may be eliminated in favor of another, but also because none of them can be the cause of any other. This is opposed, first, by pointing to the fact that the sort of causality needed to support a claim that, e.g., physical entities combine so as to produce non-physical properties or things, is a stronger sense of "cause" than anything that can be observed in the universe. What we observe is that a physically

[25] On the other hand, pointing to distinct *spheres* of authority means that all spheres can be found permeating all institutions and practices. Their differences cannot be explained, for example, as corresponding to the distinction between public vs. private. A crime committed in private or in a church or school still falls within the sphere of justice and so is the responsibility of government, just as bartering or selling that takes place within a family or government is the economic side of those institutions.

qualified cause (heating a copper wire) may result in it changing its sensory color (glowing green). But in that case the heating is merely the *occasion* for the green glow; it is not the reason there are such things as green glows in the cosmos. But the latter is the sense needed by causal reductionist theories (see note 8).

Of course, it is open to the reductionist to say that the strong causes needed by his theory can be postulated as bridge laws that needn't be observed to have explanatory power. The Law Framework reply to that is to point to the fact that causal relations are themselves multi-aspectual and are qualified by every aspect from the physical upward on the list. So what *kind* of law is a bridge law supposed to be? If it is itself a physical law, then how does it relate the physical to its alleged non-physical products? And why would such a view be better off than admitting that no such relation is conceivable? In other words, it still runs into the same stone wall that Descartes did with the mind/body relation: cause/effect relations without any homogeneity cannot so much as be conceived. By contrast, the Law Framework theory sees a multi-aspectual homogeneity of everything in the cosmos with everything else in the cosmos.

In sum, the Law Framework theory can demonstrate impressive explanatory power by developing its idea of irreducible, equally real aspects of reality. From that idea arises the possibility of distinguishing a thing's qualifying aspect, capsulate wholes, type laws, and foundational and leading functions for artifacts. All these converge to recommend that the cosmos be understood as having many distinct but related levels, without being caught in the rut of assuming from the outset that explanation can only mean reduction.