

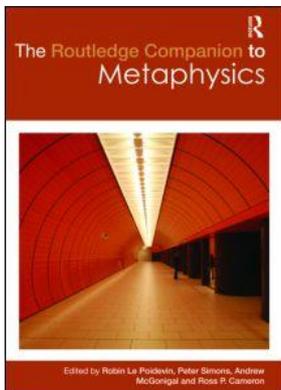
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On: 05 Oct 2022

Access details: *subscription number*

Publisher: *Routledge*

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The Routledge Companion to Metaphysics

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Aristotle

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9780203879306.ch3>

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Published online on: 03 Apr 2009

How to cite :- Stephen Makin. 03 Apr 2009, *Aristotle from: The Routledge Companion to Metaphysics*
Routledge

Accessed on: 05 Oct 2022

<https://www.routledgehandbooks.com/doi/10.4324/9780203879306.ch3>

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3

ARISTOTLE Form, matter and substance

Stephen Makin

Basic things: the notion of substance

Some philosophers are interested in the extremely general issue of just what there is in the world. But their curiosity would not be much satisfied by a bare list of things-which-exist, however exhaustive it was. First, metaphysically inclined philosophers are interested in the *types* of thing the world contains. And second, it seems that some among the world's items are more basic than others, and that what would be really interesting would be to find out which types of thing – if any – are the *most basic*. Aristotle uses the term *substance* for the most basic type of item. Of course, being given that term tells us nothing about what there is in the world. But it provides a crisp way in which to pose the two questions which face us when we think about what there is in the world. First, just what is meant when we say that substances are basic, or fundamental, or primary? And second, which types of things are the substances?

A good place to gain entry to Aristotle's account of substance is his short work *Categories*, especially chapters 1–5. The *Categories* identifies individual persisting things as substances, and Aristotle says this about them:

It seems most distinctive of substance that what is numerically one and the same is able to receive contraries. In no other case could one bring forward anything, numerically one, which is able to receive contraries. For example, a colour which is numerically one and the same will not be black and white, nor will numerically one and the same action be bad and good; and similarly with everything else that is not a substance. A substance, however, numerically one and the same, is able to receive contraries. For example, an individual man – one and the same – becomes pale at one time and dark at another, and hot and cold, and bad and good. (*Categories*, in Barnes 1984: Ch. 5, 4a10–21)

The driving thought is that substances are those things which persist through change. Other things depend in one way or another on substances. Some are temporary properties of substances, for example something's colour. Some are kinds into which

these temporary properties are grouped (scarlet and crimson are both types of red). Yet others are kinds into which substances are grouped (being human). But none of these could exist without the individual persisting things which Aristotle identifies as substances – the individual man, the individual horse, and the individual ox are the examples he gives. Without these individual substances there would be no temporary properties because there would be nothing for them to be properties *of*; and there would be no kinds, neither of the absent individual substances nor of the temporary properties which at different times attach to the substances. (Aristotle offers an argument for this conclusion at *Categories* [in Barnes 1984: Ch. 5, 2a35–2b6]: “if the primary substances did not exist it would be impossible for any of the other things to exist.”)

The view Aristotle expresses here – that what is “most distinctive” of substances is the fact that a single substance can have opposed properties at different times – helps fill out the way in which substances are basic.

First of all, it suggests that a substance is more robust than the properties it can lose or acquire. Suppose Sandie grows over the next year. Sandie will still be around that year (in that year it will be *Sandie* who is six foot tall), but Sandie’s previous height will have gone (the height five feet and six inches can’t itself increase to six feet).

Second, the view that substances are singular things which can persist from one time to another ties in with the appealing intuition that individuals have a more secure ontological status than general kinds. It is the individual man walking his individual dog with which I come into contact most immediately, and the status of those individuals looks more secure than that of the kinds – human and canine – under which they fall.

Third, we are introduced to the idea that substances are basic insofar as they *underlie* the other things, and that the other things depend on them because they are (in various ways) features *of* them. The fact that what is most distinctive of substances is that they can underlie one property today, and an incompatible property tomorrow reinforces the idea that substances are basic in that they are persisting subjects for properties.

