ARTÍCULOS | ARTICLES

THE *SUMMA HALENSIS* ON THE COMPOSITION OF THE HUMAN BODY

LA *SUMMA HALENSIS* SOBRE LA COMPOSICIÓN DEL CUERPO HUMANO

Dominic Dold

University of Notre Dame – Max Planck Institute for the History of Science

Abstract

The author of the *Summa Halensis* claims that the human body is maximally composite and argues for this using a proof strategy that intends to deduce the body's composition from the human soul's immateriality. This study examines that claim and argument, which is given both in a shorter and a longer form. The core of the article consists in a careful reconstruction of both forms, along with an enquiry into its Jewish Neoplatonic sources (first and foremost the *Fons vitae*) and its appearance in zoological commentaries contemporary to the *Summa* written by Peter of Spain and Albert the Great. It emerges that the argument brings into play various features of the Summist's hylomorphic theory, especially a pluralism about substantial forms.

Keywords

Early Franciscans; Hylomorphism; Rational Soul; Human Body; *Fons vitae*

Resumen

El autor de la *Summa Halensis* afirma que el cuerpo humano es máximamente compuesto y lo argumenta utilizando una estrategia probatoria que pretende deducir la composición del cuerpo a partir de la inmaterialidad del alma humana. Este estudio examina esta afirmación y su argumento, que se presenta tanto en una forma corta como en una forma más larga. El núcleo del artículo consiste en una reconstrucción metódica de ambas formas, junto con una indagación sobre sus fuentes neoplatónicas judías (principalmente el *Fons vitae*) y su aparición en comentarios zoológicos contemporáneos a la *Summa* escritos por Pedro Hispano y Alberto Magno. Se desprende que el

argumento pone en juego varios aspectos de la teoría hilemórfica del Sumista, especialmente un pluralismo con respecto a las formas sustanciales.

Palabras clave

Primeros franciscanos; hilemorfismo; alma racional; cuerpo humano; *Fons vitae*

1. Introduction

Recent scholarship has led to an increased appreciation of the Franciscan *Summa Halensis* as not only historically significant, but also philosophically rich and fascinating.[1] While it has already emerged that the *Summa*'s doctrines of the human soul and the soul's relation to the body are of particular interest,[2] its teaching on the *composition* of the human body has not received sufficient attention. In this article, I examine this doctrine through an argument the Summist gives in two versions (a shorter and a longer form) to support the claim that the human body is maximally composite. The main objective of my study is a clarification of the hylomorphic principles employed in the *Summa*.[3] More specifically, I argue that what is operative in the argument for the body's maximal composition is the concept of an *isomorphism* (i.e., a *structural* correspondence) between (1) the complexity of the human soul with respect to its powers, (2) the form of the body in relation to the forms comprised by it, and (3) the matter of the body as divided by various quantitative parts.

There are other sources roughly contemporary with the *Summa* that also deal with the question of the body's organisation, among them the zoological question

[1] See, for example, the three volumes Lydia Schumacher (ed.), *The Summa Halensis: Sources and Context* (Berlin: De Gruyter, 2020); Lydia Schumacher (ed.), *The Summa Halensis: Doctrines and Debates* (Berlin: De Gruyter, 2020); Lydia Schumacher (ed.), *The Legacy of Early Franciscan Thought* (Berlin: De Gruyter, 2021).

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[2] Recent discussions can be found in monographs by Schumacher and Bieniak; see Lydia Schumacher, *Human Nature in Early Franciscan Thought: Philosophical Background and Theological Significance* (Cambridge: Cambridge University Press, 2023); Magdalena Bieniak, *The Soul-Body Problem at Paris, Ca. 1200–1250*, translated by R. Roncarati (Leuven: Leuven University Press, 2010).

[3] Bieniak has initiated the study of the hylomorphic theory espoused in the *Summa* through the lens of the union of soul and body; see Magdalena Bieniak, "The Soul-Body Union in the Summa Halensis," in *The Legacy of Early Franciscan Thought*, edited by L. Schumacher (Berlin: De Gruyter, 2021), 37-48.

commentaries by Peter of Spain and Albert the Great.[4] These authors argue that every animal is necessarily composed of a certain type of body parts (specifically, of organs), and as shown in a recent publication of mine, these zoological arguments share their *form* with the shorter version of the argument for the maximal composition of the human being in the *Summa*.[5] The present study will, however, highlight that the metaphysical principles driving the Summist's argument are very different to the ones endorsed by the zoological commentators and contrast especially with Albert's philosophical commitments. In particular, the aforementioned isomorphism relies on a pluralist view about substantial forms that a formal unitarian like Albert cannot accept. I shall indicate why Albert's unitarianism renders this argumentative strategy less effective for him.

This article has a three-part structure. First, I review the basic tenets of the *Summa*'s doctrine of soul and body on the basis of the secondary literature, showing that the precise logical relation between the multitude of operations of the human soul and the compositional complexity of the human body has not been sufficiently elaborated. Second, I turn to the shorter version of the argument for the maximal composition of humans in the *Summa*, and provide an analysis of its sources, its structure, and its parallels in the zoological commentaries written by Peter and Albert. Third, I give a detailed reconstruction of the longer argument presented later in the *Summa*. I shall suggest that the longer form alone – rather than the shorter one with its parallels in the zoological commentaries – captures the fundamental metaphysical (in particular, hylomorphic) commitments of the *Summa*.

2. *Status quaestionis*

As I do not assume any familiarity with the *Summa*'s teaching on the human soul and body – as well as other doctrines it is entangled with – I shall introduce this background cursorily, focussing on issues of hylomorphism in particular while also referring the reader to the thorough historical and systematic monographs by Lydia Schumacher and

[4] See Dominic Dold, "Why Do Animals Have Parts? Organs and Organisation in 13th- and 14th-Century Latin Commentaries on Aristotle's *De Animalibus*", in *Fragmented Nature: Medieval Latinate Reasoning on the Natural World and Its Order*, edited by M. Cipriani and N. Polloni (New York: Routledge, 2022); also Theodor W. Köhler, *Homo animal nobilissimum: Konturen des spezifisch Menschlichen in der naturphilosophischen Aristoteleskommentierung des dreizehnten Jahrhunderts. Teilband 2* (Leiden: Brill, 2014), 6-9. The composition of *animals* (not just humans) is also discussed through the same argument by Bonaventure; see Ian P. Wei, *Thinking about Animals in Thirteenth-Century Paris: Theologians on the Boundary Between Humans and Animals* (Cambridge: Cambridge University Press, 2021), 140; also Raymond Macken, "Le statut philosophique de la matière selon Bonaventure", *Recherches de théologie ancienne et médiévale* 47 (1980): 188-230, 221.

[5] See Dold, "Why Do Animals Have Parts?", 140-143.

Magdalena Bieniak for further details.[6] Importantly, the Summist[7] espouses a non-Aristotelian hylomorphic theory, as pointed out recently by Bieniak. With respect to matter, a distinction is drawn between that which makes matter what it is and actualises it – form properly speaking – and that which is the mover of that matter. [8] Postponing discussion of the former for now, the latter is, in the case of the human being, the rational soul, defined as a substance that is non-bodily, partaking of reason, and fit to rule the body.[9] The soul is simple, yet it fails to be absolutely simple on account of its composition out of form and intellectual matter.[10] This claim in the *Summa* is in fact due to the influence of Avicebron's (Ibn Gabirol's) *Fons vitae*, which was the source for thirteenth-century Latin philosophers and theologians when it comes to the doctrine of so-called universal hylomorphism. This is the theory according to which *all* beings, with the exception of God, are composed of form and matter.[11] In addition, the human soul is divided into three powers: it is one "in [its] three powers, [that is to say,] the vegetative, sensitive, and rational".[12] The unity here is a unity in substance.[13] While the substance of

[6] In the following I rely heavily on the works by Schumacher and Bieniak; see Schumacher, *Human Nature in Early Franciscan Thought*; Bieniak, *The Soul-Body Problem at Paris*.

[7] The *Summa Halensis* is the result of a collaborative project among Franciscan friars at Paris. Books I to III were compiled by at least two editors before 1245 – mainly on the basis of the writings by John of La Rochelle (d. 1245) and Alexander of Hales (d. 1245) – although some parts were added later to the first three books, and so was the fourth book. Despite of this, I shall speak of the *Summa* as written by "the author of the *Summa*" or "the Summist", as a shorthand that is customary in the secondary literature. See Riccardo Saccenti, "The Reception of the Summa Halensis in the Manuscript Tradition Until 1450", in *The Reception of the Summa Halensis in the Manuscript Tradition Until 1450* (Berlin: De Gruyter, 2021), 353-372, 361; Victorin Doucet, "Prolegomena in librum III necnon in libros I et II Summae Fratris Alexandri", in *Doctoris irrefragabilis Alexandri de Hales Ordinis minorum Summa theologica*, vol. IV, 4 vols. (Quaracchi: Collegium S. Bonaventurae, 1948), CCCVI/CCCXXXII-CCCXXXIV.

[8] See Bieniak, "The Soul-Body Union in the Summa Halensis", 39-41; 48.

[9] Alexander de Hales, *Doctoris irrefragabilis Alexandri de Hales Ordinis minorum Summa theologica (SH)*, vol. II, 4 vols. (Quaracchi: Collegium S. Bonaventurae, 1928-1948), In4, Tr1, S1, Q1, C2 (n. 321), Respondeo, 385b: "In hoc ergo quod dicitur 'substantia', differt ab accidente; in hoc autem quod 'incorporea' dicitur, ab essentia corporis quod habet trinam dimensionem; in hoc autem quod est 'rationis particeps', differt ab irrationali; in hoc autem quod est 'regendo corpori accommodata' differt ab angelo, qui dicitur substantia incorporea, rationis particeps, sed non regendo corpori accommodatur." See also Schumacher, *Human Nature in Early Franciscan Thought*, 67-71.

