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SCOTUS ON ABSOLUTE POWER AND KNOWLEDGE (Continuation and end)

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III. Absolute Power and Scientific Knowledge *ut in pluribus*

How does the account of God's ordinate and absolute power, which strongly affects our moral knowledge and our understanding of divine justice and relationship to a humanly dimensioned world, affect our knowledge of the natural universe?¹ There is a claim about this in *Rep. exam.* I d. 44

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¹ Although my main concern is with God's omnipotence and absolute power and how they affect our knowledge of the world, it is challenging to think whether absolute power, as the power of altering any existing order of moral/legal and natural rules, can affect the knowledge that God has of objects. This kind of doubt is raised in *Rep. exam.* I d. 44 q. 1 n. 2 (ed. Söder: 190): "Item, sua potentia non excedit suam scientiam, maxime quoad obiecta; sed secundum suam scientiam non potest scire opposita aliter quam scit; ergo nec potest aliter producere vel opposita quam producit". It is affirmed there that God's potency does not exceed His science –where His knowledge of everything seems to be determinate–, and that holds especially with respect to objects. J. R. Söder, Übersetzungen und Anmerkungen, in: Johannes Duns Scotus, op. cit., p. 191, translates as following: "Ferner: Gottes Macht übertrifft nicht sein Wissen, besonders da sich beide auf [dieselben] Objekte richten". It seems that God's science cannot know "opposite things" [*opposita*] differently than how it actually knows them – realized-or-unrealized, true-or-false, etc. If, then, what God *can* actually produce depends on His actual knowledge, God cannot produce things differently, or produce things opposite to what He actually produces. Scotus confirms that "potency" [*potentia*] and "knowledge" [*scientia*] "equally apply" [*coaequantur*] in what concerns objects, for everything than can be done can be known. Scotus's answer stays at the level of possibility. But the equality at the level of *producibilia* in a general sense and knowledge does not concern everything in every way. (1) It does not need to be the case that to everything to which a potency "actually" relates, the other potency has to relate too. The reason is that it does not have to be the case that, for every object that is object of the potency "in act", there is also a knowledge "in act". See *Rep. exam.* I d. 44 q. 1 n. 15 (ed. Söder: 198): "Ad secundum dico quod potentia et scientia coaequantur quantum ad obiecta, quia omne quod potest fieri potest sciri. Sed non oportet quod coaequantur quantum ad omnia et omni modo. Non oportet enim quod cuiuscumque sit unum actualiter et aliud, quia non oportet quod cuiuscumque, cuius est potentia in actu, sit scientia in actu; (...)". Scotus is assuming that many objects of the potency *in actu* are not realized, are simply not the case, and are pure possibilities – but they are the objects of the potency *in actu*. And there is a second reason for the non-equality between potency or *producibilia* and knowledge. (2) "Scientific knowledge" of any object is of that object only "actually" as long as it is "in act". Of course strict knowledge relates to what has a determinate truth value, and to-be-the-

q. 1 n. 17. Recall that in I d. 44 q. 1 n. 4, the argument is that if a power like the power of God can produce things differently than actually produced, then it can move “celestial bodies” differently than it moves them now. As a consequence, celestial bodies can be combined differently than how they are now combined. “Geometry”/“astronomy”, the scientific knowledge that deals with the conjunction of heavenly bodies as they are now, should therefore not count as a “necessary science”, i.e., a knowledge of what is always true or “whose objects are necessary”. “Astronomy” would rather be a knowledge of things that can happen differently and thus concern contingent things, as previously defined.

Scotus admits that geometry/astronomy is not a *scientia* that is “absolutely necessary” (*simpliciter necessaria*). The difference between absolute necessity and non-absolute necessity – already known to Aristotle – was also put forward in *Rep. exam.* I d. 42². Recognizing the small difference between absolute power and omnipotence, those two necessities are more directly connected here to the account of the *absolute power* of the omnipotent being:

AN def.: Absolute necessity is the immutable and permanently valid character of a universal moral truth and/or of the movement of a heavenly body, by itself or in a conjunction, where such a valid character cannot logically-metaphysically be changed by an absolute power.

Since an absolute necessity in respect to the second part of the definition cannot obtain, a revised definition is needed:

AN def.₂: Absolute necessity is the immutable and permanently valid character of a universal moral truth, where such a valid character cannot logically-metaphysically be changed by an absolute power.

And

N-AN def.: Non-absolute necessity is the permanently valid character of a universal moral truth and/or of the movement of a heavenly body, by itself or in a conjunction, but it is nonetheless a valid character that can logically-metaphysically be changed by the absolute power of an omnipotent being.

In both definitions we could change “of a heavenly body” to “of a body of physical nature”. Scotus can now affirm directly that geometry/astronomy is only a science “for the most part of the cases” (*ut in pluribus tantum*). The happenings in nature – and indeed nature’s regular happenings – occur with divine permission. God *allows* that things operate (and

case is for a cognized object to-be-true. But potency is also of the possible object that is not “actually” or “in act”. Potency, as we learn from the discussion on synchronic contingency of a will’s act, relates also to the purely possible – not knowable as being-the-case. See *Rep. exam.* I d. 44 q. 1 n. 15 (ed. Söder: 198): “(…); quia scientia cuiuscumque est eius actualiter ut actu est, potentia autem est obiecti possibilis quod non est actualiter”.

² See R. H. Pich, Onipotência e conhecimento científico, in: C. A. Lertora-Mendoza (coord.), op. cit., p. 1-17.

cause) “in the most cases” (*ut in pluribus*) according to the movements they have and so according to the order that was disposed by Him. An operation “in the most cases” is actually a nomological operation, as a regularity settled according to an ordinate power. But since God has absolute power and therefore power to change any given order – which is *per definitionem* something *changeable* because *contingent* – sometimes He sets aside the instituted order and decides to validate a new one, so that, as a consequence, things in nature happen (or “move”) differently. Before offering a more definite formulation for such a knowledge, it is important to realize that in *Rep. exam.* I d. 44 q. 1 – differently than in *Rep. exam.* I d. 42 q. 2 – Scotus offers, by way of theological justification for his account, some references to Biblical narratives where God intervenes in the natural order. This might fit an account of miracles as interruptions of natural regularities and institution (for some reason and for some time) of another regularity inexplicable on the basis of all knowledge one has of nature, but Scotus shows here – as mostly also elsewhere³ – no concern for miracles, save for one exception, which comes in the context of his defense of the credibility of Holy Scripture in *Ord.* prol. p. 2⁴. Scotus has at least three cases in view: (a) the standing still of the sun (and of the moon), or the prevention of sunset, at the time of Joshua (Joshua 10.12-13); (b) the three young men walking unharmed in the fiery furnace at the time of the prophet Daniel (Daniel 3.19-50); (c) the sudden eclipse of the sun on the occasion of Christ’s death on the cross (Luke 23.44-45). All these events contradicted the principles of geometry/astronomy, when contradicting the principles of geometry/astronomy means going against the principles of natural science as they are currently established and known⁵. The reference in these Biblical cases to “different” or “irregular” movements of heavenly bodies – just like “different” or “irregular” actions in other paradigmatic Biblical cases, such as Abraham’s sacrifice of Isaac, which serve to justify them morally⁶ – inspire Scotus to affirm that it coheres with a rational view of God that He, as supreme legislator proceeding through contingent volitions in respect to what is *ad extra*, has full control over regularities of the *physis*, which, for this reason, are only generally the case.

