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NON-CARTESIAN SUBSTANCE DUALISM AND MATERIALISM WITHOUT REDUCTIONISM

Eleonore Stump

The major Western monotheisms, and Christianity in particular, are often supposed to be committed to a substance dualism of a Cartesian sort. Aquinas, however, has an account of the soul which is non-Cartesian in character. He takes the soul to be something essentially immaterial or configurational but nonetheless realized in material components. In this paper, I argue that Aquinas's account is coherent and philosophically interesting; in my view, it suggests not only that Cartesian dualism isn't essential to Christianity but also that the battle lines between dualism and materialism are misdrawn.

Introduction

Many philosophers suppose that the major monotheisms, and Christianity in particular, are committed to substance dualism of a Cartesian sort. Descartes explained his dualism in this way:

"my essence consists solely in the fact that I am a thinking thing. It is true that I may have (or, to anticipate, that I certainly have) a body that is very closely joined to me. But nevertheless, on the one hand I have a clear and distinct idea of myself, in so far as I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of body, in so far as this is simply an extended, non-thinking thing. And accordingly, it is certain that I am really distinct from my body, and can exist without it."¹

On this view, a person may have a body but is neither identical with it nor composed of it, and intellectual processes ("thinking") occur only in the nonmaterial thing that is the person, not in the body. There are "close" connections between a person and his body. The cognitive processes of the person have effects on the body which that person has, and bodily processes, such as sensations, have effects on the person; so a person and his body interact causally. But intellectual cognitive functions are not exercised in or by the body; they take place in the thinking essence that is distinct from the body.



So understood, Cartesian dualism is widely regarded as false. If it is also the case that the major monotheisms have traditionally been committed to dualism of a Cartesian sort, then in the view of many philosophers the apparent or putative falsity of Cartesian dualism becomes an embarrassment for those religions. As a matter of historical fact, however, it is not true that a Cartesian sort of dualism has been the view traditionally espoused by all the major monotheisms. Thomas Aquinas, whose views surely represent one major strand of one major monotheism, is familiar with an account very like that of Cartesian dualism, which he associates with Plato; and he rejects it emphatically.

In this paper, I will explore Aquinas's position. I will look at his rejection of a Cartesian sort of dualism and at the position he adopts in place of it. I will also consider the broader metaphysical issues within which Aquinas's account of the soul is situated, and I will examine the explanation Aquinas's account gives of the theological doctrine of the afterlife. Then I will turn to the vexed business of taxonomy. How should Aquinas's position be identified? For example, where — if anywhere — on the contemporary spectrum of opinions should Aquinas's account be located? Finally, I will briefly discuss the way Aquinas's account sheds light on contemporary attempts to find some intermediate between Cartesian dualism and eliminative materialism.

Aquinas's rejection of Cartesian dualism

In building his alternative to a Cartesian sort of dualism, Aquinas is guided by two complex, culturally conditioned sets of intuitions, each of which can be conveniently summed up by a biblical passage. The first is God's speech to fallen Adam, which Aquinas takes to apply to all subsequent human beings: "dust thou art, and unto dust shalt thou return" (Gen. 3:19). The second is the line of Ecclesiastes about human beings at the moment of death: "Then shall the dust return to the earth as it was, and the spirit shall return to God who gave it" (Eccles.12:7). On the first set of intuitions, a human being is a material object, made out of the same sort of constituents as the earth is, and subject to dissolution by having those constituents resolved back into earth. On the second set of intuitions, a human person survives death, whatever may happen to her body, because her spirit or soul continues to exist after the dissolution of her body. Aquinas thinks he can accommodate both these sets of intuitions with his account of the human soul.

As is well known, Aquinas takes the soul to be the form of the body. What is much harder to grasp is what he means by this claim. It may help to begin by seeing the depth of his commitment to the view that human beings are material objects and the vehemence with which he rejects Cartesian dualism.

The position we commonly refer to as 'Cartesian dualism' Aquinas associates with Plato and thinks of as Platonism's account of the soul. So, for example, he says,

"[if the Platonists were right that a human being is a soul using a

body], then when the impediment of the body is removed, the soul would return to its own nature, so that it could understand intelligible things simply... as the angels do. But on this view the soul wouldn't be united to the body for the good of the soul, because on this view a soul united to a body would understand less well than when it is separated from the body... and this position is irrational."²

Elsewhere he says,

"Plato claimed that a human being is not a composite of soul and body but that a human being is the soul itself using a body, just as Peter is not a composite of a human being and clothes, but rather a human being using clothes. But this position is shown to be impossible. For an animal and a human being are natural, sense-perceptible things. But this would not be the case if a body and its parts did not belong to the essence of a human being and of an animal. Instead, on Plato's view, the whole essence of both a human being and an animal would be the soul, although the soul isn't anything sense-perceptible or material. And for this reason it is impossible that [something that is] a human being and an animal be a soul using a body."³

Furthermore, Aquinas shares a common contemporary complaint against Cartesian dualism; Aquinas, too, thinks that this dualism will have difficulty explaining the interaction between soul and body. The Platonists, he says, think that the soul is united to the body through some intermediary because diverse, distinct substances cannot be bound together unless something unites them. And so certain Platonists postulate one or another spirit or humor as the medium between soul and body. But none of these bizarre devices is necessary, Aquinas says, if the soul is understood as the form of the body.⁴

It is clear, then, that Aquinas recognizes a position very similar to, if not identical with, Cartesian dualism, and that he rejects it unconditionally. His emphatic repudiation of Cartesian dualism should be kept in mind as we consider his own position.

Aquinas on form: form as configuring

Because he takes the soul to be the form of the body and because of the focus on form in his account, it will also be helpful to say something briefly about Aquinas's views of form.

Although Aquinas thinks that not all forms are forms of material objects, nevertheless on his view all material things are composites of matter and form. Human beings, earthworms, daisies, rocking chairs, amethyst clumps, and bread dough share with all other material things the characteristic of having both matter and form. 'Matter' in this distinction between matter and form is an equivocal term, however. It can be used to refer either to what is itself a composite of matter and form or to what is

material but entirely formless. Understood in the second way, as formless matter, it is, of course, “prime” matter, something that exists only in potentiality or in concept. (On Aquinas’s view, anything material that exists actually, rather than merely potentially, will be a composite of matter and form.) A material composite itself is considered as just matter when that composite serves as a component — as the matter — for some other composite which has a form of its own. For Aquinas, most material objects can be conceptually divided into an ordered series of matter-form composites.

A typical medieval example given to illustrate the matter/form distinction is a bronze statue, but for our purposes here it will be more helpful to take a contemporary example. So consider the protein called ‘CAT/Enhancer-Binding Protein’ (C/EBP), one of the proteins known to play an important role in regulating gene expression. In its active form, the molecule is a dimer with an alpha helix coil. On Aquinas’s way of thinking about material objects, the form of C/EBP is the configuration of the dimer, including the alpha helix coil; and the dimer subunits constitute the matter. Of course, each dimer subunit is itself a composite. The form of the subunit is the configuration of its amino acids, in which, for example, in one region every seventh spot must be occupied by leucine; and the amino acids composing the subunit are its matter. Amino acids themselves are also clearly composites, however. The matter of an amino acid such as leucine is the carbon, hydrogen, nitrogen, and oxygen of which it is composed, and the form is the way that material is combined, including the characteristic NH₂ configuration common to all the amino acids and the sequence of carbon and hydrogen peculiar to leucine. We can evidently go on in this way until we come, for example, to the proton of a hydrogen atom. The quarks that compose it are its matter, and their configuration — the right combination of and interactions between up and down quarks — is the form of the proton. The point at which this conceptual decomposition into matter and form has to quit comes when what counts as the matter isn’t itself a composite of matter and form anymore, that is, at the point at which we reach prime matter, when matter is conceptually stripped of all its forms.⁵

In this example, we have been considering only what Aquinas would call ‘substantial forms’. These are the forms in virtue of which a material composite is a member of the species to which it belongs. Natural material objects belong to a particular natural kind in virtue of the substantial form they have; and all material objects have the essence they have, or are what they are essentially, in virtue of their substantial form. The soul is the substantial form of a human being, the form in virtue of which the matter informed by it (that is, the matter-form composite) constitutes a living human body. The soul on Aquinas’s account can therefore seem to be a universal, instantiable in more than one.

Aquinas, however, takes the soul to be a particular, not a universal. How Aquinas’s account is to be interpreted on this score and whether it has the resources to explain a substantial form’s being a particular I will leave to a subsequent section of the paper.⁶ What is worth noticing here is that on Aquinas’s account the soul not only is the form that makes this matter a living human body but also is the form that makes the matter this human being. At any rate, when all that is left of a human being after death is the

soul, individuality persists on Aquinas's account.

