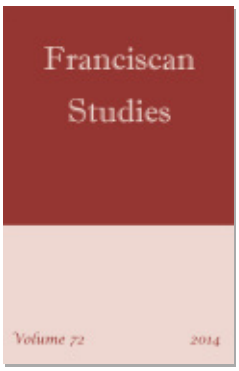
The threefold object of the scientific knowledge. Pseudo-Scotus and the literature on the *Meteorologica* in fourteenth-century Paris

Lucian Petrescu



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This paper studies the questions on Aristotle's Meteorologica *published in the Wadding edition of Duns Scotus, attributed to Duns Scotus until the twentieth century and to Simon Tunsted since then. It provides a critical note on the literature and points out a contamination in the text: the fourth book of Pseudo-Scotus is an incomplete copy of Themon Judaeus. It then provides a doctrinal commentary of the question "Utrum de meteorologicis sit scientia" in the context of fourteenth-century epistemological discussions over the object of science. I show that the thesis advanced by Pseudo-Scotus, together with other Parisian masters, on the object of science, is forged in response to the general rejection of Gregory of Rimini's theory of the total significate of the proposition.*[*]

Parisian natural philosophy in the fourteenth century has been the object of increased interest in medieval studies for over a century now, but not much scholarly attention has been paid yet to the distinct and sophisticated literature on Aristotle's *Meteorologica* produced in this intellectual setting. One can find a similar set of meteorological questions developed by major figures of this period, such as John Buridan, Nicole Oresme, Albert of Saxony, and Themon Judaeus. With the exception of the latter, whose work was published in the sixteenth century, most of this material is still to be edited.[1] It is notoriously hard to trace filiations between these

[*] Research for this article was financed by the Fonds Wetenschappelijk Onderzoek Vlaanderen (FWO) and by the Fonds de la Recherche Scientifique – Fédération Wallonie-Bruxelles (FNRS). I thank Sorana Corneanu and Charles T. Wolfe for having corrected my English.

[1] For bibliographical indications and references to manuscripts, see O. Weijers, *Le travail intellectuel à la Faculté des arts de Paris : textes et maîtres (ca. 1200–1500)*, 9 vols. (Turnhout: Brepols, 1994-2012), s.v. An edition of the first book by Buridan is available: S. Bages, *Les Questiones super tres libros metheorum de Jean Buridan: Étude suivie de l'édition du livre I*, PhD thesis (École nationale des chartes, 1986). I thank Ms Sylvie Bages–Biet for giving me access to her thesis.

figures, who were members of what has been characterized as a close intellectual network.[2] Our grasp of the *Meteorologica* literature is made particularly difficult by the heavy contaminations encountered in the manuscript tradition, which raises many questions of intellectual paternity, even down to the level of particular questions. Aleksander Birkenmajer was the only scholar who had extensive knowledge of this literature, but unfortunately he never completed his projected book on the subject. His work from the beginning of the last century offers nevertheless the basis for our current knowledge.

The purpose of this paper is to provide a critical overview of this literature and some new material elements regarding another work that belongs to this genre: the *Meteorologicorum libri quatuor* published by Luke Wadding in the seventeenth-century edition of Duns Scotus, attributed to Duns Scotus until the twentieth century, and to Simon Tunsted since then. Pointing out yet another important contamination, we trace the intellectual paternity of Book IV of this text to Themon Judaeus. The author of the rest of the work remains unknown, but we can place its composition in the second half of the fourteenth century, in a Parisian setting influenced by Gregory of Rimini and John Buridan.

This literature is important both for our efforts of reconstructing the connections between these Parisian masters and for our knowledge of their scientific production. Optical issues developed in the third book constitute the main point of focus of such works, but they also discuss many other natural philosophical topics of interest such as the celestial influences, the nature of the sublunary bodies, the nature of light, causation and motion. Specific to the fourteenth century is an epistemological discussion that introduces the book, with little grounding in Aristotle's text: is meteorol-

[2] See J.M.M.H. Thijssen, "The Buridan School Reassessed. John Buridan and Albert of Saxony," *Vivarium* 42 (2004): 18–42 and "The Debate over the Nature of Motion: John Buridan, Nicole Oresme and Albert of Saxony. With an Edition of John Buridan's Quaestiones super libros Physicorum, secundum ultimam lecturam, Book III, q. 7," *Early Science and Medicine* 14 (2009): 186–210.

ogy a science and if so, what is its object of study? While all authors mention the question of the object of meteorology within the wider framework of the question of the object of scientific knowledge, Pseudo-Scotus is the only author encountered who has an extensive and thorough treatment of the topic. We therefore complement the critical note with a commentary of question 1 of Pseudo-Scotus, "Utrum de impressionibus meteorologicis sit scientia." The presentation of this discussion aims to contribute to our knowledge of the reception of English nominalism in Paris.

I. Critical note. Pseudo-Scotus and Themon Judaeus

1. It is known that the series of *quaestiones* on Aristotle's *Meteorologica* published by Luke Wadding (1588–1657) in the seventeenth-century Franciscan edition of Duns Scotus is not the work of Duns Scotus, in spite of the qualification of the text as "secundum Scotum" in some of the manuscripts.[3] Suspicions over the paternity of the text were raised by Wadding himself in a "Censura" that serves as a preface to the text. Wadding chose to include this text in his edition based on the testimony of John Pits (Johannes Pitseus, 1550–1616), who attributed to Duns Scotus a book on the *Meteorologica* ("librum unum") in his literary history of England.[4] While unwilling to treat the work as spurious ("licet Scoti esse non dissidam"), Wadding noted three elements that call into question the authenticity of the work: (1) Pits' mention of a "librum unum" could mean that Scotus had written only on the first book of the *Meteorologica*, whereas the text treats all four books; (2) the text names Saint Thomas "beatus", but Scotus died in 1308, long before the canonization of Saint Thomas in 1323; (3) the text also cites Thomas Bradwardine's *Tractatus de proportionibus* of 1328.

Wadding tried to offer ways of mitigating these elements: Pits could have meant a single volume, and not Book I of the

[3] R. P. F. Joannis Duns Scoti, Doctoris subtilis, Ordinis minorum *Opera omnia* (Lyon: Laurentius Durand, 1639), vol. III, 1–125 (reprinted in *Opera Omnia* [Paris: Vivès, 1891, vol. IV, 1–263]).

4 Johannes Pitseus, *Relationum historicarum de rebus anglicis* (Paris: Rolin Thierry & Sebastian Cramoisy, 1619), vol. I, 393.

Meteorologica; "beatus" would be a simple sign of respect in use before the canonization of Thomas; and the information on Bradwardine's life and works could be wrong.

If, however, one would hold the work to be spurious, Wadding proposed the name of Simon Tunsted (d. 1369), a Minor friar of Norwich who taught in Oxford, who is reported by the same source, John Pits, to have written a treatise on the *Meteorologica*, and who appears to have lived at the right time. We don't know much about Tunsted, and the rest of the Franciscan historians who mention him only repeat Pits's conclusions. There was little basis for Wadding's conjecture.

The text published by Wadding is a well-developed commentary in the form of *quaestiones* on all the four books and its content is manifestly close to that of analogous works from the second half of the fourteenth century. Whoever the author may be, Wadding noted the value and importance of the work: "Tractatus porro doctus est, curiosus et perutilis, neque ullum vidi in hoc genere ab antiquis potiori, aut ampliori studio exaratum."

In spite of Wadding's clear warnings, the text was attributed to Duns Scotus until the twentieth century. It made its career in seventeenth- and eighteenth-century Scotism, when it was used as the basis for Franciscan courses on meteorology.[5] Émile Pluzanski still quotes the text as authentic in his monograph on Duns Scotus from 1887.[6]

2. Heinrich Suter presented in 1882 a St. Gal manuscript of the *Questions on Meteorology* of Nicole Oresme and noted for the first time the similarity between Oresme and Scotus (i.e., Pseudo-Scotus).[7] Oresme is believed to have lectured on the

[5] See, e.g., Livio Rabesano da Montursio, *Cursus philosophicus ad mentem Doctoris Subtilis Ioannis Duns Scoti pro Tyronibus Scotistis planiori stylo exaratus…*, (Venice: apud Nicolaum Pezzanam, 1668), vol. II or Alipius Locherer, *Clypeus philosophico-Scotisticus sive cursus philosophicus juxta mentem et doctrinam Johannis Duns Scoti elaboratus* (Viena: J. Erhart 1742), vol. III.

[6] É. Pluzanski, *Essai sur la philosophie de Duns Scot* (Paris: Ernest Thorin, 1888), 194 & passim.

[7] H. Suter, "Eine bis jetzt unbekannte Schrift des Nic. Oresme," *Historisch-literarische Abteilung der Zeitschrift für Mathematik und Physik* 27 (1882), 121–125.

Meteorologica in Paris sometime in the 1340s.[8] Suter noted that a big part of the questions asked are "entirely the same." This is hardly surprising; the similarity in the titles of the questions holds not only for the relationship between Oresme and Pseudo-Scotus, but also for the entire literature on the *Meteorologica* produced in fourteenth-century Paris.

3. Pierre Duhem has drawn attention to the importance of the meteorological literature of the fourteenth century for the development of medieval physics in several of his works. He was also the first scholar to take Wadding's warnings seriously and treat Pseudo-Scotus as apocryphal in a note from 1905.[9] But, surprisingly, Duhem welcomed Wadding's conjecture regarding the attribution of the work to Simon Tunsted. He also noted the similarity between this text and the Parisian production of Nicole Oresme and Themon Judaeus, an author he had uncovered.[10] Duhem concluded that Pseudo-Scotus must have known Themon Judaeus and that he abbreviated his reasoning at times. Duhem also thought, based on the few extracts given by Suter, that Oresme must have made an abbreviation of Pseudo-Scotus, thus an abbre-

[8] Based on W. J. Courtenay, "The early career of Nicole Oresme," *Isis* (2000): 542-548. For Oresme's works, see O. Weijers, *Le travail intellectuel*, vol. VII (Turnhout: Brepols, 2007), 168–190 and M. Clagett, *Nicole Oresme and the Medieval Geometry of Qualities and Motions* (Madison: University of Wisconsin Press, 1968), 645–646. Courtenay has established that Oresme became Master of Arts in 1341–1342.