³ On this point, see G. Berceville, *Du miracle au surnaturel. De Thomas d’Aquin à Duns Scot: un changement de problématique*, in: O. Boulnois; E. Karger; J.-L. Solère; G. Sondag (eds.), *Duns Scot à Paris 1302-2002*, p. 575-579.

⁴ See *Ordinatio* prol. p. 2 q. un. n. 113-116 (ed. Vat. I: 77-82).

⁵ See *Rep. exam.* I d. 44 q. 1 n. 17 (ed. Söder: 198): “Ad aliud concedo quod non est scientia simpliciter necessaria, sed ut in pluribus tantum. Permittit enim res ut in pluribus operari secundum motus suos et secundum ordinem ad eo dispositum. Aliquando tamen, praetermittendo illum ordinem, agit secundum alium ordinem. Patet de statione solis in tempore Iosue et de tribus pueris in igne et eclipsi solis in morte Christi, quod fuit contra principia geometriae”.

⁶ See in this respect the outstanding monograph by I. Mandrella, *Das Isaak-Opfer. Historisch-systematische Untersuchung zu Rationalität und Wandelbarkeit des Naturrechts in der mittelalterlichen Lehre vom natürlichen Gesetz*, 2002 (p. 132-150 for Duns Scotus).

And this should justify Scotus's strong conclusion about the knowledge of nature whenever nature can be understood as some thing, process or causation subject to absolute power and therefore to a modified ordinate power – no matter what aspect of nature is being considered, and *not in the first instance* because the study of *physis*, as we can find in Aristotle's account, is in itself the study of universals that are "enmattered"⁷. Knowledge of nature is contingent and "factually as for the most part of the cases" (*de facto ut in pluribus*) because any aspect of nature is a consequence of some contingent ordinate power effected by God. Here – but not elsewhere, as I pointed out above⁸ – Scotus agrees with Henry of Ghent when Henry concludes⁹ that there is no "scientific knowledge" of the contingent but knowledge "factually as for the most part of the cases", and at the same time both would express the judgment that there is only knowledge of the contingent when there is knowledge of nature at all, for the generalized probability of regularities in nature indicate that they are, in the end, irreducibly contingent aspects of the world¹⁰. Scotus, in agreement with Henry, reduces contingency in nature to generalized probability, but *Scotus* explains them metaphysically through absolute power and through God's contingent decision to institute an order that is logically possible and logically changeable. The source of contingency (or rather probability) has no explicit relationship with matter or the very influence of matter in the universals of physics.

⁷ See below in the Concluding Remarks.

⁸ See above in the Introduction.

⁹ There is a significant difference here between the text edited by J. R. Söder and the one edited by A. B. Wolter and O. Bychkov; see *Rep. exam.* I A d. 44 q. 1 n. 17 (ed. Wolter and Bychkov: 536): "Sic ergo modo respondeo, sicut heri in quadam quaestione, quod non est scientia de contingentibus nisi de facto ut in pluribus". Where J. R. Söder's edition reads "*Henricus*", A. B. Wolter's and O. Bychkov's edition reads "*heri*". Because of this A. B. Wolter and O. Bychkov refer naturally (p. 536, note 7) to what Scotus had affirmed in *Rep. exam.* I A d. 42 q. 2 n. 32, where he affirms indeed that, in a particular sense, knowledge of things in nature is only "for the most part of the cases". However, Scotus's account and concern about the knowledge of nature in that last passage is different than in *Rep. exam.* I d. 44 q. 1 n. 17; see R. H. Pich, *Onipotência e conhecimento científico*, in: C. A. Lertora-Mendoza (coord.), *op. cit.*, p. 1-17 (and also below in Concluding Remarks). I follow also here, for convenience, the reading given by J. R. Söder; see the next footnote, although the editor offers no reference to the possible work of Henry of Ghent where this opinion was presented. W. J. Courtenay, *Capacity and Volition*, p. 99-100, gives a brief account of Henry of Ghent's view on *potentia ordinata* and *potentia absoluta*, quoting several texts as sources, such as *Quodlibeta* II q. 2 et q. 7, IV q. 3, VIII q. 3, and XI q. 2. Although Henry recognized in some passages that there are other possibilities that can prevail "in the common course of nature", allowing also "occasional supernatural adjustments in that order", his view on *potentia absoluta* showed a reluctance to apply it to God in face of the danger of compromising God's immutability and simplicity. I am unable to find any passage of Henry's work that corresponds to the contents of what Scotus was saying in *Rep. exam.* I d. 44 q. 1 n. 17, and find no indication of that in the monograph by S. P. Marrone, *Truth and Scientific Knowledge in the Thought of Henry of Ghent*, 1985.

¹⁰ See *Rep. exam.* I d. 44 q. 1 n. 17 (ed. Söder: 198): "Sic ergo modo respondeo, sicut Henricus in quadam quaestione, quod non est scientia de contingentibus nisi de facto ut in pluribus".

IV. An Excursus on Scotus's Cosmology

For this reason, this seems to be the right moment to *emphasize* that Scotus is placing contingency and probability in an area – i.e., cosmology – where Aristotle himself never imagined to place them. The grounds for this that we have thus far considered have been basically metaphysical-speculative, i.e., it is a consequence of the way that a first and single necessary being *ex se* – and “omnipotent” in the theological sense – can relate to what is *ad extra* in respect to it. In *Lectura* II d. 14 q. 4 and *Ordinatio* d. 14 q. 1, which are parts of his two repeated treatises on cosmology as traditionally understood¹¹, Scotus discusses how “philosophers” and “theologians” can possibly conceive the nature of celestial bodies and their respective heavens. Initially, he points out that philosophers’ and theologians’ views differ sharply on these subjects, even though the theologians’ standpoint in those texts might perfectly be taken as a “rational” or even as a “natural” standpoint. This observation constitutes an important part of the background to *Rep. exam.* I d. 44 q. 1 and thus deserves a brief discussion, despite the fact that the conclusion of the heavens’ and heavenly bodies’ changeability in our *Reportatio* distinction is never presented by Scotus as a view of the “theologians”. The changeability of celestial bodies is actually not explained at all in *Rep. exam.* I d. 44 q. 1 in terms of an analysis of their own essential constitution as material substances. We may well find some information about this particular issue in the account of prime matter in *Lectura* and *Ordinatio* II d. 14.

In *Lect.* II d. 14 q. 4 and *Ord.* II d. 14 q. 1, Scotus addresses the question “whether a heavenly body is a simple essence”¹². He distinguishes radically the opinion of Aristotle (the “Philosopher”) and Averroes (the

¹¹ I can only point out here that Scotus is clearly conscious of the account of the heavens delivered by Aristotle and the Greek tradition. From sources such as *Metaphysica* XII 6-8, *Physica* VIII, and *De caelo* II 3, it would be possible to reconstruct the structure of the cosmos departing from the totality of perceptible movements up to a distinguished form, that of the no-longer-changeable-in-any-way-but-eternal mover – since it is not possible that everything is changeable, for movement and time have no beginning. The movement required by this account, which is continuous and eternal, can only be explained as a circular movement, to be attributed first of all to the fixed stars, and afterwards also to the movements of the planets, sun, and moon. Such movements affect every change in material sublunary world. Although a geocentric worldview would demand in the end a very complex account of movements over a large number of celestial spheres, it suffices to point out that Scotus, relying strongly on Ptolemy’s *Almagesto* and Alpetragius’s *De motibus caelorum*, in *Ord.* II d. 14 q. 2 n. 25-55 (ed. Vat. VIII: 254-269), *Whether there is some moveable heaven other than the starry heaven*, both affirms that “all astronomers agree that there are at least nine heavens” and that “they disagree whether there is more than nine [heavens]”.