Finally, Aquinas also recognizes accidental forms, forms in virtue of which a thing has the accidents it has, such as a particular color or a certain size. Whether a person is stooped or straight-backed, educated or illiterate, is a matter of accidental forms. Accidental forms aren't a large part of Aquinas's account of the nature of the soul, however, and so I will say very little about them here.

It should be clear that it is a mistake to identify form in general simply with shape. In general, the form (the substantial and accidental forms taken together) of a material object is the arrangement of the matter of that object in such a way that it constitutes that object rather than some other one. This arrangement will commonly be a function not only of the shape of the matter, but also of the properties of the material parts and the ways those parts relate causally to each other. Form for Aquinas is not static but dynamic, something that includes the functioning of and the causal interactions among the parts. That is why he thinks that when we use the names of the living body and its parts for the dead body and its parts, we use those words equivocally. Once a human being dies and the soul is gone, he says, we use such words as 'flesh' or 'eye' equivocally if we apply them to the corpse.⁷ At death, the soul is replaced with a different, non-animating substantial form. The matter of the body is then configured in a substantially different way and so has a form different from the one it had before death.⁸ That is why the body can be called 'a human body' only equivocally even immediately after death. If Aquinas took form to be simply shape, however, or some other static set of characteristics, then he would take the eye of the corpse to have the same form it did when the body was living. That he supposes there to be a complete change of form at death shows that dynamic interactions among the material parts of a thing are an important element of the form, on his view.

Finally, unlike some of his contemporaries, Aquinas thought that any given material object has only one substantial form.⁹ That is, C/EBP does not have one substantial form in virtue of which it is a dimer, another in virtue of which it is a protein, another in virtue of which it is a compound of nitrogen, hydrogen, oxygen, and carbon, and so on. On Aquinas's view, there is just one substantial form for C/EBP which makes it the kind of molecule it is, a dimer of amino acid subunits composed of certain elements related to one another in particular ways and themselves comprised of other components ordered in particular ways. When Aquinas says that the soul is the form of the body, he means that it is the single, substantial form of the body.

On the basis of this brief consideration of Aquinas's views of forms, including the form that is the soul, it seems not unreasonable to think that by 'form' Aquinas means an essentially configurational state.¹⁰ In general, a substantial form is the configurational state of something that makes it a member of the kind or species to which it belongs. In the case of a human being, the substantial form is the divinely created configurational state of the matter constituting the body which makes that matter not only a human body but in fact *this* living human body, capable of human action and operation, including cognitive function.

Matter configured by form

Before looking in more detail at Aquinas's account of the soul, it may be helpful to reflect on the nature of his account of material objects in general.

On Aquinas's view, as we increase complexity in systems, even systems of inanimate things, properties emerge which are properties of the system but not properties of the material parts of the system. C/EBP, for example, has the property of being able to regulate genes, and it has this property because the shape of the molecule as a whole allows it to track the major groove of the helix of DNA and so bind to it in a way crucial for gene regulation. If the protein were denatured, so that it retained its constituents but no longer had the same shape, it would no longer be able to regulate genes. There are many other such examples in nature. The normal prion protein differs from the disease-causing prion protein in virtually no respect except the three-dimensional arrangement of the molecule. But normal prion protein is an innocuous part of ordinary neurons, while the differently structured prion protein can afflict brains with spongiform degeneration.¹¹ Now the shape of a molecule results from the configuration of the components of the molecule, from their chemical and physical properties and the biochemical processes by which they causally interact with each other. The shape of the molecule is thus not just a sum of the shapes of the parts of that molecule; rather, the shape is an emergent property of the molecule as a whole.¹² On Aquinas's account, the fact that material objects are composites of matter and form means that material objects can have emergent properties of this sort, and these emergent properties may bring with them further emergent properties, such as causal potentialities which belong to the whole but not to its parts.

(There are, of course, different understandings of the notion of emergent property.¹³ Here I am using 'emergent' in Searle's sense, in which a property is emergent in case it is a feature or property of a whole or system, is not a property of the parts of that system, and can be explained in terms of the properties of the parts of the system and the causal interactions among the parts.¹⁴ C/EBP may also, however, exemplify what Searle calls "a much more adventurous conception" of emergence, in which a feature of the whole system can't be explained just in terms of the properties of the individual parts of the system and the causal interactions among those parts.¹⁵ In virtue of its shape (which is a feature of the whole system), C/EBP has the causal power to regulate genes (itself another feature of the whole system). But, for some large proteins, the shape of the biologically active molecule doesn't result just from the properties and causal interactions among the atoms that constitute the molecule¹⁶; and knowing the molecule's constituent atoms and the way those atoms can interact with one another is not enough to explain or predict the shape of the biologically active molecule. That is because the shape is produced by the interaction of the atoms of the molecule with enzymes that catalyze folding.¹⁷ In that sort of case, the feature of being able to regulate genes would be emergent in Searle's "more adventurous" sense of 'emergent'.¹⁸)

Furthermore, although accounts of emergentism are typically couched in terms of emergent properties, on Aquinas's way of thinking about mate-

rial objects what can emerge when form is imposed on matter is not just properties but substances. When material components are combined into something higher-level with a particular configuration, a substance will come into being.¹⁹ Aquinas's account is thus anti-reductionistic.²⁰ It isn't true on his account that a material whole is nothing but its material parts or is identical to its material components.²¹ Given his views, it also won't be true that macrolevel features of the whole can always be explained entirely in terms of the microlevel properties and relations of the parts. The configuration of the microlevel components isn't itself a microlevel property and in certain cases can't be explained solely on the basis of the components' properties and interactions with one another. Nonetheless, the configuration will sometimes confer features such as causal powers on the whole system which are not shared by the components of the system.

The soul as configuring matter

With this much clarification of Aquinas's account behind us, we are in a position to look further at what he has to say about the soul. 'Soul' is Aquinas's generic term for the substantial forms of material objects that are living. On his use of the term, then, plants have souls, too, not in the sense that they enjoy being talked to or in the sense that they may be reincarnated as something higher up the ladder of being in the next life, but only in the sense that plants are living things. On his view, a plant has a soul in virtue of the fact that it has a configuration of matter which allows for nutrition, growth, reproduction, and the other sorts of activities common to living things. Animals have souls, since they, too, are living things; but the configuration of their matter allows them an operation not possible for plants, namely, perception. The forms that constitute human beings allow for a still further set of operations, namely, intellectual processes.

Because the human soul has this distinctive set of capacities, Aquinas tends to call it 'the intellectual soul', or 'the rational soul' to distinguish it from the nutritive soul of plants and the sensitive (i.e., capable of perception) soul of animals generally. The intellectual soul is that configuration on the basis of which something exists as this living human body. There isn't a configuration of matter that makes the body a human body and then another configuration that is the intellectual soul, Aquinas says: "There is no other substantial form in human beings apart from the intellectual soul".²² In virtue of this one form, a human being exists as an actual being, as a material object, as a living thing, as an animal, and as a human being with cognitive capacities.²³ For this reason, Aquinas tends also to call the soul the act of the body, because it is in virtue of the soul that something is actually a living human body.²⁴

Since he takes the soul to be a kind of form and since he thinks of forms as essentially configurational states, Aquinas holds that the soul is immaterial. The immateriality of the soul is thus for him a direct consequence of his view of the soul as a form.²⁵ Similarly, he takes the soul to be simple in virtue of its being an essence or nature. A soul is not simple in the way a point is,²⁶ Aquinas says; rather it is simple just in the sense that it is not the sort of thing that has a certain quantity.²⁷ On the other hand, considered

with respect to what it effects rather than with respect to what it is — that is, in its powers or operations— the soul is manifold rather than simple, and the various parts of the body are configured by it in differing ways.²⁸

Because the soul is the form of the body, it has a spatial location; while the body is alive, the soul is located where the body is.²⁹ Aquinas's views on this point are somewhat complicated. We can take the form of the body to be a whole in various ways, he says. Considered with regard to the wholeness of essence, for instance, the whole soul is entirely in each part of the body, just as whiteness is entirely in each part of a completely white thing. We can also, however, consider a thing whole with respect to its operations. Considered just with regard to wholeness of operation, the whole soul is not in each part of the body, since the operations of the soul are localized in various parts of the body, as, for example, sight is (on his view) localized in the eyes.