[10] Alexander de Hales, *SH II*, In4, Tr1, S1, Q2, Ti2, C1 (n. 328), Solutio, 399a: "[...] anima humana dicitur composita ex forma et materia intellectuali." See also Schumacher, *Human Nature in Early Franciscan Thought*, 77.

[11] See James A. Weisheipl, "Albertus Magnus and Universal Hylomorphism: Avicebron", *The Southwestern Journal of Philosophy* 10/3 (1979): 239-260, 250; Dom Odon Lottin, "La composition hylémorphique des substances spirituelles: Les débuts de la controverse", *Revue néoscolastique de philosophie* 34 (1932): 21-41.

[12] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti1, C2 (n. 332), 403a (my translation): "Secundo quaeritur utrum anima sit una vel plures in tribus potentiis, vegetabili, sensibili et rationali."

[13] See Schumacher, *Human Nature in Early Franciscan Thought*, 114.

the soul does, therefore, not differ from the substance of the three powers, the Summist maintains that the soul and the three powers differ in essence.[14]

According to the *Summa*, the soul is an independent substance that can survive the death of the body, yet in this life, it is part of the essence or substance of the soul to be united to its body.[15] It is on this basis that the Summist characterises the soul's relation to the body as essential and calls the soul a "perfection", which is Avicenna's expression that is also found in the Latin translation of the *De anima* from the Arabic.[16] In comparison to Aristotle's own definition in *De anima* II.1 412a27–28, "perfection" here replaces the term "first act",[17] or "form", for the Summist insofar as there is only a similarity between the relation of the human soul to its body and a form to its matter.[18] As Bieniak elaborates, this position has its roots in an element of the *Summa*'s non-Aristotelian hylomorphic theory: for Aristotle, a first act is a certain potency to a second act – which in the case of the soul, means that the body's first act is also the root of the operations of the living body – and the form of the body is thus also responsible for the various activities of the human being, be they related to thinking, sensing, locomotion, or living. The Summist disagrees,[19] stressing that a "form has no act outside of matter" and hence cannot be a mover.[20] This can be illustrated by an example: the form of fire does not move "the matter whose act it is, but [rather] the matter of air".[21] The same happens in any living body "because the vital motion is contrary to the motion of nature". In a plant, heavy things might be pulled up and light ones pushed down; and in an animal, there are not only the natural movements of "up", "down", and "circular", but also movements to the left and

[14] See Schumacher, *Human Nature in Early Franciscan Thought*, 125.
[15] See Bieniak, *The Soul-Body Problem at Paris*, 12-13.
[16] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, A1 (n. 344), [arg.] 418b: "Item, ex ratione quam ponit Philosophus arguitur: Anima est perfectio corporis physici, organici etc." See also Schumacher, *Human Nature in Early Franciscan Thought*, 90; Bieniak, *The Soul-Body Problem at Paris*, 13-15.
[17] *De anima* II.1 412a27-28: "διὸ ψυχή ἐστιν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ δυνάμει ζωὴν ἔχοντος."
[18] See Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, Ar4 (n. 347), Solutio, 422a-b.
[19] Bieniak, "The Soul-Body Union in the Summa Halensis", 39.
[20] Alexander de Hales, *SH II*, In4, Tr1, S1, Q1, C2 (n. 321), 386a (my translation): "Forma nullum habet actum nisi in materia; et movens aliquem habet actum praeter id quod movetur; ergo non est tantum forma materiae."
[21] Alexander de Hales, In4, Tr1, S1, Q1, C2 (n. 321), 386a (my translation): "Et hoc patet per exemplum: igneitas enim non movet materiam cuius est actus, sed materiam aeris, ut extrahat in actu quod fuit in potentia; eodem modo ponderosum quod movetur, a removente prohibens movetur et perducente ad suum locum."

right, back and forth.[22] Hence, every type of soul – even the vegetative soul – must be a separate "proper substance giving life to its body".[23]

Another fundamental tenet of the hylomorphic theory espoused in the *Summa* is the commitment to a pluralism about substantial forms:[24] there are multiple *types* of substantial forms, and a complex body such as the human body – the human body is in fact the most complex, as we shall see in detail below – contains several such forms. These types are classified through their respective relations to matter. A "first form [...] perfects both the whole matter and any of its parts in a similar way: the whole fire is fire, and any of its parts is fire." Every form of an element is a first form, and in a similar way, so are certain "natural forms", the forms of mixtures.[25] Recalling Bieniak's distinction between forms making matter what it is and actualising it and forms moving matter, first forms belong to the former kind and are "forms in the first and most proper sense of the word".[26] Second, some natural forms have a different relation to matter. The sensitive soul or the vegetative soul "perfect the whole and [each] part, but not in a similar way". Such a form is thus "more distant from matter because it has some individuation apart

[22] Alexander de Hales, In4, Tr1, S1, Q1, C2 (n. 321), 386b-387a (my translation): "[...] in hoc discernitur vitam habens a non vivente, quia motus vitalis est in contrarium motui naturae. Videmus enim quod secundum motum naturae grave fertur deorsum et leve sursum, secundum motum vero nutrimenti grave fertur sursum, sicut apparet in plantis, et quod igneum est, ut cholera, fertur deorsum in animalibus, cum nutritur simile simili. Item, motu naturali fertur aliquid sursum vel deorsum vel orbiculariter; sed motu animali fertur in ante vel retro vel dextrorsum vel sinistrorsum, sicut in animalibus; ergo discernitur motus vitalis a naturali." See Bieniak, "The Soul-Body Union in the Summa Halensis", 39-40.

[23] Alexander de Hales, *SH II*, In4, Tr1, S1, Q1, C2 (n. 321), 387a (my translation): "Item, secundum intellectum fit abstractio speciei a materia vel subiecto, secundum naturam vero non; ergo differentia est inter esse vitale et naturale, et ideo dicitur 'propria substantia sui corporis vivificatrix'." See Bieniak, "The Soul-Body Union in the Summa Halensis", 40.

[24] See, for example, Avicebron, *Fons vitae*, edited by C. Baeumker (Münster: Aschendorff, 1895), II, 8, 37-39. The pluralist position on substantial forms is a staple of Franciscan philosophy; see Thomas M. Ward, *John Duns Scotus on Parts, Wholes, and Hylomorphism* (Leiden and Boston: Brill, 2014), 76-109. For the doctrinal range spanned by various pluralist positions in the 13th century, see the critical study by Roberto Zavalloni (ed.), *Richard de Mediavilla et la controverse sur la pluralité des formes; textes inédits et étude critique* (Louvain: Éditions de l'Institut Supérieur Philosophie, 1951).

[25] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, Ar4 (n. 347), Solutio, 422a (my translation): "sed distinguendum est quod est forma prima, quae perficit materiam, sicut sunt formae elementares, et in talibus forma perficit similiter totam materiam et quamlibet partem, ut totus ignis est ignis et quaelibet pars eius est ignis, et ad hunc modum sunt formae naturales, quae sunt primae commixtionis, sicut est in metallo et huiusmodi mineralibus: totum enim aurum est aurum et quaelibet pars auri est aurum, sicut est de omnibus formis naturalibus quae plurimum appropinquant ad suam materia." See Bieniak, "The Soul-Body Union in the Summa Halensis", 46-47.

[26] Bieniak, "The Soul-Body Union in the Summa Halensis", 48.

from matter".[27] Third, the rational soul is a form "that perfects the whole in such a way that [it does] not [perfect] any of its parts".[28] Accordingly, the soul is not "the act of matter, but the natural act of a complete body in its natural form – and this [natural form] is called the bodily form",[29] which, in turn, holds together the plurality of forms.[30]

We can thus see that according to the *Summa*, the human being is metaphysically complex in the following three respects. First, the human soul is a non-bodily substance that in this life, is essentially united with its body and moves it. Second, the human body has its own separate form that makes its underlying matter what it is. Third, the form of the body holds together a plurality of substantial forms that perfect its underlying matter in different ways.

This gives rise to two systematic questions, which to my knowledge, have not been addressed rigorously in the literature:

1. Why does the human soul have a body with precisely this sort of complexity?
2. How is the *formal* complexity of the human body – that is to say, its being composed of a plurality of substantial forms – related to its *material* complexity – that is to say, its levels of compositions, such as organs, tissues, and elemental mixtures?

Both questions are raised in the *Summa* itself through an argument that probes the logical relation between the properties of the human soul and the material constitution of its body. The argument is first given in response to the question whether Adam's body was composed of all four elements. It can be found in Book II, which was edited by John of La Rochelle and perhaps Alexander of Hales.[31] Later in the same book, the argument is

[27] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, Ar4 (n. 347), Solutio, 422a (my translation): "Est iterum forma naturalis, quae perficit totum et partem, sed non similiter, sicut est anima sensibilis in brutis et vegetabilis in plantis; in hoc enim habent convenientiam: totum enim animal est animal, sed nulla pars animalis est animal, sed plurimae partes sentiunt; similiter quaelibet pars plantae vegetatur, sed non quaelibet est planta. Sic ergo non similiter perficitur totum et quaelibet eius pars, et haec forma plus elongatur a materia: habet enim aliquam individuationem praeter materiam." See Bieniak, "The Soul-Body Union in the Summa Halensis", 46-47.

