

## Aquinas and the Varieties of Dependence

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# Aquinas and the Varieties of Dependence

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I wish to prove in this article that Thomas Aquinas was a metaontological pluralist, i.e., that he held that there are many, non-equivalent and irreducible dependence relations in the universe. In this respect, I shall focus on Aquinas' doctrine of the four causes and on the dependence relationships between matter and form in material substances. Subsequently, I shall also reconstruct Aquinas' doctrines by explicitly appealing to metaontological pluralism. I shall explore two routes towards Aquinas' metaontological pluralism: one based on cases of apparent mutual dependence and the other based on the asymmetry of natural priority. Finally, I shall provide two original interpretations of the doctrine of the four causes and of the dependence relationships between matter and form. Such interpretations will be based on the metaphysics of powers. In Section 1 I shall introduce metaontological pluralism and the two routes. In Section 2 I shall examine Aquinas' doctrine of the four causes. In Section 3 I shall provide an interpretation of that doctrine based on powers. In Section 4 I shall consider the dependence relationships between matter and form in material substances. In Section 5 I shall provide an interpretation of such relationships based on powers.

This article has three purposes. First, I wish to show that Thomas Aquinas was a metaontological pluralist, i.e., that he held that there are many, non-equivalent and irreducible dependence relations. More precisely, I shall examine two cases taken from Aquinas' metaphysics: his doctrine of the four causes and the relationships between form and matter in material substances. From the study of such cases, two routes towards metaontological pluralism will emerge.

Secondly and relatedly, I shall reconstruct these doctrines in light of my own version of metaontological pluralism, which is based on distinct and non-equivalent Respect-of-Dependence Relations (RD-relations). In this respect,

I shall single out the RD-relations that may contribute to accounting for Aquinas' theses and the features of such relations.

Thirdly and finally, within this framework, I shall motivate the priority of final causes over the other causes and I shall account for the dependence relations between matter and form by appealing to a powers metaphysics. This will (partly) set me apart from Aquinas' own views.

In Section 1 I shall introduce metaontological pluralism and the two routes. In Section 2 I shall consider Aquinas' doctrine of the four causes, which is clearly indebted to Aristotle. I shall show how this doctrine fits better with metaontological pluralism than with metaontological monism. In Section 3 I shall provide an interpretation of Aquinas' claim that final causes are prior to all the other causes. This interpretation rests on the acceptance of a powers metaphysics.

In Section 4 I shall take into account the relationships between matter and form in material substances. Metaontological pluralism will emerge as the best option. Finally, in Section 5, the dependence relationships between matter and form will be interpreted from the standpoint of a powers metaphysics. This interpretation will preserve the asymmetry of all such relations, i.e., the fact that, if something depends upon something else through a given dependence relation, then the latter does *not* depend on the former *through that very relation*. As we shall see, preserving this asymmetry is important in order to account for the relative fundamentality/priority of some entities (i.e., the dependees) over other entities (i.e., the dependent entities).

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#### 1. Metaontological Pluralism and Aquinas' Routes.

Metaontological pluralism is the doctrine according to which there are many, non-equivalent and irreducible dependence relations. Please note that I shall use "dependence" in a very broad sense in this context. "Dependence" will cover all those relations that are supposed to account for the apparent truth of claims with the following expressions: "in virtue of", "makes it the case that", "because of" and (obviously) "depends on". Therefore and at least in principle, the following relations may be examples of dependence relations: determination, grounding, supervenience, modal existential dependence, and so on. I am well aware that there are two further, narrower uses of "dependence", one pointing to modal existential dependence and the other to the

converse of grounding<sup>1</sup>. However, my use of “dependence” will be more inclusive. Additionally, I shall call “D-relations” the dependence relations metaontological pluralists have in mind.

Metaontological pluralism has been recently defended by some authors<sup>2</sup>. However, its main rival, i.e., metaontological monism, still seems to be the received view. According to metaontological monism, there is only one (or only one irreducible) dependence relation. Call it “dependence\*” from now onwards. Namely, dependence\* is the only one (irreducible) dependence relation accepted by metaontological monists. Dependence\* may be identified with grounding, but it need not be<sup>3</sup>. Indeed, the contrast between metaontological pluralism and metaontological monism does *not* primarily concern *which* dependence relations one may find in the universe. It primarily has to do with *how many* (irreducible) dependence relations one may find in the universe.

D-relations and dependence\* are supposed to share some features. They may hold between distinct sorts of relata, belonging to distinct ontological categories (e.g., facts, propositions, substances, properties, events, etc.). Moreover, the dependent entities are taken to be explained by the dependee(s) - at least in some respects. If A depends on B (either by dependence\* or by some D-relation), then B contributes to explaining A - at least in some respect.

D-relations and dependence\* need *not* be taken as external relations with respect to their relata. Namely, they need *not* be taken as genuine additions of being with respect to their relata. They may entirely derive from the existence and/or the essence of their relata - or at least some D-relations may have this feature. On the other hand, D-relations and dependence\* need *not* be taken as constitutive of the essences of their relata or as ‘flowing from’ the essences of their relata. True: essential dependence is either constitutive of or ‘flows from’ the essence of at least one of its relata. And it may well be a legitimate D-relation - or the only dependence\* relation in town. However, from the perspective of metaontological pluralists, nothing rules out that there can also be further D-relations that are *not* constitutive of and that do *not* ‘flow from’ the essences of their relata. And, from the perspective of

<sup>1</sup> See Tahko, Lowe (2020) and Schnieder (2020).

<sup>2</sup> See Wilson (2014), Koslicki (2015) and (2018), Bennett (2017) and Paolini Paoletti (2019), (2021a), (2021b) and (2023), Rydén (2018), Calosi (2020) and McKenzie (2020) and (2022).

<sup>3</sup> For an overview, see Bliss, Trogdon (2021). Another position in the neighborhood of metaontological pluralism is grounding pluralism, i.e., the thesis according to which there are different grounding relations (see Richardson 2020).

metaontological monists, nothing rules out dependence\* may actually be identified with something different from essential dependence.

D-relations and dependence\* may well be irreflexive or non-irreflexive. A dependence relation is irreflexive if and only if, as a matter of metaphysical necessity, for any relatum A, it is never the case that A depends on A itself. If this is not the case, that relation is non-irreflexive. If there is only dependence\*, then dependence\* must be either irreflexive or non-irreflexive. On the contrary, if there are many D-relations, some of them may be irreflexive and others non-irreflexive.

D-relations and dependence\* may also be asymmetrical or merely non-symmetrical or symmetrical. A dependence relation is asymmetrical if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B<sup>4</sup>, then it is *not* the case that B depends on A. It is symmetrical if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then B depends on A. It is merely non-symmetrical if and only if it is *not* symmetrical and *not* asymmetrical. Dependence\* must be either asymmetrical or merely non-symmetrical or symmetrical. On the contrary, distinct D-relations may behave in different ways in this respect.

Finally, D-relations and dependence\* may also be transitive or non-transitive. A dependence relation is transitive if and only if, as a matter of metaphysical necessity, for all relata A, B and C, if A depends on B and B depends on C, then A depends on C. It is non-transitive if and only if this is *not* the case. Dependence\* must be either transitive or non-transitive. Some D-relations may well be transitive and others non-transitive.

It is also possible to find out if a given dependence relation holds:

- *by necessity or only contingently* between its relata: it holds by necessity if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then it is necessarily the case that, if A exists<sup>5</sup>, A depends on B; it holds only contingently if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then it is *not* necessarily the case that, if A exists, A depends on B;

- *permanently or non-permanently* between its relata: it holds permanently if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then A depends on B at every time at which A exists; it holds non-permanently if and only if, as a matter of metaphysical necessity, for all

4 Obviously, "B" is a placeholder that may also stand for a plurality of entities.

5 If A were an event, it would be better to claim that A occurs; if it were a fact, it would be better to claim that A obtains; and so on.

relata A and B, if A depends on B, then A depends on B at some time at which A exists but not at every time at which A exists;

- *specifically* or *generically* between its relata: it holds specifically if and only if, as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then A depends on that very entity B (or on those very entities, if B is a plurality); it holds generically if and only if, as a matter of metaphysical necessity, for any dependent entity A and for any given type of dependees (i.e., the Bs), A depends on some B or another, but on no specific B at all (see Table 1).

RD-relations invoked for a Powerful Interpretation of the Four Causes		
RD-relation	Description	
dependence for possession	a power A depends upon B (or the Bs) for its being possessed by its bearer	(a) necessary (b) necessary (c) contingent specific. (b) and denial of
dependence for activation	a power A depends upon B (or the Bs) for its being activated by its bearer	(a) necessary
starting-to-exist-dependence	A depends upon B (or the Bs) for its starting to exist	(a) necessary (b) contingent specific; (c) necessary (a) and denial of (c) come acceptance
sortal-dependence	A depends upon B (or the Bs) for its being a given sort of entity	(a) necessary

**Table 3:** RD-relations invoked for a Powerful Interpretation of the Four Causes (Section 1)

If one embraces metaontological pluralism, one may hold that distinct D-relations may behave in different ways with respect to necessity, contingency, permanency, and so on. Namely, some of them may be necessary, permanent and specific; others may be contingent, non-permanent and specific, and so on. On the contrary, metaontological monists should decide if dependence\* is necessary or just contingent, if it is permanent or non-permanent, if it is specific or generic.

In my own version of metaontological pluralism<sup>6</sup>, I have argued that D-relations are singled out by appealing to respects of dependence. Take a certain category of entities, e.g., Kimian events. One may single out all the aspects/respects that are somehow ‘crucial’ to those entities: e.g., their occurrence, their being the sort of things they are, their individuation, their being caused, and so on. In this way, one may hold that those entities depend on certain entities in a given respect (e.g., a Kimian event depends on the substance, property and time partaking in it for its individuation), on further entities in another respect (e.g., a Kimian event depends on another event for its occurrence), and so on.

Respects of dependence correspond to distinct dependence relations (or RD-relations). For example, sortal-dependence, individuation-dependence, dependence for starting to exist, dependence for continuing to exist, constitution-dependence, power-conferral-dependence, and so on. Moreover, each RD-relation may be qualified in respect of its necessity or contingency, permanency or non-permanency, specificity or genericity. Thus, *at least in principle*, each RD-relation may actually give rise to six qualified RD-relations: e.g., necessary, permanent and specific constitution-dependence; contingent, non-permanent and generic constitution-dependence; and so on<sup>7</sup>.

In what follows, I aim at singling out the RD-relations that may be helpful for reconstructing some of Aquinas’ doctrines and the features they have. Relatedly, I shall single out their relata as well. Indeed, in what follows, I shall consider two cases in which Aquinas’ metaphysics seemingly requires the acceptance of metaontological pluralism: his doctrine of the four causes and the relationships between matter and form in material substances.

