THE EARLY KANT'S DUAL LAYER THEORY OF POWER

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Introduction

Although Kant's *Critique of Pure Reason* and its transcendental turn undoubtedly changed things from the root, it still holds that certain important early themes and ideas survive the upheaval relatively unchanged, relocated in a new philosophical landscape as it were. Kant's views on the nature of material bodies and of forces involved in their individuation belong to this category. In this paper, I offer a new reading of a seminal early work, the *Physical Monadology* of 1756. It surely seems that in this work, Kant is *some* kind of a dynamist; but the question is, exactly what kind? I aim to give a nuanced answer to this question.

The basic motivation of the *Physical Monadology*

First a matter of general orientation. As is often noted, what primarily motivates Kant the monadist is the problem of combining certain key ideas of two great predecessors, Leibniz and Newton. The problem concerns reconciling two well-warranted but apparently conflicting claims, that of the mathematician according to which space is divisible *ad infinitum*, and that of the metaphysician according to which the fundamental corporeal entities are indivisible and unitary substances.

The problem is set up as follows. As Proposition II states (1:477), bodies are complex entities, and it is quite natural to think that this complexity results from being composed of parts. Composition, Kant argues, is a relation, and thus a determination that can be taken away, leaving us with simple substances, which continue to exist. Here Kant moves fast,[1] and it is no wonder that his argument has been criticized. However, still thirty years later he states that "the *composite of things in themselves* must certainly consist of the simple for the parts must here be given prior to all composition" (4:507). Here acknowledging a notable aspect of the traditionally dominant substance–accident ontology throws light on Kant's reasoning. At least by late scholasticism, relations were considered dependent entities—one type of accidents—which ultimately require substances for their existence, while substances are never similarly dependent on relations—or any kind of accidents for that matter—for their existence. That Kant the monadist endorses this basic ontology is testified by such claims as that of Proposition V according to which any monad "has a self-sufficient existence of its own" (1:480) and Proposition VII according to which "accidents do not exist independently of their substances" (1:482). The scholium to Proposition IV comments on composition along the same lines: "[I]n the case of any compound whatever, where composition is nothing but an accident and in which there are substantial subjects of composition" (1:479). Within this widely acknowledged framework, it is reason-

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[1] Then again Leibniz, whose argument in the opening sections of the *Monadology* Kant here echoes, moves even faster. In a sense Kant in fact *explicates* the Leibnizian line of argument.

able to argue that all relations as accidents can be removed with no harm done to the substances; and since we thereby take away all composition, we end up with substances that can only be completely simple.

Already the opening lines of the *Physical Monadology* thus strongly suggest that Kant's argumentation is based on substance–accident ontology in which there are things not dependent on anything (save God), namely substances or monads, and in which properties or accidents inhere. The basic idea is that no property can exist by itself but only as a property of some *thing*, while we do not encounter things without properties but as things of some *kind* or in a certain way *qualified*. Yet even granting all this, one may well wonder how can this kind of metaphysics solve the problem of divisibility? Are corporeal substances *as spatial entities* not divisible to the same extent that space is—which would, in effect, deprive them of their substantiality?

Two lines of interpretation

When giving his negative answer to the aforementioned question, the early Kant's well known dynamistic tendencies come to the fore. In Propositions V and VI (1:480–1), he argues that even though no substance, or a monad, is spatial, it still can occupy space by filling it "by the sphere of its activity" (1:481). Dividing this domain of activity, in turn, does *not* equal dividing the monad: "What exists on each side of the dividing line is an action which is exercised on both sides of one and the same substance," as Kant puts it in the scholium to Proposition V (1:480). That these actions stem from forces is soon made clear: in Proposition VIII (and onward) he talks about the "force [*vis*] by which the simple element of a body occupies its space" (1:482). Impenetrability, repulsion, attraction, and inertia are all different forms of force.

Unfortunately, there is little consensus on the ontological status of monadic forces. A survey of the scholarship indicates that there are, roughly, two main lines of interpretation. For instance Rae Langton writes:

> Space is filled by forces, not by solid atoms. Forces are not substances. It is explicitly stated that a force is an accident, and that it does not fulfil the necessary condition for being a substance: for a force cannot exist "separated and isolated." […] Matter is force, and force is "external presence." Force is not substance, but a relational property of substance. (Langton 1998, 100–1)

The metaphysical status of forces is thus designated within substance–accident ontology: they are relational accidents. Eric Watkins does not invoke that ontology but describes forces in relational terms as well.[2] There is thus a notable line of interpretation according to which *forces are first and foremost relational*, whether that relationality is seen to pertain to accidents or (in more modern terms) activities.

