Do powers need powers to make them powerful?
From Pandispositionalism to Aristotle

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Abstract

Do powers have powers? More urgently, do powers need further powers to do what powers do? Stathis Psillos says they do. He finds this a fatal flaw in the nature of pure powers: pure powers have a regressive nature. Their nature is incoherent to us, and they should not be admitted into the ontology. I argue that pure powers do not *need further* powers; rather, they do what they do because they *are* powers. I show that at the heart of Psillos' regress is a metaphysical division he assumes between a pure power to φ and its directedness towards the manifestation of φ-ing, i.e. between a pure power and its essence. But such an ontological division between an entity and its essence has already been shown by Aristotle to be detrimental, condemning the entity to a regressive nature.

I show that Psillos' regress is but an instance of Aristotle's regress argument on the relation between an entity and its essence. I compare Aristotle's, Bradley's, and Psillos' regresses, showing that Bradley's and Psillos' (different) conclusions from the regress arguments lead to impasses. I then build on Aristotle's directive against regressive natures, arguing with him that an entity is not other than its nature (being divided from its nature by a relation between them). Rather, an entity *is* an instantiated nature itself. The Aristotelian position I put forward explains how the *oneness* of the entity is achieved by its being an instance of a type. Thus, the regress is blocked, and the nature of pure powers is shown to pose no threats of an ontological or epistemological kind, if physics gave us reasons to posit pure powers.

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The problem of pure powers

The nature of powers is vigorously debated in the literature between, broadly, the dispositionalist camp and the categoricalist camp.[1] The main difference that divides the two camps is whether there are powers which do not depend ontologically on categorical properties – *pure* powers;[2] a secondary issue is whether, if there are pure powers in the world, there need to be categorical properties at all in the ontology.

There is general agreement among philosophers that the case for pure powers ultimately rests with physics. Stathis Psillos summarises the reasoning behind it:

> 'The fundamental properties (the properties of the fundamental particles) are powers. This argument is empirical. Physics … posits irreducible powers: mass, charge, and spin. … The fundamental properties are ungrounded ("bare") powers. And the argument for this conclusion is that the fundamental particles are simple: they have no internal structure. Hence, they have no parts (components) which can be deemed the bearers of further properties (be they powers or non-powers), which in turn, ground the properties of the particles.' (2006: 151)

But Psillos sceptically withholds judgement on the conclusiveness physics has reached on the nature of the properties of the ultimate particles – it is still too early for a settled opinion on this (2006: 137; 154). For, granted that the fundamental particles are simple, what identifies and individuates the fundamental properties of the fundamental particles is still an open question.

For Psillos, that the evidence from current physics for the existence of pure powers is inconclusive is good news. The reason is, he argues, that thinking of properties as pure powers leads to a *vicious regress* – hence the ascription of pure powers to things is incoherent. It follows that physics will face a predicament if their best explanation is that the fundamental properties of particles are pure powers.

All for Psillos turns on the question: Do powers need powers to do what powers do? Yes, they do, says Psillos, since

> 'to say that, for instance, fragility is directed to its manifestations even when it is *not* manifested is to say that fragility (F) has the power to manifest itself even when it is not manifested. … It seems then that there is an answer to the … question ['What do powers do when they are not manifested?']: when unmanifested, F has the *power* Q to manifest itself; that's what it does!' (2006: 139)

But this claim commits the dispositionalists to a fatal flaw, Psillos argues:

> 'I offer a *conceptual* argument against the view that all properties are pure powers. I claim that thinking of all properties as pure powers leads to a regress

… If successful, my argument undermines the view of properties as pure powers (*aka* pandispositionalism).' (2006: 137)

This description does not clarify whether Psillos' critique is epistemological or metaphysical. In fact, it turns out to be a combination of the two: it is an argument about the *conceivability* of pure powers, based on a *metaphysical* regress of pure powers which, and as we shall see, is *independent* of the pandispositionalist commitment (although Psillos assumes he needs pandispositionalist principles to derive it).

Psillos concludes that the regress can be avoided if powers have, not further powers, but categorical properties to help them do what they do. Yet this, he explains, is to take back to the drawing board the question of the ontological difference between powers and non-powers, if powers need *non*-powers to enable them to do what powers do when unmanifested.