Fourth, Aristotle’s examples of substances are noteworthy: things which are not merely persisting but natural, and not merely natural but living (an individual man, horse or ox rather than an individual mountain or an individual house). Aristotle’s preference for living things should be unsurprising, for they are indeed prime examples of individuals which persist through change. What is characteristic of living things is precisely that they keep themselves going through changes; in fact the life of a living thing is a series of changes – of size, shape, position, etc. – through and by which it develops. We probably have a more thorough understanding of how it is that a living thing changes and develops than we do about the alterations to which a mountain or a house can be subject.

Finally the idea that what is distinctive of substances is their persistence through change points to another Aristotelian contrast. When we characterise an individual as a substance of a certain kind (the individual Sandie as *human*) we are saying what Sandie *is* (a human being); whereas when we characterise an individual as having a quality (she is pale) we are saying what Sandie *is like*. If it is to be possible that Sandie first have one property (she’s pale) and then an incompatible property (she’s tanned), then what she *is* must remain stable (after all it is one and the same Sandie) while what she *is like* can change (pale yesterday, tanned today).

The main point to take from the *Categories* is that the basic things – the substances – are individual living things. And while much else about the *Categories* is controversial, this view of substance is sufficient for now (for further reading on the *Categories* see Ackrill 1963; and “Categories in Aristotle,” in Frede 1987: 29–48).

Nature

We can come to the *Categories* view of substance from another direction. At the start of *Physics*, Book 2, Aristotle reflects on this general feature of the world around us: that there is a difference between what is natural and what is artificial. By thinking through what precisely the difference is between the natural and the artificial, Aristotle comes to an account of what it is for something to have a nature of its own. His statement is nuanced and difficult, but the general idea is appealing. We live in a world in which a great deal happens, and we are bound to wonder where all these happenings come from. Which things in the world are producing all the activity we observe around us? To say that something has a nature of its own is to characterise it as one of the origins of change in the world, is to identify it as one of the things from which the changes in the world emerge, one of the things it would be sensible to appeal to in explaining why things change and remain the same in the various ways they do. The things which have natures are those which “drive” the world, things which activate change rather than merely responding to the activities of other things.

Further, it is tempting to suppose that the types of things which “drive” the various happenings in the world are in some sense the “basic” things in the world. They are those things the activities of which we would want to discover in order to understand what goes on in the world. Aristotle recognises and emphasises the connection between these different issues: which things are the natural things, which sorts of things have natures, what their natures are on the one hand, and which things are substances on the other. Towards the middle of chapter one of *Physics*, Book 2, he says,

Nature, then, is what has been stated. [i.e. a principle or cause of being moved and of being at rest in that to which it belongs primarily, in virtue of itself and not accidentally.] Things have a nature which have a principle of this kind. Each of them is a substance; for it is a subject, and nature is always in a subject. (*Physics*, in Barnes 1984: Bk 2, ch. 1, 192b33–4, with back reference to 192b21–3)

And the same connection is apparent in this remark from *Metaphysics*, Book 8:

Perhaps neither of these things themselves [house or utensil], nor any of the other things which are not formed by nature, are substances at all; for one might say that the nature in natural objects is the only substance to be found in destructible things. (*Metaphysics*, in Barnes 1984: Bk 8, ch. 3, 1043b21–3)

So, understanding what it is for something to be a substance, and identifying the sorts of things which are substances, is part and parcel of doing science, of investigating and

understanding the workings of the world around us. And once we start to think of substances in the context of the natural world and its workings, further reflection on the view of substance stated in the *Categories* is inevitable. Identifying substances as individual living things retains much of its appeal. Living things look to be star examples of agents, origins of change rather than simply reagents to the doings of other things. But the view is also likely to require refinement and development. (For further reading on Aristotle's account of nature see Lear [1988: Ch. 2] and Waterlow [1982: Chs 1–2].)