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[2] "[Kant] appeals to the (metaphysical) notion of force [...], according to which force is to be understood [...] in terms of a substance's ability to act on other substances. [...] [H]e attempts to set straight certain details in metaphysics, namely, how forces should be understood in terms of relational activities that have a sphere of influence." (Watkins 2005, 112)

A distinctly different view emerges from Daniel Warren's discussion of the property by which Kantian matter fills space:

> Instead of conceiving of [primary qualities] as *contrasted* to causal powers, we are meant to see that the set of primary qualities includes causal powers as essential and ineliminable members. (Warren 2001, 95)

Konstantin Pollok defends a similar position, and states that explicitly concerning monads:

> Kant does not regard these original forces as merely relational but as internal determinations of the monad. (Pollok 2002, 72)

According to this second line of thought, *forces are primary or internal monadic features* and thus not any kind of accidents or properties but something constitutive of monads.

Powers in substance–accident ontology

How to assess the two interpretative camps? To put the question in terms of substance–accident ontology, are forces something pertaining to the intrinsic or essential nature of substances, or are they qualities or accidents—perhaps even relational accidents that may come and go out of existence while substances persist? A look at the fundamental ontology passed onto the early modern period explains why the answer to this question is quite complicated.

According to the Aristotelians, not all properties or accidents are equally necessary for a substance, and not even necessary accidents belong to the substance's essence or nature. The ontology is more stratified or layered than for instance the contemporary one that consists of necessary (and thus essential) and non-necessary properties. Traditionally certain features are considered *constitutive of the very essence* of a substance—for instance rationality and animality for human beings—and so close to what the substance in question is that they are *not* regarded as accidents or properties. Accidents, in turn, are entities that pertain to a substance without belonging to its essence, and they can be either necessary or non-necessary; for instance risibility counts among the former, whiteness among the latter in human beings. Necessary accidents are called *propria*, and they cannot go out of existence without the substance in which they inhere ceasing to exist. This ontological architecture was of course widely known, but it is still worth pointing out that it also finds its way, in a slightly modified form, to Baumgarten's *Metaphysics*: it not only declares that "there is nothing else apart from substances and accidents" (*Met.* §194) but also makes a clear distinction between essential features (*essentialia*), necessary accidents (*propria*), and non-necessary accidents (*Met.* §§ 37, 39, 41, 50–2).[3] Kant was thus well-informed about the originally Aristotelian substance–accident ontology.

Now consider Proposition VII of the *Physical Monadology*:

> [I]n addition to external presence, that is to say, in addition to the relational determinations of substance, there are other, *internal determinations*; *if the latter did not exist, the former would have no subject in which to inhere*. But the internal determinations are not in space,

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[3] For Baumgarten, modes and relations are non-necessary accidents (*Met.* §52).

precisely because they are internal. Accordingly, they are not themselves divided by the division of the external determinations. And therefore *the subject itself, that is to say, the substance*, is not divided in this way. (1:481, emphases added)

Moreover, a mathematical division of a substance's sphere of activity never results in distinct things:

> You will not find in [the] orbit of activity a plurality of things, of which each one, existing on its own and in isolation from the others, would have its own permanence. For what is found in the space [of each geometrically defined half] is nothing but an external determination of one and the same substance; but accidents do not exist independently of their substances. (1:481–2)

These passages indicate that there are (1) *internal determinations* that constitute—very much like essential features constitute for the Aristotelians—the substance itself; and (2) that substance is, then, that in which external determinations, such as the sphere of activity, inhere as dependent entities—as an accident can only exist by inhering in a substance.

One may still wonder what, if anything, has this ontology to do with the *causal* architecture of substances? Now it was common to conceive of substances as, in essence, loci of causal efficacy: first and foremost, many if not most late scholastics considered substances to be, *in virtue of their form, capable of bringing about the necessary accidents*. On grounds of this it can be said that substances were seen as *essentially powerful*. Of course, much changed in Western thought with the dawn of the modern era and its philosophy inspired by the mechanical sciences, but already Leibniz rehabilitates much of the Aristotelian framework. As is well known, he unhesitatingly asserts that "to act is the mark of substances"[4] and that "the very substance of things consists in a force for acting and being acted upon."[5] The following passage represents, I think, particularly well Leibniz's cast of mind on issues Kant deals with in the *Physical Monadology*:

> [B]ecause we cannot derive all truths concerning corporeal things from logical and geometrical axioms alone, that is, from large and small, whole and part, shape and position, and because we must appeal to other axioms pertaining to cause and effect, action and passion, in terms of which we can explain the order of things, we must admit something metaphysical, something perceptible by the mind alone [...], and we must add to material mass a certain superior and, so to speak, formal principle. *Whether we call this principle form or entelechy or force does not matter, as long as we remember that it can only be explained through the notion of forces.* (*A Specimen of Dynamics*; AG, 125, emphasis added)