[28] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, Ar4 (n. 347), Solutio, 422a (my translation): "Est autem tertia forma, quae perficit totum ita quod nullam eius partem, sicut anima rationalis: totum enim est homo, nulla autem pars hominis est homo nec etiam intelligit; totum ergo intellectivum est ita quod nulla pars: unde nullius partis dicitur actus." See Bieniak, "The Soul-Body Union in the Summa Halensis", 46-47.

[29] Alexander de Hales, *SH II*, In4, Tr1, S1, Q3, Ti2, C1, Ar4 (n. 347), Solutio, 422b (my translation): "Unde non est ibi proprie actus materiae, sed actus naturalis corporis completi in forma naturali, quae forma dicitur forma corporalis." See Bieniak, "The Soul-Body Union in the Summa Halensis", 41.

[30] See Bieniak, "The Soul-Body Union in the Summa Halensis", 47.

[31] See Doucet, "Prolegomena in librum III necnon in libros I", CCCLXIX-CCCLXX. The shorter argument indeed has a parallel in John of La Rochelle's *Summa de anima* (written at about 1235-

revisited in much more detail in one of the later additions made between 1245 and 1250.[32] While it was possible to show that some passages of later additions were taken from Bonaventure or Odo Rigaldus, the precise source for the more detailed form of the argument remains open.[33] Nonetheless, we shall see that it clearly refers back to the first form of the argument, and it is the addition that clarifies the metaphysical basis for the logical relation between the plurality of operations of the human soul, the plurality of substantial forms in the human body, and the plurality of body parts. This basis is that of an isomorphism. But before getting there, I need to turn to the shorter argument in the following section.

3. The Shorter Form of the Argument

In the question about whether Adam's body was composed of the four elements, the author of the *Summa* presents an argument for the claim why the human body is maximally composite. It is given twice, once in the *quod sic* and once in the solution, but each time in the same form. To highlight the formal parallelism, I present the two passages side by side:[34]

1236); see Joannes de Rupella, *Summa de anima*, edited by J. Guy Bougerol (Paris: Librairie Philosophique Vrin, 1995), Prima consideracio, cap. 38, 118.42-119.50.

[32] See Doucet, "Prolegomena in librum III necnon in libros I", CCCVI.

[33] See Doucet, "Prolegomena in librum III necnon in libros I", CCLXXX. In particular, it is clear that the commentaries on the *Sentences* by Bonaventure and Odo Rigaldus do not contain the argument presented.

[34] The Latin text of the solution is: "Respondeo, ut habetur in libro *De fonte vitae*: Corpus hominum inter omnia corpora compositissimum est. Et ratio huius est, sicut scribitur in libro *Fontis vitae* : Quanto substantia aliqua magis est immunis a materia, tanto plurium operationum est effectiva; anima igitur intellectiva, cum maxime sit immunis a materia eo quod non dependet ex ea secundum essentiam, et cum similiter multarum sit operativa operationum, et ideo, cum has operationes de se habere non possit nisi prout utitur organis, oportuit ipsum corpus, per quod eas exercet, esse heterogeneum et maxime compositum" (Alexander de Hales, *SH II*, In4, Tr2, S1, Q3, Ti1, C1 (n. 434), Solutio, 525b). The *quod sic* reads: "Item, quanto forma nobilior, tanto plurium operationum differentium specie est principium; sed anima rationalis est formarum nobilissima; ergo est principium plurium operationum; operationum huiusmodi usum exercet mediantibus organis propriis; ergo, cum organum proprium ei respondeat in convenienti proportioni, necesse est ipsum esse ex multis naturis compositum; illae autem naturae sunt elementa; ergo etc." (Alexander de Hales, *SH II*, In4, Tr2, S1, Q3, Ti1, C1 (n. 434), [arg.], 524b-525a). Both translations are mine.

Structure	Solution	*Quod sic*
(Conclusion)	I answer as it is claimed (*habetur*) in the *Fons vitae*: The body of humans is the most composite among all bodies.	–
Premiss 1	The reason for this is, as is written in the *Fons vitae*: The more some substance is immune from matter, the more operations it effects (*plurium operationum est effectiva*). Therefore, since the intellective soul is maximally immune from matter – because it does not depend on it according to [its] essence – and since it likewise operates many operations (*multarum sit operativa operationum*),	Again, the more noble a form, of the more operations differing in species it is the principle; but the rational soul is the most noble of the forms; therefore, it is the principle of multiple operations;
Premiss 2	and since it cannot have these operations of itself (*de se*) unless it uses organs, it was necessary that the body itself, through which it exercises them, be heterogeneous and maximally composite.	it performs (*usum exercet*) operations of this kind by means of proper organs; therefore, since a proper organ responds to it in fitting proportion, it is necessary that [the body] be composed from many natures;
Conclusion	–	but these natures are elements; therefore, etc.

Before taking a closer look at the structure of this argument, I want to turn to its Neoplatonic sources.

3.1 Sources

The argument's conclusion is the claim that the "body of humans is the most composite among all bodies", or roughly equivalently, that it is "heterogeneous and maximally composite". In the context of the question, this result is used to argue for the weaker claim that the human body is composed of the greatest number of elements (i.e., four).[35] In this subsection, I take a closer look at the sources in order to show that the maximal composition of the human body also means that it is composed out of the most

[35] It is curious that in the solution to the question, the Summist does not give a more direct argument for this weaker claim but prefers to argue for a stronger conclusion instead; see also Dold, "Why Do Animals Have Parts?", 141-142.

complex types of body parts (i.e., organs). This will also allow me to introduce some metaphysical principles that the *Summa* inherits from the *Fons vitae*.

The claim that the human body is "the most composite among all bodies" is attributed to the *Fons vitae*, as we have seen above. Yet, the exact phrasing cannot be found in the Latin text.[36] The statement could have been taken from a summary or abbreviation, but only the *Epitome Campililiensis* is known,[37] which does not contain the sentence either. If we are to take the Summist's attribution seriously, this leaves us with the task of identifying a doctrine – rather than an exact wording – that expresses this conclusion. In this task, we are guided by a later remark in the *Summa*.[38] In one of the later additions to Book II,[39] we find the following reference to Isaac Israeli:

> For the human being is the most composite among all creatures, as it is claimed in the *Fons vitae*, and as has been touched upon above. Because of this, Isaac says in *De elementis*: The human being is last in natural generation.[40]

Here, the passage is easier to identify. The claim can be found almost verbatim in the first book of *De elementis* as a summary of what Isaac had written before:

> It is, therefore, already clear that the human body is the last [body] in the generation of natural [things], and it is their end. This is why it truly merits the name of composition and its meaning (*eius intentionem*). As this is, therefore, thus, there is no uncertainty that the middle things (*media*) that are between the human body and the elements are composite and simple in a way similar to the soul. For each of those is simple compared to that which is made from it, and composite compared to that from which it is generated. For example, the instrumental body parts are simple compared to the body made from them, and composite compared to the parts of [self-]similar body parts (*ad membra similium partium*), because they are made from them.[41]

[36] See Dold, "Why Do Animals Have Parts?", 142.
[37] See Loris Sturlese, "L'*Epitome Campililiensis* del *Fons vitae* di Avicebron. Note sul testo e sulla tradizione manoscritta," in *Palaeographica, diplomatica et archivistica: studi in onore di Giulio Battelli*, edited by G. Battelli (Rome: Edizioni di storia e letteratura, 1979), 429-453.
[38] See Luca Parisoli, *La Summa fratris Alexandri e la nascita della filosofia politica francescana: riflessioni dall'ontologia delle norme alla vita sociale* (ParmaOfficina di Studi Medievali, 2008), 34, footnote 50.
[39] See Doucet, "Prolegomena in librum III necnon in libros I", CCLXXX.
[40] Alexander de Hales, *SH II*, In4, Tr2, S2, Q1, Ti2, C2 (n. 460), Respondeo, 599b (my translation): "Homo enim inter omnes creaturas est compositissimus, sicut habetur in libro *Fontis vitae*, et ut supra tactum est. Propter quod dicit Isaac, in libro *De elementis*: 'Homo in naturali generatione ultimum est.'"
[41] Isaac Israeli, *Liber de elementis*, in *Omnia opera Ysaac*, vol. 1 (Lyon, 1515), https://www.arabic-latin-corpus.philosophie.uni-wuerzburg.de/text/Isaac_Elem_la.index.xhtml, 4vb31-40 (my translation): "Iam ergo manifestum est quod corpus humanum postremum est generationum naturalium et finis earum: et propter hoc meretur nomen compositionis: et eius intentionem secundum veritatem. Cum id ergo ita sit: tunc non est dubium quin media que sunt inter corpus humanum et elementa: sunt composita et simplicia secundum similem modum anime.

This goes on for lower levels – the humours, plants, food, and the elements.[42] There are several levels of composition in the human body because each level is defined by something that is simple with respect to something else, which is, in turn, composed of it: the elements are simpler than vegetative matter, which is composed of elements, but simpler than food, which is simpler than the humours, which are simpler than self-similar body parts – that is to say, body parts like flesh and bone, whose parts are also flesh and bone, respectively – and self-similar body parts are simpler than instrumental body parts – that is to say, organic body parts or organs, like a hand. These last ones compose the human body. In this chain of levels, the two special positions are taken up by the elements, which are composite with respect to nothing and simple with respect to everything, and the human body, which is composite with respect to everything and simple with respect to nothing. As the human body has all bodily levels, it can be said to be maximally composite, which reveals a second sense of the claim that the human body is maximally composite: it is composed of the maximum number of ontological levels.