Some operations, such as intellect and will, are not localized in any particular organ of the body, he thinks,³⁰ although he does take it on medical authority that a lower-level cognitive faculty (which he calls 'particular reason') is located in the brain.³¹ Nonetheless, he does not hold, as Descartes apparently did, that higher cognitive functions occur only in the soul and not in the body. On the contrary, Aquinas thinks that there is something misleading about attributing cognitive functions just to the soul itself. Rather, even such higher cognitive functions as understanding are to be attributed to the whole material composite that is the human being. "We *can* say that the soul understands," he says, "in the same way that we can say that the eye sees; but it would be more appropriate to say that a *human being* understands *by means of* the soul."³² And he specifically identifies the intellect itself with the form of the body: "the intellect, which is the source of intellective function, is the form of the human body."³³

Finally, as his rejection of a Cartesian sort of dualism has made clear, Aquinas does not identify a human being with his soul.³⁴ Instead, it is his view that "a human being is not a soul only but rather a composite of soul and body."³⁵ There is something redundant about this description of the composite since Aquinas thinks that there is a living human body only when matter is configured by the form that is the soul.³⁶ Given his view that the soul is the single substantial form of a living human body, we would expect him to say instead that a human being is a composite of *matter* and soul, not *body* and soul. Nonetheless, 'body and soul' is a common Thomistic description of the material composite that a human being is. It may be that the problem here is an artifact of translation; in some contexts, the Latin word translated 'body' ('*corpus*') refers just to matter.³⁷

At this point, it is easy to see how Aquinas's account fits the first set of intuitions that I said shapes it, namely, that human beings are dust and will return to dust. But it isn't at all easy to see how his account can accommodate the second set of intuitions, namely, that at death the human soul doesn't cease to exist when the composite of soul and body disintegrates, that there is an afterlife in which the disembodied soul persists.

Aquinas on form: form as configured

In fact, at this point, we may think that Aquinas's account can't accommodate the claim that souls persist and engage in mental acts after the death of the body.

In the first place, if the separated soul is an essentially configurational state, what is it a state of? Aquinas isn't a universal hylomorphist; he doesn't think that there is a sort of ghostly ectoplasm that can be configured by the forms of immaterial things, such as souls or angels. And so when he claims that the separated soul exists apart from the body, he seems to be holding the peculiar and perplexing view that there can be an essentially configurational state with nothing that is configured. Secondly, Aquinas thinks that the separated soul engages in mental acts. But an essentially configurational state isn't the sort of thing that engages in acts of any sort, and so it seems that even if there were some way to explain the existence of the soul apart from the body, there is no possibility that the separated soul can engage in any actions.

These questions wouldn't have surprised Aquinas. In his work, he confronts objectors making similar points. If the human soul is the form of the body, then it must be the case that it depends on the body for existence. But what depends on something else for existence, the objector protests, isn't a *this* and can't exist on its own; consequently, neither can the soul, if it is the form of the body.³⁸ Elsewhere Aquinas also considers this objection: "forms dependent on matter as regards being don't have being themselves, strictly speaking; rather, the composites have being through the forms."³⁹ Therefore, the objection implies, the soul, which is the form of the body, has its being only in the being of the body and can't exist or act apart from it.

In my view, these perplexities stem, at least in part, from too limited a view of what Aquinas has in mind with the notion of form; they result from focusing on form only in matter-form composites. Something more needs to be said therefore about Aquinas's views of form.

On Aquinas's view, to be is to be configured or to have a form, and everything is what it is in virtue of a form. So a broader way to understand his view of form is this. We are inclined to suppose that there is something about matter itself which allows it to be configured. (Or perhaps we are so familiar and comfortable with the notion of configurations of matter that we don't suppose matter's ability to be configured requires any explanation.) But for Aquinas the ability of matter to be configured is just a consequence of the fact that matter has being, and what is fundamentally configured is not matter but being.

It was Augustine's view that being is a matter of having order, species, and mode, and Aquinas adopts and develops this Augustinian idea. An angel, for Aquinas, is immaterial but configured since it has order and species, that is, since it is a kind of thing with one rather than another set of characteristics. Anything that has being — whether that thing is material or immaterial — will be like this. So just in virtue of being it will have configuration or form. Understanding this point helps to explain why although Aquinas is perfectly content to deny matter of God, he refuses to deny form of God: being, even divine being, is being configured.

This broader understanding of form is useful for the problems under consideration, because it introduces an ambiguity into the notion of form.⁴⁰ There are forms, such as the form of C/EBP, which are forms in the sense that they give a configuration to something. And then there are forms that don't configure something else but that are rather themselves configured. On Aquinas's view, angels are forms in this latter sense. They are immaterial substances with order, species, and mode, but without matter; and Aquinas takes them to be forms existing and operating without matter.⁴¹ There is nothing incoherent about the notion of an immaterial substance that has one rather than another set of characteristics and that exists and engages in actions of some sort. God and angels are forms in this sense.⁴² It is possible, then, for there to be forms that exist apart from matter and engage in actions, when we understand form in this broader sense, as what is itself ordered or configured in a certain way, rather than configuring.

But now the problem seems to be that on Aquinas's view the human soul at death must undergo a fairly radical transformation, from being a configuring form to being a configured form. If we think, roughly, of forms in the first sense as properties and forms in the second sense as substances, then it seems as if the soul on Aquinas's account has to jump categories at death; and a transformation of that sort will seem to many philosophers to be not just radical but impossible.

Aquinas on form: configured configurers

Here it is helpful to recognize that it is possible for something to be both configured and a configurer of other things. This is so, in familiar and unproblematic ways, as regards material objects. So, for example, C/EBP is configured, in the ways explained in detail above. But it is also a configurer. When it is bound in the right way to DNA, it helps to unravel the DNA molecule, thereby reconfiguring the DNA in such a way as to make transcription possible. Furthermore, before it is bound to DNA, C/EBP isn't configuring anything; it's just itself configured. Nonetheless, it doesn't undergo any radical transformation, or hop any categories, when it changes from being unbound to DNA and non-configuring to being bound and configuring. C/EBP was all along a configured configurer, a configured molecule with a capacity to configure other molecules, and its nature doesn't change when it exercises that capacity.

Analogous things can be said about the human soul on Aquinas's view.⁴³ For Aquinas, the metaphysical world is ordered in such a way that at the top of the metaphysical hierarchy there are forms — God and the angels — which are configured but which aren't configurational constituents of anything else. These forms are configured but non-configuring. Near the bottom of the hierarchy are forms that configure matter but don't exist as configured things in their own right. The form of an amethyst is like this. Such forms are configuring but non-configured. And in the middle are human souls, the amphibians of this metaphysical world, occupying a niche in both the material and the spiritual realm. Like the angels, the human soul is itself configured; but like the forms of other material things, the human soul has the ability to configure matter. The human

soul, then, is a configured configurer. Consequently, in the transition from configuring matter to not configuring matter, the human soul doesn't undergo any radical metaphysical transformation or category switching, any more than the molecule C/EBP does when it goes from not configuring to configuring DNA. It remains what it always was, something configured with an ability to configure other things.

Understanding the soul in this way helps to explain some of the puzzling things Aquinas says about it.

For example, Aquinas takes the forms of material objects generally to come into existence with the existence of their composites; and although God is the ultimate or remote cause of the existence of such forms, the proximate cause is just the cause that brings about the existence of the composite. After canvassing various opinions about the forms of material objects that he takes to be mistaken, Aquinas summarizes the flaws of those opinions in this way:

"All these [mistaken] opinions seem to have developed from a common root, because they were all seeking a cause for forms as if the forms themselves came into being in their own right. But, as Aristotle shows, what comes into being, properly speaking, is the composite. Now the forms of things that are corruptible sometimes exist and sometimes don't exist, without its being the case that they themselves are generated or corrupted; rather the composites are generated or corrupted. ... So since like comes to be from like, we should not seek some immaterial form as the cause of corporeal forms, but rather some composite. ... In this way, then, corporeal forms are caused not as infused from some immaterial form but as matter is brought from potentiality to actuality by some composite agent."⁴⁴

But in this regard the human soul is different from all other forms that configure matter. It is created directly by God and infused into matter. This is what we might expect once we know that the soul is configured, as the angels are; the angels, too, are created directly by God. On the other hand, however, Aquinas rejects vehemently the notion that the soul can be created *before* the body and then infused into an already existent body. He says,

"if the soul is united to the body as its form and is naturally part of human nature, then it is completely impossible [for the soul to be created before the body].... Since the soul is a part of human nature, it doesn't have its natural perfection unless it is united to the body. And so it would not have been fitting to create the soul without the body...."⁴⁵

That is why, he says, the soul is created in the body, and souls are produced simultaneously with human bodies⁴⁶, at the culmination of human generation.⁴⁷ He is willing to maintain this position even in the face of what seem to be religiously worrisome objections. Aquinas imagines an objector asking about children produced by adultery. If the divinely created

human soul comes into existence only simultaneously with the body of which it is the form, and if some children are the product of adulterous liaisons, won't God be concurring in the sin of adultery? God does concur in the action of the adulterer in such a case, Aquinas says, insofar as that action is natural and therefore good; God fails to concur only with what is evil in the action.⁴⁸

Because the form that is the human soul is a configured configurer, it thus has a double aspect. On the one hand, unlike the forms of other material objects, the soul is created by God, as an individual thing in its own right, with its own configuration. On the other hand, like the form of any material object, it exists in the composite it configures, and it comes into existence only with that composite, not before it.