The Leibnizian Baumgarten defines power in the strict sense—by using terminology quite close to what Kant will later opt for—as *a sufficient ground of accidents* (*Met.* §198). Kant discusses these issues in the *Nova Dilucidatio*—published only a year before the *Physical Monadology*—which presents a specific theory of *grounds* needed for any determination of a thing: "That which determines a subject in respect of any of its predicates, is called the *ground* [*ratio*]" (1:391), for a ground "establishes a connection and conjunction between the subject and some predicate" (1:392). A primitive kind of determination *as positing* occurs *in virtue of* a ground

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[4] *A Specimen of Dynamics*, part I (AG, 118).
[5] *On Nature Itself* § 7 (AG, 159).

that is internal (1:410). *The Only Possible Argument* of 1763 elaborates on the notion of positing (*Position*): generally speaking, "it is identical with the concept of being in general" (2:73). For our purposes the important point is that there are two kinds of positing, relative and absolute, which Kant describes as follows:

> Now, something can be thought as posited merely relatively, or, to express the matter better, it can be thought merely as the relation (*respectus logicus*) of something as a characteristic mark of a thing. […] If what is considered is not merely this relation but the thing posited in and for itself, then this being is the same as existence. (2:73)

Relative positing thus equals attributing determinations or accidents to a thing—e.g. by predicating *being an enclosed space* of a *triangle*—while absolute positing equals actual existence: "if the triangle exists, then all [the determinations are] posited absolutely" (2:75). Given that the former is something conceptual, relative positing requires merely a logical operation and can pertain to possibilia as well; the latter, in contrast, is existential in character and requires that the substance in question is actual. Thus we enter the causal domain in which the grounding of accidents is not merely a conceptual but a causal matter—absolutely posited substances are endowed with essential power to determine (or posit) their necessary accidents in actuality.

The upshot of all this is that what constitutes a substance functions as a causally efficacious ground that establishes that the substance has certain accidents predicable of it. The early Kant thus sees the constitutive features of substances as something by which substances spontaneously, without anything external prompting them, *produce* something else. Here he is in agreement with the tradition most strongly associated with Aristotelianism. To sum up, it is part and parcel of a quite dominant ontological trend that substances are regarded as, in essence, dynamic entities.

Within this framework, powers or forces are primarily to be identified with substances rather than with accidents. There is, however, an important qualification to this; one which justifies saying that forces are *not* strictly speaking substances. Namely, a closer examination reveals that the causal power of a substance is due to a specific *ingredient* in the substance: its *essence*, and in the scholastic hylomorphism even a particular *component* of the essence, namely the (substantial) form (matter being the passive component). In his later lectures on metaphysics, Kant shows sensitivity to and an impeccable command of these distinctions. For instance in *Metaphysik Mrongovius* he says:

> With a substance we can have two relations: in relation to accidents it has power insofar as it is the ground of their inherence; and in relation to the first subject without any accidents, that is the substantial. Power is thus not a new accident, but rather the accidents are effects produced by the power. (29:770)

Slightly later he contends, "[t]he internal sufficient ground of an action of a substance is power," (29:824) to which *Metaphysik L₂* importantly adds: "The conception of [...] the relation of the

substance to the existence of accidents, insofar as it contains their grounds, is *power*" (28:564).[6] Given the aforesaid, all this not only makes sense but is remarkably well put: *accidents as effects* are brought about by the power the substance is endowed with. In this sense, power is strictly speaking neither a substance nor an accident but the aspect of or ingredient in the substance that produces accidents (and thereby also the substance–accident relation). Traditionally *the essence or the form of the substance* was designated as this causally potent ingredient, not the substance *simpliciter*.

If the essences of substances are powerful, one may be tempted to think that their accidents are not. This is, however, not the case: certain kind of accidents are clearly dynamic in character. In the Aristotelian tradition, such *propria* as the coldness of water and hotness of fire are accidents very much capable of causing effects on their surroundings (and often also on the substance in which they inhere). Nowadays they would be called dispositional properties. Even though the following examples are not in line with our understanding of thermodynamics, they are still quite illuminating. To begin with, hotness necessarily follows from the essence of fire, and the dispositional property of hotness is, of course, the power to heat the nearby objects. But the coldness of water is prima facie more problematic, if also more subtle and illustrative. Recall that *propria* are *necessary* accidents—something without which the substance cannot exist. So how can for instance Suárez think of coldness both as a *proprium* of water and as something that reduces *heated* water "to its pristine coldness"?[7] Warm water is still water, only without coldness, so how can the heating of water not inevitably result in the disappearance of the water? The answer is that by coldness Suárez seems to mean the *power to chill*. This showcases the dispositionality of the power in question: as a power, it can persist even when it is prevented from manifesting itself, which is why heating water does not necessarily take away this power. Obviously, were the power to chill be taken away, the entity in question could not be (Aristotelian) water anymore; thus that power meets the main criterion of a *proprium*. As long as water can chill itself, it has the power of coldness.