[9] "Sur le Traité des Météores faussement attribué à Duns Scot," in *Les origines de la statique*, vol. I (Paris, Hermann, 1905), 326–335. Duhem notes at p. 327: "L'étude de ces *Quatre livres sur les Météores* ne révèle aucun détail qui ne se puisse fort bien accorder avec l'hypothèse émise ici par Wadding."

[10] On Themon, see P. Duhem, "Thémon le fils du Juif et Léonard de Vinci," *Bulletin italien* 6 (1906): 97–124, reprinted in his *Études sur Léonard de Vinci*, vol. I (1906), 159–200; *Le Système du monde*, vol. VIII, 436–442 and vol. IX, 71–73, 219–223, 313–314; H. Hugonnard-Roche, *L'Oeuvre astronomique de Thémon Juif, maître parisien du XIV^e siècle*" (Geneva–Paris: Droz, Mignard, 1973). S. Nagel, "Astri e passioni dell'anima nel I libro delle *Quaestiones in Metheororum* di Timone," in *Parva Naturalia. Saperi medievali, natura e vita, Atti dell'XI convegno della societa' italiana per lo studio del pensiero medievale, Macerata, 7–9 dicembre 2001*, ed. by C. Cresciani, R. Lambertini and R. Martorelli Vico (Macerata, Pisa, Roma: Istituti Editoriali e Poligrafici Internazionali, 2004), 261–289.

viation of an abbreviation. Duhem therefore positioned Pseudo-Scotus as an intermediary between Themon and Oresme.

Without giving much evidence, Duhem repeated in a second article from 1910 that Themon's questions are the "prototype" for Pseudo-Scotus, Oresme and Buridan.[11] From our reading of both texts, Duhem's assessment that Pseudo-Scotus had abbreviated Themon is at best an exaggeration (at least in what concerns the first three books, as we will show below).

4. Aleksander Birkenmajer has rectified Duhem's view in a study from 1921. Birkenmajer showed that a great deal of the material from Oresme's Book III is also present in Themon Judaeus's meteorology.[12] He offered a thorough analysis of the relationship between Oresme, Albert of Saxony, Pseudo-Scotus and Themon based on a comparison of Book III of each work. Birkenmajer's material suggests that we are dealing with deeply entangled but still different works. Based on internal evidence that emerged from his analysis of Book III, Birkenmajer managed to establish a chronology of the works: Oresme would come first (before 1348, when he started his theological studies), Buridan, Albert of Saxony and Pseudo-Scotus would be intermediary works (1350s), and Themon would come last (late 1350s).[13] A future and more thorough textual confrontation of all four books should further test the order proposed by Birkenmajer. In the meantime, there is no reason not to accept it. Regarding the relationship between Albert and Pseudo-Scotus, Birkenmajer maintains that one of them had access to the other and that both had access to Oresme's commentary. In any case, we can retain that these works were taught very close to each other.

[11] "Sur les *Meteorologicorum libri quatuor* faussement attribués à Jean Duns Scot," *Archivium Franciscanum Historicum* 3 (1910): 629.

[12] *Studja nad Witelonem* (Kraków, Nakładem Polskiej Akademji Umiejętności, 1921), trans. in *Études d'histoire des sciences en Pologne* (Wrocław, Warszawa, Kraków, Gdańsk: Zakład narodowy imienia Ossolińskich, wyd. Polskiej Akademii nauk, 1972), 178–239.

[13] For Buridan, cf. É. Faral, *Jean Buridan, maître ès arts de l'Université de Paris*, Extrait de l'Histoire littéraire de la France, tome XXVIII, 2e partie (Paris: Imprimerie nationale, 1940), 87–100. Faral places at least part of the work just before 1358.

5. Lynn Thorndike gave a new report on the manuscript literature of Pseudo-Scotus and Oresme in 1954–1955.[14] He offered a comparison between the titles of the questions of Oresme and Pseudo-Scotus and concluded that they are different works (infirming Duhem). Concerning the chronology, Thorndike followed Birkenmajer, saying that "it might seem probable that the pseudo-Scotus would antecede the *Questions* of Themon". (In spite of this, Henri Huggonard–Roche's more recent study on Themon still followed Duhem and placed Pseudo-Scotus as posterior to both Themon and Oresme.)[15]

Regarding the manuscripts of Pseudo-Scotus, Thorndike reports that five of the seven Oxford manuscripts attribute only the first three books on the *Meteorologica* to Duns Scotus; one manuscript of the five (ms. 35, Oriol Coll., Oxford) attributes the first three books to a "Scotus Junior" ("secundum Scotum Juniorem"—this could also refer to a production of the early career of Scotus); the oldest of the five manuscripts (ms. 80, Magdalen Coll., Oxford) attributes the first three books to a Scotulus ("secundum Scotulum") and the fourth book to either an anonymous author or to the same Scotulus ("Anonymi an eiusdem Scotuli").[16] All these nicknames suggest that we are dealing either with a Scotsman or with an early follower of Duns Scotus.

Birkenmajer added yet another manuscript of Pseudo-Scotus, the only one to be found outside Oxford: ms. Q. 342 ff. 69ra–130ra of the Amplonian Collection at Erfurt (UB Erfurt, Dep. Erf. CA. 4° 342, incipit: "Utrum de impressionibus meteoricis sit scientia tamquam de subiecto"). This manuscript was not reported in Schum's catalogue of the Amploni-

[14] L. Thorndike, "Oresme and Fourteenth Century Commentaries on the Meteorologica," *Isis* 45 (1954) 145–152 and "More Questions on the Meteorologica," *Isis* 46 (1955) 357–360.

[15] *L'Œuvre astronomique de Thémon Juif,* 39–50.

[16] Thorndike, "Oresme and Fourteenth Century Commentaries on the Meteorologica." Thorndike is reading the descriptions from Coxe (H. O. Coxe, *Catalogus codicum mss. qui in collegiis aulisque Oxoniensibus hodie adservantur*, 2 vols., Oxford: e Typographeo academico, 1852).

ana.[17] Birkenmajer's report on it suggests that this manuscript is more trustworthy than the Oxford ones: it correctly presents questions 4 and 5 of Book III as separate, whereas they are collated by Wadding, who worked with two of the Oxford manuscripts.

6. Concerning the authorship of Pseudo-Scotus, Birkenmajer perused Denifle and Chatelain's *Chartularium* and found one author that fits the desired decade and name, a Johannes (de Plebis) Scotus.[18] Unfortunately there is no other information regarding this master that can corroborate Birkenmajer's hypothesis. The nickname Scotulus could also have been used to designate a Scottish person of lesser standing than the Subtle Doctor, or simply to designate an abbreviation of a work by Scotus. In any case, they are common among the early Scotists. Pietro de Aquila (d. 1361), who was no Scotsman, was also called *Scotulus* or *Scotellus* and could be a candidate; Antonius Andreae also went by *Scotulus* or *Scotellus* (but he lived too early to be a candidate, ca. 1280–ca. 1335?).[19] We have no further indications.

With the exception of Birkenmajer, most of the scholarship written since Duhem has retained the name of Simon Tunsted, proposed by Wadding, for the text of Pseudo-Scotus, in spite of the lack of any evidence supporting this attribution. Even Thorndike retained the name of Tunsted, al-

[17] A. Brikenmajer, *Études d'histoire des sciences en Pologne*, 228. W. Schum, *Beschreibendes Verzeichniss der Amplonianischen Handschriften-Sammlung zu Erfurt* (Berlin: Weidmannsche Buchhandlung, 1887, reprinted Hildesheim: Olms, 2010). The description of this manuscript is now to be found in a preliminary version of Brigitte Pfeil's revision of Schum, dated October 01, 2011, edited by the Digitale Bibliothek Thüringen, URL: http://www.db-thueringen.de/servlets/DocumentServlet?id=19048, accessed in May 2014.

[18] Birkenmajer, *Études d'histoire des sciences en Pologne*, p. 233, n. 221. H. Denifle and É. Chatelain, eds., *Auctarium chartularii Universitatis Parisiensis* (Paris, 1894–1964), vol. I, coll. 161.

[19] On the early Scotists, including Andreae, see C. Bérubé, "La première école scotiste," in *Preuves et raisons à l'Université de Paris. Logique, ontologie et théologie au XIV^e siècle*, ed. by Z. Kaluza, P. Vignaux, (Paris: Vrin, 1984), 9–24. On Aquila and Andreae, see O. Weijers, *Le travail intellectuel*, vol. VII (Turnhout: Brepols, 2007), 128–129 and, respectively, vol. I (Turnhout: Brepols, 1994), 65–66.

though he was reading Brikenmajer. Hugonnard-Roche too compared the astrology of Themon with that of "Tunsted."

The Tunsted hypothesis was definitely laid to rest by Louis-Jacques Bataillon in 1976, who recovered Tunsted's real meteorology in ms. Digby 153, fol. 28r–65v.[20] Bataillon concludes that "les comparaisons que l'on peut faire entre les deux textes [i.e. Tunsted and Pseudo-Sctous] ne révèlent aucune parenté, au contraire." Pseudo-Scotus thus reverted to anonymity.[21]

7. Themon Judaeus's meteorology was published several times and enjoyed a far-reaching popularity up to the seventeenth century. There are three known publications that circulated: an incunabulum of about 1480 from Pavia;[22] an edition where it is bound together with Aristotle's *Meteorologica* and a commentary by Gaetano da Thiene, published in Venice in 1496, 1507, 1515 and 1522;[23] and George Lokert's (ca.1485–1547) compilation of a complete course on nominalist Physics "ad mentem Parisiensis," printed in Paris in 1516, 1517 and 1518, where Themon was published together with

[20] L. J. Bataillon, O. P., "Le commentaire sur les "Météores" de Simon de Tunstede, O.F.M.," in *Studies honoring Ignatius Charles Brady, Friar Minor*, ed. by Romano Stephen Almagno, O.F.M. and Conrad L. Harkins, O.F.M (St. Bonaventure, NY: The Franciscan Institute, 1976), 45–56.