On this way of understanding the form that is the human soul, it is also easier to see why Aquinas thinks that the soul makes matter be not just human but also *this* human being. The soul itself is an individual configured form, and each soul is as it were handcrafted by God. Aquinas says,

"everything has its being and its individuation from the same source. ... Therefore, as the being of the soul is from God as from an active principle, ... so also the individuation of the soul, even if it has a certain relationship to the body, doesn't perish when the body perishes."⁴⁹

Given this double aspect of the soul, it's not surprising that Aquinas supposes that the individuality of the person persists after death in the separated soul. Not only is there continuity of cognitive and conative faculties between the material object that is the human being and the separated soul; but the separated soul, as a configured form, is what makes a human being this particular individual.

Finally, this view of the human form helps to alleviate some of the problems thought to be raised by the notion of the resurrection of the body. On Aquinas's view of the soul, there is mental continuity between a human person before death and the resurrected human person. Moreover, since the soul was what made matter this human being, presumably in the resurrection of the body it will again make the matter it informs this human being. Preservation of identity will not have to be guaranteed by recomposing the human being of the identical atoms as before, and puzzles about what happens when the same atoms have been part of more than one human being are avoided.

Aquinas's view here has something in common with Sydney Shoemaker's views of human persons. Shoemaker thinks that it is possible for there to be a brain-state transfer device which transfers a person's brain states from one body to another and thereby preserves an individual person in being through a succession of bodies. Shoemaker's brain states are presumably configurational states, since there is an interval, however small, in which the states are in the process of being transferred and so are no longer in the first body and not yet in the second,⁵⁰ and yet the states don't go out of existence in this interval. On Aquinas's view, the interval may be much longer, and in that interval the configurational state can con-

tinue to operate, since it is itself something configured. Nonetheless, on both Aquinas's account and Shoemaker's, the imposition of the configurational state on new matter preserves the identity of the person.⁵¹

Cartesian dualism redivivus?

At this point it may seem that this interpretation of Aquinas's account has rescued it from some pressing problems only to enmesh it in all the equally difficult problems of Cartesian dualism, and that Aquinas has after all succumbed to the Platonic dualism from which he was so concerned to dissociate his own views. As I have explained Aquinas's account of the soul, doesn't it collapse into Cartesian or Platonic dualism? Isn't Aquinas's view just another version of the ghost in the machine?

Here, I think, the answer is clearly 'no', and for reasons that are in a sense two sides of the same coin. On Cartesian dualism, (1) both the soul and the body are substances in their own right. Each can engage in acts independently of the other, and each can causally effect the other. Together soul and body make up a human being, but (2) the soul is a separate integral part of a human being, as a roof is a separate integral part of a house. That's why thinking can go on in the soul, but not be in the body at the same time. On Aquinas's account, both (1) and (2) are false.

In the first place, although for Aquinas the separated soul exists on its own after death, it nonetheless isn't a substance in its own right. Aquinas distinguishes two kinds of things that can exist on their own, those that are complete substances and those that just subsist, that is, that exist on their own but are not complete substances. A hand⁵² or a partially built but incomplete house is a subsistent thing in this latter sense,⁵³ and so is the soul. "Not every particular substance is a hypostasis or a person," he says, "but [only] that which has the complete nature of the species. So a hand or a foot cannot be called a hypostasis or a person, and similarly, neither can the soul, since it is [only] a part" of a complete human being.⁵⁴ And so Aquinas says both that

"Intellectual natures are subsistent forms, and although they exist in matter, their being does not depend on matter"⁵⁵

and that

"body and soul are not two actually existing substances; instead, one actually existing substance arises from these two."⁵⁶

The soul is therefore just a part, although a subsistent part, of the substance that is a human being.⁵⁷

It isn't, however, an integral part of a human being. If we think of integral parts as components that together compose a material whole,⁵⁸ as a roof is a part of a house and a head is part of a body, then no forms are integral parts of the material objects to which they belong. When Aquinas lists the parts of a house, he tends to list such things as foundation, walls, and roof; he wouldn't add the form of the house as one more item on the

list⁵⁹. On the other hand, when we think of the constitution of a material object such as C/EBP, then an important part of what we consider is the configuration in which its component molecules and atoms are organized. There can be metaphysical, as well as integral, parts, in some extended sense of 'part'; and a form is a part of a whole only in such an extended sense. As a part of this sort, the form couldn't interact causally with the matter it informs. The form has causal influence in the sense that the composite has the causal influence it does because of its form. But it makes no sense to think, for example, of the configuration of C/EBP interacting causally with the matter of C/EBP.

So Aquinas rejects both (1) and (2), which are characteristic of Cartesian dualism, and he does so because he takes the soul to be a configured configurer. Because the soul is something configured, it is a subsistent thing. But because it is a configurer of matter, it isn't a complete substance in its own right, and it isn't even an integral part of a complete substance. For that reason, the body exercises efficient causality in virtue of the soul, but the soul doesn't exercise efficient causality on the matter it informs. As far as that goes, the matter it informs couldn't exercise efficient causality on the soul either; the matter can engage in causal interactions only in virtue of being configured as it is, that is, in virtue of the soul.

We can sum up the differences between Descartes and Aquinas by saying that Descartes, unlike Aquinas, sees the soul only as configured, and not also as a configurer; Descartes's soul doesn't inform matter to constitute a body. In consequence of this difference, Aquinas's account is not vulnerable to the two main problems thought to afflict Cartesian dualism, namely, that it can't explain the nature of the causal interaction between soul and body and that it divides cognitive functions into those that can be implemented only in the soul and those that can be implemented only in the body. On Aquinas's account, there is no efficient causal interaction between the soul and the matter it informs, and all cognitive functions can be implemented in the body.

Dust and spirit

Does Aquinas then succeed in reconciling the two sets of intuitions I said earlier guided his account of the soul, namely, that human beings are composed of dust and return to it, and that at death the spirit returns to God who gave it? The answer, I think, is 'yes'.

Since Aquinas thinks of a human being as a composite of matter and soul and since he recognizes that dead human bodies decay, he does in fact believe that a human being falls apart at death. The disembodied soul which persists is not the complete human being who was the composite but only a part of that human being.⁶⁰ In response to the question whether the saints in heaven can pray for us, an objector says, "the soul of Peter isn't Peter. So if the souls of the saints pray for us when they are separated from the body, we ought not to call on St. Peter to pray for us but rather on the soul of St. Peter" Aquinas's reply is to grant the point that the soul is not the complete human being but to argue for the appropriateness of calling the part (the soul) by the name of the whole (the composite of matter and form that Peter was and will be).⁶¹

The disembodied soul after death is consequently something like the mirror image of a human being who is in a persistent vegetative state. A human being in an irreversible vegetative state is an incomplete human being. So, in a very different sense, is a disembodied soul, on Aquinas's view. When the soul of a person is separated from the body, Aquinas thinks, the cognitive powers that person had are curtailed and restricted; and, for certain cognitive functions, Aquinas feels constrained to give complicated considerations to show how the disembodied soul could engage in them at all⁶². As for knowledge of material things in the world that would ordinarily be cognized with sense perception, Aquinas attributes the disembodied soul's ability to cognize such things to divine intervention.⁶³

Aquinas holds that disembodied existence isn't natural to the soul. If it weren't for the miserableness of the fallen human condition, which includes the necessity of dying — that is, the separation of soul and body — the soul would never exist in a disembodied state.⁶⁴ Furthermore, the soul's existence in a disembodied state is an impermanent as well as an unnatural condition. It is contrary to the nature of the soul to be without the body, Aquinas says, and nothing contrary to nature can be perpetual. Consequently, the soul's separation from the body cannot last.⁶⁵ In the general resurrection of the dead, at the last judgment, souls will be reembodyed. Except for the interim period, human persons in the afterlife will be like human persons in this life, in the sense that they will be material composites of matter and form. After the period of disembodied existence, the soul will again exist as a constituent of a body, as it did before death.⁶⁶ Nevertheless, although existence apart from the body isn't natural to the soul, and although the soul as the form of the body isn't itself a complete substance, on Aquinas's view it is possible for the soul to exist apart from the body and, with divine help, to engage in cognitive functions in that condition.

For these reasons Aquinas can accept the claim that at death the spirit returns to God who made it. Given the way he understands this claim, however, it turns out after all not to be incompatible with the claim that human beings are dust.