¹² See Duns Scotus, *Lect.* II d. 14 q. 4 n. 37-38 (ed. Vat. XIX: 126): “37. Utrum corpus caeleste sit simplex essentia. 38. Respondeo quod aliter respondendum est ad hanc quaestionem secundum sententiam Philosophi et Commentatoris, et aliter secundum theologiam”. See also *Ord.* II d. 14 q. 1 n. 1-2 (ed. Vat. VIII: 243).

“Commentator”) from the point-of-view of theology. In brief, Scotus affirms as a common philosophical opinion that a celestial body is an “extended simple nature” in respect of quantity. Within it, matter has no *potency* to form. This conclusion is derived from the premise that sky and heavenly bodies are formally necessary (and sempiternal) and cannot not be¹³. Matter as such, i.e., “prime matter” taken generally, would bring to those bodies a receptive potency to some opposite of the form that they presently have, and anything that has matter in that sense could have not been¹⁴. Heaven and heavenly bodies cannot have such matter, because having it implies formal corruptibility, the intrinsic principle of being and not being. In heaven there is matter for movement, in the sense that it is moved *only* in place: this “matter” differs from the sublunary “matter” in the “four elements” (such as “fire”, which is itself corruptible in this way because it emerges out of a matter that is subject to different forms). It is a matter *only* “in respect to place”¹⁵, but by no means “in respect to substantial form”¹⁶, which is for Scotus the other element of an individual material composite or substance¹⁷.

Accordingly there is no external agent that can corrupt the heavens. For Averroes, as he declares in his *De substantia orbis*, the celestial body is therefore a simple, ingenerable and incorruptible body. It is material, but it is not of potential matter, and one can attach to it a potency or intelligence of movement, although this intelligence is not its form – nor is it its form in the sense of that which resides in it as an efficient power in relation to matter¹⁸. Because of this, and following Aristotle’s teaching in *De Caelo* I, a celestial body

¹³ See *Lect.* II d. 14 q. 4 n. 39 (ed. Vat. XIX: 127): “Secundum Philosophum est dicendum quod est simplex natura extensa per quantitatem, non habens materiam partem sui, quae sit in potentia ad formam, – et hoc, quia ponunt quod caelum sit ex se formaliter necessarium nec potest non esse, quod tamen sequeretur si materiam haberet. Nec video necessitatem ponendi duas materias primas alterius rationis”.

¹⁴ See *Lect.* II d. 14 q. 4 n. 40 (ed. Vat. XIX: 128): “Item, secundum Philosophum IX *Metaphysicae*, omnis potentia passiva et receptiva est potentia contradictionis, quia non est intelligibile quod sit potentia receptiva et tamen quod determinetur ad unum; si ergo in caelo esset materia, ipsa esset in potentia ad oppositum illius formae, et sic posset non esse, – quod non dicerent”.

¹⁵ See also *Ord.* II d. 14 q. 4 n. 7 (ed. Vat. VIII: 246-247): “Similiter, Philosophus non ponit materiam nisi propter potentialitatem ad mutationem; in caelo non est potentialitas mutationis nisi ad ‘ubi’”.

¹⁶ See *Lect.* II d. 14 q. 4 n. 41 (ed. Vat. XIX: 128-129): “Item, Philosophus non ponit materiam nisi propter transmutationem, quae ‘fecit scire eam’, ut ait Commentator VIII *Metaphysicae*; caelum non movetur nisi localiter, et ideo in caelo secundum eos tantum est materia ad ubi, non ad formam substantialem, – et hoc patet per Philosophum VIII *Metaphysicae*, ubi expresse loquitur de tali materia ad uni”. Scotus also considers critically in those passages the philosophical opinion that the heaven is a “living being” (*animatum, animal*), where theological opinions are particularly divided; see *Lect.* II d. 14 q. 4 n. 42-43, 45-52 (ed. Vat. XIX: 129-130, 131-135); *Ord.* II d. 14 q. 1 n. 9-11, 15-24 (ed. Vat. VIII: 247-250, 251-254).

¹⁷ On Scotus’s account of substantial form, see R. Cross, *The Physics of Duns Scotus*, p. 34-46.

¹⁸ See *Ord.* II d. 14 q. 1 n. 3 (ed. Vat. VIII: 243-244).

has matter (other than the derived four elements or anything out of the original prime matter) and form, but *it is not* a composite substance, for it cannot change *essentially* either in terms of form or of matter¹⁹.

In an important passage (*Ord.* II d. 14 q. 1 n. 5), Scotus, however, affirms as a philosopher that it is difficult to see on what basis the "otherness" of "meaning" or "nature" (*alteritas rationis*) in matter can be explained²⁰. In light of the argument of the philosophers, one would have to concede that in the matter of celestial bodies and in the matter of all four elements and of what is composed by them, there are *two different kinds of prime matter* to be considered each time. For Scotus however the consequence (Q) "There are two kinds of prime matter" cannot be true, therefore the antecedent (P) "The matter of celestial bodies is of another kind than all other material bodies" cannot be true either. His argument is not very easy to follow. He appeals to the premise that there are neither two primary final causes nor two primary efficient causes of two different natures, but rather only one, where the first final and efficient cause is of course God²¹. If the first cause is responsible for the generation of the matter from which things are made, then, on account of the unicity of the first cause, "prime matter" *has to* or at least *can* be in the same fundamental ontological status – the one of being potential to form. The premise seems to affirm that prime matter is simply a unique fundamental reality which *per se* "does not exhibit objective potentiality"²² and from which all things can be made.

But there is perhaps a more precise account for Scotus of the very "quiddity" of prime matter. In a second argument against (P), the Subtle Doctor seems to defend the point of view that the essential reason why matter – prime matter – has a "potency to contradiction" or is a "principle of corruptibility" (*ratio corruptibilitatis*) is not because it has potency to another form or to form *simpliciter*; matter is the principle of corruptibility because it has "potency to the privation of the form it has" – a potency to the privation of form²³. Accordingly it seems that one can recognize a

¹⁹ See *Ord.* II d. 14 q. 1 n. 4 (ed. Vat. VIII: 244-245): "Ad ostendendum tamen incorruptibilitatem caeli ex se (quae hic supponitur), oportet procedere secundum viam Aristotelis I *Caeli et mundi*, et in hoc ostendere quod non sit alicuius naturae elementaris; qua incorruptibilitate ostensa, ostendetur carentia materiae, (...)"

²⁰ See *Ord.* II d. 14 q. 4 n. 5 (ed. Vat. VIII: 245): "Quod si dicatur materiam illam non esse eiusdem rationis cum materiis susceptivis diversarum formarum, et ideo non posse quantum est ex se transmutari ab una forma ad aliam, – hoc videtur inconveniens".