[21] L. J. Bataillon, op. cit., p. 55, marks the current *status questionis*: "Nous pouvons donc conclure [...] que l'auteur des intéressantes questions imprimées sous le nom de Duns Scot demeure pour le moment dans l'anonymat. Il est à souhaiter que des travaux ultérieurs arrivent à donner un nom à ce maître de valeur."

[22] Thimon Judaeus, *Questiones in Meteorologicam Aristotelis* (Pavia, Antonius de Carcano: ca. 1480); Duhem's copy is available online from the National Library of Israel.

[23] We were able to consult *Gaietanus super Metheo. Habes solertissime lector in hoc codice libros metheororum Aristotelis Stragirite peripatheticorum principis cum commentarijs fidelissimi expositori Gaietani de Thienis: vna cum duplici translatione vero Francisci Vatabli & antiqua: nouiter impressos: ac mendis erroribusque purgatos. Tractatum de reactione. Et tractatum de intensione & remissione eiusdem Gaietani. Questiones perspicacissimi philosophi Thimonis super quatuor libros metheororum* (Venice: s.n., 1522), Bibliothèque Mazarine de l'Institut (miscatalogued under the Greek Pyrrhonian Timon of Phlius).

Albert of Saxony's *Physics* and *De Coelo*, Buridan's *De anima* and *Parva naturalia*, and Lokert's *On proportions*.[24]

On this, we can report that Lokert's edition of Themon, on which all scholars of Themon have been working so far, including Pierre Duhem and Edward Grant, is missing the first question, "Utrum de impressionibus meteorologicis sit scientia," which is a standard first question to ask in such works. This question appears nevertheless in the previous Italian editions and in ms. Vat. Lat. 2177 held by the Apostolic Library. Lockert's edition is visibly based on a different manuscript than the previous Italian editions; aside from the missing question, there are minor differences in the text.

8. Since Duhem's work on Themon, there has been an important evolution in our knowledge concerning this author: two astronomical disputations by him have been recovered in the Amplonian collection at Erfurt (mss. F. 313 and F 380, under Thimon Erfurtensis). They were signalled, although without a description, by Thorndike, in 1934, and Hugonnard-Roche edited one of them on the motion of the moon.[25] Duhem had lost track of Themon after the latter left Paris with a mission for Pope Innocent VI in 1359. We now know that he ended up in Erfurt in 1350 and that he held these disputations "apud Schotos," that is, at the Benedictine "Schottenkloster" of that city (the Abbey of Saint Jacob, founded by Irish and Scottish missionaries).[26] Not only that, but he became rector of this school. Could this have favoured the confusion in the manuscripts between Scotus/Scotulus (Pseduo-Scotus) and

[24] *Questiones et decisiones physicales insignium virorum: Alberti de Saxonia in octo libros physicorum. Tres libros de celo & mundo. Duos lib. de generatione & corruptione. Thimonis in quatuor libros Meteororum Buridani in Aristotelis. Tres lib. de anima Lib. de sensu & sensato Librum de memoria & reminiscentia Librum de somno & vigilia. Lib. de longitudine & brevitate vite Lib. de juventute & judicio magistri Georgii Lokert Scoti: a quo sunt tractatus proportionum additi* (Paris: s.n., 1516).

[25] *A history of magic and experimental science*, 8 vols. (New York: Macmillan, 1923–58), vol. III (1934), 587–588. H. Hugonnard-Roche, *L'Œuvre astronomique de Thémon Juif*.

[26] See J. Scholle, *Das Erfurter Schottenkloster* (Düsseldorf: Schwann, 1933).

Themon? Themon reappears again at the Sorbonne, with a career in the Faculty of Arts; his trace is lost in 1371.[27]

Themon's meteorology appears to be addressed to a Parisian audience, given his geographical references. Hugonnard-Roche dates it after his return from Erfurt, thus with 1350 as *terminus post quem*.[28] Birkenmajer dates the work after 1370 (posterior to Pseudo-Scotus, dated by him after 1355).[29]

9. On a closer inspection of both Pseudo-Scotus and Themon Judaeus, we can report the following contamination. Pseudo-Scotus as published by Wadding consists in fact of two texts. The first text covers Books I–III of the *Meteorologica* and are by an anonymous author (Scotulus). The work bears a resemblance in style and arguments with Themon that does not go beyond the resemblance normally found in the *Meteorologica* literature of the time. The second text, covering part of Book IV, is a copy of questions 1–4 of Themon Judaeus's Book IV. They are different copies of the same text, as shown by the small variations of words. The Wadding text ends Book IV in the middle of Themon's q. 4 (*Utrum digestio sanguinis et nascentia a calori naturali sit pepansis*), interrupting a sentence. A note in Wadding tells us that some text appears to be missing ("Aliqua videntur adhuc deesse"). Themon's text, as we have it from the Venice and Paris editions, continues the text of Book IV of Pseudo-Scotus with the rest of q. 4, and adds four other questions. Thus Wadding's Pseudo-Scotus added an incomplete copy of Themon's Book IV to a treatise on Books I–III by someone else.

The separation between the two works, that covering Books I-III and that covering Book IV, is confirmed by Thorndike's report on the Oxford manuscripts. According to Thorndike, in ms. 93, Balliol Coll., the fourth book comes first (96ra–107ra), before Books I–III (108ra–148va), so that the ending of Book III "Expliciunt questiones super tres libros

[27] H. Hugonnard–Roche, *L'Œuvre astronomique de Thémon Juif*, 11–23.

[28] *L'Œuvre astronomique de Thémon Juif*, 39. Themon mentions several times the geography of Paris.

[29] A. Birkenmajer, *Études*, 238.

metheororum secundum Scotum doctorem subtilem" only applies to the first work (Books I–III).[30] Ms. 80, Magdalen Coll. also separates the two texts, but conjectures that Book IV could be by the same Scotulus.

II. Doctrinal commentary.
Utrum de meteorologicis sit scientia

As Thorndike and Kibre have noticed, any collection of questions on *Meteorologica* is susceptible of beginning with the question "Utrum de impressionibus meteoricis sit scientia (tanquam de subjecto)".[31] Buridan, Oresme, Themon, Albert of Saxony, and Pseudo-Scotus make no exception. This kind of question sprung from thirteenth-century discussions on the scientific character of theology and is common as an introduction to a particular science.[32] The material covers the scope of meteorology, its subject matter as distinct from that of other natural philosophical disciplines, and its status as an Aristotelian demonstrative *scientia*. The exposition usually concludes with remarks on the probable character of meteorology, owing to the instability of meteorological bodies: meteorology is a science that, although it strives for the ideal of an Aristotelian demonstrative science, can only attain it partially.

Fourteenth-century texts usually mention in this context the much-debated issue of the object of scientific knowledge developed on both sides of the English Channel from the 1320s onwards. The main rival epistemological theories concerning the object of science are known: is the object the *conclusion* of a syllogism, is it the *thing* in itself, or is it the *total significate* of the conclusive proposition (*significabile complexe*)? In spite of having received considerable attention from scholars, there is still much ground to be covered in this dossier. The transmission of ideas from Oxford to Paris

[30] "More Questions on the Meteorologica," *Isis* 46 (1955):360.

[31] L. Thorndike, P. Kibre, *A Catalogue of Incipits of Medieval Scientific Writings in Latin* (London: The Medieval Academy of America, 1963), 1640.

[32] See the classical study of M.-D. Chenu, *La théologie comme science au XIII^e siècle* (Paris: Vrin, 1943).

remains little known and there are many unanswered questions concerning the paternity of particular arguments and their circulation from one master to another. Much of the results in tracing filiations remain provisional, waiting for advancements from textual criticism and history. With this caveat noted, the presentation of Pseudo-Scotus's treatment of the object of meteorology will allow us to shed more light on what we believe to be the common opinion held in Paris in the second half of the century, a position developed as a result of the rejection of Gregory of Rimini's notion of the adequate significate of a proposition (*significabile complexe*). The Parisian masters, from Buridan to Pseudo-Scotus, Themon and up to Marsilius of Inghen, maintain the following view: the *conclusion* of the demonstration is the immediate object of scientific knowledge, the *terms* of the conclusion are the remote object, and the *things* signified by those terms are the final, but most important, object. I take this opinion to be a development of Ockham, mediated by Buridan. Thus Pseudo-Scotus, who presents, often in an abbreviated form, the main of the arguments of this debate, is a valuable witness of the development of Parisian nominalism.

Meteorology as an Aristotelian *scientia*

The answer to the literal question, "is there a [proper, Aristotelian] science of the meteors," is far from mysterious and all authors will arrive at a positive conclusion. The question had its tradition in the Paris curriculum before the import of the views on the object of scientific knowledge from Oxford. Siger of Brabant's discussion from the thirteenth century ("utrum de impressionibus possit esse scientia") offers a summary of the material inherited by fourteenth-century authors. Siger argued from a strictly Aristotelian perspective: the subject of meteorology is universal, incorruptible, real and not artificial. Most importantly, meteors have properties (*passiones*), and something that has properties can be scientifically investigated by deriving those properties from known principles. Therefore a science of meteorological phenomena is possible,

answered Siger, even though these phenomena are ephemeral and most of the time lack present existence.[33]

Pseudo-Scotus recites the same view:

> Prima [conclusio] est, quod de impressionibus Meteoricis est scientia, tanquam de obiectis. Probatur, quia tales impressiones habent causas determinatas, proprias passiones, et principia, per quae istae passiones possunt de iis demonstrari.[34]

This is one side of the answer that will endure through the fourteenth-century literature: meteorology is an Aristotelian demonstrative science as established in the *Posterior Analytics*. It does not come without arguing. A first series of *contra* arguments, seeking to show the epistemological weakness of meteorology, revolve around probability and certitude.