Form and matter

We have seen that what is most distinctive of substances is that they can have incompatible properties at different times, and thereby persist through change. But the idea of a persisting thing changing is really very puzzling, since it involves two aspects which appear *prima facie* to be in tension. Suppose Sandie changes from Monday to Tuesday. Then, on the one hand, she is different on the two days: she has *changed*, and so she is not on Tuesday as she was on Monday. But, on the other hand, she is the same on the two days: it is *Sandie* who has changed, *Sandie* who is not on Tuesday as *she* was on Monday. Indeed so puzzling is the notion of change that various of the Presocratic philosophers had abandoned one or the other of the seemingly conflicting requirements it embodies, some denying that there is any difference from one time to another, others denying that there is any sameness from one time to another.

Now it might seem easy to resolve this tension. It is obvious, is it not, that when something changes between Monday and Tuesday, it is *in one respect* different on the two days, while *in another respect* the same. However a bare statement like that is little more than a slogan, indicating roughly how to proceed with the problem. Aristotle's rich distinction between *form* and *matter* is intended to expand on the slogan and take us further (see Aristotle's treatment at *Physics*, in Barnes 1984: Bk 1, Chs 7–9).

"Matter" translates a Greek term, *hylê*, which is an everyday word meaning "wood"; and among the various terms which "form" translates is an everyday word, *morphê*, meaning "shape." These ordinary usages give us the basic idea. We can think of a table as some stuff (wood) arranged in a certain shape (flat surface with supporting legs). We can similarly think of a cardigan as wool knitted and stitched into the shape of a human torso, of a lake as water contained and arranged in a fairly extensive inland area, and so on. And we can go beyond these fairly simple examples, thinking of a word as some letters (matter) put in a certain order (form), of an archway as some stone (matter) in a certain shape and position (form), of a plant as some variety of chemicals (matter) in a certain dynamic structure (form). Further, the form/matter distinction can be applied and reapplied at different levels of composition. A house is bricks (matter) linked together in a certain structure (form). But equally a brick is, for example, clay (matter) in a rectangular shape (form). And a village will be houses (matter) related geographically in a particular way (form).

While some of the cases are (much) more difficult than others, the general scheme running through them should be clear enough. The matter of something is what composes it. The form is that in virtue of which the composing matter actually does

compose it. This might be something as simple as shape in the case of a table, or something as complex as a set of abilities in the case of a horse (for what makes something a horse is the ability to live an equine life, to gallop, canter and trot, to eat certain foods, to hear sounds within a certain range, etc. – a pickled and preserved equine corpse, regardless of its shape, *isn't* a horse, but at best a laboratory specimen or a work of art).

Aristotle develops a variety of views around his form–matter distinction, and those views are often referred to by scholars as hylomorphism (recall that “matter” translates the Greek *hylê*, and “form” the Greek *morphê*). Hylomorphism provides Aristotle with the resources to give a more carefully worked out account of change. Speaking quite generally, when something changes we can think of the matter (the material aspect) as what remains the same over the change, and the form (the formal aspect) as what is gained or lost as a result of the change. Now this hylomorphic analysis can be applied to the individual living things which Aristotle identifies as substances in the *Categories*. There are two types of application to consider. The first is fairly straightforward, while the second leads to further reflection on the substantial status of individual living things.

First, consider the type of case which was to the fore in the *Categories* in which an individual living thing persists through a change. First of all Sandie is one height, then she is another: we can think of Sandie as what persists and underlies the change, as the subject first for one height and then for another. (Aristotle’s prime example in *Physics*, Bk 1, ch. 7, of someone learning music, is a little more nuanced. The starting point is a privation [ignorance of music] understood as a subject’s lack of the form [knowledge of music], the acquisition of which form constitutes the change in the persisting subject.)

Second, the hylomorphic analysis can be applied to the individual living thing itself, that thing which was taken as persisting through the change in height. Aristotle said nothing in the *Categories* about the structure of an individual living thing such as Sandie. But it should seem clear that the individual living thing is itself a form–matter complex. For the crucial fact is that Aristotle’s favoured substances come into and go out of existence. In fact, as living things, they come into and go out of existence in regular and predictable ways. They have natural and fairly determinate life spans.