²¹ See *Ord.* II d. 14 q. 4 n. 5 (ed. Vat. VIII: 246): "Primo quidem videtur difficile assignare unde sit ista alteritas rationis in hac materia et illa, quia tunc essent duae materiae primae alterius et alterius rationis; consequens falsum, igitur et antecedens. Probatio falsitatis consequentis: non sunt duo fines primi nec duo efficientes primi alterius et alterius rationis; ergo similiter nec duae materiae primae alterius et alterius rationis".

²² That is, prime matter is not pure potentiality, but it has "an essence or quiddity" and its own properties; see. R. Cross, *op. cit.*, p. 20s. (p. 17-23).

²³ See *Ord.* II d. 14 q. 4 n. 6 (ed. Vat. VIII: 246): "Secundo, data hac alteritate, saltem ista materia est in potentia ad hanc formam et ad privationem huius formae, ita

univocal prime matter even in respect to material substances whose essential part called "matter" actually never suffers any change or remains, for some feature of the established world, unchanged. Scotus seems to view prime matter *as such* as a principle of corruptibility under the description just given, and this is what prime matter is irrespective of there being or of there being able to be any form in the world to be received by and to change matter, and therefore this is what matter is logically-metaphysically *before* it becomes an essential part of a substance.

Finally, in a third argument against (*P*), Scotus argues against Richard of Middleton and the thesis that celestial bodies do not change substantially because their form satisfies entirely their matter's desire, and as a result the matter of celestial bodies is not subject to privation. Scotus's argument proceeds as follows: (Major Premise) "No form satisfies the entire desire of its matter for other form, unless it gives to it an act that is the opposite to the privation of form". This premise should be understood in such a way that a form would concede to matter the act that is the opposite to matter's privation of form *simpliciter*, if that form would contain – at least virtually – all possible forms. But this is not what happens in celestial bodies as material substances: (minor premise) "The form of a celestial body does not give to its matter the act that is the opposite of a privation such as the privation of the form of fire", an act that would be the form of fire itself; moreover, it is clear that the form of a celestial body does not give to its matter *many* other forms, such as the "intellective soul" for instance. (Conclusion): "The form of a celestial body does not satisfy the entire desire of its matter for other form"²⁴. Here Scotus does not merely declare the philosophers' view on the constitution of celestial bodies in order to advocate for their simplicity, but he has also disputes their reasoning on the philosophical level.

If in *Rep. exam.* I d. 44 q. 1 Scotus considers it philosophically correct to affirm that every "created" existing being has to be conceived under the contingency of actuality and possibility/changeability, in *Lect.* II d. 14 q. 4 and *Ord.* II d. 14 q. 1 he turns to those we may call "theologians" to express what such an account conceivably amounts to in respect of the heavens and celestial bodies. According to the theologians, heaven is composed of mat-

quod ista materia de se est in potentia contradictionis licet non ponatur in qua potentia formae est; nunc autem non est materia per se ratio corruptibilitatis in quantum est in potentia ad formam aliam ab ea quam habet, sed in quantum est in potentia ad privationem formae quam habet".

²⁴ See *Ord.* II d. 14 q. 4 n. 8 (ed. Vat. VIII: 247): "Si dicatur quod materia in caelo non est in potentia contradictionis, quia forma sua complet totum eius appetitum, – contra: nulla forma complet totum appetitum materiae suae respectu alterius formae, nisi quia dat actum oppositum privationi illius formae; sed forma caeli non dat actum oppositum privationi formae ignis; igitur privatio formae ignis ibi manet. Probatio minoris: nulla forma dat actum oppositum privationi cuiuscumque formae, nisi in se contineat omnes formas, saltem virtualiter; sed forma caeli non sic continet omnes formas, quia non animam intellectivam; ergo etc."

ter and form (Gn 1.1), and the “heaven” that was first made is the so-called “empyrean heaven”²⁵ and the angelic nature, and the “earth” that was first made is the “in-formed matter” from which everything else was made; this first “matter” resembles original “chaos” and is basically the same in all bodies contained in the empyrean heaven²⁶. “Chaos” and “earth” are the basically passive “matter” of the empyrean heaven. Therefore, from the very same matter, celestial bodies and every other material thing were made. The “firmamentum” (Gn 1.6) therefore, which denotes the entire heaven where planets and fixed stars are found, was constituted from matter. Accordingly, it follows that *all* heavens have the same matter as the inferior elements – i.e., earth, air, fire, and water. Theologians thus must disagree with philosophers in respect to the principle that “the heaven is necessary and incorruptible”²⁷. As the Biblical narratives confirm and help to sustain, the heaven *ex se* “can not-be”, and if heaven and celestial bodies are *de iure* but not *de facto* unchangeable, this is only because divine will keeps them in being. Thus, from a philosophical belief in the contingency of everything that is not God, and from a theological perspective on omnipotence, the scientific context of matter in the *supralunary* cosmos has to be revisited rationally. Theologians search for reasons in order to balance, with desired consistency, their most firm and important metaphysical and theological convictions.

There are reasons to affirm, therefore, that the matter to be found in heaven has in itself also the potency to the forms of the four sublunary elements, and correlatively, that the matter of the four elements has in itself the potency to the form of heaven. As a consequence, it is both possible that the elements would gain the celestial form by the operation of the divine will, and that the form of heaven would be preserved, uncorrupted in what respects its own matter, from receiving other forms – that is, from receiving other forms because of its intrinsic passivity. This state can obtain only through the cooperation of the divine being²⁸. It is only a factual

²⁵ Uncontroversially, see H. Meinhardt, *Empyreum*, in: *Lexikon des Mittelalters*, p. 1898. The *empyreus* or “Empyrean Heaven” seems to be taken here as the “highest heaven” of ancient Greek cosmology and correspondingly, as the very way or the last passage to the divine; Scotus preserves in these passages the image of the *empyreus* as being both a dwelling-place of the angels and the source of creation.

²⁶ See *Ord.* II d. 14 q. 1 n. 12 (ed. VII: 250-251): “Secundum theologos ponenda est ibi materia, quia illud ‘chaos’ quod ponitur ab eis attigisse usque ad caelum empyreum, erat materia omnium corporalium contentorum a caelo empyreo; et etiam ponetur materia – secundum se et quantum est ex se – eiusdem rationis”.

²⁷ See *Ord.* II d. 14 q. 1 n. 13 (ed. Vat. VIII: 251): “Et ita habent ipsi discordare a Philosopho in hac propositione ‘caelum est necessarium et incorruptibile’: quantum enim est ex materia sua, esset simpliciter corruptibile, quia sibi inesset illa potentia ad contrarium; quia tamen forma caeli non habet contrarium potens vincere istam formam, ideo non potest corrumpi ab agente naturali a quod recipit istam formam, vel etiam corrumpi in ignem vel aquam”.