(1) It is claimed that one can only arrive at insecure notions or at mere opinions regarding the meteors ("notitia cum formidine ad oppositum" is the technical term, a notion with fear that the opposite may also be true).[35] The limits of meteorology as a demonstrative science from a priori principles are usually admitted here. Pseudo-Scotus will concede that about certain meteors, such as the comets and the Milky Way, we can only have opinions, and not *scientia*. But, he adds, there are only a very limited number of such phenomena; about most meteors "we have true notions"—although we can't attain in natural science the kind of certitude we can have in mathematics or optics (one can invoke for support here a famous passage from Aristotle, *Met*. —, 3, 995a

[33] Siger's questions on meteorology are unedited, but F. Van Steenberghen, *Siger de Brabant d'après ses oeuvres inédites*, 2 vols. (Louvain: Éditions de l'Institut supérieur de philosophie, 1931–1942), vol. I, 233, provides a summary of the solution.

[34] Pseudo-Scotus, *In I Meteor*., q. 1, 8, ed. Wadding, p. 7a.

[35] Idem, p. 3a: "Arguitur quod non, quia de impressionibus solum habetur notitia cum formidine ad oppositum; ergo, etc." See also Themon, *In I Meteor*., q. 1 (ed. 1522), p. 87a: "Queritur primo utrum de impressionibus meteorologicis sit scientia. Et arguitur primo quod non, quia de omnibus impressionibus est solum vaticinium coniectura et divinatio vel opinio: ergo de illibus non est scientia. Consequentia patet, quia scientia est habitus certus omnibus demonstrate sine formidine."

14–16).[36] Themon is even more pessimistic on this point, considering that Aristotle's *Meteorologica* books are an aggregate of a few proper demonstrations amidst many opinions and conjectures.[37]

(2) Interestingly though, the probabilism attested by the previous argument is counter-balanced by another *contra* argument. Meteorology depends heavily on empirical observations; the experience of the senses that testify of meteorological phenomena is far more secure than any scientific notion we can have, given the infirmity of our intellect in our current state. The generally shared principle invoked is *experientia sensus est notita dignior quam scientia*. But Aristotelian science does not consist solely of pure observations. Pseudo-Scotus answers that empiricism, on its own, does not yield an Aristotelian science, which consists instead in the interpretation of the experiences gathered. We are to add a "scientific notion" to the experience of the senses, by searching for the proper causes of those experiences, as Aristotle teaches.[38]

Another series of *contra* arguments is drawn from the specific character of the material that meteorology deals with. (3) The ephemeral status of the meteors, already encountered in Siger, suggests that there can be no knowledge of things that are not present when the knowledge is acquired—e.g., lightning, thunder, or the rainbow. About these, Pseudo-Scotus holds that we will have a "provisional science" (*scientia conditionalis*) that remains to be verified, and not a proper affirmative demonstrative science.[39] (4) A

[36] *In I Meteor*, q, 1, 8, p. 8a: "[...] concedo quod quantum ad aliqua, quae demonstrantur in ista scientia, solum habetur notitia cum formidine ad oppositum, sicut de Cometis, Galaxia; sed de aliis vera habetur notitia, et conclusio ad tertium librum licet non habeatur notitia ita certa, sicut in Mathematica et perspectiva."

[37] Themon, *Questiones*..., op. cit., (ed. 1522), p. 87c.

[38] *In I Meteor*, q, 1, 8, p. 8a: "Nam quantum ad quod est hujusmodi impressionum habemus experientiam sensus, et scientifice inquirimus causas ipsarum."

[39] *In I Meteor*, q, 1, 8, p. 8a: "Ad quartam [quia hujusmodi impressiones, ut in presentibus non sunt, sicut patet de tonitru, fulmine, iride, et hujusmodi], dico quod quaecumque non sunt hujusmodi impressiones, de iis est solum scientia conditionalis, et non categorica affirmativa demonstratio."

classical argument is taken from the inordinate character of meteorological phenomena, to which Pseudo-Scotus will devote a long separate question: meteors appear to arise from violent motions, they are produced against nature and they are impossible to predict.[40] Buridan and Themon give a variation of this argument: meteorological phenomena happen *a casu vel a fortuna*, whereas science is about necessary phenomena (*scientia est de necessariis*).[41] Pseudo-Scotus insists on the causal order of production, which is necessary for any science looking for the causes of phenomena: if the order is changed, the science acquired on the basis of the old order of phenomena will be falsified (*mutato ordine, mutabitur, sive falsificatur scientia*). The answer returns to the mixed character of meteorology: some meteors are generated violently (e.g., thunder strike is not part of the natural inclination of fire), while some are generated naturally (rain drops arise because of gravity, a natural inclination of water). But all meteors, even the violently generated ones, are part of the general order of creation, just like any other body of the universe, even though their motions are more difficult to discern than the motion of celestial bodies. There is less order in the meteors, but less order does not mean no order at all.[42]

The nominalist challenge

To this predictable set of arguments, Pseudo-Scotus adds a new problematic drawn from the Ockhamist tradition. The basis for considering meteorology an Aristotelian demonstrative science being laid, we are now faced with epistemological issues that apply to all sciences. It is said by others, reports Pseudo-Scotus, that the meteors cannot make the object of

[40] Idem, q. 2, "An impressiones Meteoricae fiant per naturam inordinatiorem ea natura, quae est propria elementorum?"

[41] Buridan, *In 1 Meteor*., q. 1, 1, ed. Bages, p. 3: "Item de causalibus et fortuitis non est scientia, 2o Physicorum [*Physics*, II, 5]. Hec autem sunt casualia et fortuita quia extra semper et frequenter, ut tonitrua, fulmina, motus terre, stelle comate, ergo." Themon, ibidem, p. 87a: "Impressiones fiunt a casu vel a fortuna [...] consequentia tenet: quia scientia est de necessariis quod non possunt aliter se habere: sed casualia et fortuita possunt aliter se habere."

[42] Pseudo-Scotus, *In I Meteor.,* q. 2, pp. 8b–13a.

science because they are things outside of the mind (*res extra animam*). We recognize the basis of this objection in the Ockhamist notion that science deals with mental discourse. The reason why things outside of the mind cannot be the subject of proper science is that in this way, one and the same thing can become the object of science, belief and opinion at the same time (*eadem ratione*, *simil*): for instance, about God we can know that He exists and at the same time doubt that He is one and believe that He is trine:

> Sexto, quia si res extra animam esset objectum scientiae, eadem ratione esset credulitatis, quia idem videtur judicium de utroque. Consequens est falsum, nam tunc idem simul et semel posset sciri, opinari et credi; et ita posset de eodem error esse et ignorantia. Sicut, verbi gratia, de Deo possumus scire ipsum esse, et dubitare ipsum esse unum, et credere ipsum esse trinum.[43]

This argument had been made by Gregory of Rimini in the *Prologus* of his *Sentences* on behalf of Ockham's position:

> Secundo, si res esset obiectum scientiae totale, ut nunc de obiecto loquimur, eadem ratione res extra esset obiectum opinionis et fidei et erroris, et per consequens contingeret quod idem homo idem sciret et opinaretur et crederet et etiam ignoraret ignorantia dispositionis quae error nominatur; quae omnia sunt absurda. Patet consequentia, nam contingit eundem scire quod deus est aeternus, opinari quod solus et immediate moveat coelum, credere quod sit trinus in personis, errare putans quod sit in vigore finitus.[44]

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[43] Ibid., q. 1, 1, pp. 3b–4a.

[44] Gregory of Rimini, *In I Sent*., prol., q. 1, in *Lectura super primum et secundum Sententiarum*, vol. I, ed. by A. D. Trapp and V. Marcolino (Berlin, New York: Walter de Gruyter, 1981), 7. See also, for the origins of the argument, M. Grabmann, "De quaestione 'utrum aliquid possit esse simul creditum et scitum' inter scholas augustinismi et aristotelico-thomismi medii aevi agitata," in *Acta hebdomadae augustinianae-thomisticae* (Turin, Rome: Marietti, 1931), 110–139.

The argument is meant to show that the distinction between the intellectual acts of scientific knowledge, faith and opinion needs a distinction between their objects. The claim is not that the singular thing is not the object of science, faith and opinion, taken separately, but that *something more* besides the singular thing of the world must be posited in order to distinguish these intellectual acts.

We are now inside the vaster nominalist problematic on what is the proper object attained by scientific knowledge. The different theories on this matter are usually mentioned at this point in the corresponding texts of the other Parisian masters mentioned in this essay, but Pseudo-Scotus's treatment is by far the most extended and thorough. He reports on the main arguments developed before him, discusses Gregory's theory of a *significabile complexe* as the object of science, and lays down his own view. Buridan, for instance, does not mention the theory of the *significabile complexe* in this place, while his critique of Gregory on this point is well known from other places in his corpus.[45] Buridan goes straight to the solution, without arguing: that there are three objects of science, the demonstrated conclusion, the terms that compose the conclusive sentence and the things signified by the terms.[46] Themon, for his part, argues briefly that just as the sensible things are the ultimate object of sensation, so the things outside of the mind are the ultimate object of scientific knowledge, on the basis of the principle *sicut in sensu, ita et in intellectu*.[47]

Let us briefly recall here the main traits of the epistemological debate on which Pseudo-Scotus takes position. This

[45] On Buridan's refutation of Gregory, see J. Biard, "Les controverses sur l'objet du savoir et les "complexe significabilia" à Paris au XIV^e^ siècle," in S. Caroti, J. Celeyrette, eds., *Quia inter doctores est magna dissensio. Les débats de philosophie naturelle à Paris au XIV^e^ siècle* (Florence: Olschki, 2004), 1–31.