To sum up, then, the soul is an essentially configurational state which is immaterial and subsistent, able to exist on its own apart from the body. On the other hand, the soul is the form that makes the living human body what it is. While it is possible with divine help for the soul to exist and exercise cognitive function on its own, apart from the body, that state is unnatural to it. In the natural condition, human cognitive functions are to be attributed to the whole composite and not to the soul alone, although the composite exercises cognitive functions by means of the soul.

Mental properties are emergent, on this view, insofar as they are features which are dependent on the configuration and composition of the whole; they are not identical to the properties of the material parts of the whole, but they emerge from the properties and dynamic interactions of those parts. The intellectual soul is essentially configurational, but in its natural state it is a configuration of matter. If we can understand the intellectual part of the human soul as roughly equivalent to the mind, then for Aquinas the mind is immaterial but implemented (in its natural condition) in matter. A human being, who is a composite of matter and form, can

engage in cognitive functions in virtue of his form, the soul; but in the natural condition, it is the whole composite and not the soul alone that understands and cognizes and the rest.⁶⁷ Would Aquinas think that the mind is identical to the brain if he had known enough neuroscience? Given what he says about the separated soul, the answer, of course, has to be 'no'. But even if we ask just about the mind before death, in its natural, embodied state, it seems less misleading to say that he would have thought that the mind emerges from the functioning of the brain, since the human form on his account is dynamic rather than static.

Taxonomy: Materialism without Reductionism

How are we to understand Aquinas's account? It is clear that he rejects the Cartesian sort of dualism. On the other hand, Aquinas seems clearly in the dualist camp somewhere since he thinks that there is an immaterial and subsistent constituent to the subject of cognitive function.

What sort of dualist is he? Since the forms of material objects in general don't exist on their own and since the soul isn't a complete substance, we might think he should be classified just as some sort of property dualist. He does, however, hold that the soul can exist without the body, and his position is thus stronger than ordinary property dualisms. Perhaps we should invent a new genus *subsistence dualism*, under which *substance dualism* will be one species and Aquinas's account of the soul another. But perhaps we need not be so fussy. It is clear that Aquinas's account of the soul is more nearly allied with substance dualism than with property dualism; and if we don't take 'substance' in 'substance dualism' too strictly (if it can include subsistent things that aren't complete substances), then we can count Aquinas among the substance dualists.⁶⁸ In that case, we ought to categorize Aquinas as a non-Cartesian substance dualist and put him in the camp of those opposed to physicalism.

Matters are not so simple here, however. Dennett takes it to be characteristic of dualism to hold that the mind is not composed of matter and that scientific investigation of the brain can't teach us anything about the mind.⁶⁹ Shoemaker thinks that what characterizes dualism is the view that a person is something distinct from his body and so has any physical states only derivatively.⁷⁰ But if Dennett and Shoemaker are right about what dualism is, then Aquinas shouldn't be counted among the dualists. Aquinas takes human beings to be matter-form composites, and he attributes cognition to the whole human being: "We can say that the soul understands in the same way that we can say that the eye sees, but it would be more appropriate to say that a *human being* understands *by means of* the soul."⁷¹ Since on his view the subject that engages in cognition is a material substance, it will be possible to investigate that subject by the methods for investigating matter. Furthermore, Patricia Churchland takes it to be one of the main characteristics of physicalism to hold that "mental states are implemented in neural stuff"⁷². But if this characterization of physicalism⁷³ is right, Aquinas should apparently be grouped with the physicalists. Although Aquinas mistakenly supposes that the intellect is tied to no particular bodily organ, he nonetheless holds that the intellectual soul is the

form constituting the human body as a whole. On his view, therefore, mental states will be implemented in matter. His account of the soul is consequently compatible with supposing that mental states are implemented in neural stuff.

At this point it might occur to someone to suppose that it can hardly be surprising that Aquinas's account of the soul isn't readily assimilable to either dualism or physicalism; the difficulty in categorizing Aquinas, such a person might think, stems from trying to insert a peculiarly medieval theory into the contemporary discussion, where it simply won't fit. But I think this is a mistaken attitude.

Consider, for example, Richard Boyd's recent defense of a functionalist version of materialism. Boyd argues that, although materialism is sometimes taken to include the claim that mental states are identical to physical states, materialism is in fact committed just to the claim that the mind is composed of matter. "Materialism, properly understood, does not entail the sort of mind-body identity statements against which the essentialist [i.e., anti-materialist] criticisms are directed", Boyd says.⁷⁴

To argue for his claim, he distinguishes compositional plasticity from configurational plasticity, in this way: "Compositional plasticity is displayed by a type of state, event, or process to the extent that there are possible realizations of that state, event, or process that differ in the sorts of substances or causal factors that constitute them. Configurational plasticity, in contrast, is displayed by a type of state, event, or process to the extent that its possible token realizations differ in the structural configuration or arrangement of their constituent parts, events, substances, or causal factors."⁷⁵

According to Boyd, "mental events, states, and processes are like computational states in being entirely configurational, that is, in possessing maximal compositional plasticity."⁷⁶ In fact, on his account, mental events, states, and processes have no compositional properties essentially. The occurrence of some mental or psychological states in more than one animal species shows that mental states shouldn't be identified with physical states, since it's highly unlikely that other animals share exactly our neurophysiological states; and it's even more unlikely that all logically possible animals that have some of the same mental states as human beings would have the same physiological states we do. For that reason as well as others, Boyd says, "materialism (in its most plausible version) entails that mental states are purely configurational"⁷⁷ and not identical with physical states.⁷⁸

Furthermore, on Boyd's view it is possible for mental events, states, and processes to exist without being realized in any matter at all:⁷⁹ "any particular actual world mental event, state, or process could be — in some other possible world — nonphysically realized."⁸⁰ Consequently, Boyd says, "A materialist account of mental phenomena is quite compatible with the view that there are possible worlds in which mental phenomena exist but are nonphysical."⁸¹ In fact, he maintains, "it is ... fully compatible with a plausible materialist psychology that there should be a possible world in which there is no matter at all, but in which there are events, states, and processes that have all the nonrelational properties essential to the mental events, states, and processes manifested in the actual world."⁸² Mental processes and states must be the processes and states of something, how-

ever, and so on Boyd's view it must also be logically possible that there be a mind which is not realized in matter.⁸³

Boyd thinks of himself as supporting materialism, and he calls his position 'materialism without reductionism'. It seems to me, however, that his position is very similar to (though, of course, not identical with) that of Aquinas, who is not only a dualist but even a substance dualist (in a liberal sense of that phrase). Boyd's mental phenomena, like Aquinas's soul, are purely configurational.⁸⁴ Like the soul in Aquinas's account, mental phenomena on Boyd's view have no essential compositional properties. Even more surprising, both Boyd and Aquinas agree in supposing that it is possible for what is purely configurational to exist on its own apart from any material composition and to function in that condition. For both of them, then, it is possible that there be functioning, disembodied mental states.

It is tempting here to suppose that the comparison with Aquinas shows Boyd is really a dualist in materialist's clothing.⁸⁵ On the other hand, we might construe Aquinas as a materialist with respect to human beings⁸⁶ whose metaphysics provides a principled reason for thinking that reductionism isn't a necessary corollary to materialism. For Aquinas, material objects are composites of matter and form, and a composite of matter and form can itself serve as matter for some other, more complex composite of matter and form. As complexity increases and new forms are produced in the increasingly complex composites, new properties as well as new substances will emerge. To reduce the composite to its constituent matter or to reduce the properties of the composite to just the properties of the composite's components is to think that the form of the whole is nothing. But on Aquinas's view the form of the whole, the configuration that makes the parts into the whole they compose, is an important ontological feature of the world. And that is why, on his account, material objects can't be reduced to the parts that compose them; insofar as events, states, and processes have material components interacting in certain configurations, the same point will apply to them.