²⁸ See *Lect.* II d. 14 n. 44 (ed. Vat. XIX: 130-131): “Sed secundum theologiam est dicendum quod caelum est compositum ex materia et forma. Nam quando dicitur Gen. 1

circumstance that the form of heaven united with celestial matter is not deprived of its position by an opposite power, which would then surpass it and be received by that matter; the actual form of celestial body receives, as it were, a *standing cooperation* from the omnipotent and voluntary divine being, and not a regular opposition or even a continually instantiated opposition. It is only under such a condition that the form of heaven cannot be surpassed in such a way that its matter, then, is corrupted by a natural agent – as it would be, for example, if its matter were corrupted through, say, the introduction of the form of fire or water. Nevertheless, such corruption *is possible*, since the matter to which all these bodies and elements are joined together is the same²⁹. Scotus thus affirms that *the form of a celestial body is strictly substantial, and its matter has the potency to privation of this form.*

V. Defining Scientific Knowledge *ut in pluribus*

Presupposing this and returning to the analysis of *Rep. exam.* I d. 44 q. 1, Scotus's position concerning the knowledge of nature can now be made even more precise, although the cost of precision is the interpretation of a difficult passage. He affirms on the one hand that (i) it is necessary and known through demonstration – and thus scientifically – that those celestial bodies are “capable by nature” (*apta nata*) of the movements (that they currently have). He affirms on the other that (ii) that it happens contingently that the same celestial bodies now move differently than in the time of Josiah or Ezechiel (2 Kings 20.8-11), or than in the way described in the lives of the (Old Testament) fathers (or patriarchs), that is, that they are entities that at one time are the case and at another time are not the case,

In principio creavit Deus caelum et terram, ibi stat ‘caelum’ pro caelo empyreo, primo die creato, et pro natura angelica, ‘terra’ autem pro illa materia informi ex qua fuerunt alia producta; et per consequens *firmamentum* quod est in *medio aquarum* – quod est totum caelum in quo sunt planetae et stellae fixae – fuit factum de illa materia; et ideo in caelo est materia eiusdem rationis cum materia istorum inferiorum, et per consequens ex se ‘possibile non esse’, conservatum tamen in esse voluntate divina; et est in potentia illa materia – quantum est ex se – ad formas istorum inferiorum et e contra. Sed tamen non est alia virtus potens transmutare materiam istorum inferiorum ad formam caeli, nisi potentia divina”. See also *Ord.* II d. 14 q. 1 n. 14 (ed. Vat. VIII: 251): “Sed tunc videtur quod saltem caelum posset corrumpere et convertere ignem in caelum, quia virtus activa caeli excedit formam ignis (et est a forma caeli), et materia ignis est etiam capax formae caeli: igitur potest transmutare ad ‘esse’ ab agente tali. Et forte caelum non potest alterare elementum ad qualitates convenientes tali corpori caelesti, et tamen forma illa in tantum dominatur illi materiae ut non possit ab aliquo altero alterari (recipiendo peregrinas impressiones), et per consequens nec corrumpi”.

²⁹ See *Ord.* II d. 14 q. 1 n. 13 (ed. Vat. VIII: 251): “(…): quantum enim est ex materia sua, esset simpliciter corruptibile, quia sibi inesset illa potentia ad contrarium; quia tamen forma caeli non habet contrarium potens vincere istam formam, ideo non potest corrumpi ab agente naturali a quo recipit istam formam, vel etiam corrumpi in ignem vel aquam”.

and therefore the movement, conjunction and causation of celestial bodies cannot be known scientifically. How can we reconcile these two affirmations? From what comes next in *Rep. exam.* I d. 44 q. 1 n. 17, it seems that Scotus has in mind with point (i) some "strict regularity" or some "strict natural aptness to a certain regular movement", and with point (ii) some "randomness account" or "no regular movement account". The first situation is precluded by the recognition of God's absolute power, and the second situation would bring as a consequence not a failure in having scientific knowledge, but the impossibility of acquiring it. I think that Scotus wants to hold a middle position by saying that the knowledge of nature neither depends on *strict* regularity nor is precluded by factual randomness, but can really be knowledge of probabilities or of what happens "in the most part of the cases". After all, says Scotus, if sun and moon have similar movements than the ones that were previously observed, that is, previously in the past and also until now, then – though recognizing the absolute power of an omnipotent being – one is entitled to affirm that there is some necessity about them³⁰, and that scientific knowledge can be obtained of them. This is a reflection on the consequences of treating movements and processes of physical bodies under logical and metaphysical possibilities. As a matter of fact anyone can know now of sun and moon as moving in the same way as if there were in respect of them no new movement or conjunction in comparison to the alternatives mentioned as having been the case at the times of Josiah and Ezechiel³¹. However recognizing, in the way Scotus suggests, a logical-metaphysical changeability in the processes of nature – even if this changeability is never actually verified – anyone is supposed to experience and know such processes as regularities and is also justified in attributing a relative necessity to that knowledge, because of the *strong* probability of the known thing³². Nature and the knowledge of it reflect no random disposition. Both change and the possibility of change in some as-

³⁰ This seems to be a very simple account of obtaining probable generalizations or probable universal truths departing from particular *sufficient* and *representative* cases, that is, as a conclusion of a correct enumerative induction. Accordingly, "probability" can be viewed as the quality of the truth-character of a given universal or at least highly generalized proposition – a quality that suffices for holding it as true and even as a *conditionally* necessary truth, although *not* as an *unconditionally* necessary truth. The more one enumerates successfully similar particular cases, at different times and in relevant different situations, the more the generalization gains probability as its truth-character – and thus "statistically" and "significantly". Though its premises are true, the conclusion of such an argument – the probable generalization itself – *can* of course be false; see Steven French, *Ciência*, p. 24-30; Wesley C. Salmon, *Logik*, p. 163-176.

³¹ See *Rep. exam.* I d. 44 q. 1 n. 17 (ed. Söder: 198): "Sed quod sint sic apta nata ad tales motus, hoc est necessarium et scitum sic demonstrative. Sed quod modo sint aliter mota ut tempore Iosae vel Ezechiae, vel sicut legitur in vitis patrum de sole, hoc est contingentier factum, et ideo haec non possunt sciri demonstrative. Sed si habent similes motus quales deprehensi sunt sol et luna habere prius, tunc sequitur de necessitate scientia. Unde in eodem aspectu se habent solet luna modo ac si non fuisset ibi aliquis novus motus vel nova coniunctio temporibus praedictis".

³² See note 30 above.

pect – simple or connected to a larger set of altered aspects – are to be viewed as *an exception* against the background of some regular order of natural movements and events. Truly, it is only against such a regular background that one can both (i) account for exceptions and (ii) have *scientia ut in pluribus*.