Now the idea that substances could be temporally limited things is striking. Many would feel tempted to think that the basic things in the world are eternally persisting things, and that their being basic is grounded in their indestructibility. According to Aristotle a number of his predecessors thought along these lines, looking for some permanent underlying stuff for the universe, and viewing other things as rearrangements of that stuff (for example, Democritus’ idea that everything is atoms and void). We also find the same downgrading of the temporally limited in Plato’s very different outlook, according to which the true beings are immaterial, eternal and unchanging forms, while other transient things are mere reflections or imperfect instantiations of the eternal forms. However, anyone who takes substances to be eternal pays a high price for doing so, for while Democritean atoms or Platonic forms would be eternal, they are not directly empirically accessible to us, and so the world views of Democritus or Plato are far more distant from commonsense than that of Aristotle. So the task for

Aristotle is to see how far he can hold to the view that empirically accessible individual living things are substances.

Existential and non-existential change

The fact that individual living things are subject to existential change (they come into and go out of existence) – as well as non-existential change (they increase in height and weight) – requires us to think of an individual living thing itself as a form–matter complex. But is this as straightforward a requirement as it seems?

Of the two types of change – existential and non-existential – the former is if anything more puzzling than the latter. If something new comes into existence at noon, then it might seem that at noon we have *something* where before noon there was *nothing*. If it were not so, how else could we get at the idea that there is something new (existential change) rather than something which was there all along undergoing non-existential change? But in that case existential change looks particularly paradoxical, for it would appear to involve something new coming from nothing.

Aristotle accepts that existential change cannot involve something coming out of nothing, and he acknowledges that in the case of existential change too we require some precursor from which the new substance arises.

But that substances too, and anything that can be said to be without qualification, come to be from some underlying thing, will appear on examination. For we find in every case something that underlies from which proceeds that which comes to be; for instance animals and plants from seed. (*Physics*, in Barnes 1984: Bk 1, ch. 7, 190b1–4)

Now a seed cannot be merely a precursor. There will have to be some degree of material continuity between the seed and the living thing which develops from it. For if there were no material continuity between seed and organism there would be no reason to think of what occurs as a seed giving rise to an organism rather than a seed vanishing and an organism appearing in the same place out of nowhere. But in that case a problem looms. For if there is some material continuity involved in both existential and non-existential change, then the temptation resurfaces to think of putative coming-into-existence as, in fact, *non*-existential change in some underlying material. So if Aristotle is to stand any chance of preserving his preference for individual living things as substances, he has to resist this slide back towards the idea that true basic substances are eternal, ungenerated and indestructible.

Aristotle considers the difference between existential and non-existential change in some detail at *De Generatione et Corruptione*, Book 1, chapters 3–4 (in Barnes 1984). Consider those transitions (to put it neutrally) in which there is something from which the transition starts, which is lost and replaced by something with which the transition ends, and where there is also something which persists through the transition. Aristotle offers a principled way of distinguishing among these transitions between those which count as non-existential change and those which count as existential change. The crux

is the relation between the new item at the terminus of the transition and the persisting item. If the new terminal item is a feature of what persists then we have a non-existential change in what persists. For example, take a transition in which green is replaced by red, while an apple persists. Since what is new at the end of the transition (red) is a feature of what persists through the transition (the apple) – i.e. since it is the apple which is red – we have a non-existential change in the apple. By contrast, if the new terminal item is not a feature of the persisting item, we have an existential change. Aristotle's example is some elemental air (hot–wet stuff, according to him) being destroyed by cooling, and some elemental water (cold–wet stuff) coming into existence in its place. There is something at the start of the transition (hotness) which is lost, and which is replaced at the end of the transition by something new (coldness); and there is also something which persists (wetness). In this case, however, the coldness, which is new, is *not* a feature of the wetness, which persists. Rather, both are features of something else – water. That is to say, it is not the persisting wetness which is cold, but the resultant water which is both wet and cold. And so this counts as an existential change: some air ceases to exist, and some water comes into existence.