I will argue that powers do not need powers to enable them to do what they do when unmanifested, and that no regress is undermining the nature of pure powers. My strategy will be to begin by tracing Psillos' pure powers regress back to a regress of essences Aristotle developed in his metaphysics. I compare Aristotle's, Bradley's, and Psillos' regresses, showing that Bradley's and Psillos' (different) conclusions from the regress arguments lead to impasses. I then build on Aristotle's directive against regressive natures, arguing with him that an entity is not other than its nature (being divided from it by a relation between them); rather, an entity *is* an instantiated nature itself. The Aristotelian position I put forward explains how the *oneness* of the entity is achieved by its being an instance of that type. In conclusion, the nature of pure powers would pose no problems of an ontological or epistemological kind, if physics gave us reasons to posit pure powers.

My aim is not to argue *for* pure powers, but to remove an obstacle for the possibility of an ontology of pure powers. Yet the removal of this obstacle is of more general interest, as it invokes principles of wider metaphysical application.

The essence of a pure power

Powers are entities that are in a state of 'readiness for action'; given appropriate circumstances they interact with their environment. There are two aspects of this metaphor that are especially puzzling in the case of pure powers. The first is that 'readiness for action' is *all* that pure powers are. The second is that this is a feature normally associated with the mental, not the physical.[3]

There is a history to the mentality aspect of the metaphor. Martin and Pfeifer put forward the idea that the (then) available characterisations of intentionality failed to distinguish 'intentional mental states from non-intentional dispositional states' or powers (1986: 531). U.T. Place proposed in response that we think of intentionality as the mark, not of the mental, but of the dispositional (1996: 225).[4] Presently his influence is widening in the circle of power-ontologists who define a power in terms of its directionality towards its manifestation. Molnar for example writes: 'having a direction to a particular manifestation is constitutive of the power property' (2003:

60). In the case of pure powers, in Heil's words, '*all there is* to [such] a property is its contribution to the dispositionalities of its possessors' (2003: 97).

Directedness captures the point of the comparison between intentionality and powers. Just as an intentional state is directed towards something beyond itself, so a power is directed towards its manifestation. Just as in the case of an intentional state, what it points to need not exist, similarly in the case of a power, what it points to need not come about, since a power may never be manifested (e.g. Molnar 2003: 62-63). A vase has the power of fragility which is directed towards breaking, even when the vase never breaks, or an electric charge has the power to attract or repel even if no charged particle ever comes close enough to be attracted or repelled.[5] On the hypothesis that powers are pure, there is nothing more to fragility than the vase's disposition to breaking under certain circumstances, and nothing more to charge than the particle's disposition to attract or repel.

Molnar's thinking on powers along the model of intentionality directs the development of Psillos' argument, who describes powers as follows:

> 'Physical powers … are intentional properties: they are *directed* towards their (possibly non-existent) manifestation. Accordingly, the distinctive feature of powers (as opposed to non-powers) is that they possess (or display) physical intentionality: they are *directed* towards their manifestations. … Molnar's appeal to physical intentionality (directedness) can be seen as an answer to the … question ['What do powers do when they are not manifested?']: when a power is not manifested, it is *directed* to its manifestation. Being directed to its manifestation is a property of a power.' (2006: 139)

This is the core conception in Psillos' understanding of the nature of a power that plants the seed that will bloom into a regress. On its basis he will argue for the rejection of pure powers from ontology. Let us turn to the regress.

The power regress

The regress with which Psillos charges the nature of pure powers is based on the assumption we encountered in the last quotation, that physical-directedness towards a manifestation of φ-ing is a *property* of power F. In fact it is a necessary property of it.[6] The regress follows.

Let F be the power of an object to φ. That is, power F is directed towards its manifestation, the object's φ-ing. Let F's directedness towards its manifestation be called 'Q'. By Psillos' assumption, Q is a necessary property of F. Since Q is a property of F, it follows that F and Q are different entities.[7] Let us call this the non-identity premise. Thus, given power F, there is a further entity Q, and F has Q as a necessary property.