We have already encountered an analogue of such ontological levels in Section 2 in the context of the *Summa*'s commitment to multiple types of substantial forms characterised through their relation to matter: a first form, like that of an element or of a mixture, perfects both the whole matter and its parts; other natural forms, such as the vegetative or sensitive form, perfect the whole matter in one way and its parts in another way; lastly, the rational soul perfects only the whole matter. A complex body contains several such forms as different levels. This is a link to the *Fons vitae*, whose ontology builds on the idea of different levels. For Avicebron, these levels or substances include God (at the top), then intelligence, the rational soul, the sensitive soul, the vegetative soul, nature, body, and corporeal body (at the bottom).[43] They are related to each other like form to matter,[44] but they are also related by action. In *Fons vitae* III, 47, this is put as follows:

Unumquodque enim eorum est simplex comparatione sua ad illud quod factum est ex eo et compositum comparatione sui ad illud ex quo ipsum est generatum: verbi gratia. Membra instrumentalia simplicia sunt comparatione sua ad corpus factum ex eis: et composita comparatione sua ad membra similium partium: quoniam facta sunt ex eis."

[42] See Isaac Israeli, *Liber de elementis*, 4vb40-50: "et membra partium similium sunt simplicia comparatione sui ad membra instrumentalia facta ex eis: et composita comparatione sui ad sperma et sanguinem et vtramque choleram (*corr.*; *editio:* cholera) et phlegma. Et sperma et sanguis et reliqui humores sunt composite (*corr.*; *editio:* simplices) comparatione sui ad cibum: et cibus est simplex comparatione sui ad sperma et sanguinem et reliquos humores: et compositus comparatione sui ad plantas et arbores: et plante et arbores sunt simplices comparatione sui ad cibum: et composite comparatione sui ad elementa. Elementa vero sunt simplicia secundum veritatem: quoniam nihil precedit ea ex quo generantur nisi virtus diuina."

[43] See the helpful illustration in Nicola Polloni, *The Twelfth-Century Renewal of Latin Metaphysics: Gundissalinus's Ontology of Matter and Form* (Toronto: PIMS, 2020), 164.

[44] This holds at least if the *Fons vitae* is read through the lens of a "compositional thesis"; see Polloni, *The Twelfth-Century Renewal of Latin Metaphysics*, 146.

> But what is more perfect, acts upon the less perfect and impresses [itself] upon it.[45]

The higher substance, therefore, acts upon the lower substance. It is easy to see the parallel of this model to the *Summa*'s treatment of the soul in relation to its body. Recall here from Section 2 that the Summist argues that the human soul is its own substance that moves the body; that is to say, it is a higher substance acting upon its own body, a substance below.

Moreover, in *Fons vitae* III, 47, Avicebron goes on to claim that the actions proper to the higher substance are like species to the genus constituted by the actions of the lower substance. This can be illustrated by the actions of the vegetative soul upon nature. The actions proper to the latter level or substance are "to attract and retain, to change and repel".[46] The actions proper to the vegetative soul, on the other hand, are to grow, that is, "to move vegetative parts from the centre to the extremes", and to generate, that is, "to create a similar thing from itself".[47] As within a plant, "to attract and to repel mean to move parts of food in space through an opposite motion",[48] they "must be under one genus [together] with the motion of the vegetative parts from the centre to the extremes" (i.e., vegetation).[49] In other words, growth and generation are like species of the genera of attraction and repulsion. The same holds for retention and change.[50] In this way, the actions of a higher level or substance are like species of the actions proper to a lower level or substance. For Avicebron, this means that:

> [...] it is necessary that one of the substances performing these actions impress one of its own powers upon the other [substance], through which it acts what it acts.[51]

Here, the reader should recall a position found in the *Summa* (see Section 2): a form does not move the matter whose act it is, but a matter below it. In a living body, for example, "the vital motion is contrary to the motion of nature", so in an animal, there are not only the natural movements of "up", "down", and "circular", but also movements to the left and right, back and forth.[52] These ideas form the background of the argument

[45] Avicebron, *Fons vitae*. III, 47, 185.8-10 (my translation): "Quod autem perfectius est, agit in minus prefectum et imprimit in illud." See Schumacher, *Human Nature in Early Franciscan Thought*, 98.
[46] Avicebron, *Fons vitae*, III, 47, 184.15 (my translation): "Attrahere et retinere, mutare et pulsare."
[47] Avicebron, III, 47, 184.19-20 (my translation): "Generare est procreare rem ex se consimilem; uegetare est mouere partes uegetabiles a centro ad extrema."
[48] Avicebron, III, 47, 184.21-22 (my translation): "Attrahere autem et pulsare est mouere partes alimenti in loco motu opposito."
[49] Avicebron, III, 47, 184.22-23 (my translation): "Ergo debent esse sub uno genere cum motu partium uegetabilium a centro ad extrema."
[50] Avicebron, III, 47, 184.24-185.2.
[51] Avicebron, III, 47, 185.4-6 (my translation): "[...] debet ut una substantiarum agentium has actiones sit imprimens in aliam unam uim ex suis uiribus per quam agit id quod agit."
[52] Alexander de Hales, *SH II*, In4, Tr1, S1, Q1, C2 (n. 321), 386b-387a (my translation): "[...] in hoc discernitur vitam habens a non vivente, quia motus vitalis est in contrarium motui naturae. Videmus enim quod secundum motum naturae grave fertur deorsum et leve sursum, secundum motum vero nutrimenti grave fertur sursum, sicut apparet in plantis, et quod igneum est, ut

found in the *Summa*. In the next subsection, I shall present the structure of the shorter form of the argument in the context of its Jewish Neoplatonic sources.

3.2 Structure

In my translation of the argument for the maximal composition of the human body from the *Summa Halensis*, I have already indicated its division into parts. These parts can be summarised as follows:

- **Premiss 1:** The rational soul effects a maximum number of operations.
- **Premiss 2:** The rational soul can have operations of this kind only if its body has organs.
- **Conclusion:** Therefore, the human body is maximally composite.

While no proper justification of Premiss 2 is offered – we shall see in the next subsection that this is parallel to contemporary zoological occurrences – we find an appeal to a very abstract hierarchical principle, attributed again to the *Fons vitae*, for justifying Premiss 1. Here, we face the same problem as above when it comes to finding the passage the Summist is quoting from. However, hierarchical principles like this one abound in the *Fons vitae*, so it is at least not surprising why such a statement would be attributed to this work. We have already encountered the principle that the more perfect something is, the more it acts and impresses itself. The same is believed to hold for what is subtler:[53]

> The subtler, stronger, and better [substances] are, the more fit they are to act and impose (*ad agendum et conferendum*) themselves and [what is] theirs.[54]

Likewise,

> the more removed from thickness and darkness [a substance] is, the closer it will be to imposing itself [...].[55]

cholera, fertur deorsum in animalibus, cum nutritur simile simili. Item, motu naturali fertur aliquid sursum vel deorsum vel orbiculariter; sed motu animali fertur in ante vel retro vel dextrorsum vel sinistrorsum, sicut in animalibus; ergo discernitur motus vitalis a naturali." See Bieniak, "The Soul-Body Union in the Summa Halensis", 39-40.

[53] I owe the idea that *Fons vitae* III, 15 is a source to Pietro Rossi, "L'entrata dei libri *De animalibus* nel Medioevo latino", in *La zoologia di Aristotele e la sua ricezione dall'età ellenistica e romana alle culture medievali. Atti del convegno*, edited by M. M. Sassi, E. Coda, and G. Feola (Pisa: Pisa University Press, 2018), 237-268, 260.

[54] Avicebron, *Fons vitae*, III, 15, 110.21-22 (my translation): "Quanto fuerint subtiliores et fortiores et meliores, tanto sunt magis aptae ad agendum et conferendum se et sua."

[55] Avicebron, *Fons vitae*, III, 15, 111.3-4 (my translation): "[...] quanto remotior fuerit a crassitudine et tenebrositate, propinquior erit ad conferendum se [...]."

The close connection between immateriality and activity is expressed clearly in the following passage:

> [...] we have found a bodily substance [i.e., matter] that is prevented from imposing itself on account of its thickness of quantity and its darkness, and yet quantity still imposes its shadow upon bodies that are opposite [to it], so much so that having found a bright body, it gives its [own] form to it. On this account, it is, therefore, all the more necessary that a spiritual substance that is immune from quantity exude (*sit effluens*) its essence, power, and light.[56]

The references to light and darkness are instances of Avicebron's frequently used metaphor that associates light with form and matter with darkness.[57] Hierarchical principles like these refer to the ontology of levels we have encountered in the previous subsection: higher substances, which are more spiritual, effect more operations in lower substances. While these principles have a clear directionality, the principle "The more some substance is immune from matter, the more operations it effects" in the *Summa* does not specify the direction of these operations, that is to say, it leaves open what the substances in question act upon. This means that the resulting argument does not make any *explicit* reference to ontological levels and substances that act downwards upon lower substances.

Yet, in light of the sources and the *Summa*'s doctrine on the human soul and body, more can be said. When Premiss 1 establishes that the human soul effects the maximum number of operations, then this must be read as saying that these operations are effected not in the underlying spiritual matter of the soul (i.e., in the matter whose act it is), but rather in the body whose mover the soul is. This explains why Premiss 2 posits that there must be a material complexity in the body that *responds* to these operations – and this complexity is the maximal composition out of organs and all the elements. However, note that as written, the argument does not provide all these details. They only become clear in the context of the sources and other doctrines. I believe that it is this feature of being more neutral with respect to metaphysical commitments that makes it possible for this argument to appear in zoological commentaries of the thirteenth century. There, of course, the form of the argument is used to yield the conclusion that the animal body is composed of organs.