But I am more inclined to think it makes no sense to try to determine whether Boyd is really a dualist of some sort or Aquinas is really a non-reductionistic materialist as regards human beings. In my view, the real lesson of this detailed examination of Aquinas's account of the soul is to show how misleading the dichotomy between materialism and dualism is. What Aquinas's account of the soul shows us is that a certain kind of (restricted rather than global) materialism — one that takes mental states to be implemented in bodily states — is compatible with a certain sort of dualism — one that is non-Cartesian in character. To this extent, examination of Aquinas's account supports Searle's claim that it is a mistake to suppose that one must choose between materialism and dualism.⁸⁷

Although Boyd accepts the dichotomy between materialism and dualism and means to choose materialism, something he says in support of his position helps explain why the dichotomy is misleading or mistaken. He says, "The issue [between materialism and dualism]... has come to be described as the issue of whether the corresponding mental and physical states are identical [as many materialists have argued] or (as the dualist

suggests) merely correlated. ... this way of putting the question is fundamentally misleading. The issue is not identity versus correlation, but composition versus correlation."⁸⁸ Boyd supposes that correlation is unsuccessful as an account of mind, and he (like Aquinas) builds his position around composition. As both Boyd and Aquinas recognize (in different ways), however, composition has a twofold nature. On Aquinas's view, composition for material objects requires both matter and form; on Boyd's view, we can distinguish the configuration of a composite from the stuff in which that configuration is realized. If we focus on the material stuff and think that composites are identical with their material parts, then we are likely to think the mental is identical with the physical. If we focus on the configuration as the essential feature of the mental, our view will look dualistic. But in fact because the mind is a complex configuration of a material object, a correct account of it will share features of both materialism and dualism. Furthermore, the hybrid nature of composition also helps to explain the strength of the debate over the nature of the mind. Because the mind is implemented in a composite and composition is a hybrid of matter and configuration, both materialist and anti-materialist intuitions can find strong support from a consideration of the properties and characteristics of the mind.

Aquinas's account, then, helps us see that the battle lines between dualism and materialism are misdrawn.⁸⁹ It is possible to have a coherent account of the mind that satisfies intuitions of both dualists and materialists. It's unlikely, of course, that everyone will think Aquinas's account of the soul, including the soul's persistence after death, is coherent. But it is worth noting here that religious belief isn't necessary for supposing that the soul can exist and function apart from the body. Boyd, too, thinks it's clear that there can be mental states, events, and processes even in a world in which there is no matter at all.⁹⁰ Furthermore, even if we cut out all of Aquinas's account that has to do with the afterlife, that is, if we assume that the soul in his account is just one more immaterial form of a material object, like the form of C/EBP, which exists only in the composite it helps constitute, Aquinas's account of the mind would nonetheless have the hybrid nature highlighted here. It would still take the mind to be something essentially immaterial or configurational but nonetheless — in human beings — realized in material components. And so it would still combine features of both dualism and materialism.

Aquinas's account of the soul, therefore, suggests that to make progress on a philosophical understanding of the nature of the mind (as distinct from a biological understanding of the mechanisms by which the mind operates), it would be good to break down the dichotomy between materialism and dualism that takes them to be incompatible positions. It also strongly suggests that Cartesian dualism is not essential to all the major traditions of the major monotheisms. For Aquinas, at any rate, the rejection of Cartesian dualism is entirely compatible with his view of the nature of the soul.⁹¹

NOTES

1. *Meditation VI*, in *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, (Cambridge: Cambridge University Press, 1984), vol.II, p.54. In other places, Descartes seems to hold that a complete human being is a compound of body and soul; see, for example, his reply to objections, in *The Philosophical Writings of Descartes*, vol.II, pp.299-300. How this position is to be reconciled with the position in the quotation from *Meditation VI* is not entirely clear; but my interest in this paper is only in the dualism commonly associated with Descartes, regardless of whether or not Descartes himself actually held it. For discussion of the extent to which Descartes held Cartesian dualism, see, for example, Margaret Wilson, *Descartes*, (London: Routledge and Kegan Paul, 1978), pp.177-185, and Tad Schmaltz, "Descartes and Malebranche on Mind and Mind-Body Union", *The Philosophical Review* 101 (1992) 281-325.

2. *Summa theologiae* (ST) I q.89 a.1.

3. *Summa contra Gentiles* (SCG) II. 57.

4. *Quaestiones de anima*, q.9 corpus.

5. Peter van Inwagen thinks that he differs from Aristotle (and others, such as Aquinas, who accept the notion of prime matter) because, unlike the upholders of prime matter, he believes that "matter is ultimately particulate" (*Material Beings*, [Ithaca, NY: Cornell University Press, 1990], p.3 and p.15). But van Inwagen is clearly concerned with actually existing material objects and their actual ultimate constituents. Aquinas might well agree that the ultimate actual constituents of a material object are particulate. Prime matter is never an actual part of anything, and its existence is only potential and conceptual, never actual. The final division of form from prime matter can occur only in thought.

6. For arguments that Aquinas's account is not successful in dealing with problems related to the individuation of the soul, see Swinburne's section in Sydney Shoemaker and Richard Swinburne, *Personal Identity*, (Oxford: Basil Blackwell, 1984), p.32. Swinburne seems to me not to take adequate account of the twofold nature of the soul, as configured as well as configuring, in his arguments against Aquinas.

7. *Quaestiones de anima*, q.9 corpus.

8. *In libros de anima* L.II, l.1, 226.

9. For a good account of this medieval controversy over substantial forms, see, for example, Anton Pegis, *St. Thomas and the Problem of the Soul in the Thirteenth Century*, (Toronto: Pontifical Institute of Mediaeval Studies, reprinted 1983).

10. There is a very helpful discussion of Aristotle's concept of form in Marjorie Grene's "Aristotle and Modern Biology", *Journal of the History of Ideas* 33 (1972) 395-424. She argues that Aristotle's concept of form is very like the contemporary biological concepts of organization or information. I am not convinced that my phrase "configurational state" is the only or even the best way of conveying the meaning of the Latin '*forma*'; Grene's renderings of the equivalent Aristotelian term in terms of organization or information strike me as also appropriate. (I am grateful to Shawn Floyd for calling Grene's article to my attention.)

11. Ziwei Huang, Jean-Marc Gabriel, Michael Baldwin, et al., "Proposed three-dimensional structure for the cellular prion protein", *Proceedings of the National Academy of Sciences*, 91 (July 19 1994) 7139-7143.

12. For a very helpful discussion of the history of the notion of emergent properties, see Brian McLaughlin, "The Rise and Fall of British Emergentism,"

in *Emergence or Reduction? Essays on the Prospects of Nonreductive Physicalism*, ed. Ansgar Beckermann, Hans Flohr, and Jaegwon Kim, (Berlin: Walter de Gruyter, 1992), pp.49-93. (I am grateful to McLaughlin for calling this article to my attention.)

13. It is interesting to note that in Samuel Alexander's influential early account of emergent properties, they are identified with configurational patterns and explicitly associated with the historical distinction between matter and form. Alexander says, "To adopt the ancient distinction of form and matter, the kind of existent from which the new quality emerges is the "matter" which assumes a certain complexity of configuration and to this pattern or universal corresponds the new emergent quality." (quoted in Timothy O'Connor, "Emergent Properties", *American Philosophical Quarterly* 31 (1994) 91-104. O'Connor's article is a helpful discussion of emergent properties; O'Connor himself thinks that a sufficiently rich account of emergent properties will constitute a middle road between substance dualism and materialism. As I argue in what follows, another alternative is to see that a certain sort of materialism and a certain sort of dualism are not incompatible.) For a useful discussion of reasons for preferring one formulation of the notion of emergence over another, see Robert L. Klee, "Micro-determinism and Concepts of Emergence", *Philosophy of Science* 51 (1984) 44-63.

14. John Searle, *The Rediscovery of the Mind*, (Cambridge, Mass.: MIT Press, 1992), p.111.

15. *Ibid.*, p.112.

16. There is some room for ambiguity and confusion here. On some accounts of emergence, for example, a property of a system is emergent if it couldn't have been predicted from knowledge of the properties of the parts of the system or if the microstructure of a system doesn't completely determine the property in question. But it isn't entirely clear what is to count as the microstructure of the system or the properties of the parts. In particular, when we include under the properties of the parts the relations and causal interactions among those parts, we can be thinking of those relations and causal interactions in two ways: (i) as the causal potentialities of the parts, the way in which (for example) the molecule's constituent atoms, taken individually, are able to interact with and relate to one another; (ii) as the relations and causal interactions the parts in fact have in the form of the whole, the way in which (for example) the constituent atoms interact with one another in the configuration which the molecule has in its final, biologically active form. I am taking 'causal interactions' in sense (i) here. In sense (i), it is true to say, as biochemists do, that the folded shape of a protein cannot always be derived from even perfect knowledge of the biochemical properties of the components of the protein, including their causal interactions (since it might be the case that the protein achieves that folded shape only with the help of enzymes, for example). It would not be true to say this in sense (ii). If we take 'causal interactions' in sense (ii), then we smuggle the configuration, or the form of the whole, into the properties of the parts of the whole. In sense (ii), it would be very surprising if there were features of the whole system that were not explainable in terms of or determined by the causal interactions of the parts of the whole, since the features of the system are a function of the configuration of the whole and that configuration is in effect being counted among the properties of the parts.

17. See, for example, Frederic M. Richards, "The Protein Folding Problem", *Scientific American* 264 (Jan. 1991) 54-63. According to Richards, for relatively small proteins folding is a function of the properties and causal potentialities among the constituents of the protein, but "some large proteins have recently been shown to need folding help from other proteins known as chaperonins."