How does any of this help with the idea of substances which are subject to existential change? It fills out the way in which we view an individual living thing as a hylomorphic complex. Living things come into existence out of precursors (seeds); and there is some material continuity between the seed and the organism. But the stuff of the seed does not persist as a subject of which the properties of the new organism are features. It is, rather, transformed in various ways – for example, in the course of embryonic development – into new stuff appropriate to compose the body and organs required for the life of the organism in question. The form of a horse – what it is in virtue of which some stuff composes a horse – is a set of abilities (for example, to eat, move, and perceive in various ways). The fairly simple and unstructured types of stuff found in seeds are not sufficient for those abilities. The equine form requires bone, muscle, hair, nerve tissue etc., which in turn make up the type of skeleton and musculature which enables galloping, the type of teeth and stomach which enable the eating and digestion of vegetable matter, and so on. There is no bone or muscle or hair in the precursors from which a horse develops. The flesh and bone which are the matter of a horse – unlike the bricks which are the matter of a house – are not pre-existent components from which the horse is made; and while a horse comes into existence from a seed, neither that seed nor its stuff persist as subjects for the horse's features.

Substance and substantial form

Now once we see that an individual living thing is itself a hylomorphic complex, the question of what should most properly be identified as substance re-arises. Aristotle considers a number of the issues surrounding this question in Books 7–9 of his *Metaphysics* (these “central books” of the *Metaphysics* are standardly referred to by Greek letters: Books Z, H and Θ). These books stand out in the Aristotelian corpus as particularly complex and obscure. Still, while practically everything about the interpretation of these books is controversial, it does seem – particularly in *Metaphysics*, Book 7 – that

Aristotle comes to prefer another candidate for the title of substance: not the hylomorphic complex which is a individual living thing (for example, the individual dog) but the substantial form (that in virtue of which something is a dog). It is not necessary for us to decide here quite what to make of this shift in focus. It may be that Aristotle has changed his mind about which items are substances (not living things, but their substantial forms); or it may be that he has retained his view that individual living things are substances while arguing that they owe this privileged status to their substantial forms. In either case a common question strikes us: why should it be plausible to move from the claim that there is something metaphysically special about living things to the thought that there is something special about their substantial forms? Here are two lines of argument

The first starts from the idea, familiar from the *Categories*, that what is most distinctive of substances is that they can have incompatible properties at different times while remaining one and the same thing. Living things seemed *par excellence* to satisfy that requirement. But we now see that living things themselves involve both change and persistence, that one and the same living thing is born, grows and develops, and eventually dies. Living things start from material precursors. They constantly take stuff from, and return stuff to, their environment in the course of producing new complex types of material in new organic structures. They eventually die, and the complex matter of which they are composed rots down and returns to the environment as the sort of lower level stuffs which can be taken up by other living organisms. What is it that persists through, guides, and controls that constant material change? The appealing answer is: the substantial form, the form which makes that individual living thing the type of thing it is. Consider the human Sandie. The matter of which she is most immediately composed – her flesh, bone, muscle, nerve tissue, etc. – are manufactured from other environmental stuffs through the processes of nutrition and growth which are in part, what her human form consists in (only in part, since there is far more to being human than eating and growing). The way in which that material change proceeds is fixed by the human form. How much material variation Sandie can survive is likewise fixed by the human form: given what is required by the abilities and dispositions which render something human, Sandie can grow and shrink within limits, but not to something over ten miles long or weighing less than an ounce. Changes which are not consistent with the continuation of the human form – for example, being diced into small chunks – are changes which destroy Sandie. In that case it will seem natural to think that the special status Sandie has as a living organism is due to, and should be inherited by, her substantial form.