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[56] Avicebron, *Fons vitae*, III, 15, 110.11-18 (my translation): "[...] nos inuenimus substantiam corpoream prohibitam ad conferendum se propter crassitudinem quantitatis et tenebrositatem eius, [et] tamen quantitas confert umbram suam corporibus quae opposita sunt, adeo quod, cum inuenerit corpus lucidum, dat ei formam suam: quanto magis necessarium est secundum hanc considerationem ut substantia spiritualis, quae immunis est a quantitate, sit effluens suam essentiam et uirtutem et lumen suum." I follow the reading of manuscript M (diverging form the editor's established text).

[57] See Polloni, *The Twelfth-Century Renewal of Latin Metaphysics*, 150; Vincent Cantarino, "Ibn Gabirol's Metaphysic of Light", *Studia Islamica* 26 (1967): 49-71.

In the following subsection, I shall discuss the arguments in the question commentaries of Peter of Spain and Albert the Great, but beforehand I want to draw attention to an apparent problem that befalls the shorter form of the argument, namely, that the way in which Premiss 1 is established is argumentatively wasteful in two ways. First, the comparative principle "The more some substance is immune from matter, the more operations it effects" is used to establish an absolute claim (that the human soul effects the most operations). The gradation of operations effected is not really used in the argument. Second, matter, or rather immunity from matter, is invoked in the comparative principle, yet it does not seem pertinent to Premiss 1. In fact, it seems more related to Premiss 2, but it is not invoked at all in that context. So, if we assume that the Summist indeed meant to give the argument using this very principle depending on a hierarchy of remoteness from matter, then it is not correctly formalised in this shorter form. We shall see below that the longer form of the argument remedies this.

3.3 Zoological Commentaries

As I have shown elsewhere, the argumentative scheme just described is implemented by several commentators on Aristotle's *De animalibus*.[58] There, the form of the argument is used to establish the claim that all animals, not just humans, are organised, that is to say, composed of organic (i.e., instrumental, composite, and non-uniform) body parts. Already the earliest extant Latin commentary gives the same argument:[59]

Structure	Peter of Spain's argument
Premiss 1	[...] one argues as follows. The *Fons vitae* says that for every form, the more immaterial and spiritual it is, the more operations it is a principle of. Therefore, since the soul is a simpler form than the form of a mixture or of an element, it will be the principle of [multiple] operations.
Premiss 2	Therefore, it adds something on top of a form of this kind, which can only be a distinction in parts.
Conclusion	This distinction is nothing else but organisation. Therefore, organisation is necessary in animals.

The similarities to the version in the *Summa* are striking. Unfortunately, the historical lines of influence between the circle of Alexander of Hales in Paris in the 1240s and Peter's

[58] See Dold, "Why Do Animals Have Parts?", 130.

[59] Peter of Spain, *Questiones super libro De animalibus Aristotelis*, edited by F. Navarro Sánchez (London: Routledge, 2016), 118.6-11 (my translation): "[...] sic arguitur. Dicit autem liber *Fontis uite*, quod omnis forma quanto immaterialior et spiritualior, tanto plurium est operationum principium, ergo cum anima sit forma simplitior quam forma misti uel elementi, erit principium operationum. Addet ergo aliquid super huiusmodi formam, hoc nisi distinctionem in partibus. Que distinctio non est nisi organitatio, ergo necesse est esse organitationem in animalibus."

commentary are unclear, partly because there is no consensus on the date and place of composition of the latter. José Maria da Cruz Pontes and Tamara Goldstein-Préaud advocate a composition before 1245 in the context of the Parisian arts faculty while Miguel de Asúa suggests a composition between 1246 and 1249 at Siena.[60] Moreover, Peter's commentary does not reveal enough of his metaphysical commitments for us to understand where he would have agreed or disagreed with the Summist. We are in a better position with Albert the Great, who, in his question commentary on the *De animalibus* (dating to 1258), implements the same argumentative scheme – although his argument is less streamlined and contains more explanatory insertions:

> I must say that the diversity of organs is necessary for an animal. The reason for this is that the more a form is perfect, the more operations it can [perform]. But matter somewhat impedes operation; for a form joint to matter is contracted and limited through it. [...] Therefore, a form joint to uniform matter (*materiae uniformi*) has [only] a uniform activity. Hence, any part of fire is fire, and any part [of it] warms in the same way as the whole fire. [...] the soul is the principle of several operations. But as it is united with matter, it cannot perform multiple operations unless its matter is diversified (*diversificata*), for through uniform matter, it performs [only] a uniform operation. Therefore, if the whole body of an animal were like the eye, it would not hear, nor smell, and if the power were in [adequate] proportion, it would see through the whole body. Therefore, it is necessary that the body, which is the matter of the animal, be diversified in [its] parts, so its different works be performed through different parts. For if the body were of one kind (*unigeneum*) in its parts, then it would only perform actions of one kind (*actiones unigeneas*).[61]

Albert, in this passage, also makes use of a hierarchical principle, though he does not attribute it to the *Fons vitae*. This comes at no surprise in light of Albert's later *De causis et*

[60] See Tamara Goldstein-Préaud, "Albert le Grand et les questions du XIIIe siècle sur le 'De animalibus'", *History and Philosophy of the Life Sciences* 3/1 (1981): 61-71, 64; José María da Cruz Pontes, *A obra filosófica de Pedro Hispano Portugalense* (Coimbra: Publicacões do Instituto de estudios filosóficos, 1972), 99-102; Miguel J. C. de Asúa, "Medicine and Philosophy in Peter of Spain's Commentary on *De Animalibus*", in *Aristotle's Animals in the Middle Ages and Renaissance*, edited by C. Steel, G. Guldentops, and P. Beullens (Leuven: Leuven University Press, 1999), 189-211, 189.

[61] Albertus Magnus, *Quaestiones super libris De animalibus*, edited by E. Filthaut, *Opera omnia* 12 (Münster: Aschendorff Verlag, 1951), I, q. 2, 79.30-52 (my translation): "Dicendum, quod diversitas organorum necessaria est animali. Huius ratio est, quia quanto forma est perfectior, tanto in plures potest operationes. [...] materia quodammodo est impeditiva operationis; forma enim alligata materiae per ipsam contrahitur et limitatur. [...] Forma igitur ligata materiae uniformi uniformem habet actionem. Unde quaelibet pars ignis est ignis et quaelibet pars calefacit sicut totus ignis. [...] anima [...] principium est plurium operationum. Sed plures operationes non potest exercere, cum sit materiae unita, nisi sua materia sit diversificata, quia per materiam uniformem uniformem exerceret operationem. Et ideo, si totum corpus animalis esset sicut oculus, non audiret nec olfaceret, et si virtus esset proportionata, videret per totum corpus. Et ideo requiritur, quod corpus, quod est materia animalis, in partibus sit diversificatum, ut per diversas partes diversa exerceantur opera, quia si corpus in partibus esset unigeneum, et ipsum animal tunc solas actiones unigeneas exerceret." See Dold, "Why Do Animals Have Parts?", 139-140.

processu universitatis (written before 1271), where he takes pains to list those opinions from Avicebron's *Fons vitae* which he finds disagreeable.[62] Among them is the doctrine of universal hylomorphism, the rejection of which forces him to add a qualification to his argument, stating that the proof only applies to bodily (i.e., for him, material) substances:

> [...] these things differ among lower and higher beings. For in higher beings, it is the case that the more perfect something is, the fewer movements it needs to reach its end. Hence, the highest sphere reaches its end through one single movement, and a lower one through several [movements]. [...] The reason for this is that those lower [beings] are joint to matter, and that the form principates action or movement and operation. As therefore, the more something is distant from matter, the more it partakes of the perfection of [its] form, so the more it is distant from matter, the more it partakes of operation. Therefore, among material beings, the human being – as the most perfect animal – reaches its end through several operations (*opera*). Hence, material and immaterial beings follow an opposite order. And the full reason for this is that in material beings, perfection is in remoteness from matter, but in immaterial beings, [it is reached] in closeness to the most simple principle.[63]

The picture that emerges from Albert's discussion is the following. There is a hierarchy among forms with respect to their perfection, rather than their immateriality, as in the *Summa* or in Peter's question commentary on the *De animalibus*. With respect to this hierarchy of forms, a comparative sequence can be formulated, which, however, only holds for forms of material substances: the forms of the elements (the least perfect forms), the forms of mixtures, the vegetative soul, the sensitive soul, and the rational soul (the most perfect form of material substances). According to the comparative sequence, the rational soul is the principle of more operations than the sensitive soul, the sensitive soul of more than the vegetative soul, and so forth. As uniform (i.e., homogeneous or homeomerous) matter can only support a uniform operation, but the sensitive and rational soul are principles of multiple operations, non-human animals and humans cannot have a uniform body. Albert's argument is not entirely conclusive with respect to what I call Premiss 2, because he fails to show in this passage why a non-uniform body

[62] See Albertus Magnus, *De causis et processu universitatis a prima causa*, edited by W. Fauser, *Opera omnia* 17.2 (Münster: Aschendorff Verlag, 1993), I, tr. 1, c. 5, 10 - c. 6, 14; see Weisheipl, "Albertus Magnus and Universal Hylomorphism"; also Dag Nikolaus Hasse, "The Early Albertus Magnus and His Arabic Sources on the Theory of the Soul", *Vivarium* 46/3 (2008): 232-252, 236-237.