Here Psillos introduces the pandispositionalist assumption that all properties are powers. Q is a property of F, and as such, a power of F – F's power to manifest itself. As a power, Q is itself directed towards its own manifestation. By assumption, Q's directedness towards its manifestation is a necessary property of Q, call it 'R'. Since

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R is a property of Q, it follows that Q and R are different entities. From the pandispositionalist assumption, property R is a power of Q. As such it has the power S to manifest itself, where, S is different from R. And so on … Thus the regress takes off. (Psillos, 2006: 139)

The pivotal point, on which the regress turns, is not the pandispositionalist assumption, but rather Psillos' assumption that the directedness of a power is a *property* of it, and as such *different* from it. Thus, given a power, there is a second entity, its directedness-property. Pandispositionalism is then used by Psillos to replicate the phenomenon, but as we shall see it is not needed. So it is the non-identity premise in the derivation above that generates the regress, and it is this premise that is the metaphysical focus of the present investigation.[8]

There are two aspects to the regress: the assumption of the ontological *division* and the assumption of the *iteration* of the division within a pure power. I shall examine each of the two assumptions that lead to the regress.

The power of a power?

The ontological division between a pure power F and its 'directedness towards a manifestation of φ-ing' is not justified by Psillos, but assumed. For a start, the claim that directedness towards φ-ing is a *property* of a *pure* power F invites the question: what is pure power F over and above the directedness towards φ-ing? It is presumably something that has this directedness, but what? What Psillos tells us is that:

> 'F is the power to φ' (2006: 139)

This is what F *is*. But then Psillos continues:

> 'Suppose we grant that when unmanifested, power F has the power Q to manifest itself, that is to φ.' (2006: 139)

So, here F *has* the power to φ. How can this be? How can F *be* the power to φ, and also *have* the power to φ? Furthermore, if F and Q are two totally coincident powers that have the same definition (each being a power to φ), how can they be different? What sets them apart?

Psillos addresses this issue. He says:

> 'The intuitive idea here is that whereas fragility is the power *of an object* to break, Q is the power *of fragility* to manifest itself' (2006: 140)

This seems to offer us a different definition for Q than for fragility, F; furthermore each of these two powers belongs to a different subject. Fragility is the power of an object to break, and Q is it is the power of fragility to manifest itself. The second definition is, at best, contracted. What does it mean that fragility manifests *itself*? It is not that the power of fragility comes to be; for the power of fragility has been present, actual, in the fragile object all along. Nor does fragility manifest itself in the

sense of becoming apparent; only the breaking of the object becomes apparent. Rather, to see what it is that is manifested we need to look at what fragility is.

Fragility is a power of an object to break. That is, fragility is directed towards the breaking of the object. Hence, becoming manifested, for fragility, is reaching the target at which it is directed. But the target is the breaking of the object. Therefore, fragility's manifestation is the occurrence of the breaking of the object. Now Q was defined as 'the power *of fragility* to manifest itself'; so, since fragility's manifestation is the occurrence of the breaking of the object, Q is the power of fragility to bring about the breaking of the object. But this is what fragility is, 'the power of an object to break'. So it is far from clear that a distinction has been made between Q and F, even after pursuing the 'intuitive idea' of their difference. Is positing Q as a distinct power from F ill conceived? If so, the ontological division within a pure power is unjustified and the regress does not get started.

It seems *prima facie* that there is no need for Q; in fact, there is not even the possibility that Q be. A power does not seem to need a further power to take it from the unmanifested to the manifested state, since the power itself can take the object from potential φ-ing to actual φ-ing. So when Psillos says that 'The intuitive idea here is that whereas fragility is the power *of an object* to break, Q is the power *of fragility* to manifest itself' (2006: 140), there does not seem to be an intuition to explore. Can we make sense, intuitively, of the object breaking and, over and above this, of fragility additionally manifesting itself at the same time with the breaking? What more does fragility do, beyond facilitating the breaking of the object, by manifesting itself? How can the breaking of the object not be the manifestation of fragility? Or are we supposed to understand here that the breaking is triggered by fragility manifesting itself? Is Q what drives the object's fragility? But then it would follow that fragility is powerless and that Q does all the work for it. Yet since Q is itself a power, it, too, would be powerless and R would do all the work for it; and so on. What appears to be the case then about this intuitive division between F and Q is that if Q's job is to *empower* fragility to become manifested, F, and all other powers are powerless.