[46] Buridan, *In I Meteor*., q. 1 (ed. Bages, p. 5).

[47] Themon, *In I Meteor*., q. 1 (ed. 1522, p. 87): "Prima conclusio: quod impressiones meteorologice sunt obiectum ultimatum notitie scientifice que est de ipsis. Probat, quia res sensibiles sunt obiectum ultimatum sensitivarum notitiarum et non species sensibiles nec complexe signifiabile nec aliquid aliud [...] sicut in sensu, ita et in intellectu."

discussion has been brought to scholarly attention by Hubert Élie's pioneering study on Gregory's notion of the *complexe significabile* (1936).[48] Our historical representation of it has suffered a number of revisions since then, the most important of which is the attribution of the theory to Adam Wodeham rather than Gregory, by Gedeon Gál (1977).[49] As far as historians of medieval logic are concerned, the problem of the object of scientific knowledge is a question of the bearer of truth and falsity (is it the proposition which carries that function, is it the *res extra*, or is it the total significate of the proposition, the *significabile complexe*?).[50] The discussion is initially developed in the theological literature over the *Sentences*, where it was important to determine the differences between the subject of science and that of faith, in order to clarify the distinction between the two disciplines ("Utrum theologia sit scientia una de Deo tamquam de subjecto").[51]

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[48] H. Élie, *Le complexe signifiable* (Paris: Vrin, 1936), reedited as *Le Signifiable par complexe. La proposition et son objet. Grégoire de Rimini, Meinong, Russell* (Paris: Vrin, 2000).

[49] G. Gál, "Adam of Wodeham's question on the 'complexe significabile'as the immediate object of scientific knowledge," *Franciscan Studies* 37 (1977): 66–102. Among the bibliography devoted to the subject: P. Vignaux, "La problématique du nominalisme médiéval peut-elle éclairer des problèmes philosophiques actuels?" *Revue philosophique de Louvain* 75 (1977): 293–331, puts the notion into perspective, as does A. de Libera, *La référence vide. Théories de la proposition* (Paris: PUF, 2002); G. Nuchelmans, *Theories of the proposition. Ancient and medieval conceptions of the bearers of truth and falsity* (Amsterdam, London: North-Holland, 1973) discusses the panorama of views; E. J. Ashworth, "Theories of the proposition: some early sixteenth century discussions" *Franciscan Studies* 38 (1978): 81–121, reprinted in *Studies in post-medieval semantics* (London: Variorum, 1985), presents the aftermath in the sixteenth century; texts belonging to this discussion are gathered in D. Perler, *Satztheorien: Texte zur Sprachphilosophie und Wissenschaftstheorie im 14. Jahrhundert* (Darmstadt : Wissenschaftliche Buchgesellschaft, 1990); J. Biard, "Les controverses sur l'objet du savoir," op. cit., offers a good summary.

[50] According to E.J. Ashworth, "Theorie of the Propositions: Some Early Sixteenth Century Discussions," op. cit., there is a cluster of three questions at stake: the question over the object of scientific knowledge, the question over the bearer of truth and falsity, and the question over what is the significate of a proposition. One answer should satisfy all three.

[51] There are more precise theological roots of the discussion, some of which are discussed by Nuchelmans, *Theories of the proposition*, 177–194 (on theological arguments leading up to Ockham and Holkot's *complexum*

But soon enough, the epistemological question invades all disciplines: logic, physics, metaphysics, and, as we have seen, even meteorology. In doing so, it carries along with it the cognitive discussion over the relationship between the intellectual act of knowing, the object of knowledge and the real objects of the world specific to fourteenth century nominalism, and measures it against the requirements of an Aristotelian demonstrative science codified by the *Posterior Analytics*. Thus an answer to this question aims at securing, ultimately, the inherited notion of *scientia*: how can we attain a science of necessary and unchanging things by grasping only a limited number of particular things—or not even those, but merely their signs?[52] Briefly put, in terms of a long durational historiography, the challenge facing the Parisians was how to maintain the Aristotelian understanding of science after the Ockhamist linguistic turn.

The beginnings of this discussion are situated in late 1320s–early 1330s Oxford, in the debates surrounding Ockham's epistemology. The question is still "what is the subject of this science (*tanquam de subjecto*)?" The thirteenth-century vocabulary distinguished between the *esse subjectivum* of the *res* in itself and the *esse objectivum* of the *res* in/as an object of the mind. The *subject* of a science is the material it deals with (e.g., the mobile body, the imperfect mixtures, the meteors; for the Ockhamist, this will be the term that has the function of grammatical subject in the sentence that concludes the demonstration). The *object* of a science is that in which the intellectual act of knowing terminates, in the sense in which we speak of objects of the senses as that which the senses touch.[53] Although there is a fluctuation of the terms *subjectum* and *objectum scientiae* in the literature and they are often used indiscriminately, it is the object that we are looking in this questions, that which terminates the

theory). For the Franciscan context, see O. Bychkov, "The Nature of Theology in Duns Scotus and his Franciscan Predecessors," *Franciscan Studies* 66 (2008): 5–62.

[52] Élie asks, op. cit., 15: "Le *Venerabilis Inceptor* se doutait-il qu'il allumait ainsi un incendie qui allait durer jusqu'à la fin du moyen âge?"

[53] See L. Dewan, "*Obiectum*: Notes on the Invention of a Word," *Archives d'Histoire Doctrinale et Littéraire du Moyen Âge* 48 (1981): 37-96.

act of knowing (*illud quod scitur*). For Ockham, the *immediate* object of science is the propositional content at which it arrives, that is, the *conclusions* of the scientific demonstrations. A conclusion is a proposition, called a *complexum* or *complexum mentale*; it is complex because it is composed of simple terms; it is also mental because it is independent of its vocal utterance.[54] Against this Ockhamist position, his critic Walter Chatton raised an important and far-reaching objection: knowledge and faith had better attain the things in themselves, not some mental construct; faith in God should aim at God, not at a proposition. Chatton thus held, against Ockham, that both the act of knowing and the act of assenting have the things outside of the mind as their object, and not the "complex signification of the thing outside of the mind." Chatton's critique of Ockham became known in Paris probably through Adam Wodeham and Gregory of Rimini.[55]

The initial Oxford debate was thus whether the object of science is the *res extra* or the *signa*, the *res significata* or the *complexum significationis*. We recognize here the question

[54] See Ockham, *In I Sent*., prol., q. 9 in *Opera theologica* (Saint Bonaventure, NY: The Franciscan Institute, 1967), vol. I, 266 and *Expositio in lib. phys. Aristotelis*, prol., §3 in *Opera philosophica* (Saint Bonaventure, NY: The Franciscan Institute, 1985), vol. IV, 9: "Nam obiectum scientiae est tota propositio nota, subiectum est pars illius propositionis, scilicet terminus subiectus. Sicut scientiae qua scio quod omnis homo est susceptibilis disciplinae, obiectum est tota propositio, sed subiectum est iste terminus 'homo'." It would be tedious to send the reader to the numerous commentators of this view; for Ockham's conception of science, I rely mostly on R. Guelluy, *Philosophie et théologie chez Guillaume d'Ockham* (Louvain, Paris: Nauwelaerts, Vrin, 1947), still valid, who comments closely on the Prologue of the *Ordinatio*; for his epistemology, on C. Michon, *Nominalisme: La théorie de la signification d'Occam* (Paris: J. Vrin, 1994) and C. Panaccio, *Le discours intérieur: de Platon à Guillaume d'Ockham* (Paris: Seuil, 1999); Ockham's evolution on the issue of the ontological status of mental concepts does not concern the present discussion.

[55] I only summarize the main points of the more developed Oxford discussion; see G. Nuchelmans, *Theories of the proposition*, 195–225; K. Tachau, "Wodeham, Crathorn and Holcot: The development of the *complexe significabile*," in L.M. de Rijk, H.A.G. Braakhuis, eds., *Logos and Pragma. Essays in honour of Professor Gabriel Nuchelmans* (Nijmegen, 1987), 161–187; K. Tachau, *Vision and Certitude at the Age of Ockham* (Leiden: Brill, 1988), 202–208; J. Biard, "Les controverses sur l'objet du savoir," 2–8, for the Oxford debate between Ockham, Holkot, Chatton, Crathorn and Burley.

posed by Pseudo-Scotus on whether science attains the *res extra animam* mentioned earlier. Between these two alternatives, a third alternative was developed by Adam Wodeham and championed on the continent by Gregory of Rimini, who commented on the *Sentences* in 1343–1344.[56] Although Adam is now believed to have been the initiator of the theory, I will insist on Gregory, who was the primary source for the Parisian discussion and was followed closely by Pseudo-Scotus. The view put forward by Adam and Gregory is that the signification of a proposition is distinct from both the material sentence (i.e., from the terms that compose it) and from the things signified by the sentence. It is the *significatum totale* or *adaequatum* of the sentence that makes the object of scientific knowledge.[57] Assent cannot be given to the proposition alone, argued Gregory, against Ockham: it can only be given to the *fact* that the proposition is in agreement with the signified things as they are in the world. The total and adequate signification of the proposition "Deus est" is "Deum esse," the fact that God is. These total and adequate significations are true or false even if there is no sentence uttered to signify them (*Deum esse* does not cease to be true once the sentence has been said), and so they are called *significabiles* or *enuntiabiles*; they are also called *complex*, for they require

[56] See Adam's text edited by Gál "Adam of Wodeham's question on the 'complexe significabile'as the immediate object of scientific knowledge," op. cit.; now in the edition of Adam's *Lectura secunda in Librum primum Sententiarum*, R. Wood, G. Gál, eds., 3 vols. (Saint Bonaventure, NY: 1990), vol. I, 180–198. On Gregory, see G. Leff, *Gregory of Rimini. Tradition and innovation in XIVth-century thought* (Manchester: University Press, 1961); on his career, see V. Marcolino, "Der Augustinertheologe an der Universitaet Paris," in H. A. Oberman, ed., *Gregor von Rimini. Werk und wirkung bis zur Reformation* (Berlin: de Gruyter, 1981), 127–194; on his theory, see P. Bermon, *L'assentiment et son objet chez Grégoire de Rimini* (Paris: Vrin, 2007), who provides a recent and extended commentary. Cf. also M. Del Pra, "La teoria del "significato totale" della proposizione nel pensiero di Gregorio da Rimini," *Rivista critica di storia della filosofia* 11 (1956): 287–311 and V. Wendland, "Die Wissenschaftslehre Gregors von Rimini in der Diskussion," in *Gregor von Rimini. Werk und wirkung bis zur Reformation*, 242–300.