[63] Albertus Magnus, *Quaestiones super libris De animalibus*, I, q. 2, 79.53-80.10 (my translation): "[...] aliter est de istis inferioribus et superioribus. In superioribus enim est ita, quod quanto aliquid est perfectius, tanto paucioribus motibus attingit suum finem. [...] Et huius ratio est, quia illa inferiora coniuncta sunt materiae, et forma est principium agendi vel movendi et operandi. Sicut igitur quanto aliquid plus distat a materia, tanto plus habet de perfectione formae, sic quanto plus distat a materia, tanto plus habet de operatione. Et ideo inter materialia homo, cum sit animal perfectissimum, per plura opera attingit suum finem. Unde ordo est contrarius in materialibus et immaterialibus. Et tota ratio est, quia in materialibus perfectio attenditur penes remotionem a materia, sed in immaterialibus penes approximationem ad principium simplicissimum." See Dold, "Why Do Animals Have Parts?", 137.

must have organic parts, as I have previously stressed.[64] But what is interesting for us is that Albert is able to employ virtually the same argument that can also be found in the *Summa*, even though his hylomorphic theory is very different. For not only does he reject universal hylomorphism, he also argues against the plurality of substantial forms.[65] This suggests that the form of the argument is not sensitive to – that is, does not track or capture – all relevant underlying metaphysical assumptions of the Summist. Indeed, one of the additions to the second book of the *Summa* is a longer argument that refers to the shorter argument just discussed in order to supply more details. I discuss this longer argument in the following section.

4. The Longer Form of the Argument

In a later question of the *Summa Halensis*, the issue of the maximal composition of the human body is revisited, in a way that at first glance appears independent from the previous argument. However, a reader would quickly notice that essentially, the two premisses are justified again, albeit in more detail. In this section, I first present the way in which the Summist revisits the premisses one by one and stress the argumentative importance of a concept of "isomorphism". I, then, give a detailed reconstruction of the longer form of the argument.

4.1 Revisiting the Premisses

4.1.1 Premiss 2

The treatment starts with the more neglected Premiss 2:

> To this, we must say that the body of the first human, and the human body in general, is the most composite among all bodies. This pertains to it because of the manifold activity (*propter multiplicem actionem*) of its soul, which is brought about or exercised by means of motion both from the soul and to the soul. For since the soul is the likeness of everything, as is said in *De spiritu et anima*, bearing a certain image of God – because there is a multiplicity

[64] See Dold, "Why Do Animals Have Parts?", 140.

[65] See Albertus Magnus, *De caelo et mundo*, edited by P. Hossfeld, *Opera omnia* 5.1 (Münster: Aschendorff Verlag, 1971), III, tr. 2, c. 8, 240.56-68: "Adhuc autem, videbitur forte alicui quaerendum de formis substantialibus elementorum, utrum maneant in commixto ex elementis vel non. Si enim manere dicantur, tunc videbitur consequi necessario, quod compositum plures habeat formas substantiales, et ad hoc multa sequuntur inconvenientia, quorum unum et primum est, quia nihil simul suscipit multas formas substantiales, ergo nec compositum; adhuc autem, quia per multas formas substantiales poneretur in diversis speciebus; adhuc autem, quia non esset vere unum, sed potius esset contiguum vel per accidens unum, quae omnia absurda sunt." See David Twetten, Steven Baldner, and Steven C. Snyder, "Albert's Physics", in *A Companion to Albert the Great: Theology, Philosophy, and the Sciences*, edited by I. M. Resnick (Leiden: Brill, 2013), 173-220, 174.

> (*multitudo*) of ideas in God – there is, in the soul, a multiplicty of powers (*multiplicitas virtualis*) that it exercises by means of the body. There must be in it a multiplicity of self-similar and organic parts (*multiplicitas partium consimilium et organizatarum*) so that there be a conformity between the mover and movable, as on the other side of the analogy (*sicut ex altera parte*), there is a conformity between image and that whose image it is.[66]

The *Summa*'s proposal here is not easy to disentangle. I take it that the concept of a certain type of relation is being introduced: the relation between an image and the imaged, between a representation and that which is represented by it. This relation is called "conformity", *con-formitas*, a likeness or correspondence of form. By analogy – as indicated through the phrase *sicut ex altera parte* – the relation of conformity is applied to the rational soul and its body. On the account of the *Summa* introduced in Section 2 above, both soul and body are hylomorphic compounds: the human soul is composed of a form (combining the vegetative, sensitive, and rational powers) as well as spiritual matter while the human body consists of a plurality of substantial forms, held together by the form of the body, as well as extended matter bearing quantity. Accordingly, there is a conformity between the human soul and the human body if and only if there is a one-to-one correspondence between *all* three powers of the soul (i.e., the vegetative, sensitive, and rational power) and *all* forms of the body.

Already, the passage just quoted suggests that a plurality of substantial forms of the body translates into a certain material complexity and composition out of parts. Why this is so will become clear in the context of justifying Premiss 1. In order to prepare a unified account of the justification of the two premisses, I shall henceforth call the conformity relation an *isomorphism*, using the more recent term familiar from modern logic and mathematics, which, roughly speaking, denotes a one-to-one correspondence between *structures*. By using this term, I highlight that what is at stake in the *Summa*'s strategy to justify Premiss 2 is the structural correspondence between the soul and its three powers on the one hand, and the body and its forms on the other hand. We shall see that Premiss 1 is also justified on the basis of an isomorphism: that between the body and its forms, and the body and its parts.

But before turning to the first premiss, the *Summa* argues for the first isomorphism (in the context of Premiss 2) through three examples: sensation, cognition, and will. With respect to the power of sensing, the isomorphism is justified as follows:

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[66] Alexander de Hales, *SH II*, In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 578b (my translation): "Ad hoc dicendum quod corpus primi hominis et generaliter corpus humanum est compositissimum inter omnia corpora: quod conveniebat propter multiplicem actionem ipsius animae, quae tum elicitur sive exercetur mediante motu qui est ab anima, tum qui est ad animam. Cum enim anima sit omnium similitudo, ut dicitur libro *De spiritu et anima*, et quamdam gerens Dei imaginem ex hoc quod in Deo est multitudo idearum, in anima multiplicitas virtualis quam exercet mediante corpore, necessario requiritur quod in illo sit multiplicitas partium consimilium et organizatarum, ut sit conformitas inter motorem et mobile, sicut ex altera parte est conformitas inter imaginem et illud cuius est imago."

> This is clear from the motion among things from outside into the soul. For it has to receive sensibles from different senses, for the apprehension of which a multiplicity of organs is needed, and through which – when apprehended – the soul is moved.[67]

The Summist then cites a simile found in Gregory of Nyssa's *De imagine* that likens the soul to a city. The *Summa* uses this to emphasise that the mind receives various sensations and then orders them internally. The *Summa* concludes:

> Therefore, it is clear that if the nature of the body were merely simple, [the body] would not be an organ adequate (*congruum*) for the soul, neither regarding apprehension, nor regarding motion or operation.[68]

The second instance is taken from the cognitive powers. There are three cognitive powers in the soul, and in line with the isomorphism, there should hence be three relevant parts in the body – and according to the Summist, this is indeed the case:

> Moreover, as those knowledgable in medicine put it, there are three cells serving the cognitive powers: the imaginative (*phantastica*), the logical (*logistica*), and the memory (*memorialis*) cell. The imaginative cell is in the front of the head, where imagination has its seat; the logical cell is in the middle, where reason has its seat; the memory cell is in the back of the head, where memory has its seat. [...] Likewise, some bodily organ serves the operating intellect, which is clear from the Philosopher, who says that the intellect is corrupted, that is to say, the activity or operation of the intellective [power is corrupted] when a certain front [part] is corrupted.[69]

The third justification comes from a consideration of the will:

> Moreover, the same is clear from the motion that comes from the soul, according to that which is treated in another [branch of] philosophy, to wit, in the first book of the

[67] Alexander de Hales, *SH II*, In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 578b (my translation): "Hoc patet ex motu in rebus extra ad animam: habet enim recipere sensibilia diversorum sensuum, in quorum apprehensione opus erat multiplicitate organorum, quibus apprehensis anima movetur."

[68] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 578b (my translation): "Unde patet quod, si tantum simplex esset natura corporis, non esset organum congruum animae neque quoad apprehensionem neque quoad motum sive operationem."

[69] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 578b-579a (my translation): "Praeterea, sicut ponunt noti in medicina, tres sunt cellulae deservientes viribus cognitivis, scilicet phantastica, logistica et memorialis. Phantastica cellula est in anteriori parte capitis, in qua sedem suam habet imaginatio; logistica cellula est in medio, in qua sedem suam habet ratio; memorialis cellula est in posteriori parte capitis, in qua sedem suam habet memoria. [...] Similiter ipsi intellectui operanti deservit aliquod organum corporale, quod patet ex Philosopho dicente quod corrumpitur intellectus, id est actus sive operatio intellectivae, interiori quodam corrupto." John of La Rochelle was the first Latin thinker to clarify the powers of the soul systematically, and the division of the brain given here can be found in his *Tractatus de divisione multiplici potentiarum animae*, where he follows Avicenna; see Schumacher, *Human Nature in Early Franciscan Thought*, 139-145.

> *Nicomachean Ethics*: there is a rational motive [force] that commands and is not commanded, such as free will or (*sive*) practical intellect, which indeed commands all other motive [forces] and is itself (*sibi*) commanded by none; but there is another motive [force] that is subject to the command of reason, to which also another power (*vis*) is subject, such as the concupiscible and irrascible, to which the sensitive power, sitting in the muscles and sinews, is subject, which, as Avicenna says, follows when it is commanded by a higher motive power. Therefore, the execution of the command of motive powers needs organs.[70]

Therefore, the isomorphism between the powers of the rational soul and the various types of forms of the human body is what underpins the truth of Premiss 2 for the Summist.