Is Q to F as genus to species?

Psillos offers a metaphysical argument against the identity of F and Q, i.e. of fragility and its power to manifest itself:

> 'Grant that the directedness of fragility is a *power* Q. If Q is a power, it is directed to its own manifestation. When is Q manifested? Exactly when fragility is manifested. But of course, this does not imply that Q and F (fragility) are one and the same property. To use a parallel (but not identical) case, the property of being red and the property of having colour are co-instantiated by a red rose but they are not the same property. Or the property of being trilateral and the property of being triangular are co-instantiated by triangles but they are not the same property.' (2006: 140)

The argument for the difference between F and Q consists in the introduction of two parallel cases. The claim is that the relation between fragility and the power to

manifest itself is analogous to the relation between being red and having colour or the relation of being triangular and being trilateral.

Psillos' examples of having a colour and being red and of being trilateral and being triangular are examples of the relation of a genus to its species (where being trilateral can include figures with curved sides). Whether a genus, e.g. having colour, is a distinct property over and above the species property, e.g. being red, is an ontological problem of its own that could hardly illuminate the present situation. But what is much clearer is that such examples do not provide a parallel to the present case. Q is the ability to be manifested. But the ability to be manifested is *not* a genus of species of powers such as fragility, magnetism, softness, and so on; it is a meta-description of powers, such as that of being a property is for properties, or that of being a thing (or substance) is for things (or substances). Being a power is *not* a *generic type* of species of powers any more than being a substance is a genus of feline and canine. 'Being capable of being manifested' is a gloss on what we mean by the term 'power', and provides a meta-description of items in a classificatory system. It is no more a property of powers than being a power is a property of powers or being a property is a property of properties. These terms or descriptions are formal characterisations of things in respect to how they are classified in the ontology, rather than in respect to their constitutive nature. Understanding the division in question thus leads to the following: the ability to be manifested is *not* a *constitutive power* of a power, but rather a classificatory description of the ontology.

Nevertheless, we should not (yet) give up on Psillos' division. We should explore a different direction the argument could have taken, in view of the way Q was initially introduced as a property that secures 'a necessary connection between the power and its manifestation' (2006: 139). Maybe the division Psillos is after is between an entity and its *essence*, rather than what seemed to be between an entity and its classificatory qualification. In that case, herein would be the division between a power and its directionality. This way of conceiving of the division avoids the meta-description objection to it. Let us investigate this conception.

The essence regress

The division between an entity and its essence has already been explored in an ancestor of Psillos' regress, which makes a stronger and more universal case for the regress than we have so far encountered in Psillos' defence of it. The ancestor of Psillos regress was developed by Aristotle in his *Metaphysics*. We shall first see how it makes a stronger case for Psillos' regress, and then examine what it reveals about the nature of powers.

Saying that an entity F 'is a power to φ' expresses the nature of that entity. It is the answer to the question: 'What is F?'. Psillos says that 'the distinctive feature of powers … is that … they are directed towards their manifestations' (2006: 139), which, in light of Heil's clarification about pure powers (2003: 97), leads to the conception that all there is to a pure power is directedness towards the manifestation of φ-ing. This is what an unmanifested power is: an instance of just physical intentionality.

The Aristotelian regress that is the predecessor of Psillos' regress is built as follows. Consider the essence E of F: directedness towards the manifestation of φ-ing. E, being an entity of a certain kind, will itself have an essence, call it E_1: what it is to be directedness towards the manifestation of φ-ing. The essence of E_1 will be E_2: what it is to be what it is to be directedness towards the manifestation of φ-ing. E_2 will have an essence, E_3, ... and so on to infinity. Aristotle writes:

> 'The absurdity of the separation [between an entity and its essence] would appear also if one were to assign a name to each of the essences; for there would be another essence besides the original one, e.g. to the essence of horse there will belong a second essence ... If they [say, the number one and its essence] were different, the process would go on to infinity; for we should have the essence of one, and the one, so that in their case also the same infinite regress would be found.' (*Metaphysics*, 1031b28-1032a4)

The generative principle at work is that every entity that makes a claim to *inherent oneness* is essentially a *type* of entity.[9] The main assumption for the regress is that the essential type is a *property* of the entity, and so, different from the entity itself.[10]