The second argument starts from the observation that living things are highly organised, and their organisation goes a long way down into their hylomorphic structure. Not only the organism as a whole, but also the organs and the organic tissue, exhibit a great deal of structure. It is in virtue of this complex organisation that living things are such strongly unified items, and it is the fact that they are strongly unified which allows us to view individual living things as deserving of substantial status. For the more that some whole is a mere agglomeration of parts, the more drawn we are to take the parts as more basic than the whole – each individual sheep, for example, as more basic than

the flock. So, if we want to understand what it is about living things in virtue of which they can be complex and yet also strong candidates for substantial status, we should consider what it is which accounts for the high degree of unity which they exhibit. Now, as Aristotle argues in *Metaphysics* Book 7, chapter 17, what explains this degree of unity cannot itself be just another component of the unified whole, since then we would need to know what unifies it with all the other components. Rather it must be something to which we can appeal in explaining why all this stuff and all these parts taken together make up, for example, a single living human being. And that will be the substantial form – a structure rather than a component, a “principle” rather than an “element,” as Aristotle puts it:

It would seem that this is something, and not an element, and that it is the cause which makes *this* thing flesh and *that* a syllable. And similarly in all other cases. And this is the substance of each thing; for this is the primary cause of its being; and since, while some things are not substances, as many as are substances are formed naturally by nature, their substance would seem to be this nature, which is not an element but a principle. An *element* is that into which a thing is divided and which is present in it as matter, e.g. *a* and *b* are the elements of the syllable. (*Metaphysics*, in Barnes 1984: Bk 7, ch. 17 1041b25–33; substituting “explanation” for “cause” makes Aristotle’s point clearer)

So we can see why individual living things should have a strong claim to be substances; why individual living things themselves have to be hylomorphic complexes; how they might be both substantial and yet undergo existential change; and why ascribing a privileged status to individual living things would lead Aristotle to turn his attention to substantial forms.

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Further reading

I have referred to four Aristotelian texts: *Categories*, *Physics*, *Generation and Corruption* and *Metaphysics*. Where I have quoted I have used the translations in *The Complete Works of Aristotle: The Revised Oxford Translation*, 2 vols, edited by Jonathan Barnes (Princeton, NJ: Princeton University Press, 1984). For detailed commentary on the texts and passages on which I have concentrated (along with a translation generally alternative to the Revised Oxford Translation) there are the following volumes in the Clarendon Aristotle Series: J. L. Ackrill, *Aristotle’s Categories and De Interpretatione* (Oxford: Clarendon Press, 1963); D. Bostock, *Aristotle Metaphysics Books Z and H* (Oxford: Clarendon Press, 1994); W. Charlton, *Aristotle’s Physics Books I and II*, revised edn (Oxford: Clarendon Press, 1992); and C. J. F. Williams, *Aristotle’s De*

Generatione et Corruptione (Oxford: Clarendon Press, 1982). J. Barnes (ed.), *The Cambridge Companion to Aristotle* (Cambridge: Cambridge University Press, 1995) contributes a particularly helpful section on Aristotle's metaphysics. M. F. Burnyeat *A Map of Metaphysics Zeta* (Pittsburgh, PA: Mathesis, 2001) is a major study of *Metaphysics* 7 (an advanced book). M. Frede, *Essays in Ancient Philosophy* (Clarendon Press, Oxford, 1987) is a collection of Frede's papers, including both "Categories in Aristotle" (1981) and "Substance in Aristotle's Metaphysics" (1985). J. Lear, *Aristotle: The Desire to Understand* (Cambridge: Cambridge University Press, 1988) is a general introduction to Aristotle, with chapter 2 particularly helpful on nature, form and matter. V. Politis, *Aristotle and the Metaphysics* (Abingdon, UK: Routledge, 2004) is a guide book designed to make Aristotle's *Metaphysics* more easily accessible. C. Shields, *Aristotle* (Abingdon, UK: Routledge, 2007) is a recent general introduction to Aristotle's philosophy (chapters 4 and 6 concentrate on the *Categories* and *Metaphysics*). S. Waterlow, *Nature, Change and Agency* (Oxford: Clarendon Press, 1982) (chapters 1 and 2, in particular, concentrate on Aristotle's concept of nature). M. V. Wedin, *Aristotle's Theory of Substance* (Oxford: Oxford University Press, 2000) is an advanced discussion of Aristotle's treatment of substance in the *Categories* and *Metaphysics Z*.