4.1.2 Premiss 1

The author of the *Summa*, then, transitions to arguing for the truth of the Premiss 1 as follows:

> But there is a twofold cause for the multitude of actions of this kind: the immateriality of the soul and the substantial identity of different powers.[71]

The "twofold cause" is not to be understood here as adducing two different reasons: it is one reason that has two aspects to it. More to the point, the immateriality of the rational soul provides a sufficient reason precisely because of the substantial identity of the rational, sensitive, and vegetative powers in a human being:

> Again, the other cause is the substantial identity of different powers. For many powers are in the same substance: the rational soul. But this is clear because the vegetative, sensitive, and rational [soul] do not differ in substance in a human being. For there is one soul, the rational [one], not differ in substance from the vegetative and sensitive [soul], from which come vegetation and sensation in a human being. Therefore, the distinction that in plants comes from the vegetative soul [...] and the distinction that in brute [animals] comes through organs from the sensitive [soul], in the human being, come from the rational soul, which is unique to a human being, [and] whose parts or powers (*potentiae*) are sensitive and vegetative (*sensitiva et vegetativa*). And besides these distinctions, there is another one added,

[70] Alexander de Hales, *SH II*, In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 579a (my translation): "Praeterea, hoc idem patet ex motu qui est ab anima, secundum quod determinatur in alia Philosophia, scilicet in *Ethicis*, I, quod est motiva rationalis imperans et non imperata, ut liberum arbitrium sive intellectus practicus, scilicet quae omnibus aliis motivis imperat et a nulla sibi imperatur; alia autem est motiva, quae subiecta est imperio rationis, cui etiam alia vis subicitur, sicut concupiscibilis et irascibilis, quibus subiecta est vis sensibilis sita in musculis et lacertis, sicut dicit Avicenna, quae exequitur imperata a motivis superioribus: unde executio imperii motivarum organa requirit."

[71] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 579a (my translation): "Multitudinis autem actionum huiusmodi duplex est causa, scilicet animae immaterialitas et virtutum diversarum substantialis identitas."

> which is attained with respect to interior and motive organs, as is clear from what has been said.[72]

But in what way is the immateriality of the soul part of the reason for the truth of Premiss 1? Recall from above that a fundamental ingredient in the argument was a hierarchical principle that leant on immateriality. But how can the immateriality be established? The Summist here reprises a theme we have already encountered in Section 2, the plurality of substantial forms:

> About the first [point], it is spoken in the *Fons vitae* where it is said: "The more some substance is immune from matter, the more operations it effects." The immateriality of this [substance, i.e., the rational soul] is clear as follows. There are many types of form (*multiplex enim est forma*). For some forms perfect [their] parts and the whole in a similar way, such that the parts receive their name from the perfection of the whole – of this kind are the forms of the elements; and the parts receive their name from the perfection [of the whole] because of the extension (*propter distensionem*) of the matter and its parts. Therefore, since the whole perfection, which the form gives, is in any part of the matter, any part of fire is said to heat, and any part of fire is said to be fire, and so also in the case of the other elements. Therefore, a form of this type communicates [its] act and generic completeness (*complementum in genere suo*) or (*sive*) [its] operation and name to its parts, as has been said. Since a form of this type is maximally material and extended (*distensa*) with respect to the dimension of its matter, it does not require a distinction of the parts of its perfectible (*sui perfectibilis*). Other forms are less material, such as those that do not have an extension in matter, and are not extended with respect to the extension of their matter. Of this type are the vegetative soul in plants, the sensitive [soul] in brute [animals], and the rational or intellective soul.[73]

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[72] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 580a (my translation): "Item, alia causa est virtutum diversarum substantialis identitas. Multae enim virtutes sunt in eadem substantia, scilicet animae rationalis. Hoc autem patet per hoc quod vegetativa, sensitiva et rationalis non differunt in substantia in homine: una enim est anima, scilicet rationalis, indifferens in substantia a vegetativa et sensitiva, a qua est vegetatio et sensificatio in homine. Unde distinctio, quae est in plantis ab anima vegetativa [...] et distinctio quae est in brutis per organa a sensitiva, sunt in homine ab anima rationali, quae unica est in homine, cuius partes vel potentiae sunt sensitiva et vegetativa. Et praeter has distinctiones addita est alia, quae attenditur penes interiora organa et motiva, ut patet ex dictis." By claiming a substantial identity of all powers of the soul, the Summist takes a position on a problem heavily debated at the time; see Schumacher, *Human Nature in Early Franciscan Thought*, 104-127.

[73] Alexander de Hales, *SH II*, In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 579a-b (my translation): "De primo dicitur in libro *Fontis vitae*, ubi dicitur: 'Quanto substantia aliqua magis est immunis a materia, tanto plurium operationum est effectiva.' Immaterialitas autem huius patet sic: multiplex enim est forma; quaedam enim formae perficiunt partes et totum similiter, ita quod partes denominantur a perfectione totius, cuiusmodi sunt formae elementorum; et denominantur partes a perfectione propter distensionem materiae et partium eius: unde, quia tota perfectio, quam dat forma, est in qualibet parte materiae, ideo dicitur quod quaelibet pars ignis calet et quaelibet pars ignis est ignis et ita de aliis elementis. Unde forma huiusmodi

Before presenting the next paragraph that discusses the ways in which the three souls are immaterial, and their degree of immateriality, it is worth pausing and reflecting on the Summist's proof strategy. Why is it that the forms of the elements are maximally material? Because of the way the form is present in its corresponding matter, and more precisely because the elements do not have material parts that differ from the whole in name and definition! At first glance, this answer seems question begging at best, if not outright circular. For recall that although we are currently trying to establish that the soul causes a plurality of operations (Premiss 1), the overall goal is to show that the human body is maximally composite (Conclusion). But here we find part of the argument that already presupposes such compositions and uses it for the argument – at least for the elements, but we shall see that it will continue like this up to the rational soul. But appearances can be deceptive, which becomes clear when analysing the proof strategy through the lens of an isomorphism. What is actually involved is a certain isomorphism, but this time a different one. While for Premiss 2, we needed that the three powers of the soul correspond to forms of the body, here we need that forms of the body correspond to parts of the body. The *Summa Halensis* indeed continues in this vein for the vegetative and sensitive souls:

> The vegetative soul perfects the whole and the parts of its matter, but not in a similar way. For it perfects the whole by giving it its own act and by infusing it with life and the completeness of its genus. It communicates [its] act to the parts, but non its completeness in act, but only in potency. For the parts of the plant live, yet a part of the plant is not a plant in act, but only in potency. But the sensitive soul perfects the whole matter and its parts, but [also] not in a similar way. For it communicates its act and completeness to the whole, but it communicates the act to parts [of the animal], yet not to all. For not all parts of an animal can sense, such as neither bones, nor hoofs, nor [anything] of this kind. Nor does it communicate completeness to its parts, neither in act, nor in potency. For a part of an animal cannot become an animal, such as part of a plant [can be] a plant – and we speak here of parts that are properly called parts, such as body parts (*membra*) that can be divided by self-similar and functional body parts. For when a part of a plant is cut off, it becomes a plant, but [when] a part of an animal [is cut off] at no point [does it become an animal]. Therefore, the vegetative [soul], which communicates life and potency close to completeness to [its] parts, than the sensitive [soul], which communicates the sense not to all parts, and completeness to no part of the sensible, neither in act nor in potency.[74]

communicat actum et complementum in genere suo partibus suis sive operationem et denominationem, ut dictum est; et huiusmodi forma, quia maxime est materialis et distensa secundum distensionem suae materiae, non requirit distinctionem partium sui perfectibilis. Aliae sunt formae minus materiales, ut quae non habent distensionem in materia neque distenduntur secundum distensionem suae materiae: cuiusmodi sunt anima vegetativa in plantis, sensitiva in brutis et anima rationalis sive intellectiva [...]."

[74] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, 579b (my translation): "Anima vegetativa perficit totum et partes suae materiae, sed dissimiliter: perficit enim totum dando illi actum suum, influendo ei vitam et complementum generis sui; partibus autem

The rational or intellective soul truly goes beyond matter because it "does not communicate [its] act to the parts, nor completeness or operation and name, because neither is [any] part of its matter a human being, nor does [any] part understand". And so, its form "is the least material" and is "further away from the nature of matter or materiality".[75] The rational soul is, therefore, the most "immune from matter", thus effecting the greatest number of operations, by the principle from the *Fons vitae*.

This is how the Summist revisits the premisses of the shorter form of the argument. Yet, a reader might still be left puzzled by how the longer form is supposed to work. I shall, therefore, give a more coherent reconstruction and streamlined presentation of this form in the next subsection. My reconstruction will heavily rely on the two isomorphisms introduced.

4.2 Reconstructing the Argument

The passages quoted and discussed in the previous subsection are meant to provide further details to the argument already presented in a shorter form earlier in the *Summa*. However, the Summists presentation of the longer form suggests an argumentative form altogether different from the shorter version. Summarising Section 4.1, I propose the following reconstruction of the longer form of argument for the claim that the human body is maximally composed.