Given this examination, the variation in the views encountered in the literature seem to stem from pinpointing different aspects of the dynamics involved in and enabled by the substance–accident ontology also at work in the *Physical Monadology*. It is appropriate to think powers both, as Watkins does, as the substance's "ability to act on other substances"[8] and, as Pollok does, as "internal determinations" of monads.[9] Further, both acknowledge that forces can be seen not only as internal or intrinsic but also as relational in character,[10] and I would not object to this. Neither would I to seeing, as Langton does, them as properties.[11] Still, to be precise,

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[6] "For [power] is not that *which* contains the ground of the actuality of the accidents (i.e., the substance) but only the *relation* of the substance to the accidents *insofar* as the former contains the ground of the actuality of the latter" (8: 181).

[7] *DM* 18.3.4.

[8] Watkins 2005, 112.

[9] Pollok 2002, 72.

[10] Pollok 2002, 72; Watkins 2005, 178.

[11] Langton 1998, 99.

the relationality in question has to do with the fact that forces as dispositional accidents are *grounds of* relational properties, not *themselves* relational properties.

Two layers of powers

The discussion thus far may appear complex, but I would argue that the most important point concerning the causal architecture pertaining to the dynamics of the *Physical Monadology* is in fact not difficult to express economically. On the present interpretation, it can be said that Kant operates with a *dual layer theory of power*: monads are *essentially powerful* substances that bring about three kinds of *powers*—repulsive, attractive, and inertial—*as accidents*; from these accidents, in turn, result such properties as impenetrability, volume, shape, and cohesion. Consider the way in which Kant explicates the nature and source of impenetrability:

> *PROPOPOSITION VIII. THEOREM. The force by which the simple element of a body occupies its space is the same as that which others call* impenetrability. *If the former force is denied, the latter would not be possible.*
>
> Impenetrability is that property of a body, in virtue of which a thing in contact with it is excluded from the space which the body occupies. […] [S]ince, furthermore, a resistance and, therefore, a certain force is necessary to prevent external bodies penetrating the space it fills; since, in other words, impenetrability is required, but since, finally, it has already been demonstrated above that elements fill their determinate space by a certain activity which prevents other bodies from penetrating it—since all this is the case, it is obvious that the impenetrability of bodies depends on no other force than that same natural force of the elements. [...] But […] force can only be opposed by force. *It is, therefore, the same force in virtue of which an element of a body occupies its space, and which causes impenetrability.* (1:482–3, emphasis added)

At first blush it may be tempting to think that Kant is equating force of occupying a space, namely repulsive force, with impenetrability; but the end of the quote makes it clear that impenetrability is something *caused* by that force.

Now given that the repulsive force is clearly something brought about by the substance itself—by its "internal determinations" to use Kant's expression in Proposition VII (1:481)—we arrive at the view sketched above: monads as intrinsically dynamic entities bring about forces as dispositional properties that have certain phenomena as effects. Thus in the *Physical Monadology*, there are two layers of monadic powers, the basic and the derivative one, or (1) the internal determinations constitutive of a substance that have the power to absolutely posit, as accidents, (2) the derivative powers of repulsion, attraction, and inertia. In virtue of the latter type of powers, a monad most importantly has a determinate sphere of influence by which it occupies space and prevents other things penetrating the space it fills—thereby entering in, and having an impact on, the mechanical world of bodies.

To sum up, Kant's strategy is to draw on the dynamistic resources offered by substance–accident ontology to give a satisfactory account of such phenomena as impenetrability (or solidity), cohesion, and volume of a physical body. Allowing genuine causal relations between sub-

stances is a strong anti-Leibnizian element in Kant's approach; but there is much in the interplay between metaphysics (i.e. the realm of the unextended monads endowed with what Leibniz would call primitive forces) and physics (i.e. the realm of corporeal entities in which forces Leibniz calls derivative are at work) quite reminiscent of the ur-monadist. Keeping in mind the profound influence Aristotelianism had on Leibniz's thought, it is in fact not particularly surprising that someone proceeding broadly along the Leibnizian lines but discarding his anti-Aristotelian denial of transeunt causation would end up with substance–accident ontology. By this I do not mean that there would not be much original and ingenious in Kant's account. First, he makes a compelling use of the traditional ontology by attempting to solve the problem of indivisibility of substances and divisibility of space by invoking the dynamic aspects of that ontology. Second, he succeeds in offering a fine combination of Aristotelian–Leibnizian metaphysics and Newtonian influences by arguing that the accidents of monads are primarily *forces of the Newtonian kind*. We should not underestimate how far removed such forces as attraction and inertia are from their admittedly rather archaic scholastic precursors.

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