[57] Gregory, *In I Sent*. prol. q. 1, ed. Trapp–Marcolino, 12: "Nec conclusio demonstrationis, nec res aliqua est obiectum, sed significatum adaequatum conclusionis."

a sentence in order to be signified, a *complexum* of terms. In simple speech, the technical term *significabile complexe* stands for the significate of a proposition.[58]

Pseudo-Scotus inherits thus from this discussion three *viae*: according to one *via*, the subject of science is the known conclusion (this is labelled as the Ockhamist position by Gregory; but it is rather the Ockhamist position as critiqued by Chatton, or Holkot's position);[59] another *via* is that of the *significabile complexe* (Adam Wodeham and Gregory of Rimini); and a third *via* is that of the things signified through the terms of the known conclusions (Chatton's view).[60]

This is the *status questionis* on which an author was supposed to give his opinion. After exposing the arguments, mainly based on Gregory, Pseudo-Scotus arrives at what he takes to be a reconciliatory position—but one that, as we will see, is actually a development of the second view.Pseudo-Scotus seems to be very much aware of Gregory of Rimini's arguments: he uses his arguments when exposing the problem, but he argues nevertheless *against* Gregory's position, in the same camp with Buridan. Chronologically, Pseudo-Scotus should have had direct access to both these authors, but it is safer to assume that he was drawing from a common pool of known arguments. The fact that Pseudo-Scotus reports what appears to be an abbreviation of Gregory's arguments testifies to the deep influence that Gregory had in the Parisian milieu.

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[58] For the prehistory of these terms, see P. Bermon, *L'assentiment et son objet*, 117–125.

[59] See H. Schepers, "Holkot contra dicta Crathorn, II: Das 'significatum per propositionem'. Aufbau und Kritik einer nominalistischen Theorie ueber den Gegenstand des Wissens," *Philosophisches Jahrbuch* 79 (1972): 106–136 and Mario dal Pra, "La proposizione come oggetto della conoscenza nel pensiero di Roberto Holcot," in *Logica e realtà: momenti del pensiero medievale* (Bari: Laterza, 1974), 83–119.

[60] *In 1 Meteor*., q. 1, pp. 4–5: "In ista quaestione videbitur secundum viam triplicem, quid est subjectum scientiae [...] Est una via quae ponit subjectum scientiae est ipsa conclusio scita [...] Alia via est, quod objectum scientiae est significabile complexe per conclusionem scitam [...] Pro tertia via sit conclusio ista: Res significatae per terminos conclusionis scitae sunt objecta scientiae."

Refutation of the "Ockhamist" position

Whether conclusions are the object of scientific knowledge or not, it is argued for as follows.

(1) The first *via* argues that truth and falsity can only be applied to propositions, not to things in themselves. Things in themselves cannot be qualified as true or false; on the contrary, a demonstrative scientific conclusion can only be derived from true propositions. If science is about true things, on the basis of the principle *nihil scitur nisi verum*, then only propositions can be true.

The refutation provided attacks on the principle *nihil scitur nisi verum*: Pseudo-Scotus maintains that one can know things without qualifying them as true or false.[61] Gregory had made the same point on behalf of Ockham (via Adam, via Chatton).[62]

(2) A second argument claims directly that a general science of singular things is impossible. Science works with universal notions; the object of universal science can be a) a universal conclusion, q.e.d., b) a universal, but they do not exist, or c) the singular thing signified by the conclusion. Singular things however cannot make the object of universal notions: there is no reason to consider *this* particular triangle as the object of the universal notion of 'triangle' rather than *that* particular triangle. Once again, Pseudo-Scotus is drawing on Gregory.[63] Unlike Gregory though, who can oppose to this ar-

[61] *In 1 Meteor*., q. 1, 6, p. 6b: "Apertum est quod nihil scitur nisi verum, tanquam conclusio scita, tamen aliquid scitur verum, tanquam res significata per subiectum conclusionis scitae, quando tum neque est verum, nec falsum."

[62] Gregory, *In 1 Sent*. prol. q. 1, a. 1, p. 2: "Prima [ratio] est, quoniam nihil scitur nisi verum, sola autem propositio est vera, igitur sola propositio scitur, et nonnisi conclusio. Igitur, etc." See Ockham's treatment of this principle from *In I Sent*., d. 2, q. 4, *Opera theologica*, vol. II, 135–140.

[63] Pseudo-Scotus, *In 1 Meteor*., q. 1, 2, p. 4a: "Secundo, quia objectum scientiae universale vel est ipsa conclusio universalis, et habetur intentum; vel est ipsa res signata per terminos istius conclusionis, et tunc vel res universalis, et hoc non, cum nulla talis sit; vel res singularis, et hoc non, quia qua ratione una res singularis est objectum istius notitiae, eadem ratione alia, et per consequens nulla res est objectum istius." Gregory, *In 1 Sent*., prol., q. 1, a. 1, p. 2: "Secundo, obiectum scientiae demonstrationis universalis est conclusio illius demonstrationis, igitur et cuiuslibet scientiae

gument the theory of the *significabile complexe*, Pseudo-Scotus replies with a traditional view: the object of universal conclusions are indeed all singular things to which that conclusion applies, singular things of which the universal notion yields a *confused* concept. The universal concept of 'homo' is caused by a limited number of singular human, and yet through it we have a confused concept of all human beings in the world.[64]

(3) A third argument for the Ockhamist position is drawn from the knowledge of figments. The object of a known conclusion such as "The hircocervus is not a chimera" cannot be the thing outside of the mind signified by it, because it does not exist; therefore it has to be the proposition itself. The reification of imaginary objects such as chimeras is a position developed initially in Oxford but also taught in Paris, by Marsilius of Inghen for instance. According to this view, the complex concept of a hircocervus is not simply the juxtaposition of the simpler concept of a half-goat with the simpler concept of a half-stag, but something distinct from the two. This is not the view that Pseudo-Scotus follows: he opts for the alternative opinion, associated with Buridan and Albert of Saxony, according to which the object of a chimera is nothing more than the sum of the objects of its components. Only existing objects signify: there is no void reference.[65]

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per demonstrationem acquisitae obiectum est conclusio demonstrationis illius. Assumptum probatur, quia vel ipsa conclusio universalis est obiectum illius scientiae, et habetur propositum, vel res extra animam. Sed hoc esse non potest, quia nec res universalis, cum nulla sit huiusmodi, nec res singularis, quia non potius una quam alia significata per subiectum conclusionis [est obiectum]."

[64] *In 1 Meteor*., q. 1, 6, p. 6a: "Dico quod objectum conclusionis universalis est quaelibet res singularis significata per objectum istius conclusionis, quia quaelibet talis apprehenditur per conclusionem universalem, saltem conceptu confuso."

[65] *In 1 Meteor*., q. 1, 6, p. 6b: "Dico quod objectum istius [hircocervi] est caput Draconis, cauda Leonis, corpus Equi, vel sic de hujusmodi." See J. Biard, *Logique et théorie du signe au XIV^e^ siècle* (Paris: Vrin, 1989), 229–231; A. de Libera, *La référence vide*, 99–109, and E. J. Ashworth, "Chimeras and Imaginary Objects: A Study in Post-Medieval Theory of Signification," *Vivarium* 15 (1977): 55–79. See also J. Biard, "La signification d'objets imaginaires dans quelques textes anglais du XIV^e^ siècle," in P.O. Lewry, ed.,

(4) Another argument is drawn from the principle that assent necessarily follows a known true notion. This can lead an Ockhamist to think that the object of a known scientific notion and the object of assent are one and the same (*idem est id quod scimus et id cui assentimus*). If *id quod scimus=id cui assentimus*, we fall back on the previously mentioned case that propositions are the object of both, because only propositions can be true, and we assent to what is true. An objector needs therefore to deny the identification between the object of knowledge and the object of assent: we assent to propositions, but we know things.[66]

Two further arguments are laid down that attack the cognitive mechanism of a science of conclusions, both of them drawn from Gregory. (5) If the object of science were the conclusion, it would follow that one has a reflexive act accompanying one's act of knowing every time one knows something. However, such a reflexive act applied to what we know is very rare, and most of our scientific knowledge does not terminate in a reflection over what we have come to know, but in the things signified.[67] (6) Admitting that the conclusive sentence is the object of knowledge and is apprehended by the intellect, one asks: is this apprehension complex or simple (incomplex)? Scientific knowledge cannot be obtained solely from simple apprehensions of singulars, for science does not satisfy itself with pure empiricism: scientific knowledge joins evident principles or predetermined knowledge with simple apprehensions. We cannot be dealing with *complex apprehensions* either. A complex apprehension grasps a proposi-

The Rise of British Logic (Toronto: Pontifical Institute of Medieval Studies, 1983), 265–283, for the Oxford discussion.