Step 1: Setting up the problem (Section 4.1.1). As presented in Section 2, the human soul is one in its three powers. Moreover, the bodily form of the human holds together a plurality of substantial forms. The Summist identifies, and through examples – we might

communicat actum, sed non complementum in actu, sed solum in potentia: partes enim plantae vivunt, non tamen pars plantae est planta actu, sed solum in potentia. Anima autem sensitiva perficit totam materiam suam et partes, sed dissimiliter: toti enim communicat actum et complementum, sed partibus communicat actum, non tamen omnibus: non enim omnes partes animalis sentiunt, sicut nec ossa nec ungulae et huiusmodi; nec partibus communicat complementum nec actu nec potentia: pars enim animalis non potest fieri animal, sicut pars plantae planta – et loquimur de partibus quae proprie dicuntur partes, ut membra quae dividuntur per membra consimilia et officialia – pars enim plantae abscissa efficitur planta, pars autem animalis numquam. Magis ergo materialis est vegetativa, quae communicat partibus plantae vitam et potentiam propinquam ad complementum, quam sensitiva, quae neque omnibus partibus communicat sensum et nulli sensibilis parti complementum neque actu neque potentia."

[75] Alexander de Hales, *SH II,* In4, Tr2, S2, Q1, T1, M3, C1 (n. 453), Solutio, p. 579b (my translation): "Alia autem est rationalis sive intellectiva, quae nec communicat partibus actum neque complementum sive operationem et denominationem, quia nec pars eius materiae est homo nec pars intelligit; et sic patet quod haec forma est minime materialis. Anima ergo rationalis principatum tenet inter formas et plus elongatur a natura materiae sive materialitate; unde ipsa est forma nobilis et multarum operationum principium, et propter hoc necesse est multas esse compositiones et distinctiones in partibus corporis, cui unita est, ut quibus mediantibus multiplices eius potentiae progrediantur in actus suos."

say, inductively – argues for, an isomorphism between the soul with respect to its three powers and the human body with respect to its substantial forms. This isomorphism is an expression of the difference between the form of the body, which makes its matter what it is, and the mover of the body, that is to say, the human soul. Consequently, in order to understand the material composition of the human body, it suffices to study the substantial forms inherent in the body. This first step, therefore, sets up the problem.

Step 2: Enumeration of the types of substantial forms (Section 4.1.2). In a second step the Summist assumes a second isomorphism, according to which there is a one-to-one correspondence between all substantial forms of a body and the different parthood structures of its matter. Through a combinatorial analysis, one then enumerates all possible types of substantial forms. This works as follows. Given a piece of matter that has quantitative parts, we can examine the way in which the form bestows upon it the completeness (C) of its genus and its activity (A). If both C and A are bestowed on all parts of the matter, we have an elemental form. If A is bestowed upon all parts, but C is bestowed upon all parts only in potency, we have a vegetative form. It seems that there is no corresponding form for the theoretically conceivable cases in which C is bestowed on all parts potentially, but A only on some, C is bestowed on some potentially and A on all or some. The next form is the one where C is bestowed on none, but A on some parts. This is the sensitive form. Moreover, if both C and A are bestowed on no parts, we have the rational soul. This is a complete enumeration of all bodily forms. This enumerative step can be summarised in a table, where I also supply the cases not relevant to the Summist:

Completeness (C)	Activity (A)	Type of form
All parts in act	All parts	Elemental form (or form of mixtures)
All parts in potency	All parts	Vegetative form
All parts in potency	Some parts	–
Some parts in potency	All parts	–
Some parts in potency	Some parts	–
No parts	Some parts	Sensitive form
No parts	No parts	Rational soul

For each type of form, there is, accordingly, a type of matter whose act the form is. We can see from the table that the rational soul is separate from the matter of the body. Moreover, from Step 1, we know that on account of the isomorphism, there must be three types of substantial forms held together by the bodily form. From the table, we can see that these must be a form of mixtures, the vegetative form, and the sensitive form. These correspond to levels in the material composition of the human body: elemental matter or matter of a mixture (i.e., uniform matter), vegetative matter (i.e., quasi-organic matter that is non-uniform in the way roots are non-uniform), and sensitive matter (i.e., organic matter). This shows that the human body is maximally composite – both formally, containing the maximum number of substantial forms, and materially, containing the maximum number of levels.

This reconstruction is compatible with the broad strokes of the *Summa*'s hylomorphic theory summarised in Section 2. Step 2, which spells out some features of the isomorphism between the form of the body and the matter of the body, gives further substance to the claim that according to the Summist, the main function of the form in a hylomorphic compound is to make its matter what it is.[76] Concretely, the *type* of quantitative parts of matter – that is to say, uniform parts, quasi-organic parts, or organic parts – are determined by the *type* of its form, which in turn is characterised through the way it relates to its matter (with respect to C and A).

This line of reasoning works very beautifully when applied to human beings. It is also possible to extend it to non-human animals. In this case too, the soul, which has two powers (i.e., vegetative and sensitive), is a substance different from the body of the animal (see Section 2).[77] Running the analogous argument, we obtain that the bodily form must hold together two types of substantial forms: a form of mixtures and the vegetative form. While at first glance, this sounds wrong – an animal should clearly have organic parts – the reader should recall that the sensitive form also has its own matter whose act it is. Unlike in the case of the rational soul, this matter is not non-bodily intellectual matter, but contributes another level to the body. Materially, an animal body, therefore, has the same number of levels as a human body. However, it can be plausibly assumed that the rational soul requires a greater degree of difference and distinction in the organic parts, which makes the human body more complex.[78]

Setting this last issue aside, the Summist's proof strategy can thus be rather straightforwardly applied to animals. This provides a basis for comparison between the account in the *Summa* and in Albert the Great's zoological question commentary. I believe that my reconstruction highlights a strength of the Summist's account for the purposes of natural philosophy. The *Summa* can be read as delineating an *intrinsic picture* of the relation between substantial form(s) and matter in a hylomorphic compound: in a human being, there are multiple powers *in* the soul, multiple substantial forms *in* the body, and multiple types of quantitative parts *in* the matter of the body; and these are seen as isomorphic or structurally equivalent. Applying this picture to the shorter form of the argument, we see that justifying Premiss 2 – which is the hard part for someone like Albert – becomes very easy: the isomorphic relation between form and matter simply *means* that the formal complexity (in terms of operations of which the soul is a principle) *has to* correspond to a material complexity in terms of various levels of composition.

For Albert too, there are multiple powers in the soul, multiple operations effected by these powers, and multiple instrumental parts of the body; and just as in the *Summa*, he also presupposes a tight connection between the kinds of operation and the kinds of parts. However, for him, the composition out of various *levels* cannot be established solely on the basis of the *formal structure* of the body because Albert is no pluralist with respect to

[76] See Bieniak, "The Soul-Body Union in the Summa Halensis", 48.
[77] See Bieniak, "The Soul-Body Union in the Summa Halensis", 40.
[78] See Köhler, *Homo animal nobilissimum*, 6-9.

substantial forms. In the absence of multiple substantial forms, a full argument for Albert – but one not presented by him in this context – would plausibly be one leaning on suppositional (or hypothetical) necessity and teleology, at least to some extent.[79] Yet, while this style of reasoning can serve well to establish why a given organ – say the eye – with a given material composition – pupil, iris, retina, and so on – has the composition it has, it is not immediately clear how to use it to establish that an organ like the eye needs to be composite and non-uniform in the first place, without supposing a specific composition already. For Albert it is, therefore, difficult to establish Premiss 2 in the sense needed for the argument, which is why the *Summa*'s metaphysical picture is, in this regard, argumentatively more powerful. This should not be surprising, but intuitive: approaches built on a formal pluralism have an obvious advantage over unitarian approaches insofar as an explanation of complexity is pursued.

5. Conclusion

When the author of the *Summa Halensis* presents the argument for the maximal composition of the human body in this theological treatise, he tackles the problem of how to cast a claim and a proof strategy (both of which go back to Jewish Neoplatonic sources, mainly the *Fons vitae*) into a form apt for scholastic argumentation. The dense shorter form proposed in the question about the composition of Adam's body out of all four elements does not, as I have shown, succeed in capturing the metaphysical assumptions behind it. Rather, this success is to be found in the later question about the general composition of the human body, where the pertinent metaphysical commitments are elaborated in detail. These are essentially the commitments to two isomorphisms:

1. An isomorphism between the human soul and its three powers on the one hand and the human body and its forms on the other hand;
2. An isomorphism between the human body and its forms on the one hand and the human body and its types of quantitative parts, that is, its levels of composition, on the other hand.

The shorter form of the argument fails to make explicit these two commitments, which come with the kind of hylomorphic theory espoused in the *Summa*. Yet, it is through the shorter rather than the longer form that the *Summa* is linked to contemporary zoological commentaries, perhaps precisely because it is more indifferent with respect to implicit metaphysical commitments. Someone like Albert the Great, for example, can only make use of this version of the argument because it is capable of qualifications that make it sufficiently congruent with his own, more Aristotelian

[79] See William A. Wallace, "Albertus Magnus and the Suppositional Necessity in the Natural Sciences", in *Albertus Magnus and the Sciences. Commemorative Essays 1980*, edited by J. A. Weisheipl (Toronto: PIMS, 1983), 103-128.

commitments. This observation raises the question of influences between the authors, a question that remains open.

My study shows that the *Summa* is an important source for students of thirteenth-century natural philosophy. In the debate about the composition of the human body – and by extension of the body of animals – the Summist takes a definite position, making the argument given in the *Summa* relevant even beyond its immediate historical context. For problems of the composition of humans, animals, and plants are closely related to discussions about the material basis of life that are familiar to us mainly from later debates, for example through the historical opposition of vitalism and mechanicism in the early-modern period and after. Insofar as the *Summa* presents us with a premodern yet not strictly Aristotelian perspective on such issues, it can be seen as occupying an important, if neglected, place in the *longue durée* history of this debate.

Dominic Dold
ddold@nd.edu

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