At the end of his analysis, Scotus confirms this same point through the counterfactual assumption that a new movement and a new constellation of heavenly bodies takes place. If that is so, then one (sole) body will be moved over the entire heaven, and the body once moved will be “immediately” (*subito*) brought back to its place in order to preserve uniformity. Since the movement would be an exception, it is necessary to presuppose the maintenance of the background. So a new order instituted by an absolute power is no chaos or confusion; they are just exceptions or changes within what holds for the most part of the cases. Although chaos in nature – or at least high degrees of randomness – are surely logical and metaphysical possibilities, Scotus seems to think that there is no reason to argue for the idea that God would establish a generally chaotic or random general arrangement of natural processes, where nothing could be naturally known, not even by probability. Granting absolute power, Scotus does not abandon the idea of a residual harmony to which changes later return. This seems to be precisely what happens when one accepts the belief that many hold concerning special cases of the intervention in nature of divine absolute power, and this should hold also if it would be the case that, by retracting the movement of one body, divine power would retract the movement of other connected celestial bodies, in order not to destroy harmony in the new order established. Harmony of celestial bodies, conjunctions and regular movements (cause-effect relationships) is therefore the background against which exceptions stand out – it is not the exceptions that are known scientifically, but rather their harmonic background, and this *in spite of them*. In an additional sense, particular interventions may require more complex changes – apparently they can only happen within a context of alterations and, accordingly, within a context of various connected interventions. This implies not only that even an omnipotent being would have to observe those relations – like complex cause-effect relations – in order that particular changes prevail, so that an absolute power of change would have to apply regressively to a whole set of connected celestial bodies; but it also implies that even in complex changes, since they presuppose the change of several connected bodies, there is a residual harmony or coherence *within change itself*: changes by an absolute power within conjunctions of celestial bodies’ movements require therefore *a new coherence*, and institute *a new harmony*³³.

³³ See *Rep. exam.* I d. 44 q. 1 n. 17 (ed. Söder: 200): “Quod patet quia sic e contra movebatur unum corpus in totum caelum vel corpus motum subito revertebatur ad locum suum ad habendum uniformitatem. Nam creditur a quibusdam quod sicut Deus fecit specialiter circa solem, sic de aliis corporibus caelestibus retrogradando ne solveretur harmonia”.

I believe that all presuppositions for a definition of scientific knowledge *ut in pluribus* in *Rep. exam.* I d. 44 q. 1 have now been given. It relates explicitly to knowledge of events in nature:

SK *ut-in-pluribus* def.: Scientific knowledge “for the most part of the cases” is the knowledge of objects of nature such as celestial bodies, movements of celestial bodies, movements of conjunctions of celestial bodies and therefore cause-effect relationships in the movements of celestial bodies that correspond to a contingently instituted order of natural happenings, by an omnipotent power, and that can at any instant, generally through exceptional causations, be changed by the absolute power of an omnipotent being, in a way that does not however preclude the regularity or relative necessity, and therefore the probability, of those happenings.

Scotus finally replies to the objection advanced in *Rep. exam.* I d. 44 q. 1 n. 5, which summarized the critical reflection on astronomy/geometry by positing that there is no “natural science”, where one understands by “natural science” a knowledge of material things according to the movements of heavenly bodies. Apparently Scotus was thinking about astronomical phenomena described in Aristotle’s *Meteorologica*. And the fifth objection invoked the consequence that “fire” would not be more likely generated in one part of the heaven than any other element would. The accusation that there would not be “natural science” any more has by now been dismissed by Scotus. As a matter of fact, the first part of the fifth objection, which presupposes those phenomena of the space between earth and heaven, was theoretically answered through the last part of *Rep. exam.* I d. 44 q. 1 n. 17. Scotus then answers straightforwardly the fifth objection by affirming that he disagrees with its terms. The scientist of nature does not say that more fire is generated in one part of heaven than in another part of heaven. The “*naturalis*” only affirms that, when the sun approaches one part of heaven, more fire is generated in that part to which the sun approaches closer³⁴. Scotus’s remark do not seem to be motivated by his own reflections on absolute power, but rather to reflect a criticism grounded on a more careful interpretation of Aristotle’s text itself.

Concluding Remarks

Is the scientific knowledge *ut in pluribus* developed by Scotus in *Rep. exam.* I d. 44 q. 1 a variation on an Aristotelian theme? I think it is, but *here* only in a broad sense. As the lexical synthesis by O. Höffe indicates³⁵, in *Analytica posteriora* I 30, 87b19-27 the idea of a knowledge *hôs epi to poly*

³⁴ See *Rep. exam.* I d. 44 q. 1 n. 18 (ed. Söder: 200): “Ad ultimum dico quod naturalis non dicit plus de igne in tali parte caeli generari quam in alia, sed dicit quod appropinquante sole plus generatur de igne cui magis appropinquat”.

³⁵ See O. Höffe, *hôs epi to poly / meistens, in der Regel*, in: O. Höffe (Hrsg.), *Aristoteles-Lexikon*, p. 264-265.

is joined to one of three types of true propositions³⁶: (i) there are necessary propositions, where the connection between subject and predicate is true “in all cases” (*kata pantos*), “essentially” (*kath' hautou*) and “absolutely” (*katholou*)³⁷. (ii) There are true propositions merely contingent or propositions “by chance” (cases of *tychê*), where the subject and the predicate are joined occasionally³⁸ or in a causally less determinate way (“by chance” and “from itself or spontaneously”)³⁹, as, for example, “A Greek man is a merchant”. (iii) True propositions “for the most part of the cases” are those propositions that have only great probability. They are “universally quantified”, however, and their grounding rests on the nature of the object, for example, that a man, as time passes, turns grey⁴⁰, that a beard grows on his jaw⁴¹, that honeywater has healing properties for patients sick with fever⁴², etc.

True propositions “for the most part of the cases” do not hold, for Aristotle, *with necessity* (with unconditional or *haplôs* necessity), because “deviations” that have “casual” validity and are merely accidents can interpose⁴³. Therefore, it can happen that honeywater contains materials that are harmful to the patient, or else that the patient suffers not only from fever but also from further diseases, for which honey is by no means recommended. Since the material world is composed by form and matter (and material aspects are present in the essences and definitions of universals, where there is some natural “resistance” of matter in respect to form, or where the natural “indeterminateness of matter” is revealed, especially in the universals of physics or of nature *lato sensu*, for the reason that they are “essentially enmattered”)⁴⁴, additional conditions – purely *accidentalizing* conditions – can appear on the scene. Because of these reasons, and generally, statements about *physis* (including specifically the animals) and about human *praxis*, in contradistinction to mathematics, are “true” only “usually”, although in a qualified sense they are nomological and offer causal ex-

³⁶ See also *Analytica posteriora* I 4 (ed. Meiner, 1998: 325-331; *Physica* II 4-5 (ed. Meiner 1987: 69-79); *Metaphysica* VI 2, 1026b27-a28 (ed. Meiner, ³1989: 256-259).

³⁷ The Aristotelian ideal of causal explanation, understood in this way as “unconditional scientific knowledge” (C. D. C. Reeve), is repeated by Scotus in his first model of *scientia*, which was described above in the Introduction; see also R. H. Pich, *Der Begriff der wissenschaftlichen Erkenntnis nach Johannes Duns Scotus*, 1.5.2.2 and 1.5.2.3.

³⁸ See *Metaphysica* VI 2, 1027a11- (ed. Meiner, ³1989: 258-259).

³⁹ See A. F. Koch, *tychê / Zufall*, in: O. Höffe (Hrsg.), *Aristoteles-Lexikon*, p. 610f.

⁴⁰ See *Analytica priora* I 13, 32b5-13 (ed. Meiner 1998: 54-57).

⁴¹ See *Analytica posteriora* II 13, 96a8-19 (ed. Meiner 1998: 490-493).

⁴² See *Metaphysica* VI 2, 1027a22-24 (ed. Meiner, ³1989: 258-259).