I am not the first philosopher who claims that Aquinas’ metaphysics appeals to many dependence relations<sup>8</sup>. And I could have considered other cases as

6 See Paolini Paoletti (2019), (2021a), (2021b) and (2023).

7 In previous works, I ruled out that necessity may be combined with non-permanency.

8 See for example Brower (2014) and Rooney (2019). Brower (2022) argues that the theory of the four causes entails the existence of multiple metaphysical determination relations. In her reconstruction of Aquinas’ doctrine of powers, it seems to me that Frost (2022) needs to appeal to metaontological pluralism as well. For example, Aquinas’ passive powers are individuated by active powers and *not* vice versa, whereas passive powers require active powers for their activation *and* vice versa (see Frost 2022: 140-157). Thus, it seems that, being non-reciprocal, dependence for individuation should come apart from (reciprocal) dependence for activation. Moreover, Frost (2022: 171-181) points out that, in Aquinas, distinct types of accidents correspond to distinct ways of existing (possibly borne by the same actual entity), i.e., to distinct ways of depending upon substances. Again, it seems that distinct ‘ways of depending’ are at stake.

well: the relationships between substances and their accidents; those between the essences of created beings and their act of being (*actus essendi*); those between God and creatures; the relationships between what is in potency and what is in act<sup>9</sup>. However, the two cases I shall examine provide the least contentious examples of metaontological pluralism. Moreover, I hope that I shall be able to articulate the complex D-relations at stake in these cases and all of their features.

As we shall see, two routes towards metaontological pluralism will emerge. Route 1 is the following. According to Aquinas, dependence/causal<sup>10</sup> relations are asymmetrical. However, it may well be the case that A depends on B and that B depends on A. The only way to reconcile these two claims is that, whenever A depends on B, A depends on B *in a given respect*, through a certain dependence relation  $D_1$ . Namely, A  $D_1$ -depends on B. However, it is *not* the case that B  $D_1$ -depends on A. Indeed, whenever B depends in turn on A, B depends on A *in another respect*, through another dependence relation  $D_2$ . Namely, B  $D_2$ -depends on A. However, it is *not* the case that A  $D_2$ -depends on B. Thus,  $D_1$  and  $D_2$  are distinct and asymmetrical dependence relations.

But suppose that we stick to metaontological monism and we hold that there is only one dependence\* relation in place here. Suppose that we also accept that dependence\* is merely non-symmetrical. Route 2 proves that - in addition to dependence\* - there must be another dependence relation and that such a relation is asymmetrical. Indeed, Route 2 invokes the asymmetry of natural priority - or priority, in short. If A is prior to B, then in no way can it be the case that B is prior to A. Thus, priority is asymmetrical. Thus, there must be at least two distinct dependence relations: merely non-symmetrical dependence\* and asymmetrical priority - or some asymmetrical dependence relation backing priority.

9 On these metaphysical issues, see for example Davies (1993), Wippel (2000), Kenny (2002), Stump (2003), McInerny (2004), Shields, Pasnau (2016).

10 In Aquinas' and Aristotle's metaphysics, causal relations are typically considered dependence relations. See Cohoe (2013) for a discussion and for references to Aquinas' works.



Aquinas' doctrine of priority is rather complex<sup>11</sup>. There are distinct ways of interpreting priority. One crucial way of interpreting priority is the following: A is prior to B if and only if A is separable from B. Namely, A's existence does *not* require B's existence. More strongly, A is independent of B. Call this "priority-1"<sup>12</sup>. But Aquinas also holds that A is prior to B if and only if A is more perfect than B. Call this way of interpreting priority "priority-2"<sup>13</sup>. Finally, he states that A is prior to B if and only if B originates from A (so that B depends on A) and it is *not* the case that A originates from B (so that A does *not* depend on B). For nothing can originate from itself (either directly or by transitivity). Call this way of interpreting priority "priority-3". Priority-3 typically holds between God and all the creatures<sup>14</sup>.

Priority-1, priority-2 and priority-3 need *not* be equivalent. Something (e.g., a substance) may be prior-2 to something else (e.g., its necessary accidents), without being prior-1 to the latter (e.g., the substance and its necessary accidents are not separable). But, at any rate, at least priority-2 and priority-3 are asymmetrical. Or they are backed by some asymmetrical dependence relation. Moreover, when it comes to paradigmatic examples of priority-1 (e.g., substances and non-necessary accidents), priority-1 is asymmetrical as well. Or it is backed by some asymmetrical (in)dependence relation.

It is now time to fill these schemas and depict Aquinas' metaontological pluralism.

## 2. The Four Causes.

Following in the footsteps of Aristotle<sup>15</sup>, Aquinas holds that an exhaustive explanation of the existence/occurrence of something must appeal to four

11 I follow McAdam Erb (1999) in singling out different sorts of priority. McAdam Erb also considers two additional types of priority: priority *quoad nos* (in opposition to priority in nature) and priority *qua* being nearer to a principle. However, I shall not discuss these types of priority. Indeed, priority *quoad nos* is merely epistemic, whereas we are only interested here in priority in nature, i.e., in the universe. And priority *qua* being nearer to a principle can either be assimilated (at least in this context) to priority as possessing higher perfection (priority-2) (if being nearer to a principle entails being more perfect, as it seems to do) or to priority as being the origin of (priority-3) (if what is nearer to its principle is also nearer to its origin). Finally, I shall not consider here priority in time. For priority in time, by itself, has little to do with dependence. However, in Section 2, we shall take into account the priority of material and efficient causes in generation.

12 See for example *In Phys.*, 8, 14, 5 and *In Metaph.*, 5, 13, 15-17.

13 See for example *Contra Gent.*, III, 82, 6, *De virt.*, 4, 3, co. and *De ver.*, 9, 3, ad 6.

14 See for example *Contra Gent.*, II, 16 and *Quodlibet.*, V, 10, 1, co..

15 On Aristotle's doctrine, see his *Physics*, II, 2, his *Metaphysics*, IX, 8 and his *On the Parts of Animals*, I, 1. For a clear and exhaustive presentation, see Shields (2014).

distinct types of causes - at least as far as material entities and changes are concerned<sup>16</sup>.

Suppose that we wish to explain the existence of a certain human being: Socrates. First, there is his material cause. The material cause of something is that out of which that thing exists/occurs. In this case, it is what underlies Socrates' coming into existence. It is the portion of matter out of which Socrates comes into existence. Thus, the material cause of something had the pure potentiality of becoming that thing, but also other things. Indeed, Socrates' portion of matter had the pure potentiality of becoming the portion of matter constituting a certain human being (i.e., Socrates). But it also had the potentiality of becoming the portion of matter constituting another human being (e.g., Plato) or something else. Thus, it is what had some pure potentiality of becoming in some relevant way<sup>17</sup>.

The formal cause of something is what actualizes - through its action<sup>18</sup> - the relevant portion of matter. In this case, Socrates' form (i.e., Socrates' humanity or, equivalently, the form of humanity in Socrates<sup>19</sup>) is what actualizes the potentiality of Socrates' portion of matter of becoming the portion of matter that constitutes a human being (i.e., Socrates). Indeed, the formal cause of something is taken to structure some relevant portion of matter and thereby make some relevant predicable true of it. Socrates' humanity structures Socrates' portion of matter, thus making it true that Socrates is a human being<sup>20</sup>. As we shall see, there are both substantial and accidental forms. The former, through their actions, engender the existence of substances (e.g., Socrates). The latter, through their actions, engender the existence of accidents (e.g.,

16 It goes without saying that immaterial entities (such as God and the angels) and their changes need *not* have material causes. And that uncreated entities - such as God - do not have efficient causes. By "entities", I mean everything that exists, either by *having* existence or by being identical with existence itself (as it happens with God).

17 For the presentation of Aquinas' doctrine of the four causes, see Shields, Pasnau (2016). One crucial text for this doctrine is Aquinas' *De principiis naturae* (see Bobick 1998 for a translation and commentary). In the footsteps of Shields and Pasnau, I shall mostly follow this latter text (though other crucial texts are *In Phys.*, 2, 5-6 and *In Metaph.*, 5, 2). Further references on matter and form will be provided in Section 4. In this Section, I shall mostly add references on efficient and final causes.

18 I use "action" here in order to convey the idea that forms actualize potentialities in matter. This does *not* entail that forms are agents. For the only agents are substances.

19 By "Socrates' humanity", I do *not* point to Socrates' essence. For Socrates' essence also includes matter.

20 On form and formal causes, see Bobick (1998) and the other references to Aquinas' works in Section 4. See also Wippel (2000).

Socrates' being a philosopher). With respect to accidents, what plays the role of matter is the substance itself. But I shall avoid this complication here and I shall only consider substantial forms.

In the case of substantial forms, formal causes also provide diachronic identity criteria through replacements of portions of matter. Socrates' humanity makes it the case that Socrates still is the same substance when the portions of matter that constitute him get replaced. Additionally, formal causes also endow matter and material parts with specific powers<sup>21</sup> and they ground the degrees of perfection of the relevant substances<sup>22</sup>.

Then come efficient causes. The efficient cause of something is what initiates the relevant movement/change resulting in that thing. It is the agent of change<sup>23</sup>. Or, more precisely (at least for Aristotle), it is a temporally extended activity of the agent that temporally overlaps its effect<sup>24</sup>. In our example, Socrates' parents together are the efficient cause leading to the existence of Socrates. Socrates' parents, through their union, are responsible for a change that leads to the existence of Socrates. But, in the end, God (or God's creation) is the efficient cause of the existence of any creature. The efficient cause of something always exercises a certain power, i.e., the power of endowing some relevant portion of matter with some relevant form<sup>25</sup>.

21 This is an issue many contemporary Neo-Aristotelian metaphysicians typically stress. See for example Marmodoro (2014), Koons (2022) and Simpson (2022).

22 Again, see Bobick (1998), Wippel (2000) and other references to Aquinas' works in Section 4.

23 See for example *Sum. Th.*, I, 36, 3, co., *Contra Gent.*, II, 28, *In Phys.*, 2, 5-6 and *De Princ.*, 3-4.

24 See Shields (2014) and Shields, Pasnau (2016).

25 See Shields, Pasnau (2016). Aquinas distinguishes between two types of efficient causes, i.e., *causae fiendi* and *causae essendi* (e.g., see *Sum. Th.*, I, 104, 1, *Contra Gent.*, III, 65 and 67 and *De Pot.*, 5, 1). The former are responsible for the beginning of something. The latter are responsible for its existence/being. Therefore, there may be *causae fiendi* that are responsible for changes even without being responsible for the being of their effects, i.e., even without being *causae essendi*. And there may be *causae fiendi* (e.g., God) that are responsible for changes while also being responsible for the being of their effects, i.e., by also being *causae essendi*. If there are *causae essendi* that (i) are efficient causes and that (ii) are responsible for the continued existence of something (iii) without also being responsible for the latter beginning to exist, then such *causae essendi* are troublesome for this characterization of efficient causes. With respect to these causes, I would not use the label "efficient causes" - or I would not use it directly. Namely, I would either hold that these are efficient causes of their effects *only indirectly*, i.e., by producing further changes that result in the former effects continuing to exist. Or that they are something upon which the relevant effects only depend for their continued existence - without being efficient causes of the latter.