Let us compare this regress to Psillos' regress. On the present reading of his argument, Psillos generates the division for the property regress by assuming the distinctness of a property from a further, necessary property it possesses, e.g. between fragility and its directedness towards breaking. But assuming that the directedness of fragility is an arithmetically different property from fragility itself gives the Aristotelian division between essence and entity. Psillos iterates the division using a different generative principle than Aristotle's, based on the pandispositionalist assumption – that all properties are powers, and so since a power has the necessary property of directionality, the property is a power, which is itself directed ... and so on. The generative principle Aristotle uses for iterating the division between an entity and its essence, namely, that an essence has an essence, is independent of pandispositionalism; so it iterates the same division as Psillos', but with a generality that takes this division beyond the domain of powers to all entities. Let us then use their common division between an entity and its essence, plus Aristotle's generative principle of the essence of an essence to reconstruct Psillos' property regress, but this time without the pandispositionalist assumption.

Let F be a property such as fragility. 'F has the power Q to ... φ', where Q is a property of F, namely F's directedness towards the manifestation of breaking (2006: 139). Fragility's directedness towards breaking, Q, is the essence of the property of fragility. Psillos' tacit assumption for his regress, which is explicitly Aristotle's assumption too for his own regress, is that: the essential nature of an entity is a *property* of it. We now have a common division and a common principle of iteration: Q is the essence of property F, and is arithmetically different from F; being itself a property, Q will have an essential nature of its own, different from itself, say property R; similarly R will have its own essence, ... and so on to infinity. So Psillos' regress survives the abandonment of the pandispositionalist assumption, and is regenerated from his division as a regress of essential properties rather than of necessary powers.

Essence as subject – essence as property

We have seen from the analysis above that it is Psillos' division that gives rise to his regress, not the pandispositionalist assumption. He defined F as 'the power to φ', and then divided F from its essence Q: the power to manifest φ-ing (2006: 139). Let us consider the division between an entity and its essence.

Faced with the regress, Psillos concluded aporetically that perhaps the regress can be blocked if the essence of a power is not a further power but a non-power. This retains and firms up the initial division between a power and its essence but rejects pandispositionalism. As Psillos recognises, this way of blocking the regress condemns powers to impotence since a non-power is called upon to empower a power to be directed to its manifestation. By contrast, Aristotle raised the same regress problem, but reached just the opposite conclusion from Psillos, by giving up the division: *an entity is one with its instantiated essence*.

Aristotle, we saw, makes the initial assumption that an entity has its essence as a property and from this division he derives a regress of essences. To block the regress, he concludes that an entity is its essence; namely, an entity does *not* have the *instantiation* of its essential type as a property, but rather, is identical to the instantiation of its essential type:

> 'Each … self-subsistent thing is one and the same as its essence.'
> (*Metaphysics*, 1032a2-4)

All that Socrates is, is this instantiation of 'human being'. This still allows one to abstract from Socrates the general type 'human being', that is to abstract from *this* instantiation of 'human being' its general type, which Socrates shares with Xanthippe and Phaedo. But the conclusion Aristotle derived from this regress is that, whereas Socrates is not identical to this instantiation of wisdom, or this instantiation of two-footedness, etc., he is identical to this instantiation of 'human being'. The instantiation of wisdom is a characteristic of a human being; but the instantiation of 'human being' is not a characteristic of a human being; it *is* the human being.

The argument for the oneness of a substance and its essence is developed by Aristotle in two steps. I will here only sketch it in the broadest terms to indicate its far reaching significance. In *Metaphysics* VII.6, Aristotle undertakes to 'inquire whether each thing and its essence are the same or different' (1031a15-16) and proceeds to argue, through the regress we examined above, for the oneness of an entity and its essence. The examples he uses in *Metaphysics* VII.6 are of immaterial, abstract entities. The reason for this is that material entities face the additional challenge to their oneness with their essence that they are constituted of material components. In consequence, Aristotle needs to investigate whether his hylomorphic account of material entities as composites of matter and form undermines their oneness with their essences. If a material entity is composed of matter and form, is the composite of the *two* different from the instantiation of the essential type of that entity or the same?[11] Aristotle addresses this in *Metaphysics* VII.17.