(p.54) Richards thinks of proteins with 300 or fewer amino acids as small proteins. C/EBP has 359 amino acids, and I don't know enough biochemistry to know whether or not that size puts C/EBP in the category of small proteins that need no folding help.

18. Whether such an emergent property of a whole system should be counted as supervening on the properties of its components depends, in part, on two things. (The type of supervenience at issue here is what is sometimes called 'multiple domain supervenience'; see, for example, Jaegwon Kim, "Supervenience for Multiple Domains", reprinted in *Supervenience and Mind*, (Cambridge: Cambridge University Press, 1993), pp.109-130. A helpful formulation of such a supervenience relation with respect to wholes and parts is given in O'Connor 1994, p.96.) (1) Whether it is possible for the parts to have the properties they have without the whole system's having the emergent feature in question depends on what we think is to be included among the properties of the parts and whether the configuration of the whole is somehow included among them. If we think the properties of the parts include causal interactions among the parts only in sense (i) of note 16 above, then the emergent property will not be supervenient on the properties of the parts, since it is possible for the parts to exist and have those properties without the whole's having the emergent property in question — as would be the case, for example, if we synthesized a large protein but didn't succeed in catalyzing its folding, so that it wasn't biologically active. (2) Whether it is possible to have the systems feature in question exemplified by different constituents with different properties is at least in part a function of how abstract the description of the systems feature at issue is. Being able to regulate genes is one thing; being able to regulate genes by fitting a leucine zipper of such-and-such a size into the major groove of a DNA helix is another. The intuitive idea behind supervenience is that the supervenient property is dependent upon and determined by the subvening properties. My point here is that whether or not we have such dependence and determination in the case of emergent properties depends, among other things, on whether or not the configuration of the whole is tacitly included among the properties of the parts and on the specificity with which we pick out the supervenient property.

19. Giving a principled distinction between configurations of material components that combine their components into one thing from those that bring the components together without combining them into one thing is difficult. (For a good account of the problems, see Peter van Inwagen, *Material Beings*, (Ithaca, NY: Cornell University Press, 1990). It isn't clear to me that Aquinas has the resources for giving an adequate distinction of this sort, but see, for example, *In libros Metaphysicorum*, L. VII, 1.17, 1672 -1674. There Aquinas says that in cases in which the composite is one thing, the composite is not identical with its components; rather the composite is something over and above its components.

20. For a helpful discussion of the general problem of reductionism relevant to the issues considered here, see Alan Garfinkel, "Reductionism", in *The Philosophy of Science*, ed. Richard Boyd, Philip Gaspar, and J.D.Trout, (Cambridge, Mass.: MIT Press, 1993), pp.443-459. Garfinkel argues against reductionism by trying to show that reductive microexplanations are often not sufficient to explain the macrophenomena they are intended to explain and reduce. He says, "A macrostate, a higher level state of the organization of a thing, or a state of the social relations between one thing and another can have a particular realization which, in some sense, "is" that state in this case. But the explanation of the higher order state will not proceed via the microexplanation of the microstate which it happens to "be". Instead, the explanation will seek its

own level..." (p.449). Aquinas would agree, and Aquinas's account of the relation of matter and form in material objects helps explain Garfinkel's point. The biological system has a form as well as material constituents, so that the system is not identical to the constituents alone; and some of the properties of the system are a consequence of the form of the system as a whole. Garfinkel himself recognizes the aptness of the historical distinction between matter and form for his argument against reductionism. He says, "the independence of levels of explanation ... can be found in Aristotle's remark that in explanation it is the form and not the matter that counts." (p.149). See also Philip Kitcher, "1953 and All That: A Tale of Two Sciences", in *The Philosophy of Science*, op.cit., pp.553-570. Kitcher, who rejects reductionism in biology, argues for the strongly anti-reductionist claim that sometimes descriptions of higher-level processes are needed to explain events at a lower level.

21. For an interesting contemporary argument against the reduction of wholes to their parts, see Peter van Inwagen, "Composition as Identity", in James Tomberlin, ed., *Philosophical Perspectives*, vol. 8, (Atascadero, CA: Ridgeview Publishing Co., 1994), pp.207-219.

22. ST I q.76 a.4 corpus.

23. ST I q.76 a.6 ad 1.

24. ST I q.75 a.1.

25. ST I q. 75 a.5.

26. For some arguments that the soul *is* simple in the way that a point is, see Philip Quinn, "Tiny Selves: Chisholm on the Simplicity of the Soul", forthcoming. I am grateful to Quinn for allowing me to see his paper in typescript.

27. *Quaestiones de anima*, q.10 ad 18.

28. *Quaestiones de anima*, q.9 ad 14.

29. Aquinas therefore wouldn't agree with Hoffman and Rosencrantz, who define the soul as lacking a spatial location. See Joshua Hoffman and Gary Rosencrantz, "Are Souls Unintelligible?", in James Tomberlin, ed., *Philosophical Perspectives*, vol.5, (Atascadero, CA: Ridgeview Publishing Co., 1991), p.183.

30. ST I q.76 a.8 corpus. See also the discussion in *Quaestiones de anima*, q.10 corpus and SCG II.72.

31. ST I q.78 a.4 corpus.

32. ST I q.75 a.2 ad 2.

33. ST I q.76 a.1 corpus.

34. Contrast Chisholm here, who uses 'soul' to mean the same thing as 'person'. See Roderick Chisholm, "On the Simplicity of the Soul", in James Tomberlin, ed., *Philosophical Perspectives*, vol. 5, op.cit., p. 167.

35. ST I q.75 a.4 corpus.

36. The possible identification of human agents that Chisholm quickly dismisses, namely, that a human person is his (living) body, is therefore the one Aquinas espouses. Chisholm's reasons for rejecting it include his mereological essentialism and his conviction that a person could lose a part of his body and still continue to exist. Aquinas shares Chisholm's conviction that a person can persist through the loss of a part of his substance, but he would not accept Chisholm's mereological essentialism for human beings. See Roderick Chisholm, "On the Simplicity of the Soul", in James Tomberlin, ed., *Philosophical Perspectives*, vol. 5, op.cit., p.168.

37. In some versions of the Porphyrian tree in logic texts, for example, 'corpus' is the name for the genus that encompasses all material things, both animate and inanimate.

38. *Quaestiones de anima* q.1 obj.12.

39. SCG II.51.

40. I am grateful to Brian McLaughlin for helping me see the point in this

paragraph.

41. See, for example, ST I q.50 a.2 ad 3 and a.5.

42. See, for example, ST I q.3 a.2: "God is therefore by his essence a form".

43. There are also significant disanalogies between C/EBP and the soul. Here are some of them. (1) What is a configured configurer in the case of C/EBP is the matter-form composite; in the case of the soul, it is the form alone. (2) C/EBP configures something which is a matter-form composite itself; the soul configures unformed matter. (3) C/EBP is a substance in its own right; the soul is not. (4) Perhaps because of the difference between C/EBP and the soul noted in the preceding disanalogy, when C/EBP configures DNA, the result of the configuration isn't one substance — C/EBP and DNA don't constitute one super-molecule; but the soul and the matter it configures do form one substance, an individual human being. And there are other disanalogies as well. In this context, then, C/EBP should be taken just as a heuristic example, designed to make more plausible the notion of a configured configurer. It shouldn't be taken as strictly exemplary of everything that is true of the soul on Aquinas's account.

44. ST I q.65 a.4 corpus.

45. ST I q.90 a.4 corpus.

46. The production of a human body isn't itself instantaneous, however; Aquinas does not think that at conception the fetus is a human being. On his view, one substantial form succeeds another in the fetus, so that before the fetus is a human body with a human soul, it is animated by the nutritive soul and the sensitive soul. See, for example, ST I q.76 a.3 ad 3.

47. ST I q.118 a.2 corpus and a.3 corpus.

48. ST I q.118 a. 2 ad 5.

49. *Quaestiones de anima*, q. 1 a.1 ad 2.

50. Shoemaker gives no indication that he thinks the BST device is person-preserving only in case it transfers brain states instantaneously or that brain states are such that they can be transferred only if the process of transfer takes no time.

51. See Sydney Shoemaker and Richard Swinburne, *Personal Identity*, (Oxford: Basil Blackwell, 1984), pp.108-111.

52. ST I q.75 a.2 ad 1. It's not entirely clear what Aquinas has in mind with the distinction between a complete and an incomplete substance, but the idea seems to be something like this: the definition of an incomplete substance will include reference to a primary substance, as the definition of a complete substance will not.