Finally, there are final causes. The final cause of something is what for the sake of which something exists/occurs<sup>26</sup>. For example, the final cause of Socrates presumably is the exercise of his rational powers (which results in the manifestation of such powers<sup>27</sup>) - together with the rational exercise of his appetitive and vegetative powers. Final causes are needed in order to explain regularities in functioning and in order to account for specific activities of systems. They do *not* require rational deliberation - at least when it comes to non-rational beings.

In sum, if we wish to explain the existence/occurrence of something material, we need to single out its material cause (i.e., that out of which that thing exists/occurs), its formal cause (i.e., what actualizes the material cause), its efficient cause (i.e., what initiates the relevant movement/change) and its final cause (i.e., what for the sake of which that thing exists/occurs).

From the standpoint of metaontological pluralism, we may interpret the four causes by appealing to distinct D-relations: (material) constitution-dependence, sortal-dependence, starting-to-exist-dependence and teleological dependence (see Table 2).

<sup>26</sup> See for example *Contra Gent.*, III, 2, *De ver.*, 21, 2, co. and 22, 2, co., *In Phys.*, 2, 5-6 and *De Princ.*, 3-4.

<sup>27</sup> Therefore, even if the exercise and the manifestation of a power were distinct entities, I would rule out that the former may occur without the latter, i.e., that powers may get exercised even without reaching their manifestations.

RD-relations invoked for Matter and Form (Section 4)		
RD-relation	Description	
starting-to-exist-dependence	A depends upon B (or the Bs) for its starting to exist	(a) neces (b) neces
continuing-to-exist-dependence	A depends upon B (or the Bs) for its continuing to exist	(a) neces
actualization-dependence	A depends upon B (or the Bs) for getting some of its pure potentialities actualized	(a) neces (b) neces
individuation-dependence	A depends upon B (or the Bs) for its being a certain individual entity (of its sort)	(a) neces

**Table 4:** RD-relations invoked for Matter and Form (Section 4).

Take a certain material substance, e.g., Socrates. First of all, Socrates depends for his (material<sup>28</sup>) constitution on Socrates' portion of matter. And he necessarily and permanently depends on it. Namely, at every time and in every possible world in which Socrates exists, it is the case that Socrates depends (for his material constitution) on Socrates' portion of matter<sup>29</sup>. Yet, such a dependence only seems to be generic. Namely, Socrates depends for his (material) constitution on some portion of matter or another that turns out to play the role of Socrates' portion of matter. Yet, he depends on no specific portion of matter that always and necessarily plays that role<sup>30</sup>. In sum,

<sup>28</sup> Indeed, Socrates' substantial form is taken to be another, non-material constituent of Socrates.  
<sup>29</sup> True: as we shall see, human beings may also exist without matter. But, in those circumstances (i.e., when they have disembodied existence), according to Aquinas, only their forms exist.  
<sup>30</sup> Actually, as we shall see, the very portion of matter out of which Socrates comes into existence is taken to individuate Socrates. Yet, Socrates may replace through time the portions of matter that constitute him. How can we reconcile these facts? We may hold that Socrates necessarily,

Socrates necessarily, permanently and generically depends for his (material) constitution on Socrates' portion of matter.

Secondly, Socrates sortal-depends (i.e., depends for his being a certain sort of thing<sup>31</sup>) on Socrates' form, i.e., on his humanity. And he necessarily and permanently depends on it: whenever and in whatever possible world Socrates exists, it is the case that Socrates sortal-depends on his humanity. For it seems that at no time and in no possible world can Socrates stop being human. By "Socrates' humanity", we point here to the *generic* form of humanity. This form then gets individuated by the specific portion of matter that constitutes Socrates at the very beginning of his existence<sup>32</sup>. At any rate, Socrates specifically sortal-depends on Socrates' humanity. It can sortal-depend on no other form. Otherwise, he would not be Socrates (and a human being) anymore. Thus, Socrates necessarily, permanently and specifically sortal-depends on Socrates' humanity. Obviously, as far as accidents are concerned, the relevant forms on which accidents necessarily, permanently and specifically sortal-depend are accidental forms.

In both cases, forms are also principles of intelligibility: the entity that sortal-depends on a given form can be known only by appealing to that form. For example, it is only by appealing to the form of humanity that we can know Socrates, e.g., that we can know that he is a human being, that he can bear certain accidents (compatible with his being a human being) and not others (incompatible with his being a human being), and so on.

Thirdly, Socrates depends for his starting to exist on his parents. We shall now briefly depart from Aquinas. Indeed, in contemporary analytic metaphysics, many philosophers would embrace the idea that Socrates could have had other parents (or, more precisely, other origins) from the parents/origins he actually had. Namely, many philosophers would reject origin essentialism

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permanently and *specifically* depends for his *individuation* on a certain portion of matter, i.e., that out of which he comes into existence. However, he necessarily, permanently and *generically* depends for his material *constitution* on Socrates' portion of matter, i.e., on some portion of matter or another that plays the role of being the portion of matter that constitutes Socrates.

31 In previous works, I have used "identity-dependence" as a label that includes both sortal-dependence and dependence for individuation. Namely, I have claimed that A identity-depends on B insofar as A depends on B for its being a certain sort of thing and/or the very thing of its sort A is. In Aquinas' metaphysics, however, it is better to maintain that Socrates depends for its individuation not on Socrates' form (at least not directly, as we shall see in Section 4), but on the specific piece of matter out of which Socrates starts to exist.

32 See notes 30, 31 and the references on matter to Aquinas' works in Section 4.

and the thesis of the necessity of origins<sup>33</sup>. But Aquinas clearly accepted the necessity of origins thesis: Socrates could not have had other parents/origins from the ones he actually had<sup>34</sup>.

Thus, we have two options. We may either depart from Aquinas' own views by rejecting the necessity of origins, or we may accept the necessity of origins and provide a more faithful reconstruction of Aquinas' doctrines. I shall explore both options.

If we go for the first option (i.e., rejecting the necessity of origins thesis), we should distinguish between two interpretations of the claim that Socrates depends for his starting to exist on his parents. First, if by "Socrates' parents" we mean some pair of entities or another that play the role of Socrates' parents, then it seems that Socrates necessarily, permanently but *generically* depends on them for his starting to exist. Namely, whenever and in whatever possible world Socrates exists, it is the case that he depends for his starting to exist on some pair of entities or another that play the role of Socrates' parents - though such entities may vary.

But, if by "Socrates' parents" we mean the very entities that actually played the role of Socrates' parents, then it seems that Socrates contingently, non-permanently but specifically depends on them for his starting to exist. Namely, Socrates could have had other parents. But Socrates depends for his starting to exist (contingently and non-permanently) on those very actual parents he had. At any rate, when it comes to God, it seems that every creature necessarily, permanently and specifically depends for his starting to exist on God himself<sup>35</sup>.

On the other hand, if we go for the second option (i.e., accepting the necessity of origins thesis), Socrates necessarily, permanently and specifically depends on his actual parents for his starting to exist<sup>36</sup>.

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<sup>33</sup> This thesis was defended by Kripke (1980). See Robertson Ishii, Atkins (2020).

<sup>34</sup> See for example *Quod.*, III, 11, and V, 5, 1. It is not clear to me if Aquinas would have also held that such origins are *essential* to Socrates. Maybe, if Socrates' form gets individuated by the first piece of matter that made up Socrates - as we shall see - and if this piece of matter gets individuated by the pieces of matter that made up Socrates' origins (e.g., the sperm cell and the egg cell of his parents), then Socrates' origins are also essential to Socrates (see for example *Quod.*, VII, 4, 3).

<sup>35</sup> And also for his conservation, or continued existence. Indeed, Aquinas holds that conservation is a form of efficient causation (see *De Pot.*, 3, 7, co. and Rota 2012). In this case, we may integrate our account of efficient causation by also appealing to dependence for continuing to exist. See also note 25.

<sup>36</sup> Moreover, if one also embraces the essentiality of origins, one should also add that Socrates necessarily, permanently and specifically depends on his actual parents for his individuation.

Fourthly, Socrates teleologically depends (i.e., depends for his having a certain end) on Socrates' end, e.g., the proper exercise of his rational powers - together with the rational exercise of his appetitive and vegetative powers. It seems that Socrates necessarily, permanently and specifically depends on such an end. Namely, at no time and in no possible world can he have any other end. And Socrates' end is a specific one - it is *not* some end or another. Presumably, Aquinas would not have accepted that Socrates (as a human being) could have existed with other ends from the ones he actually has<sup>37</sup>. Teleological dependence will be further clarified in Section 3 and it will be replaced with other RD-relations.

Thus, to summarize, if we go for the first option (i.e., rejecting the necessity of origins thesis), then Socrates:

- (1) necessarily, permanently and generically depends for his (material) constitution on Socrates' portion of matter;
- (2) necessarily, permanently and specifically sortal-depends on Socrates' humanity (i.e., his form);
- (3) necessarily, permanently and generically depends for his starting to exist on Socrates' parents (i.e., on some pair of entities or another that play the role of Socrates' parents);
- (4) contingently, non-permanently and specifically depends for his starting to exist on Socrates' actual parents;
- (5) necessarily, permanently and specifically teleologically depends on Socrates' end<sup>38</sup>.

If we go for the second option (i.e., accepting the necessity of origins thesis), then we should accept (1), (2) and (5). But we should replace (3) and (4) with:

<sup>37</sup> For the sake of simplicity, I assume in the example that Socrates has only one end. But teleological dependence may also concern multiple ends.

<sup>38</sup> Aristotle and Aquinas hold that one and the same entity may happen to play different formal roles, i.e., that it can be the formal cause, but also the final cause, and so on, of something else. For example, fire is the formal, material, efficient and final cause of its own continued existence (see *De Princ.*, 4 and Bobick 1998). However, when we consider the situation at a more fine-grained level, distinct entities are actually in place: the form of fire, its matter, fire itself as an agent and the end of fire (i.e., its perpetuating its own existence). Please also note that, when it comes to accidents, their formal causes are the relevant accidental forms, their material causes are the substances in which they inhere (and on which they also individuation-depend), their efficient causes are the substances (and activities) that produce them and their final causes are the ends they subserve.



3. Socrates necessarily, permanently and specifically depends for his starting to exist on Socrates' actual parents.

If we wish to interpret these theses from the standpoint of metaontological monism, some troubles may arise, as we shall see. First, however, let me introduce Route 1 to metaontological pluralism. According to Aquinas, Socrates' form somehow depends on Socrates' matter. Socrates' form needs some matter or another in order to start to exist and continue to exist, but also in order to get individuated (*qua* individual form). But Socrates' matter in turn depends on Socrates' form. Indeed, Socrates' matter gets actualized by Socrates' form<sup>39</sup>. I shall examine in greater detail the dependence relationships between form and matter in Section 4.