[66] *In 1 Meteor*., q. 1, 6, p. 6b: "Negatur, quia illud scimus tanquam objectum scientiae, quod significatur per partes illius cui assentimus."

[67] *In 1 Meteor*., q. 1, 3, p. 4b: "Contra istam opinionem opponitur, quia si conclusio esset objectum scientiae habitae per conclusionem, sequeretur quod quilibet actu sciens haberet actu cognoscendi conclusionem. Consequens falsum, quia nunquam, vel raro habemus actum reflexum super nostram cognitionem, quamvis saepe cognoscamus." Cf. Gregory, *In 1 Sent*. prol. q. 1, a. 1, p. 4: "Nam plerumque, immo quasi semper contingit quod demonstrans, quamvis formet conclusionem, non tamen actu reflectitur super illam apprehendendo ipsam, sed directe figit suum aspectum in id, quod ipsa significat."

tion together with its relationship to the signified things, and judges their conformity to one another. That means that the complex apprehension intrinsically bears a truth value (*apprehensio judiciaria* is Gregory's term). That would automatically make the conclusion true, which is more than we want: we know in fact many conclusions without knowing their conformity with things, such as the conclusions of geometrical demonstrations.[68]

The *significabile complexe* and the eternal truths

The second way reported by Pseudo-Scotus argues that the object of the proposition "Man is able to laugh" (*Homo est risibilis*) is neither man, nor laughter, but the state of affairs of "man being able to laugh" (*Hominem esse risibilem*). This is Gregory's position. The main argument for the *significabile complexe* relies on the already encountered analogy between sensorial knowledge and scientific knowledge: when I feel hot fire, through this experience I know not only fire and not only hotness, but I know the fact that fire is hot (*ignem esse calidum*).[69] The knowledge of the centre of the circle to which

[68] *In 1 Meteor*., q. 1, 3, p. 4b: "Secundo, si conclusio esset objectum, tunc conclusio apprehenderetur ab intellectu, et tunc quaeratur, utrum apprehensione incomplexa, vel complexa? non incomplexa, quia talis non est scientia, cum sit acquiribile ab intelletu de quocumque complexo, vel incomplexo. Modo scientia non acquiritur sine evidentia alicujus principii, vel experientiae, praedeterminante intellectum. Non complexa, quia maxime esset talis conclusio vera: sed illud est falsum, quia multoties scimus, et cognoscimus per conclusiones, cum non consideramus de veritate, vel de falsitate earum." Gregory, *In 1 Sent*., prol. q. 1, pp. 4–5, renders Pseudo-Scotus's last claim intelligible: "Si dicatur quod conclusio apprehenditur apprehensione iudiciaria et enuntiativa, hoc erit, ut videtur, apprehensio, qua cognoscitur ipsa conclusio esse conformis rei seu esse vera, nam nulla alia videtur esse ad propositum; sed certum est quod non quilibet demonstrans habet talem notitiam de sua conclusione. Unde nec geometra demonstrans latera trianguli descripti secundum doctrinam primae conclusionis Primi Euclidis esse aequalia considerat vel apprehendit quod conclusio, quia enuntiat illa esse aequalia, est vera." See also the same argument made by Marsilius of Inghen, *In 1 Sent*. q. 2, a. 3, in *Quaestiones super quattuor libros "Sententiarum,"* ed. M. S. Noya (Leiden: Brill, 2000), vol. I, 79.

[69] *In 1 Meteor*., q. 1, 4, p. 5a: "Alia via est, quod objectum scientiae est significabile complexe, per conclusionem scitam, sicut objectum istius, *Homo est risibilis*, est, hominem esse risibilem, quod probatur, quia objec-

the geometer arrives is the same knowledge that a quarryman has; and yet this quarryman does not have knowledge neither of the geometrical proposition that signifies the centre of the circle, nor of the circle in itself: he only knows the situation of the centre of the circle.

Against the *significabile complexe*, the arguments mobilise the ontological question of whether it is something distinct from the signified thing or not. An Aristotelian principle is invoked in order to certify that "to be the same" (*esse ipsum*) and "the same" (*ipsum*) are identical (*Metaph*. 1017a 27–30 and 1029b 13–15): Deum esse=Deus.[70] If indeed the complex signifiable were something distinct from God, it would follow that it is a co-eternal thing, not created by God and therefore independent from God and not submitted to His will and power. God cannot destroy the signifiable "Deum esse," for it would destroy himself.[71]

This argument from the co-eternal and independent truths became the main tool used by the Parisians against Gregory. Marsilius of Inghen has a more elaborate version of it, which can explain its force. The question Marsilius asks is: "utrum 'Deus esse' est aliquid vel pure nihil." If it is *nothing*, "as master Gregory says," there can be no science of things, and the object of science would be a pure non-being, which

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tum notitiae habitae per experientiam est tale significabile complexe; igitur est cujuslibet alterius notitiae. Consequentia tenet, quia ubique videtur judicium idem esse. Et antecedens patet, quia si sentiam ignem esse calidum, per istam experientiam non solum cognosco ignem, nec solum caliditatem, sed cognosco ignem esse calidum."

[70] *In 1 Meteor*. q. 1, 4, p. 5a: "Contra istam viam arguitur, primo, quia vel tale significabile complexe est res distincta a re significata, vel non. Si sic, contra, primo per Aristotelem 5. Metaphysic. ubi dicit quod in dictis secundum se, idem est esse ipsum, et ipsum, sicut idem est esse Deum, et Deus." Cf. Marsilius, *In 1 Sent*., q. 2, ed. Noya, pp. 81–82: "Et ergo tenendo suppositionem est prima propositio haec contra hanc opinionem: 'Deum esse est Deus.' Probatur primo sic auctoriate Philosophi 7 Metaphysicae dicentis: 'In dictis secundum se est idem ipsum et esse ipsum.' Sed manifestum est quod de Deo dicitur esse secundum se; igitur esse Deum est Deus vel Deum esse est Deus."

[71] *In 1 Meteor*. q. 1, 4, p. 5a: "Secundo, quod si esset tale distinctum, sequeretur quod est aliquod ens coaeternum cum Deo, quod Deus, nec posset augmentare, nec diminuere, nec annullare, dato quod Deus esset infiniti vigoris, sicut concedimus ipsum esse."

sounds upsetting to the scientist. If the proposition "Deum esse" is *something* though, distinct from God, it follows that we must concede two original principles (*duo prima*), which sounds upsetting to both philosophers and Catholics. To explain this last consequence: the fact that God is the first incomplex thing needs no comment; in addition, there seems to be an order between the signifiables too, for "man having a rational soul" seems to be prior to "man being able to be educated," such that one can be said to be the cause, and the other, the effect; we are now in a causal chain of *significabilia*: we must look for the first cause or an original *singnificabile*, since there can be no infinite causal regress; it cannot be God, for God is simple; it cannot be dependent on God (*non sit a Deo*), for then God could destroy the signifiable "Deum esse" and still be, i.e. it would still conserve its significance "God is" (a paradoxical formulation of the argument made by Pseudo-Scotus that, if the signifiables were independent of God, than God could not destroy "Deum esse"); the original signifiable must therefore be an original complex independent thing. Thus we arrive again at the upsetting conclusion of having two original principles: "Deum esse" is a truth independent from God and as equally necessary as God.[72]

The idea that co-eternal truth exists alongside God is circulated in Paris on lists of articles condemned under the title "quod multae fuerunt veritates ab aeterno quod non erant Deus." This condemned article was signalled by Hubert Élie as part of a presupposed theological condemnation of 1340, not to be found.[73] Surprisingly, Alain de Libera has retraced the article back to the Parisian condemnation of January 1241 initiated by William of Auvergne against the "other" nominalists, the twelfth-century logicians.[74] It is a rare and interesting connection between the two currents. It is clear that this thesis preoccupied logicians at least since Philip the

[72] Marsilius, *In 1 Sent*., q. 2, ed. Noya, 83–84.

[73] Élie, *Le complexe significabile*, 72.

[74] A. de Libera, *La référence vide*, 177–187 ("D'une condamnation fantôme : la pseudo-censure parisienne de 1340"). *Chartularium Universitatis Parisiensis*, ed. H. Denifle and É. Chatelain, vol. I (Paris: Delalain, 1889), 170.

Chancellor's *Summa de bono*, who argues against it in his treatment of the transcendental truth.[75]

The eternal truths argument is revived against Gregory's *complexe significabile* by Buridan, Pseudo-Scotus, Marsilius, Pierre d'Ailly, Paul of Venice up until the sixteenth century.[76] But it is quite an unfair case to make. Marsilius's question, "utrum 'Deum esse' est aliquid vel pure nihil," intentionally ignores Gregory's discussion of the three senses of being for which he is best remembered. Gregory had laid down this theory of the three senses of being precisely as a pre-emptive defence against this kind of ontologization of the *significabile complexe*. *Aliquid, res* or *ens*, as synonymous terms, are said in three ways according to Gregory: "in a first sense, very generally (*communissime*), any signifiable, complex or incomplex, true or false, is said to be [or: is called] a thing or something"; "in a second sense, these terms are used for any signifiable, complex or even incomplex, but true, that is, by means of a true expression"; "in a third sense, these terms are understood as signifying an essence or an existing entity."[77] The first sense of "something" is a general sense indifferent both truth/falsity and to existence; the second sense is indifferent only to existence, not to truth or falsity; and

[75] See H. Pouillon, "Le premier traité des propriétés transcendantales. La «Summa de bono» du Chancelier Philippe," *Revue néo-scolastique de philosophie* 61 (1939): 40–77. For William of Auvergne, see N. Lewis, "William of Auvergne's Account of the Enuntiable: its Relations to Nominalism and the Doctrine of the Eternal Truths," *Vivarium* 33 (1995): 113–136.