Aristotle's begins his second step in the investigation of the oneness of a thing with its instantiated essence with the Syllable regress in *Metaphysics* VII.17.[12] The

Syllable regress is a metaphysical milestone that anticipates Bradley's regress by two millennia. Aristotle asks: Suppose two letters, 'f' and 'a', make up a syllable 'fa'; what unites two separate letters into one syllable? If it is a further element in the syllable that unites the two letters into a syllable, Aristotle continues, then the syllable is composed of three elements – the two letters and their unifier; what is it then that unites these three elements into one syllable? If further unifiers relate the three elements to one another uniting them into a syllable, the argument applies again, questioning what unifies old and new elements into one syllable … and so on *ad infinitum*. Importantly, Aristotle's conclusion from the regress is *not* that there are no unifiers or relations, which Bradley concluded. Realising that unifiers are needed to explain how the many are one, he concludes that *there are* indeed unifiers, but they *cannot be further elements* in the ontology.[13] Rather, unifiers are *ways of unifying* the elements. According to Aristotle, a unifier of elements is a *principle of operation on the elements* which are unified. Unifying elements which are arithmetically and even qualitatively diverse into one entity is achieved by the elements changing or even transforming. A minimal change is such as when the boundaries of the elements are altered in one way or another, as in the case of a dollop of honey becoming one with the rest of the honey in a jar.[14] A maximal change is when the nature of the elements is changed in order to produce a unity, as in the case of the ingredients that go into making a loaf of bread. The result of the unification is a single entity that is individuated as an instantiation of the essential type; here it is the syllable 'fa'.

I understand Aristotle's hylomorphism as a doctrine of *instantiation by change*: the material elements facilitate the instantiation of the essential type by being transformed in accordance with the essential type's organisational principle. One can think of the process of producing a cake as the process through which the form of a cake comes to be instantiated. When this is achieved, the physical components are all unified into a single thing that is structured and qualified according to the principle the essence stands for – e.g. fluids come to be an embryo or a plant, or food comes to be flesh. The transformation is full in the sense that everything about the component comes to fully conform to the organisational and qualitative principle the essence stands for. As a result, for example, the instantiated essence, 'human being', differs from that essence in abstraction in that, when the abstract form 'human being' is instantiated, its instantiation is fully determined in quantity, quality, state, etc.; the instantiated 'human being' is not merely long, but so long, and weighs so much, etc. Furthermore, its instantiation involves the determination of every aspect of that form, not just of some modal aspects of it.[15] The instantiation of the essential form 'human being' is a human being.

The step of the determination from the level of the abstract essence 'human being' to the level of the individual human being has two aspects to it. First, it is a difference of a determination level. Second, it results in the maximal determination, namely in the level of the *determinate* rather than of a further determinable. The level of full determination is the level at which matter is involved. It should not be thought that matter enters the scene as a primitive particular; it only marks the level of the determinate instantiation of the essence without explaining it. For Aristotle, matter is indeterminate and has no number – particularity – associated with it. So it does not explain the determinateness of the essence but only flags the level of determinateness without accounting for it. The determinateness of the essence at the lowest level of

determination, like the particularity of the instance, are a primitives, not explicable within the theory; or for that matter, within any other metaphysical theory.

What Aristotle recognises in the determinateness of essential forms is that at a certain level of determination, *recurrence stops*. This is just what 'being determinate' is for such forms.[16] What is significant for our purposes here is not to expound on Aristotle's account of the particularity of a thing,[17] but to explain that the introduction of matter marks the level of full determination of the essence primitively, without giving matter the role of a resident particular in the constitution of the thing. The individual human being differs from the abstract essential form 'human being' by a level of determination, which is also the lowest level of determination. It does not differ in plurality: the individual human being is not two conjoined items, matter plus the instantiated essential form; rather, it is the essential form instantiated, that is, enmattered, namely, fully determinate.

But then, Aristotle's (assumed for the regress) and Psillos' ontological division between an entity and its inherent instantiated essence vanishes. We cannot take even the first step in the regresses of essences in Aristotle's or Psillos' arguments. The instantiated essence of an entity is one and the same as the entity; the almond tree in the field is the instantiated essential type 'almond tree'.