In a similar vein, Socrates' end somehow depends on Socrates' efficient cause. A different example might help here<sup>40</sup>. Health (i.e., a certain end) depends for its being realized on a certain activity (e.g., jogging), that turns out to be an efficient cause. But efficient causes depend in turn on ends. Indeed, a certain activity (e.g., jogging) is directed towards realizing - and it is performed for the sake of realizing - a certain end (e.g., health).

However, Aquinas maintains that causal/dependence relations are asymmetrical. If A depends on B, then it is *not* the case that B depends in turn on A.

The only way to reconcile these data (i.e., the apparent mutual dependence of formal and material causes and of final and efficient causes and the asymmetry of causal/dependence relations) is to hold that distinct asymmetrical dependence relations (D-relations) are at stake. Namely, with respect to a given D-relation  $D_1$  (or to given relations  $D_1, D_2, \dots$ ), Socrates' form  $D_1$ -depends (or  $D_1$ -,  $D_2$ -, ...depends) on Socrates' matter. With respect to *another* D-relation  $D_3$  (or to other relations  $D_3, D_4, \dots$ ) Socrates' matter  $D_3$ -depends (or  $D_3$ -,  $D_4$ -, ...depends) on Socrates' form. However, it is *not* the case that Socrates' form  $D_3$ -depends (or  $D_3$ -,  $D_4$ -, ...depends) on Socrates' matter. And it is *not* the case that Socrates' matter  $D_1$ -depends (or  $D_1$ -,  $D_2$ -, ...depends) on Socrates' form. For all the relations invoked are asymmetrical. And something analogous is supposed to happen with final and efficient causes.

Let me now turn to metaontological monists. Monists can only appeal to dependence\* when depicting the four causes and when accounting for the

39 See for example *De Princ.*, 4 and *De ente et essentia*, 5.

40 See *De Princ.*, 4, Bobick (1998) and Shields, Pasnau (2016), who use this example.

apparent mutual dependence of formal and material causes and of final and efficient causes.

In a nutshell, they need to claim that: Socrates depends\* on Socrates' form, Socrates' matter, Socrates' parents and Socrates' end. And that Socrates' form depends\* on Socrates' matter. But it is also the case that Socrates' matter depends\* on Socrates' form. And that Socrates' efficient cause depends\* on Socrates' end. But it is also the case that Socrates' end depends\* on Socrates' efficient cause. Thus, dependence\* is not asymmetrical. It is merely non-symmetrical.

This solution has many drawbacks. First, not all the dependees have the same 'weight', so to say. As we shall see, final causes are more important than other sorts of causes. Yet, if we only claim that Socrates depends\* on Socrates' form, Socrates' matter, Socrates' parents and Socrates' end, the difference in 'weight' is far from being manifest.

Secondly and more importantly, this solution is too coarse-grained. It is not Socrates as such that depends\* on his matter, but a certain aspect of Socrates, i.e., Socrates' material constitution. It is not Socrates as such that depends\* on his form, but a certain aspect of Socrates', i.e., Socrates' essentially belonging to a certain sort of entities (i.e., human beings). And so on.

In this case, we may wish to introduce more fine-grained relata for dependence\* relations, such as: Socrates' material constitution; Socrates' essentially belonging to a certain sort of entities; Socrates' starting to exist; Socrates' having some end. But such relata would be rather exotic and contentious entities - to say the least.

Alternatively, we may wish to go for deflationism. Namely, we may wish to hold that "Socrates depends\* on his form" and similar claims *do not* require the existence of specific and exotic relata in order to be true. Nor do they require that dependence\* relations hold between such relata. Fine. But what would make such claims true? What would such claims correctly describe in the universe? It cannot be replied that they correctly describe Socrates, i.e., a certain substance. This is not specific enough. Such claims correctly describe certain facts about Socrates, certain features had by Socrates, and they make sense of the latter. In sum, on the one hand, we cannot dismiss our ontological commitment to specific facts and features correctly described by dependence claims. However, on the other hand, from the standpoint

of metaontological monists, such a commitment may result in admitting of exotic and contentious entities<sup>41</sup>.

Another problem for metaontological monists is the following. If dependence\* is merely non-symmetrical and it is also transitive, then it turns out to be non-irreflexive. Namely, if Socrates' form depends\* on Socrates' matter and Socrates' matter depends\* on Socrates' form, then, by transitivity, Socrates' form depends\* on Socrates' form. Thus, if we wish to hold that dependence\* is merely non-symmetrical, we must either give up on its irreflexivity, or on its transitivity.

Finally, metaontological monists are unable to explain why one and the same dependence\* relation holds by necessity in certain cases and only contingently in others, why it holds specifically in certain cases and generically in others, and so on.

But suppose that metaontological monists wish to swallow these results and that they wish to retain a dependence\* relation that is merely non-symmetrical,

41 Even without talking of dependence or grounding, Pasnau (2018) defends one radically deflationary interpretation of Aquinas. According to it, only God and created substances subsist and exist *per se*, i.e., in Aquinas' own words, really and truly exist (*Quodl.*, IX, 2, 2). Every other 'entity' (including forms, matter, accidents, and so on) is only part of Aquinas' ideology. However, the ideology that appeals to the latter 'entities' is the one that best accounts for the modal features of substances, i.e., that they can/cannot/must be or act in certain ways. This view is obviously at odds with my project. I cannot criticize here Pasnau's approach. But let me note a few things. First, it is *not* necessary to eliminate entities that are not substances from one's ontology in order to account for the fact that only substances subsist/exist *per se*. Indeed, one may hold that the former entities (though existing) are less fundamental than substances and dependent upon the latter. Incidentally, this move does *not* result in admitting different ways of being/existing. True: this goes against the literal interpretation of Aquinas' claim that only substances 'truly' exist. However, there may be good reasons for accepting the existence of further entities besides substances. Indeed, secondly, such entities play some relevant explanatory roles in Aquinas' ontology and theology - even if the only 'true' efficient causes are substances. Moreover, thirdly, the existence of such entities may be the best explanation for two important pieces of data: that the ideology that includes such 'entities' is the one to be preferred over competing ideologies; that such an ideology is the one that best accounts for the modal features of substances. And, fourthly, with respect to the modal features of substances, here is an interesting dilemma: such features are either part of ideology or they are part of ontology (i.e., they exist). If the modal features of substances are part of ideology, it is not clear why they should be explained. And it is not clear why they should and can be explained by further parts of ideology, i.e., forms, accidents, and so on. If the modal features of substances are part of ontology, then they are clearly distinct from substances - or at best they are identical with substances *only in part*. Thus, they are *additional* pieces of ontology. Subsequently, such features could either be identified with forms, accidents and so on, or they could only be explained by appealing to something else (e.g., forms, accidents, and so on). But the relevant 'something else' must exist. Otherwise, how could something that doesn't exist explain something that exists (i.e., the modal features themselves)?

transitive and non-irreflexive - or merely non-symmetrical, irreflexive and non-transitive. Then comes Route 2 towards metaontological pluralism.

Indeed, even if Socrates' form depends on Socrates' matter and the other way round, Aquinas holds that Socrates' form is prior to Socrates' matter. In a similar vein, even if Socrates' end depends on Socrates' efficient cause and the other way round, he holds that Socrates' end is prior to Socrates' efficient cause. More precisely, it seems that forms and final causes are prior-2 to (i.e., more perfect than) matter and efficient causes. Moreover, when it comes to God and angels, forms and final causes are also prior-1 to (i.e., separable from and independent of) matter and efficient causes (with respect to efficient causes, only God is independent of them). Finally, as we shall see, with respect to created beings, final causes are somehow prior-3 to the actions of all the other causes, i.e., i.e., they are the origins of the actions of all the other causes.

Priority is an asymmetrical dependence relation. Namely, if A is prior to B, then it is *not* the case that B is prior to A. Thus, metaontological monists should accept that there must be at least two distinct dependence relations: merely non-symmetrical dependence\* and asymmetrical priority.

But metaontological monists may deny that priority is a dependence relation at all. Indeed, there may be cases in which A is prior to B even if there is no dependence link between A and B, i.e., even if B does not (directly or indirectly, by transitivity) depend on A. Fine. But priority is always backed by some dependence relation or another. Namely, it is always the case that there is some dependence (or independence) fact (or some set of dependence or independence facts) that makes it the case that A is prior to B - even if A and B are *not* connected by dependence relations (maybe because they partake in distinct dependence chains in which they occupy distinct positions or maybe because A is independent and B, while dependent, does *not* depend on A). Consider now the mutual dependence\* between Socrates' form and Socrates' matter. What dependence relation would back the asymmetrical priority of Socrates' form over Socrates' matter? Not dependence\*. For it is both the case that Socrates' form depends\* on Socrates' matter and that Socrates' matter depends\* on Socrates' form. Thus, dependence\* cannot back the asymmetrical priority of Socrates' form over Socrates' matter. Sticking to dependence\*, Socrates' matter would have the same 'right' to be prior to Socrates' form. Thus, we need another dependence relation distinct from dependence\*, which is asymmetrical or which helps to establish the asymmetry of priority.

### 3. The Four Causes: A Powerful Interpretation.

Aquinas holds that final causes are prior to all the other causes<sup>42</sup>. For final causes make it the case that the other causes are effective. We can make sense of this idea by appealing to metadependence facts.

Consider the fact that A D<sub>1</sub>-depends on B, that C D<sub>2</sub>-depends on D, and so on. These are dependence facts. Metadependence facts are dependence facts that obtain between further dependence facts. For example, it is a metadependence fact that: the fact that A D<sub>1</sub>-depends on B depends on/is posterior to the fact that C D<sub>2</sub>-depends on D.

Thus, Aquinas seems to claim (following our terminology) that there are certain metadependence facts about causal dependence facts. And such metadependence facts have teleological dependence facts as their dependees.

For example:

- (6) that Socrates depends on Socrates' form depends on the fact that Socrates depends on Socrates' end;
- (7) that Socrates depends on Socrates' matter depends on the fact that Socrates depends on Socrates' end;
- (8) that Socrates depends on Socrates' efficient cause depends on the fact that Socrates depends on Socrates' end.

These metadependence facts may be reinterpreted within my pluralist framework by appealing to the D-relations we explored above. At any rate, the intuition seems to be that Socrates' form (i.e., his humanity), which actualizes Socrates' matter, includes the realization of Socrates' end (i.e., his properly exercising his rational powers, and so on). This governs in turn the action of the efficient cause that is responsible for Socrates' existence. And it also governs the choice and actualization of the right portion of matter (and of the right kind of proximate matter, as we shall see)<sup>43</sup>.