⁴³ See the meaning of *symbebêkos* in *Metaphysica* V 30, 1025a15-21 (ed. Meiner, ³1989: 246-247). See *De generatione et corruptione* II 6, 333b5-8 (ed. W. D. Ross 1970 (repr.)).

⁴⁴ See *Metaphysica* VI 1, 1025b26-1026a6; VI 2, 1027a8-28 (ed. Meiner, ³1989: 250-253, 258-259). See C. D. C. Reeve, *Practices of Reason. Aristotle's Nicomachean Ethics*, p. 21.

planation among universals⁴⁵, just like, once again, the relationship between honeywater and fever, a grown man and his grey hairs, etc. And nonetheless *epistêmê* seems to extend both to what is “always” the case and to what is the case “most of times”⁴⁶: what is demonstrable extends to the *hôs epi to poly*⁴⁷. According to Reeve, the explanation given in such relationship between universals was admitted already by Aristotle as “probabilizing” (*Rhetorica* 1402b20-21), where “if F probabilizes G, then it will hold for the most part that Fs are Gs”⁴⁸. Taking a characteristic sense for the things that are *endechomena*, i.e. “possible” or “contingent”, that *could* therefore *happen differently*, we do not exclude necessity entirely from those “probabilizing” causal links, but rather *unconditional* necessity. Thus, on Reeve’s explanation,

“(…): if F and G are thus related, ‘All Fs are Gs’ is necessarily true. Probabilizing is a necessary, law-like relation between universals that guarantees that the corresponding universally quantified propositions will be for the most part true: if F and G are thus related, ‘All Fs are Gs’ will necessarily hold for the most part”.

And this holds for the whole syllogism:

“(…): if F probabilizes G, and G probabilizes H, then F probabilizes H”⁴⁹.

Aristotle does not seem to ascribe the limitation “for the most part of the cases” to statements of *principles* of absolute forms, or to statements of causality that are expressions of the theory of the “four causes”, or, in the domain of ethics, to determinations of “essence”, for example, of happiness and virtue – but rather to the principles of universals of physics or of nature that are “essentially enmattered”⁵⁰. In ethics, however, there is a wide room for knowledge *ut in pluribus* – after all, as the well known example illustrates, wealth and courage can contribute to *eudaimonia*, but it can happen that, if that is the case, they do it more “casually” than “necessarily”, for they contribute to *eudaimonia* more “roughly” and more “in outline”⁵¹. In what measure this grounding of ethical statements makes “deliberation” indispensable and in what measure universal laws of justice are just only “for the most part of the cases”, which is a reason why the vir-

⁴⁵ As Lindsay Judson, Chance and ‘Always or For the Most Part’ in Aristotle, in: Lindsay Judson (ed.), *Aristotle’s Physics – A Collection of Essays*, p. 84, rightly emphasizes, Aristotle “associates ‘for the most part’ with ‘by nature’”. Cf. id. *ibid.*, p. 85ss., 97s.

⁴⁶ See *Metaphysica* VI 2, 1027a20-21 (ed. Meiner, 1989: 258-259); *Physica* II 5, 197a19-20 (ed. Meiner 1987: 76-77; C. D. C. Reeve, op. cit., p. 13f).

⁴⁷ See *Analytica posteriora* 87b19-22, 96a17-19 (ed. Meiner 1998: 430-431, 490-491).

⁴⁸ See C. D. C. Reeve, op. cit., p. 15f. See also O. Porchat Pereira, *Ciência e dialética em Aristóteles*, p. 180-181.

⁴⁹ See C. D. C. Reeve, op. cit., p. 16.

⁵⁰ See O. Höffe, *hôs epi to poly / meistens, in der Regel*, in: O. Höffe (Hrsg.), op. cit., p. 264-265.

⁵¹ See for instance *Ethica Nicomachea* I 1, 1094b18-21 (ed. Meiner, 1985: 2-3).

tue of “equity” is needed, is not our present subject⁵². The point to be stressed is the different nuance that Scotus gives to knowledge *ut in pluribus*. He does not deal with cases of ethics as a practical science; he also does not connect statements valid *ut in pluribus* to principles, but rather, in accordance with the outcome of this topic of investigation departing from *Rep. exam.* I d. 42 q. 1-2, only to conclusive propositions in which so-called *absolute proper properties*, not proper-aptitudinal nor purely accidental properties, are predicated. And in *Rep. exam.* I d. 42 q. 1-2 the relevant connections were then about purely *essentialist* or *metaphysical* enunciates (as they would be about “natural kinds” such as *homo*, *equus* and *arbor*) or, still, about enunciates of *natural philosophy* in a general sense (such as those about *homo qua anima rationalis*)⁵³. The conclusion of the topic *scientia ut in pluribus* in *Rep. exam.* I d. 44 q. 1 is thus again innovative and, when compared to Aristotle’s account of natural science and conditional necessity, differs from it. But the form of the science *ut in pluribus* here studied does not properly point to a change in the picture of models of *scientia* offered previously by Scotus (see Introduction) – it rather adds to that picture a model of *scientia naturalis* not previously offered⁵⁴.

In the account of ordinate and absolute power by an omnipotent being, it is affirmed both (a) that the heavenly bodies’ movements are not unconditionally necessary and not unconditionally determinate, and (b) that the regularity – and hence probability or conditional necessity – that they have as the residual background of exceptions is not explained by matter-and-form relationships in substances whose actuality is accountable through hylomorphism. Although Scotus – along the lines of moral-theological cases or general rules and exceptional revocations – seems to ground such “regularity” and “conditional necessity” not only through the account of the irreducible contingency of physical nature, but also emphatically through the assumption that exceptions have happened and indeed do happen, the assumption of the radically contingent constitution of every existing thing outside God’s essence or the constitutive divine cooperation in maintaining an order of things (despite God’s possessing, at the same time, the power to change it) does seem to suffice for “regularity” and “conditional necessity”. “*Ut in pluribus*” works therefore as a subclass of ontic necessity explained both by the real-possibility and factual-contingency of non-divine things and the absolute power of an omnipotent being. In a derivative sense,

⁵² *Ibid.*, III 5 (ed. Meiner, 1985: 51-53); see C. D. C. Reeve, *op. cit.*, p. 77-78, 79-91. See also O. Höffe, *Ethik als praktische Philosophie – Methodische Überlegungen* (I 1, 1094a22-1095a13), in: O. Höffe (Hrsg.), *Aristoteles – Die nikomachische Ethik*, p. 19-30 (especially p. 24-26).

⁵³ See again R. H. Pich, *Onipotência e conhecimento científico*, in: C. A. Lertoramento (coord.), *op. cit.*, p. 1-17.

⁵⁴ This account of science is not offered, I insist, in those contexts where certain and real knowledge “through experience” (*per experientiam*), established in conjunction with *a priori* principles of sense experience, grounds a form of knowledge *ut in pluribus* of nature; see the final paragraphs below.