Concluding the regress argument, Aristotle, but not Psillos, gives up the assumed premise that the instantiated essential type of a thing is a component-property in the thing, arithmetically different form the thing. The position reached by Aristotle in his Syllable regress argument is that the oneness of the thing is achieved by the essential form acting as a unifying principle on the material constituents, which results in their embodying (instantiating) the essential form. Psillos on the other hand endorses the distinctness of a power from its essence, e.g. of fragility from directedness to breaking, and so the regress commences. But what we now realise is that a pure power does *not have* directionality as a property; a pure power *is* this or that instance of directionality towards φ-ing. That is what a pure power does when unmanifested; it is an instance of readiness for action, of pure directedness towards φ-ing, and only that. No division, no regress. Anything that possesses such a power F, possesses directedness towards φ-ing, and so is disposed to φ.

Conclusion

Do powers need powers to do what powers do? If an entity needs another entity *like* it to make it what it is, it enters a quest for the untenable, since the second entity will be as deficient as the first; e.g. if a power needs another power to empower it, to make it manifestable. If on the other hand an entity needs another entity which is *unlike* it to make it what it is, then it wears the paradox on its sleeve; e.g. a power is made powerful by a non-power. Either way, the division between an entity and what the entity is is fatal.

I conclude, with Aristotle, that we should abandon the ontological division between an entity and its essence: 'Each thing then and its essence are one and the same in no merely accidental way' (*Metaphysics*, 1031b19-20). A pure power has no property of

directionality: a pure power *is* directionality towards the manifestation of φ-ing. If physics concludes that there are pure powers, philosophy would welcome them.

References

Aristotle. 1994. *Metaphysics. Book VII and VIII*. Translated with a commentary by D. Bostock, Oxford Clarendon Series.

Aristotle. 1985. *The Complete Works*, vol. II, ed. J. Barnes, Princeton.

Bird, A. 2007. *Nature's Metaphysics*. Oxford: Oxford University Press

Ellis, B. 2001. *Scientific Essentialism*. Cambridge: Cambridge University Press

Heil, J. 2003. *From an Ontological Point of View*, New York: Oxford University Press

Holton, R. 1999. 'Dispositions All the Way Round'. *Analysis* 59, 9-14

Martin C.B. and Pfeifer. 1986: 'Intentionality and the Non-Psychological'. *Philosophy and Phenomenological Research,* XLVI, 531-554

Mellor, D. H. 1974. In defence of dispositions. *Philosophical Review* 83: 167-182

Molnar, G. 2003. *Powers*. Oxford: Oxford University Press

Mumford, S. 1999. 'Intentionality and the Physical: A New Theory of Disposition Ascription'. *The Philosophical Quarterly* 49, 215-225

Place, U.T. 1996. 'Intentionality as the Mark of the Dispositional'. *Dialectica* 50, 91-120

Place, U.T. 1999. 'Intentionality and the Physical: A Reply to Mumford'. *The Philosophical Quarterly* 49, 225-231

Psillos, S. 2006. 'What do powers do when they are not manifested'. *Philosophy and Phenomenological Research*, vol. LXXII, No. 1, pp. 137-156.

Scaltsas, T. 1994. *Substances and Universals in Aristotle's Metaphysics*. Cornell: Cornell University Press

Shoemaker, S. 1984. *Identity, Cause and Mind*. Cambridge: Cambridge University Press

[1] The latter camp includes advocates of a variety of ontological combinations of powers and non-powers.

[2] Some philosophers in the dispositionalist camp allow that some properties are pure powers; while others hold that all properties are pure powers: they are pandispositionalists. Among the former are e.g. Ellis (2001), Molnar (2003); among the latter e.g. Bird (2007), Holton (1999), Shoemaker (1984), Mellor (1974).

[3] I will not examine here one further important issue relating to the first aspect, namely: whether there can be properties which exist as *pure potentialities* before they are manifested (even if their nature is not regressive), being ungrounded on categorical properties. This has been seen as being acutely problematic about pure powers in the literature; it therefore deserves its own separate treatment.

[4] Mumford found shortcomings in Place's proposal and suggested that a better theory would be an understanding of a functional essence of dispositions (1999: 222). Place defended his position against the criticism and played down the difference between the intentional and the functional account of dispositions (1999).