Recall now our pluralistic interpretation of the doctrine of the final causes. I shall first examine the option that rejects the necessity of origins, which is partly in contrast with Aquinas' own views. According to this option, Socrates:

- (1) necessarily, permanently and generically depends for his (material) constitution on Socrates' portion of matter;
- (2) necessarily, permanently and specifically sortal-depends on Socrates' humanity (i.e., his form);

<sup>42</sup> See for example *Sum. Th.*, I, 5, 2, *ad* 1 and I-II, 1, 2, *co.*, *In Phys.*, 2, 5, *In Metaph.*, 3, 4, 6, *De Princ.*, 4,

<sup>43</sup> See *De Princ.*, 4, Bobick (1998) and Shields, Pasnau (2016).

- (3) necessarily, permanently and generically depends for his starting to exist on Socrates' parents (i.e., on some pair of entities or another that play the role of Socrates' parents);
- (4) contingently, non-permanently and specifically depends for his starting to exist on Socrates' actual parents;
- (5) necessarily, permanently and specifically teleologically depends on Socrates' end.

Along with other authors<sup>44</sup>, I have recently argued that final causes may be made sense of by appealing to powers<sup>45</sup>. More precisely, I have defended the idea that some substances possess teleological powers. And such powers have the ends of their bearers as their own manifestations. Teleological powers have three features. First, they are essential to their bearers: they are part of what their bearers most fundamentally and necessarily are. Secondly, they are basic: they do *not* get activated in virtue of the activation of any other power (or in virtue of the activation of any other power of their bearers<sup>46</sup>). Thirdly, when they get activated, they contribute to the possession and/or to the activation of further powers of their bearers and/or of further powers of the parts of their bearers.

For example, if Socrates has the teleological power to live a rational life, then Socrates has the end of living a rational life, which is the manifestation of that power. Such a power is essential to Socrates (and presumably to all human beings). This seemingly implies that it must be included in the substantial form of Socrates. This power is also basic: it is *not* activated in virtue of any other power (or in virtue of any other power of Socrates). Finally, also or only by virtue of the activation of this power, Socrates turns out to possess and/or to activate further powers of himself (e.g., the power to do philosophy) and/or of its parts (e.g., of his brain).

<sup>44</sup> See for example Oderberg (2008), (2017), (2020), Jaworski (2016), Marmodoro (2017), Austin and Marmodoro (2018), Austin (2020), Page (2021). Some of these authors actually talk of formal causes. But given that formal and final causes often coincide, their accounts can be extended to final causes as well.

<sup>45</sup> See Paolini Paoletti (2021c) and (2021d).

<sup>46</sup> Among other things, this addition helps to make sense of the ends of artifacts. Indeed, a dishwasher has the end of washing dishes, so that it has the power to wash dishes. But it activates this power in virtue of the powers of their users. Moreover, (also or only) by getting that power activated, it also turns out to activate further powers of itself and/or of its parts (in this specific case, the dishwasher and the dishwasher's parts do *not* seem to possess new powers in virtue of the activation of the dishwasher's power to wash dishes).

558 *Strongly* teleological powers are those that contribute to the *activation* of  
 559 further powers of their bearers and/or of further powers of the parts of their  
 560 bearers. *Weakly* teleological powers are those that contribute to the *possession*  
 561 of further powers of their bearers and/or of further powers of the parts of  
 562 their bearers.

563 Aquinas does *not* accept essential powers<sup>47</sup>. Therefore, he would have re-  
 564 jected teleological powers as well. In this respect, I shall depart from Aquinas'  
 565 views. However, I shall show that such a departure is well justified. Indeed, it  
 566 allows us to explain why and how final causes are prior to the other causes.  
 567 And, as we shall see in Section 5, teleological powers will also help to clarify  
 568 and motivate the dependence relations between matter and form.

569 Assume that the end of Socrates is nothing but the manifestation of one of  
 570 its teleological powers<sup>48</sup> and that teleological powers have all the features I  
 571 have briefly described. We may reinterpret (5) as follows:

- 572 5. at least some of the other powers of Socrates and/or of Socrates' parts  
 573 necessarily, permanently and specifically depend for their possession  
 574 and/or for their activation (also or only) on the activation of Socrates'  
 575 teleological power to reach a certain end.

576 In this way, we have dispensed with teleological dependence by appealing to  
 577 two further D-relations that involve powers: dependence for possession and  
 578 dependence for activation (see Table 3). We shall invoke these D-relations in  
 579 other contexts as well. Therefore, such D-relations are not *ad hoc*.

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47 See for example *De Spirit.*, 11.

48 Indeed - even if this is not clarified in (5) - Socrates may well have more than one end.

RD-relations invoked for the Four Causes (Section 2)		
RD-relation	Description	
(material) constitution-dependence	A depends upon B (or the Bs) for its being materially constituted	(a) neces
sortal-dependence	A depends upon B (or the Bs) for its being a given sort of entity	(a) neces
starting-to-exist-dependence	A depends upon B (or the Bs) for its starting to exist	(a) neces (b) cont specific; (c) neces (a) and denial of (c) come acceptan
teleological dependence	A depends upon B (or the Bs) for its having a certain end	(a) neces

**Table 2:** RD-relations invoked for the Four Causes (Section 2).

Being essential to Socrates, teleological powers seem to be included in his substantial form - even if Aquinas rejects this view, as I have anticipated.

Together with (2), this implies that

- (9) Socrates necessarily, permanently and specifically sortal-depends (also or only<sup>49</sup>) on Socrates' power to reach a certain end (which is included in his form).

Please note that (2) *cannot reduce* to (9). Indeed, Socrates' form may include something else besides Socrates' essential and teleological powers. Moreover,

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<sup>49</sup> Socrates' form may include further elements as well.



the relevant sortal-dependence concerns the strongly teleological power of Socrates' *as a type*, i.e., as a certain type of power directed towards a certain type of manifestation. It does *not* concern that power as a certain individual/token power of its type.

If sortal-dependence is transitive and if the power to reach a certain end sortal-depends on its own manifestation (i.e., the relevant end), this implies in turn that

- (10) Socrates necessarily, permanently and specifically sortal-depends (also or only<sup>50</sup>) on Socrates' end<sup>51</sup>.

With regard to efficient causation, we may hold that the efficient cause of Socrates exercises a certain power, i.e., the power to produce a substance that (also) has a certain teleological essential power. Therefore, the efficient cause of Socrates is responsible for Socrates' possession of the relevant teleological essential power. In sum, within my framework, (3) and (4) respectively imply that

- (11) Socrates' power to reach a certain end necessarily, permanently and generically depends for its possession (also or only) on Socrates' efficient cause(s)/parents (i.e., on some entity/-ies that bring(s) about the existence of that power, thereby contributing to leading to Socrates' existence);

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<sup>50</sup> Socrates' form may include further elements as well.

<sup>51</sup> In turn, Socrates' end necessarily, permanently and specifically individuation-depends on Socrates. Thus, what happens is that Socrates sortal-depends on Socrates' end, whereas Socrates' end individuation-depends on Socrates. However, a complication may arise if we replace sortal-dependence and individuation-dependence with the relation of identity-dependence invoked in note 30, i.e., A identity-depends on B insofar as A depends on B for its being a certain sort of thing and/or the very thing of its sort A is. Indeed, Socrates identity-depends on his end. If the end is specific (i.e., Socrates' living a rational life), then the end seems to identity-depend in turn (also) on Socrates. Thus, by transitivity, Socrates turns out to identity-depend also on himself. To solve this problem, we may either invoke generic end-manifestations (i.e., living a rational life) or we may distinguish between two layers of metaphysical constitution in particular substances such as Socrates, as I suggested in Paolini Paoletti (2023). These layers are Socrates *qua* bare particular and Socrates *qua* clothed particular. Socrates *qua* bare particular does not individuation-depend on anything else. And it is the entity involved in Socrates' living a rational life. On the contrary, Socrates *qua* clothed particular (also) individuation-depends on Socrates *qua* bare particular and on Socrates' end. I cannot offer a full defense of this view here.

(12) Socrates' power to reach a certain end contingently, non-permanently and specifically depends for its possession (also or only) on Socrates' actual parents.

(3) and (4) *cannot reduce* to (11) and (12). Again, Socrates' form may include something else besides Socrates' essential and teleological powers. Thus, bringing about the existence of the latter powers may *not* be sufficient in order to bring about Socrates' form. Moreover, Socrates himself may require something else in order to start to exist. Thus, (11) and (12) do *not* imply that (3) and (4).

Finally, when it comes to (1) (i.e., the material constitution of Socrates), we may hold the following. Socrates' body and his material parts (e.g., cells, organs, etc.) may turn out to *possess* at least some of their powers (also or only) thanks to the activation of Socrates' essential teleological power(s). For example, it is by virtue of Socrates' activating his power to survive (from the beginning of his life) that Socrates' heart turns out to possess the power to pump blood.

Additionally, Socrates' body and his material parts may turn out to *activate* at least some of their powers (also or only) thanks to the activation of Socrates' essential teleological power(s). For example, it is by virtue of Socrates' activating his power to live a rational life that some powers of his neurons get activated.

Therefore, within my framework, (1) implies that:

(13) at least some powers of Socrates' body and/or of its material parts necessarily, permanently<sup>52</sup> and specifically depend for their possession (also or only) on the activation of Socrates' power to reach a certain end;

(14) at least some powers of Socrates' body and/or of its material parts necessarily, permanently and specifically depend for their activation (also or only) on the activation of Socrates' power to reach a certain end.

(1) *cannot reduce* to the conjunction of (13) and (14). For the material constitution of Socrates may involve something more than the possession and/or

<sup>52</sup> The relevant dependence is permanent. For such powers continue to be possessed insofar as Socrates continues to activate at least one of his essential teleological powers.

the activation of some powers of his body and/or of the material parts of his body.

But these ideas help to make sense of the priority of final causes. Recall:

- (6) that Socrates depends on Socrates' form depends on the fact that Socrates depends on Socrates' end.

Within my framework, we may interpret (6) by appealing to:

- (9) Socrates necessarily, permanently and specifically sortal-depends (also or only) on Socrates' power to reach a certain end (which is included in his form),

and

- (10) Socrates necessarily, permanently and specifically sortal-depends (also or only) on Socrates' end.

Indeed, Socrates' form also includes Socrates' power to reach a certain end. Thus, (9) and (10) are implied by (2), which is nothing but my reading of the fact that Socrates depends on Socrates' form. And the fact that Socrates depends on Socrates' end is read as (5a).

Therefore, we may read (6) as

6. that (9) Socrates necessarily, permanently and specifically sortal-depends (also or only) on Socrates' power to reach a certain end (which is included in his form) and that (10) Socrates necessarily, permanently and specifically sortal-depends (also or only) on Socrates' end - both these facts taken together depend on (5a), i.e., on the fact that at least some of the other powers of Socrates and/or of Socrates' parts necessarily, permanently and specifically depend for their possession and/or for their activation (also or only) on the activation of Socrates' teleological power to reach a certain end.