53. See *Quaestiones de anima*, q.1 corpus and ad 3, and ST I-II q.72 a.2 corpus, where Aquinas says, "things are found to differ in species in two ways, in one way from the fact that each [of the differing things] has a [different] complete species, as a horse and a cow differ in species, and in another way insofar as difference in species is found in accordance with difference in the degree of some generation or motion, as a building is a complete generation of a house, but the laying of the foundation and the raising of a wall constitute an incomplete species". See also *In libros de anima* L.II, l.1, 215.

54. ST I q.75 a.4 ad 2.

55. SCG II.51.

56. SCG II.69. Aquinas would therefore share Peter van Inwagen's intuition that two objects (or substances) cannot be composed of all and only the same proper parts at the same time (Van Inwagen 1990, p.5). A gold statue and the gold of which it is made aren't two different actual substances on Aquinas's view any more than on van Inwagen's. For Aquinas, however, it will be true that the same proper parts can be parts of more than one object at the same

time. The matter that makes up a nitrogen atom can be part of that atom, part of an amino acid, and part of the C/EBP protein at the same time.

57. Swinburne is therefore mistaken in claiming that on Aquinas's view a soul is itself a substance; see Sydney Shoemaker and Richard Swinburne, *Personal Identity*, (Oxford: Basil Blackwell, 1984), p.32.

58. These are what Aquinas calls 'integral' parts, as distinct from metaphysical parts.

59. See also *In libros Metaphysicorum* L.VII, l.17, 1679-1680 where Aquinas explains that the form of a material composite isn't an element of the composite in the way that its material components are; rather the form is what Aquinas calls a 'principle' of the constitution of the composite.

60. Aquinas would therefore not accept the claim that anything which is embodied is necessarily embodied. For interesting arguments that the claim should in fact not be accepted, see Stephen Yablo, "The Real Distinction Between Mind and Body", *The Canadian Journal of Philosophy*, supplementary volume 16 (1990), p.197.

61. ST II-II q.83 a.11.

62. Richard Swinburne asserts that on Aquinas's account there is no memory in the separated soul (*The Evolution of the Soul*, (Oxford: Clarendon Press, 1986), p.306); but Swinburne is mistaken here. He supports his point by referring to SCG II.81.14, where Aquinas says that recollection isn't in the separated soul. But in that passage Aquinas goes on to say that the denial of recollection in the separated soul is false if by 'recollection' we mean the understanding of things which the person cognized before (in the embodied state). Whatever exactly Aquinas means by 'recollection' here, then, it isn't to be equated with memory in general.

63. ST I q.89 a.1 and a.8.

64. ST I-II q.85, a.5 and a.6.

65. SCG IV.79.

66. What are we to say about the human person here? The question is somewhat difficult to answer just because the contemporary notion of personhood doesn't map neatly on to medieval concepts; certainly the medieval term 'persona' isn't equivalent to our 'person'. As far as I can see, Aquinas's notion of a human being is as close to our notion of person as anything else in his account of human nature. If this is right, then for Aquinas the person, as it were, falls apart at death. Nonetheless, although the soul is just a part of a person, it is the part that has intellect and will, so that there is a sense in which, on his account, the person survives death, since the person part that is the soul thinks and wills even if it isn't a complete person in its own right. (This is no doubt at least part of the reason why he thinks it is appropriate to call the soul of Peter 'Peter', as he claims we should do in his discussion of prayer to the saints in heaven.) In this sense, the soul is different from other forms of material objects. The form of a cathedral without the matter it configures might be considered a part of the cathedral, in some sense of part, but even if the form somehow survived the dissolution of the form-matter composite that is the cathedral, ordinarily we wouldn't think the survival of this part of the cathedral counted as the survival of the cathedral. (I say 'ordinarily' because we can imagine circumstances in which we do take the survival of the form to count as survival of the cathedral. Imagine, for example, some future archaeologist at a time when all that remains of Chartres is some vague and wildly laudatory remarks in old letters who stumbles on an artbook that preserves complete diagrams of all parts of Chartres. He might well herald his discovery by saying 'Chartres is no longer lost to us.')

67. Aquinas's account thus satisfies Chisholm's constraint, which Chisholm

thinks is supported by our strong intuitions, that the mind must be a thing of some sort and cannot be identified with anything like a set of properties. (Chisholm 1991, p.169.) On Chisholm's view, the mind must be a substance. For Aquinas, as I explain, when the mind exists in its disembodied state in the separated soul, it is a part of a substance, like a severed hand or a partially built house, and not a whole substance in its own right.

68. Stephen Yablo says that any "substance dualism worthy of the name maintains at least that (1) I am not identical to my body" ("The Real Distinction Between Mind and Body", in *The Canadian Journal of Philosophy*, supplementary volume 16 (1990), p.150). Whether or not Aquinas meets this test for substance dualism depends on how (1) is understood. If we take (1) literally as it stands (and this is how Yablo himself interprets it), then Aquinas accepts it, since in some sense the corpse of a person also counts as that person's body. On the other hand, if we are to understand 'body' in (1) as referring just to living human bodies, then Aquinas would reject (1) since he thinks that a human being is the matter-form composite of a living human body.

69. Daniel Dennett *Consciousness Explained*, (Little, Brown, and Co., 1991), pp.33-37.

70. Sydney Shoemaker, *Identity, Cause, and Mind*, (Cambridge: Cambridge University Press, 1984), p.141.

71. ST I q.75 a.2 ad 2.

72. Patricia Churchland, *Neurophilosophy. Toward a Unified Science of the Mind/Brain*, (Cambridge, Mass.: MIT Press, 1990), p.352.

73. This is admittedly a very restricted sense of 'physicalism'. For some attempt to clarify the different senses of 'physicalism' in current use, see Howard Robinson, *Objections to Physicalism*, (Oxford: Clarendon Press, 1993).

74. Richard Boyd, "Materialism without Reductionism: What Physicalism Does Not Entail", in *Readings in Philosophy of Psychology*, ed. Ned Block, vol. 1, (Cambridge, Mass.: Harvard University Press, 1980), p.85.

75. Boyd 1980, p.88.

76. *Ibid.*, p.88.

77. *Ibid.*, p.97.

78. Boyd in fact qualifies this thesis with a distinction between narrow and broad construals of the scope of states, events, and processes; but this distinction doesn't alter his general point and isn't relevant to the issues at hand.

79. Boyd asserts this claim with very little argument; for considerable careful and interesting argument for the claim, see Stephen Yablo, "The Real Distinction Between Mind and Body", *The Canadian Journal of Philosophy*, supplementary volume 16 (1990) 149-201.

80. Boyd 1980, p.101.

81. *Ibid.*, p.85.

82. *Ibid.*, p.97.

83. Unless I have misunderstood Boyd and he thinks it is possible for there to be functioning mental phenomena existing on their own apart from both a body and a mind. Something similar to or even identical with such a peculiar theory seems to be held by N.M.L.Nathan, who says, "A person could be a series of volitions connected causally or by their contents, or...a single continuous activity in which all succession and variety belongs to the content of that activity." ("Weak Materialism", in Robinson 1993, p.223).

84. Furthermore, Boyd like Aquinas takes configurational events, states, or processes as dynamic, since he supposes that such dynamic conditions as information-processing are configurational.

85. For someone who sees positions such as Boyd's as dualist, see Stephen Yablo 1990, p.151 (where Yablo describes the claim that a human mind could

have existed in the absence of all material objects a “genuinely challenging form of dualism”) and “Mental Causation”, *The Philosophical Review* 101 (1992), p.246.

86. This is the sense of materialism Howard Robinson has in mind when he says, “One could, for example, have a materialist or physicalist theory of man and hence of the human mind, whilst believing in the existence of non-human immaterial spirits” (Robinson 1993, p.2).

87. See John Searle 1992, p.28.

88. *Ibid.*, p.102.

89. For detailed and elaborate consideration of arguments for this conclusion, see David Braine, *The Human Person. Animal and Spirit*, (Notre Dame, IN: University of Notre Dame Press, 1992). For arguments that Aquinas’s account of the soul occupies a halfway house between dualism and materialism, see Brian Davies, *The Thought of Thomas Aquinas*, (Oxford: Clarendon Press, 1992). Davies’s discussion is very helpful, but a better way to describe Aquinas’s position, in my view, is as showing the mistakeness of the dichotomy between materialism and dualism.

90. And if it is logically possible for disembodied minds to exist and function, then on Aquinas’s understanding of omnipotence, God can bring about such a state in this world.

91. I owe a debt of thanks to Bas van Fraassen and Peter van Inwagen, who discussed some of these issues with me and suggested helpful literature while I was preparing to write this paper, and to William Alston, David Burrell, William Hasker, Brian Leftow, David Lewis, Scott MacDonald, Ernan McMullin, and Alvin Plantinga, whose comments and questions on an earlier draft were very useful. I’m particularly grateful to Norman Kretzmann for valuable help at every stage of this paper.