[5] I will not distinguish for the purposes of this discussion between sparse and abundant pure powers.

[6] He follows Molnar who 'takes it that there is a necessary connection between the power and its manifestation: "A physical power is essentially an *executable* property" (2003, 63)' (2006, 3).

[7] The non-identity premise is not explicitly stated by Psillos, but it is assumed in the derivation. I have supplied as the most plausible reason for it that it is the subject-property distinctness.

[8] Psillos believes that he can hold on to the division between a pure power and its directionality, but still block the resulting regress, at a price. We saw that he derives the regress by treating the directionality of a power as a necessary property of it, which, with the pandispositionalist assumption, delivers the regress. So Psillos assumes that the regress would be prevented if, abandoning pandispositionalism, we took the property of directionality to be a categorical property of the power rather than a power:

> 'Thinking of all properties as pure powers [that is, being pandispositionalist] leads to regress. The regress, I argue, can be blocked only if non-powers are admitted.' (2006:138) 'What if one were to argue that Q is *not* a power. The regress would then stop by admitting non-powers … if Q (the directedness of F) is a categorical property of F.' (2006:141) 'We need to view properties as being more-than-powers [i.e. powers and non-powers].' (2006:154)

What Psillos is proposing here is not just that powers involve non-powers in some way (e.g. to provide a categorical grounding). What he is proposing is something much more radical: that powers derive their powerfulness from non-powers. Directionality towards its manifestation to φ is what makes a power manifestable. It is this that gives the power the dynamic developmental character peculiar to a power. It is this that enables a power to point towards something other, something realisable, making the power powerful. But if directionality towards its manifestation is a categorical property of a power, namely a non-power, how can the power derive its powerfulness from it? Psillos is pessimistic about this way out (2006: 141).

[9] Inherent oneness is what I take the central idea of *self-subsistence* as in *Metaphysics*, 1032a2-4 (quoted below) to be for Aristotle's and for our purposes.

[10] The difference between this regress and the property-of-a-property regress is that the essence of an entity is not a meta-description or a formal property of the entity; hence the regress of essential types is generated within the ontology, not about the ontology. It is a regress of essences, not of meta-descriptions of being an essence.

[11] Scaltsas (1994: 128 ff.) was right to point us to the argument in *Metaphysics* VII.6 for the oneness of a thing with his essence, but as I argue above this is only the first step in showing the oneness of a concrete substance with its instantiated essence.

[12] 'What is compounded out of something so that the whole is one – not like a heap, however, but like a syllable – the syllable is not its elements, *ba* is not the same as *b* and *a*, nor is flesh fire and earth; for when they are dissolved the wholes, i.e. the flesh and the syllable, no longer exist, but the elements of the syllable exist, and so do fire and earth. The syllable, then, is something – not only its elements (the vowel and the consonant) but also something else; and the flesh is not only fire and earth or the hot and the cold, but also something else. Since then that something must be either an element or composed of elements, if it is an element the same argument will again apply; for flesh will consist of this and fire and earth and something still further, so that the process will go on to infinity …' (1041b11-22).

[13] 'But it would seem that this [i.e. the unifier of the elements in a syllable or in flesh] is something, and not an element, and that it is the cause which makes *this* thing flesh and *that* a syllable. And this is

the substance [i.e. essence] of each thing; for this is the primary cause of its being; … which is not an element but a principle.' (*Metaphysics* VII.17, 1041b25-31)

[14] Or as in the case of the letters 'f' and 'a' which lose their individuality – distinctness – in the syllable or a word.

[15] A longer version of the account of the instantiation of an essence offered here would touch on the following further points: to each individual e.g., human being there corresponds a range of possible determinations of the abstract essence 'human being'; various combinations of possible determinations in the range are the same human being; this involves explaining the role of historical properties in the instantiation of an essence. But this project will not be carried out here.

[16] It is captured as early as in Aristotle's *Categories* 1b3-7 in the concept of the *atomon* (indivisible). The indivisibility is within the categorial scheme, contrasted to recurrence, and hence not incompatible with the subsequent Aristotelian account of the compositeness of things out of matter and form.

[17] I will not discuss here, either, how the account above accords with the notion of physical continuity in the generation of things, which is significant for Aristotle's explanation of why transformations are not *ex nihilo* creations.