Socrates' power to reach a certain end is a teleological power of Socrates and it plays a certain role with respect to Socrates: this is expressed by (5a). According to (6a), in virtue of this fact, Socrates then necessarily, permanently and specifically sortal-depends on that power (by (9)) and on the relevant end (by (10)).

A problem may now arise. It is constitutive of Socrates' power to reach a certain end that that power is essential to Socrates, so that it is included in

Socrates' substantial form. Therefore, it seems that the dependence relation expressed in (6a) actually goes in the opposite direction. Namely, it seems that it is by virtue of the fact that Socrates necessarily, permanently and specifically sortal-depends on the power to reach a certain end (which is included in his form) and on the relevant end that that power is a teleological power of Socrates.

But this is not true. It is *not* by virtue of the former fact that the latter fact obtains. The sortal-dependence of Socrates on something else (i.e., the former fact) is something that is entirely *determined* by Socrates' form. Socrates' form comes first<sup>53</sup>. And Socrates' power to reach a certain end is *included* in Socrates' form. Therefore, the sortal-dependence of Socrates on that power and on the relevant end is something that is entirely *determined* by Socrates' form. And, more precisely, by Socrates' power to reach a certain end, which is included in that form.

Let me now turn to

- (8) that Socrates depends on Socrates' efficient cause depends on the fact that Socrates depends on Socrates' end.

In my perspective, (8) may be interpreted by either talking (generically) of Socrates' parents or by talking of Socrates' *actual* parents.

In the first case, we should appeal to (11) and (5a), thus having:

8. that (11) Socrates' power to reach a certain end necessarily, permanently and generically depends for its possession (also or only) on Socrates' efficient cause(s)/parents (i.e., on some entity/-ies that bring(s) about the existence of that power, thereby contributing to leading to Socrates' existence) - this fact depends on (5a), i.e., on the fact that at least some of the other powers of Socrates and/or of Socrates' parts necessarily, permanently and specifically depend for their possession and/or for their activation (also or only) on the activation of Socrates' teleological power to reach a certain end.

Again, (5a) claims that Socrates' power to reach a certain end is a teleological power of Socrates and it plays a certain role with respect to Socrates. Accord-

<sup>53</sup> In other terms, it is *not* the case that Socrates' form depends on Socrates' sortal-depending on something else or is constituted by Socrates' sortal-depending on something else. On the contrary, the sortal-dependence fact at stake is entirely dependent upon Socrates' form itself: it is just by virtue of Socrates' form that the sortal-dependence fact at stake obtains.

ing to (8a), it is (also or only) by virtue of this fact that Socrates' power to reach a certain end necessarily, permanently and generically depends for its possession (also or only) on Socrates' efficient cause(s) (i.e., Socrates' parents). Indeed, Socrates starts to exist thanks to his efficient cause(s) (also or only) insofar as the latter is/are responsible for the possession of the relevant teleological power by Socrates. Otherwise, Socrates would not start to exist. And the efficient cause is the efficient cause only insofar as it performs the latter task.

Yet, if we talk of Socrates' *actual* parents, we need to appeal to (12) and (5a), thus having:

8. that (12) Socrates' power to reach a certain end contingently, non-permanently and specifically depends for its possession (also or only) on Socrates' actual parents - this fact depends on (5a), i.e., on the fact that at least some of the other powers of Socrates and/or of Socrates' parts necessarily, permanently and specifically depend for their possession and/or for their activation (also or only) on the activation of Socrates' teleological power to reach a certain end.

*Mutatis mutandis*, the reasoning is the same.

Finally, we get to material causes. Recall

- (7) that Socrates depends on Socrates' matter depends on the fact that Socrates depends on Socrates' end.

We can appeal here to (13), (14) and (5a), thus having:

7. that (13) at least some powers of Socrates' body and/or of its material parts necessarily, permanently and specifically depend for their *possession* (also or only) on the activation of Socrates' power to reach a certain end and that (14) at least some powers of Socrates' body and/or of its material parts necessarily, permanently and specifically depend for their *activation* (also or only) on the activation of Socrates' power to reach a certain end - both these facts taken together depend on (5a), i.e., on the fact that at least some of the other powers of Socrates and/or of Socrates' parts necessarily, permanently and specifically depend for their possession and/or for their activation (also or only) on the activation of Socrates' teleological power to reach a certain end.

(5a) is the usual claim that Socrates' power to reach a certain end is a teleological power of Socrates and it plays a certain role with respect to Socrates. According to (7a), it is (also or only) by virtue of (5a) that (13) and (14) are the case. Indeed, were it not for the former power's being a teleological power of Socrates, no further power of Socrates' and/or of his parts would possession-depend and/or activation-depend (also or only) on the activation of the former power.

If we wish to remain more faithful to Aquinas and embrace necessity of origins, (3) and (4) get replaced by

3. Socrates necessarily, permanently and specifically depends for his starting to exist on Socrates' actual parents.

Subsequently, (11) and (12) get replaced by

11. Socrates' power to reach a certain end necessarily, permanently and specifically depends for its possession (also or only) on Socrates' actual efficient cause(s)/parents (i.e., on this/these very entity/-ies that actually bring(s) about the existence of that power, thereby contributing to leading to Socrates' existence).

Finally, (8a) and (8b) get replaced by

8. that (11\*) Socrates' power to reach a certain end necessarily, permanently and specifically depends for its possession (also or only) on Socrates' actual efficient cause(s)/parents (i.e., on this/these very entity/-ies that actually bring(s) about the existence of that power, thereby contributing to leading to Socrates' existence) - this fact depends on (5a), i.e., on the fact that at least some of the other powers of Socrates and/or of Socrates' parts necessarily, permanently and specifically depend for their possession and/or for their activation (also or only) on the activation of Socrates' teleological power to reach a certain end.

#### 4. Matter and Form.

Let me now recall some features of matter and form and add further distinctions.

Recall that the material cause of something is that out of which that thing exists/occurs. Thus, it is what had some pure potentiality of becoming in some relevant way.

The matter constituting a material substance is what underlies some relevant change (first and foremost, the coming into existence of that substance)<sup>54</sup>. It is what in which some relevant predicable inheres (first and foremost, the species to which that substance belongs)<sup>55</sup>. And it is what had some pure potentiality of becoming in some relevant way (first and foremost, of becoming that material substance)<sup>56</sup>.

It is possible to draw two distinctions here. First, there is *prime* matter. Prime matter possesses the pure potentiality of becoming anything, even if - *qua* prime matter - it is nothing specific at all. Moreover, prime matter is only characterized by spatial extension, i.e., it is extended in some portion of space or another or, more precisely, it has some value or another of all spatial dimensions. Prime matter cannot exist in isolation from some form or another. In isolation, it exists only in abstraction. For nothing that is purely potential actually exists: whatever exists, is in act (in some respect or another)<sup>57</sup>.

Secondly, there is *proximate* matter. Proximate matter already has some form or another. However, when some portion of proximate matter constitutes a material substance, the form possessed by that portion or the forms possessed by its parts are somehow replaced by - or subsumed under - the form of the material substance at stake. Thus, when the cells that constitute Socrates' body turn out to constitute Socrates, their forms are replaced by - or subsumed under - the form of Socrates himself. In other terms, they only turn out to exist *qua* cells of Socrates. They do not have any independent form<sup>58</sup>.

Moreover, prime matter should be also distinguished from *signate* matter (*materia signata*). Signate matter is endowed with spatial, quantitative accidents. This allows for it to be divisible. Namely, by virtue of the spatial, quantitative accidents of signate matter, there can be distinct portions of signate matter at distinct locations. In turn, as we shall see, this makes it the case that material substances constituted of those portions get individuated<sup>59</sup>.

54 See for example *In Phys.*, 1, 15, 7, *Sum. Th.*, I, 92, 2, ad 2 and *De Princ.*, 1-2.

55 See for example *In Phys.*, 1, 15, 7, *De Princ.*, 1-2 and *De ente et essentia*, 2.

56 See for example *In Phys.*, 2, 11, 2, *In Metaph.*, 8, 1, 7, *Contra Gent.*, I, 17 and *De ente et essentia*, 2.

57 On prime matter, see for example *Contra Gent.*, II, 59 and 80, *In Sent.*, II, 12, 1, 4, co., *De Spirit.*, 1 and *In Phys.*, 1, 13, 9.

58 On proximate matter, see *Summa Th.*, III, 84, 2, co., and *Contra Gent.*, II, 90.

59 On signate matter, see for example *Contra Gent.*, I, 65, *De ver.*, 2, 6, ad 1 and *De ente et essentia*, 2. Actually, the debate over whether *materia signata* or *materia non signata* individuates material substances is a long-running one. Possibly, Aquinas changed his mind on this issue. I take side here with the position according to which *materia signata* is what individuates substances. See Wippel (2000) and Brower (2012), as well as the references in Brower's work.

Turn to form. As we have seen, the form of something is what *actualizes* the relevant portion of matter<sup>60</sup>. For the formal cause of something is taken to structure some relevant portion of matter and thereby make some relevant predicable true of it<sup>61</sup>. Moreover, the form of something is the *act* of the relevant portion of matter. Namely, the form of Socrates is the *act* of the portion of matter that constitutes Socrates. Accordingly, the form of something is the principle of its typical operations. Socrates' human form makes it the case that Socrates can exercise certain powers (i.e., those that are typical of human beings) and not others<sup>62</sup>.

Also in this case, it is possible to draw two distinctions. First, there are *substantial* forms, that engender the existence of material substances such as Socrates. Substantial forms make it the case that each material substance belongs to its own species and genus. On the other hand, *accidental* forms, through their action, engender the existence of accidents (e.g., Socrates' being a philosopher). Here I shall be only concerned with the substantial forms of material substances<sup>63</sup>.

With respect to the latter, we can also distinguish between individual and specific substantial forms. *Specific* substantial forms are shared by all the members of a certain species (e.g., the specific substantial form of humanity is shared by all human beings). For they make it the case that all the relevant material substances they inform belong to their species. On the contrary, *individual* substantial forms can only belong to individual members of a species (e.g., Socrates' individual substantial form only belongs to Socrates)<sup>64</sup>. However, individual material substances such as Socrates seemingly have only one substantial form. Subsequently, Socrates' substantial form is both specific (i.e., Socrates' humanity is shared with other human beings) and individual (i.e., Socrates' individuality only belongs to Socrates).

Equipped with these distinctions, we can consider the dependence relationships between the piece of signate and proximate matter that constitutes

60 See for example *Summa Th.*, I, 75, 5, co. and *De Caelo*, 2, 4, 5. Therefore, form is also the perfection of something and it is more perfect than matter (see for example *In Phys.*, 2, 11, 2).

61 On forms that make species-predicables true of substances, see *Sum. Th.*, I, 5, 5, co., *De ente et essentia*, 1, *In Phys.*, 2, 5, *De Princ.*, 1.