"*ut in pluribus*" works as a subclass of alethic necessity, and grounds a particular level of epistemic habit. Furthermore, even if one takes for the sake of the argument those Biblical narratives as historical events, the fact that their explanation, and indeed that of any possible fact of nature, rests on the possibility of being otherwise that accompanies each decision by a "universal Legislator" (where the second part of the disjunction or "can will $\neg a$ ", "can not-will a " or "can non-will a " can be touched at any time by a corresponding active absolute power) favors a view of the conditional necessity in question that is not basically but only secondarily "statistical". After all, the "not-always" of the *ut in pluribus* is not reducible to an explanation in terms of "it is otherwise at some instant of time", but it is reducible to an explanation in terms of "it is possible to be otherwise at some instant of time". This characterization alone, it seems, would suffice to "probabilize" a given regular state of affairs. This reinforces the thesis that necessity *ut in pluribus* is "strong" probability, and *scientia ut in pluribus* is "strongly" probable. Absolute power does not presuppose randomness.

Based on the sources investigated here, there is no reason to think that the role of the subject/object in scientifically acquired knowledge has been modified when compared to the previous models of *scientia* in *Lectura* and *Ordinatio*; there is no major concern about that point, and the basic difference in the scientific habit considered in *Rep. exam.* I d. 44 q. 1 is that the subject/object is not a form-essence but a physical object. Scotus manifestly treats a habit such as "astronomy" as a *scientia naturalis*: in the way that natural regularities are known there is *certain* knowledge, but not unconditionally necessary knowledge, because they are and are known – if they are known – only "for the most part of the cases". This has to mean that certainty is disjoined from strict necessity, and necessity for epistemic purposes is disjoined from *strict* necessity too. In scientific knowledge of physical bodies, and surely of their causative-effective relationships generally, one can *only* achieve knowledge with certainty and qualified necessity departing from principles to conclusions: they are all under a modality of necessity that does not couple with the modality of necessity that one finds when he knows the principles of natural kinds or forms-essences such as *homo* as a rational soul. By interpreting in this way each basic true proposition to which knowledge *ut in pluribus* is attached, one can bring back into consideration the epistemic conditions advanced in *Ord. prol. n. 208*⁵⁶, which seem to hold for the case at issue in the following way: (a) certainty, (b) *qualified necessity* (under divine permission or cooperation and God's power of change), (c) evidence, and (d) discursivity. Therefore, model (1) discussed in the Introduction, in spite of the significant reinterpretation of condition (b), is not only structurally preserved, but it remains finally untouched. As it happens, refinements are instead introduced into model (5), which was not even proposed as a model for scientific knowledge *in se* but rather as a model for another kind of *scientia*. The focus of *Rep. exam.* I d.

⁵⁶ See Introduction above.

44 q. 1 does not lie on any account of subordination theory⁵⁶, and this suggests that, in the grand scheme, any middle science will continue to owe its scientific character to the premises of pure mathematics. What is significantly modified, at least for the natural science of "astronomy", is the logical status of their principles, irrespective of the full explanation that they find in mathematics.

In *Rep. exam.* I d. 44 q. 1 there is also no concern about how physical bodies are knowable "through experience", but this certainly means that, what is generally valid for any cognition "*vera et sincera*" obtained *per experientiam*, as expounded by Scotus in *Ord.* I d. 3 p. 1 q. 4 n. 235-237. 240-245⁵⁷, is valid for "astronomy" as a middle science, not for "geometry" as a mathematical subordinating science. In that text, Scotus treats the truths obtained by reasoned induction, where induction consists in the combination of repeated observations with one or more principles known *per se*. In knowledge through experience, just as with knowledge presupposed by a middle science, one is not concerned with those principles *per se* known, which are universal and independent of sense experiences. One is rather concerned with truths taken from repeated observation of similar phenomena and in respect of a cognition of the physical world and its laws. Since they are observations not about *all* particular cases, but at most about a large number of them, one can ask whether generalization is epistemically legitimate. Scotus works then with two ideas: (i) generalization is legitimate, in virtue of the principle "everything that happens in the most part of the cases [*ut in pluribus*] by some non-free cause is the natural effect of that cause"⁵⁸; (ii) generalization alone does not suffice to ground a principle known *per se*, for this is known through its terms alone. And so Scotus admits a distinction in natural sciences between a general principle *per se* and a particular law *through experience*⁵⁹. From the epistemic side this account seems to remain fully valid for Scotus, but from the logical-metaphysical side the "particular laws" of nature or the laws of celestial bodies, despite being their *a priori* rational mental framework, stay inevitably under probability and conditional necessity alone, and this happens *not* because those *ut in pluribus* generalizations work only over samples, but rather because

⁵⁶ See R. H. Pich, Scotus on Absolute Power and Knowledge, in: *Patristica et Mediaevalia*, p. 5-6, note 21.

⁵⁷ Scotus never strictly talks about "scientific knowledge" (*scientia*) in that context, although he talks there of knowledge *ut in pluribus*; as far as I know an account of *naturales scientiae* as scientific knowledge *ut in pluribus* appears formally for the first time in *Rep. exam.* I d. 42 q. 2 and I d. 44 q. 1 – in the accounts of *scientia* in *Lectura* and *Ordinatio*, Scotus usually does not seem to give room for any kind of necessity, in those places where necessity is needed for defining scientific knowledge, that comes in terms of a "conditional necessity".

⁵⁸ See Duns Scotus, *Ordinatio* I d. 3 p. 1 q. 4 n. 235 (ed. Vat. III: 142): "(...): 'quidquid evenit ut in pluribus ab aliqua causa non libera, est effectus naturalis illius causae'", id. *ibid.* n. 240 (ed. Vat. III: 146): "(...): 'quod evenit in pluribus ab aliquo, illud est causa naturalis eius, si non sit causa libera'".

⁵⁹ See G. Sondag, *Duns Scot. La métaphysique de la singularité*, p. 20-28.

through *ut in pluribus* generalizations, from each token up to the most wide set of tokens, it is always only *de potentia absoluta* changeable things that are known, and it is always only *de potentia ordinata et ordinata* probable things that are being actually generalized.

What was previously said about the notion of *scientia* in *Rep. exam.* I d. 42 q. 2⁶⁰ can now, after the discussion about *scientia* in *Rep. exam.* I d. 44 q. 1, be repeated: Scotus examines scientific knowledge because of a profound conviction about reality in its absolute terms – namely, that reality is above all contingency. Thus a revised metaphysics requires a revision of epistemology.

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ABSTRACT

In *Rep. exam.* I d. 44 q. 1, Scotus offers a discussion, unique within his work, of cases in which a traditional account of “scientific knowledge” of nature is transformed into a knowledge “as in most cases” (*ut in pluribus*). Underlying this particular model of scientific knowledge is an account of God's omnipotence and absolute power. With the aim of explaining this model, this study explores certain fundamental theoretical elements of *Rep. exam.* I d. 44 q. 1, i.e., definitions of divine omnipotence and absolute power, and Scotus's general theory of contingency, as well as the background context of contingency and divine *scientia* in *Rep. exam.* I d. 38-44. The stage is then set for the introduction of the idea of a knowledge “as in most cases”, which Scotus had likely encountered in *Analytica posteriora*. Possible connections between omnipotence, absolute power, and knowledge *ut in pluribus* are then analyzed. Because Scotus's model of *scientia ut in pluribus* depends heavily on a critical view of the regularity of the movements of heavenly bodies, some notes on Scotus's cosmology are offered, as well as a comparison between the scope of Scotus's “probable” knowledge of nature and Aristotle's view of the same within many passages of his *opera* concerning the knowledge of physical universals.