62 See for example *Sum. Th.*, III, 13, 1, co. and *Contra Gent.*, II, 47.

63 On this distinction, see for example *De Princ.*, 1 and *Sum. Th.*, I, 77, 6, co.

64 See for example *Sum. Th.*, I, 50, 2, co., *Contra Gent.*, I, 65 and II, 50 and 75, and *De anima*, 2, ad 5. See also Shields, Pasnau (2016).



Socrates’ body and the substantial form of Socrates<sup>65</sup>. Socrates has only one substantial form, which is specific insofar as it makes it the case that Socrates is a human being, but also individual, insofar as it only belongs to Socrates. We assume the metaontological pluralist framework (see Table 4).

Features of Dependence Relations (Section 1)				
Modal		Temporal		
Necessity	Contingency	Permanent	Non-Permanent	Specific
as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then it is necessarily the case that, if A exists, A depends on B	as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then it is <i>not</i> necessarily the case that, if A exists, A depends on B	as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then A depends on B at every time at which A exists	as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then A depends on B at some time at which A exists but <i>not</i> at every time at which A exists	as a matter of metaphysical necessity, for all relata A and B, if A depends on B, then A depends on B on that entity B, those entities, plurality

**Table 1:** Features of Dependence Relations (Section 1).

- The piece of signate and proximate matter that constitutes Socrates’ body:
- (15) necessarily, permanently but generically depends for its starting to exist on some (specific) substantial form or another, that makes it the case that it starts to exist as the piece of matter that constitutes the body of a certain material substance or another;
  - (16) necessarily, permanently but generically depends for its continuing to exist on some (specific) substantial form or another, that makes it the case that it continues to exist as the piece of matter that constitutes the body of a certain material substance or another;

<sup>65</sup> Please note that not all material substances are constituted by proximate matter. Presumably, fundamental physical particles are made of prime matter, which is directly informed by the substantial forms of those particles.

(17) necessarily, permanently but generically depends for its actualization on some (specific) substantial form or another, that makes it the case that some of the pure potentialities it has get(s) actualized<sup>66</sup>.

By (15) and (16), it is claimed that the piece of matter that now constitutes Socrates' body could have constituted another body. But that piece necessarily and permanently requires some specific substantial form or another in order to start to exist as the piece of matter that constitutes the body of a certain material substance or another. Indeed, pieces of matter cannot exist without being informed by some (specific) substantial form or another. Or, more precisely, they can only exist as the pieces of matter that constitute a certain body or another. And the fact that they constitute a certain body or another hinges on some (specific) substantial form or another.

For what I understand, the relevant substantial form at stake here should be invoked in respect of its specificity, not in respect of its individuality. Individuality comes after, as we shall see. Of course, some pieces of proximate matter may be more inclined to be informed by certain specific substantial forms (e.g., cells are more inclined to be informed by the specific substantial forms of organisms), whereas other pieces of proximate matter may be more inclined to be informed by others.

By (17), (specific) substantial forms also actualize certain pure potentialities of pieces of matter, and not others. In Section 5 I shall provide an interpretation of this thesis.

Let me now turn to Socrates' substantial form, which is both specific and individual. This form:

(18) necessarily, permanently and specifically depends for its starting to exist (as a certain individual form) on the specific piece of matter that constitutes Socrates' body at the beginning of Socrates' existence;

(19) necessarily, permanently and specifically depends for its individuation (as a certain individual form) on the specific piece of matter that constitutes Socrates' body at the beginning of Socrates' existence<sup>67</sup>.

Aquinas holds that at least some substantial forms (i.e., the souls of human beings) can exist without being endowed with any piece of matter at all<sup>68</sup>.

66 On (15)-(16), see for example *De Princ.*, 1 and *Quodl.*, III, 1, 1, co. On (17), see note 56.

67 On the individuation of forms and substances by signate matter, see for example *Summa Th.*, I, 75, 4, co., *Contra Gent.*, II, 75, *De Caelo*, 1, 19, 4, *De anima*, 4, co. and *De ente et essentia*, 1 and 5.

68 See *Sum. Th.*, I, 75-89 and *De unitate intellectus contra Averroistas*. See also Pasnau (2012).

Therefore, such forms do *not* generically depend for their continued existence upon pieces of matter.

However, if one rejects Aquinas' views, the following seems to be the case:

- (20) Socrates' substantial form necessarily, permanently but generically depends for its continued existence on some piece of matter or another that constitutes Socrates' body.

At any rate, Aquinas clearly accepts something akin to (20) with respect to the substantial forms of *non-human* material substances.

It is important to examine (18) and (19). *Qua* individual substantial form of Socrates and of no other human being, Socrates' substantial form necessarily and permanently starts to exist thanks to - and gets individuated by - a certain piece of matter. Of course, *qua* specific, the substantial form of humanity could start to exist thanks to - and get individuated by - some piece of matter or another. But Socrates is endowed with only one substantial form, which is both specific and individual. Therefore, *qua* individual, that form is necessarily and permanently tied to a certain piece of matter in some respects (i.e., for starting to exist and for getting individuated).

However, by (20), Socrates' substantial form requires no particular piece of matter for its continuing to exist. Indeed, the matter that constitutes Socrates' body at a certain time may be replaced with further matter over the course of Socrates' existence. What is required is only that some piece of matter or another is there whenever and in whatever possible world Socrates' form exists.

If we try to interpret (14)-(20) from the standpoint of metaontological monism, some problems are in order. Such problems are similar to the ones discussed in Section 2. First, monists should admit of exotic and contentious fine-grained relata (e.g., the continued existence of Socrates' form). Secondly, to avoid such entities, they cannot go for a deflationist solution. Thirdly, their dependence\* relation must be either merely non-symmetrical and transitive, but not irreflexive, or merely non-symmetrical and irreflexive, but not transitive. Fourthly, it is not clear why one and the same relation holds *specifically* in some cases and *generically* in other cases. Fifthly and finally, form is prior to matter, according to Aquinas<sup>69</sup>. And such a priority requires at least one

69 On the priority of forms over matter and on the relationships between form and matter, see *In Metaph.*, 9, 8, *De principiis*, Brower (2014) and Shields, Pasnau (2016).

further asymmetrical dependence relation in addition to dependence\* - which is merely non-symmetrical.

In sum, Route 1 and Route 2 towards metaontological pluralism may be covered also in this case.

But a problem arises. If we consider (16) and (20), pieces of matter and forms necessarily, permanently and generically depend on one another for their continued existence. Therefore, it seems that necessary, permanent and generic dependence for continuing to exist is (at best) merely non-symmetrical.

We may swallow this result. Namely, we may claim that, in our framework, mere non-symmetry is restricted to only one (qualified) D-relation (i.e., necessary, permanent and generic dependence for continuing to exist). By the way, there are further asymmetrical D-relations that 'ground' the priority of forms over pieces of matter. Alternatively, we may embrace Aquinas' views and point out that, at least in the case of Socrates, (20) is actually false, if we take into account possible worlds different from the natural world. Indeed, Aquinas holds that, in the afterlife, Socrates' substantial form may exist disembodied<sup>70</sup>. So far, so good. However, this solution *cannot* be generalized to all material substances: presumably, the substantial forms of flies will not be able to exist disembodied in the afterlife.

We may try to look for another solution. I shall turn to it in the next Section.

#### 5. Matter and Form: A Powerful Interpretation.

To interpret the dependence relationships between substantial forms and pieces of proximate and signate matter, I shall invoke two sets of powers. First, there are essential teleological powers, included in substantial forms. For example, Socrates' power to live a rational life, but also Socrates' power to nourish himself. Secondly, there are the iterated powers possessed by pieces of matter. Iterated powers are powers to acquire further powers. For example, a certain piece of matter possesses the iterated power to acquire the power to pump blood. When this iterated power gets activated, that piece of matter possesses the power to pump blood. Another piece of matter possesses the iterated power to acquire the power to move. When this iterated power gets activated, that piece of matter possesses the power to move. And so on.

In the footsteps of Simpson (2022), we may speculate that prime matter only has iterated powers. This is why prime matter does not exist, if not in

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70 See Brower (2014).

abstraction: nothing that actually exists only seems to be endowed with the powers to acquire further powers<sup>71</sup>.

On the contrary, pieces of proximate and signate matter only have *certain* iterated powers, and not others. For example, the piece of proximate and signate matter that will constitute Socrates' heart has the iterated power to acquire the power to pump blood. But it does *not* have the iterated power to acquire the power to open an electrical circuit. Moreover, pieces of proximate and signate matter already have certain *non-iterated* powers, depending on their pre-existing forms.

What happens when Socrates starts to exist is that certain pieces of proximate and signate matter get structured in a certain way, so as to constitute Socrates' body<sup>72</sup>. By virtue of getting structured in that way, those pieces get (at least some of) their iterated powers activated. For example, a certain piece of matter, by virtue of getting structured in a certain way, gets its iterated power to acquire the power to pump blood activated. Therefore, that piece of matter turns out to possess the power to pump blood.

Structures are connected with substantial forms. Namely, only the substances that are already endowed with certain substantial forms (e.g., Socrates' parents) can structure pieces of matter in some relevant ways, so as to 'generate' further substances with the same substantial forms (e.g., Socrates). In sum, the activation of iterated powers is due to structuring. And structuring is due to substantial forms. See Table 5 for the RD-relations invoked in this Section.

<sup>71</sup> See also Simpson (2023). Simpson (2022: 54) actually suggests that parcels of matter lack intrinsic causal powers, but they have the potentialities to bear them. To make sense of such potentialities, I suggest that we should introduce iterated causal powers.

<sup>72</sup> Obviously, when we talk of fundamental particles, the relevant pieces of matter should be of prime matter.

RD-relations invoked for a Powerful Interpretation of Matter and Form		
RD-relation	Description	
starting-to-exist-dependence	A depends upon B (or the Bs) for its starting to exist	(a) necessary (b) necessary
continuing-to-exist-dependence	A depends upon B (or the Bs) for its continuing to exist	(a) necessary (b) necessary
dependence for activation	a power A depends upon B (or the Bs) for its being activated by its bearer	(a) necessary (b) necessary
dependence for possession	a power A depends upon B (or the Bs) for its being possessed by its bearer	(a) necessary (b) necessary
individuation-dependence	A depends upon B (or the Bs) for its being a certain individual entity (of its sort)	(a) necessary
instrumental dependence	a power A depends upon another power B (or other powers Bs) for using the activation of B/the Bs as an 'instrument' for its own activation	(a) necessary

**Table 5:** RD-relations invoked for a Powerful Interpretation of Matter and Form (Section 17)

We can now interpret (17) as

17. iterated powers of pieces of proximate and signate matter necessarily, permanently but generically depend for their activation on some (specific) substantial form or another.

The relevant dependence is necessary and permanent: whenever and in whatever possible world iterated powers get activated, they get activated thanks to substantial forms, that structure the relevant pieces of matter.

Is the relevant dependence actually generic? Consider two pieces of proximate matter: a human egg cell and a human sperm cell. When they unite, they

constitute a human body. And their iterated powers get activated. All of such iterated powers, however, can only get activated by the human substantial form. They cannot get activated by the canine substantial form.

On the other hand, when we consider a certain piece of wood (i.e., another piece of proximate matter), some of its iterated powers can get activated by a table's substantial form, insofar as it becomes a table. But other iterated powers can get activated by a chair's substantial form, insofar as it becomes a chair. Therefore, the piece of wood only generically depends for the activation of its iterated powers on some substantial form or another.

If we now consider pieces of *non-proximate* matter, e.g., the atoms that constitute my heart, it seems that they could have constituted a canine heart as well. In this latter case, their iterated powers would have been activated by another substantial form. However, nothing guarantees that this happens with all the iterated powers of non-proximate matter.

Finally, some iterated powers can only get activated by certain substantial forms, and not others. For example, the iterated power to acquire the power to perform some highly complex neural function (one that can only be performed by human brains) can only get activated by human substantial forms.

In sum, (17a) is true for *some* pieces of *proximate* matter and some iterated powers. And for some iterated powers of some pieces of *non-proximate* matter. But when it comes to *further* pieces of *proximate* or non-proximate matter and/or to further iterated powers, the relevant dependence for activation is necessary, permanent and specific. We actually replace (17a) with two claims:

17. some iterated powers of some pieces of proximate (and non-proximate) and signate matter necessarily, permanently but generically depend for their activation on some (specific) substantial form or another;
17. some iterated powers of some pieces of proximate (and non-proximate) and signate matter necessarily, permanently and specifically depend for their activation on some (specific) substantial form.

It is also important to add that, in both cases, all the iterated powers of pieces of matter can only get activated by substantial forms (or by accidental ones).

We can now turn to

- (15) a piece of proximate and signate matter necessarily, permanently but generically depends for its starting to exist on some (specific) substantial form or another, that makes it the case that it starts to exist as the piece

of matter that constitutes the body of a certain material substance or another.

Pieces of proximate and signate matter exist before they get structured by the relevant substantial forms and before they turn out to possess some relevant, non-iterated powers. However, when they get structured by the relevant substantial forms and turn out to possess some relevant, non-iterated powers, they change their nature, so to say. Indeed, a piece of proximate and signate matter - when it gets structured by the substantial form of humanity - is *not* just a piece of proximate and signate matter anymore. It turns out to be a human body, i.e., it turns out to exist as a human body.

In other terms, pieces of matter cannot go on existing as pieces of matter *simpliciter*. They can only exist as bodies of material substances. Consider Socrates' generation. Of course, a certain egg cell and a certain sperm cell exist before they constitute Socrates' body. But when they turn out to constitute Socrates' body, they are structured in a certain way and they lose their 'old' natures (i.e., those of an egg cell and of a sperm cell). On the contrary, a new entity comes into existence, which has a 'new' nature: the body of a human being.

The body of a human being starts to exist thanks to some structuring activity on behalf of the substantial form of humanity. In virtue of that structuring activity, the iterated powers possessed by the relevant pieces of matter get activated. The activation of such iterated powers make the relevant pieces of matter bodies of specific sorts (e.g., human bodies). This seems to happen whenever and in whatever possible world human bodies turn out to exist. Namely, whenever and in whatever possible world human bodies turn out to exist, they start to exist thanks to the structuring activity of the substantial form of humanity, which makes it the case that the iterated powers get activated.

Is the relevant dependence relation generic? It depends on the relevant pieces of proximate (and non-proximate) matter and on the relevant iterated powers, as we have already seen with (17a\*) and (17b). Therefore, depending on the case at hand, we have two readings of (15), i.e.,

15. a piece of proximate and signate matter necessarily, permanently but generically depends for its starting to exist on some (specific) substantial form or another, that activates at least some of its iterated powers through its structuring activity and thereby makes it the case that it



starts to exist as the piece of matter that constitutes the body of a certain material substance or another;

16. a piece of proximate and signate matter necessarily, permanently and specifically depends for its starting to exist on some (specific) substantial form, that activates at least some of its iterated powers through its structuring activity and thereby makes it the case that it starts to exist as the piece of matter that constitutes the body of a certain material substance of a certain sort.

Finally, we get to:

- (16) a piece of proximate and signate matter necessarily, permanently but generically depends for its continuing to exist on some (specific) substantial form or another, that makes it the case that it continues to exist as the piece of matter that constitutes the body of a certain material substance or another.

Insofar as human bodies continue to exist, they need to be structured by the relevant substantial forms. That structuring activity makes it the case that the parts of a human body continue to work together, so that the relevant human body continues to exist. And the relevant human body continues to exist insofar as it possesses and/or exercises some non-iterated powers previously acquired through the relevant substantial form in accord with (15a\*) or (15b). Call the latter powers “non-iterated\* powers”. For example, Socrates’ body continues to exist insofar as some part of its body possesses and/or exercises some non-iterated\* power, e.g., the power of pumping blood or the power of performing some neural function.

Therefore, depending on the case at hand, we get two readings of (16), i.e.,

16. a piece of proximate and signate matter necessarily, permanently but generically depends for its continuing to exist on some (specific) substantial form or another, that ‘grounds’ the continued possession and/or activation of at least some of its non-iterated\* powers through its structuring activity and thereby makes it the case that that piece continues to exist as the piece of matter that constitutes the body of a certain material substance or another;
16. a piece of proximate and signate matter necessarily, permanently and specifically depends for its continuing to exist on some (specific) substantial form, that ‘grounds’ the continued possession and/or activation

of at least some of its non-iterated\* powers through its structuring activity and thereby makes it the case that that piece continues to exist as the piece of matter that constitutes the body of a certain material substance of a certain sort.

Moreover, the relevant structuring activity may be due to the exercise of the essential teleological powers of the substance, following (13) and (14). At any rate, the structuring and ‘grounding’ activity on behalf of substantial forms is still to be characterized through dependence for activation or dependence for possession of certain powers upon other powers. When the result is the continued *possession* of a non-iterated\* power, there is dependence for possession. Moreover, such a dependence may get interpreted by appealing to dependence for activation: a given *non-iterated\** power possession depends on a given substantial form insofar as the structuring activity of the latter activates/contributes to activating some *iterated* power for the former non-iterated\* power. When the result is the continued *activation* of some non-iterated\* power, what gets activated is the non-iterated\* power itself.

It goes without saying that (15a\*), (15b), (16a\*) and (16b) invoke distinct D-relations when it comes to iterated and non-iterated\* powers: necessary, permanent and specific/generic activation-dependence for iterated powers (on substantial forms); necessary, permanent and specific/generic possession- and activation-dependence for non-iterated\* powers (on substantial forms).

Let me now turn to substantial forms. Powers do *not* help with

- (19) Socrates’ substantial form necessarily, permanently and specifically depends for its individuation (as a certain individual form) on the specific piece of matter that constitutes Socrates’ body at the beginning of Socrates’ existence.

Subsequently, they do *not* help with

- (18) Socrates’ substantial form necessarily, permanently and specifically depends for its starting to exist (as a certain individual form) on the specific piece of matter that constitutes Socrates’ body at the beginning of Socrates’ existence,

either.

However, we may point out that Socrates’ substantial form starts to exist as that individual substantial form insofar as the specific form of humanity

structures the specific piece of matter that constitutes Socrates' body at the beginning of Socrates' existence, thereby activating at least some of its iterated powers. Therefore, (18) is conditional upon (15a\*) and (15b).

Things become more interesting when it comes to:

- (20) Socrates' substantial form necessarily, permanently but generically depends for its continued existence on some piece of matter or another that constitutes Socrates' body.

Consider some of the essential teleological powers that are included in Socrates' substantial form, e.g., the power to nourish himself. It seems that some of such powers need to be active whenever Socrates exists. If Socrates ceased to nourish himself, Socrates would not exist anymore. Subsequently, Socrates' individual substantial form would cease to exist as that individual form as well. In sum, the continued existence of Socrates' individual substantial form hinges on the continued activation of some of the essential teleological powers included in that form.

Such powers, when they get activated, 'instrumentally' need that further non-iterated\* powers of Socrates' body and/or of its parts get activated. For example, in order for Socrates' power to nourish himself to get activated, that power 'instrumentally' needs that some power possessed by Socrates' stomach gets activated. Namely, the former power reaches its end (also or only) through activating the latter power. The former power needs the activation of the latter power as an 'instrument', so to say.

It is *not* the case that Socrates' power to nourish himself gets possessed/activated in virtue of the activation of some further power possessed by Socrates' stomach. When it comes to the relationships between these powers, it is the other way round: in line with (13) and (14), the possession/activation of some power possessed by Socrates' stomach depends on the activation of Socrates' power to nourish himself.

However, in order to reach its end, the activation of Socrates' power to nourish himself must 'use' the activation of the relevant power possessed by Socrates' stomach as an 'instrument'. Therefore, the former 'instrumentally' depends on the latter.

This clarifies (20) as follows:

20. Socrates' substantial form necessarily, permanently but generically depends for its continued existence on some piece of matter or another that constitutes Socrates' body, insofar as the continued activation of

some essential teleological powers included in the former is required for the continued existence of Socrates' substantial form and insofar as the activation of such powers necessarily, permanently but generically instrumentally-depends on the activation of some non-iterated\* powers possessed by Socrates' body and/or by its parts<sup>73</sup>.

Of course, material parts may change. Thus, the relevant dependence is only generic. But it is necessary and permanent. For Socrates' power to nourish himself 'instrumentally' needs - whenever it gets activated and in whatever possible world it gets activated - that some powers possessed by Socrates' body and/or by its parts get activated as well<sup>74</sup>.\*

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<sup>73</sup> A similar view is explored by Koons (2014) with respect to material substances *qua* wholes and their material parts. Koons also distinguishes between the bottom-up diachronic dependence of a whole upon its material parts and the top-down synchronic dependence of the powers of the parts upon the whole. However, he also holds that the nature of the powers of the parts is grounded in the nature of the whole.

<sup>74</sup> However, if we wish to maintain that Socrates' substantial form may exist disembodied, we may wish to qualify (20a) only with respect to some essential, teleological powers of Socrates (e.g., Socrates' power to nourish himself) and not to others (e.g., Socrates' power to live a rational life). The latter powers would only contingently 'instrumentally' require the activation of the powers possessed by Socrates' body and/or by its parts. In other possible worlds (e.g., in the afterlife), the 'disembodied' powers would *not* 'instrumentally' require the activation of the powers possessed by Socrates' body and/or by its parts. But in this case, strictly speaking, (20a) would be false. For Socrates' substantial form would continue to exist thanks to the continued activation of its 'disembodied' essential, teleological powers. Thus, only the latter power would actually be part of Socrates' substantial form.

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