[76] See A. de Libera, *La référence vide*, loc. cit. and E.J. Ashworth, "Theories of the proposition," op. cit.

[77] Gregory, *In 1 Sent.*, prol., q. 1, pp. 8–9: "Ad primum dicendum quod hoc nomen 'aliquid' sicut et ista alia sibi synonyma 'res' et 'ens' possunt accipi tripliciter: uno modo communissime secundum quod omne significabile incomplexe vel complexe, et hoc vere vel false dicitur res et aliquid [...] Alio modo sumuntur pro omni significabili complexe vel etiam incomplexe, sed vere, id est per veram enuntiationem; quod autem false, tantum dicitur non ens. [...] Tertio modo sumuntur ista ut significant aliquam essentiam seu entitatem existentem [...] Nunc ad argumentum, cum quaeritur, utrum illud totale significatum sit aliquid vel nihil, dico quod, si 'aliquid' sumatur primo vel secundo modo, est aliquid; si vero tertio modo sumatur, non est aliquid. Unde hominem esse animal non est aliquid, sed est hominem esse substantiam animatam, sensibilem, rationalem; nec hominem esse risibilem est aliquid, sed est hominem posse ridere."

the third sense is indifferent to neither: it must be both true and existent. The purpose of Gregory's distinction is to separate the third sense of "something," that of an existent being in the world, from the other two senses of "something," that are said without regard to whether they exist or not. The total significate of the proposition can be said to be *something* (*aliquid*, *res* or *ens*) only in the first and second sense, but not in the third sense: it is not an existent being in the world. In Gregory's terms, it is a non-existent being, but is not "nothing".[78] Granted, this can give way to paradoxical readings, and Marsilius famously complains about the non-intelligibility of something that is not a substance, nor an accident, nor nothing.[79] Nevertheless, Gregory's intention to exclude a reading of the signifiables as existing entities in the outside world is clear. Gregory's critics, by making the argument that the signifiables co-exist alongside God, understand them in the third sense: they co-exist in the same sense in which God exists, something that Gregory denies explicitly.[80]

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[78] Idem, p. 9: "[...] Sed ulteriorem consequentiam nego, qua dicitur "igitur scientia nullum habet obiectum", nam habet obiectum, quod non est ens."

[79] Marsilius, *In 1 Sent*., q. 2; ed. Noya, p. 81: "Hic modus de significabilibus complexis distinctus a rebus incomplexis vel est adeo subtilis quod imaginationem communium excedit et praesertim meam, vel fortassis est ex ignorantia logicae introductus." To grasp the distinction that Gregory makes between the third sense of being and the first two, Alain de Libera has proposed to think of it in terms of a distinction between "being eternally," which the signifiables are not, in spite of the critique mounted against them, and "being true eternally", which the signifiables are, as contingent truths dependent upon God's understanding (*La référence vide*, pp. 219–221; see also Gregory in *In 1 Sent.*, d. 38, q. 2, ed. Trapp-Marcolino, vol. 3, 304).

[80] In this sense, Pascale Bermon argues, against Élie and Nuchelman's reading, that, because the signfiables are not an existing entity, Gregory is not a "conceptual realist," a forerunner of the twentieth-century ontology of the object (*L'assentiment et son objet*, pp. 181–184); she rightfully points out that in denying an 'existing entity' to the *significabile complexe*, Gregory acts as a perfect nominalist. Alain de Libera reexamines the connections between Gregory and twentieth century philosophy in *La référence vide*. André de Muralt sees in Gregory's theory a development of the Scotist notion of objective being (*L'enjeu de la philosophie médiévale* [Leiden: Brill, 1993], 128).

The third way: direct realism

Following Pseudo-Scotus's exposition, we are left with a third solution to the problem of the object of science: the *res extra* itself. The idea that external things are the objects of scientific knowledge is supported through the analogy with sensation: just as the object of vision is not the species, which moves the sense of sight immediately, but the external thing which causes the species, so the object of *scientia* is not the conclusion, which is directly known, but the external thing that it signifies.[81] Pseudo-Scotus applies this example to meteorology: when we know that the rainbow is caused by the refraction of the rays of light, this cognition does not end neither in the conclusion that the rainbow is caused by the refraction of the rays of light, nor in the signifiable of the conclusion, but in the rainbow itself, out of which the cognition of this conclusion is ultimately derived.

The threefold object solution

The thesis adhered to holds that science has a threefold object: the known conclusion is the immediate object; the "notitia incomplexa terminorum," the terms of the proposition constitute the "more mediated" object; the things outside of the mind are the ultimate object of science, in which the notions of the terms terminate and out of which the conclusions are ultimately derived. Pseudo-Scotus claims to present a synthesis of the three positions (*concordando istas opiniones*). This is misleading. It is *not* a synthesis of the three ways, because what he presents as the agreement omits the *significabile complexe*, replacing it with the terms of the proposition. Although he uses the term "significabile per conclusionem," which may suggest the *significabile complexe*, he then explains it as "the incomplex notion of the terms":

[81] Pseudo-Scotus, *In 1 Meteor*., q. 1, 5, p. 5b: "Pro tertia via sit conclusio ista: Res significatae per terminos conclusionis scitae, sunt objecta scientiae. [...] Istud apparet in exemplo, nam objectum sensationis, sicut visionis, non dicitur species, quae immediatae movet visum; sed objectum dicitur res ad extra, sicut paries, vel aliquod hujusmodi, a quo causatur ista species."

> Sciendum tamen, concordando istas opiniones, quod quidlibet istorum potest dici obiectum scientiae, scilicet tam conclusio scita, quam significabile per conclusionem, quam etiam res significata per ipsum. Unde conclusio potest dici obiectum, eo quod ipsa immediate obiicitur intellectui: sed de notitia incomplexa terminorum est scientia, tanquam de subiecto magis mediato, sed ultimate. Res extra est obiectum, a quo aliae notitiae tam terminorum, quam conclusionis derivantur.[82]

The thesis secures access to the external thing, mediated by the terms of the proposition and further mediated by the proposition itself. Marsilius offers, again, a development of the argument—as a refutation of Gregory, correctly, and not as a "synthesis" of the three views. He speaks of the proximate object (the proposition), the remote object (the terms as signs) and the most remote or ultimate object, the things in themselves:

> Tertio suppono quod obiectum assensus immediatum est propositio; remotum, eius termini inquantum signa sunt rerum; et remotissimum et ultimatum et etiam maxime intentum est res incomplexa significata per terminos, saltem in affirmativis de inesse et de praesenti. [83]

For instance, Marsilius explains, the immediate object of the knowledge and assent to the proposition "God is" is the proposition itself; the middle-way object (*remotum*) is the term "God" as a sign for the First Being; the last object (*remotissimum*) is the First Being itself.

The thesis arises in Paris therefore as a refutation of Gregory, which wanted to refute Ockham, so we have the impression of sort of a linear development. This is not the case. The thesis of the threefold object of science is actually a return to Ockham, in a circular development. Marsilius states: "this

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[82] *In 1 Meteor*., q. 1, 5, p. 6a.

[83] Marsilius, *In 1 Sent*., q. 2, a. 3, ed. Noya, p. 78. See also *Quaestiones super libros Priorum analyticorum* (Venice, 1516), lib. I, q. 1. The fist text speaks of the object of assent, while the second text speaks of the object of knowledge: they are the same for Marsilius.

appears to be the opinion of many people and especially that of Ockham in the fourth question of his Prologue and it is the common opinion."[84] It is unclear to which passage Marsilius wants to refer his readers. Rather than the fourth question of Ockham's prologue, which deals with the derivation of properties from the prime subject, the ninth question, on "Utrum Deus sub propria ratione deitatis sit subiectum theologiae," seems a more appropriate reference (as the editor notes). Ockham's answer distinguishes between the subject as "that which supposits" (*pro illo quod supponit*) and the subject as that which is supposited (*pro illo pro quo supponitur*). God is the subject of theology, if by subject we understand the significate (*illo pro quo supponitur*), in an improper manner; but God is not the subject of theology, if by subject we understand the signifier (*pro illo quod supponit*), as we normally do. The term "God" acts as a sign, a concept that is directly connected to the thing outside of the mind, the First Being.[85] Ockham can avoid accusations of scepticism with reference to the idea that the conclusion is the object of science, of the kind that are raised in this debate, through his theory of personal supposition, which guarantees the connection between the term and the *res extra*.[86] Marsilius, writing a generation after Gregory, can fully appreciate this, and can present the

[84] Marsilius, *In 1 Sent*., q. 2, a. 3, ed. Noya, 79: "Haec videtur esse mens multorum et praesertim Ockham in quarta quaestione prologi et est communis opinio."

[85] Ockham, *In 1 Sent*., prol., q. 9, in *Opera theologica*, vol. I, 268–269: "Et dico, primo, quod accipiendo subiectum pro illo quod supponit, quod Deus sub ratione deitatis non est subiectum theologiae nostrae. Hoc patet, quia subiectum isto modo dictum est terminus conclusionis. Sed Deus non est terminus conclusionis, quia illud est terminus conclusionis quod immediate terminat actum intelligendi vel est actus intelligendi. Sed Deus in se non immediate terminat actum intelligendi sed mediante aliquo conceptu sibi proprio, nec est conceptus. [...] Secundo, dico quod accipiendo subiectum pro illo pro quo supponitur, sic respectu alicuius partis Deus sub ratione deitatis est subiectum [...] Hoc patet, quia in aliquibus veritatibus terminus primo supponit pro ipso Deo in se, sicut in ista: Deus creat, Deus est Pater et Filius et Spiritus Sanctus, et sic de aliis. In aliquibus terminus primo supponit pro Patre, sicut in istis: Pater generat, Pater constituitur ex paternitate. Et sic de Filio et Spiritu Sancto et creatura. Sed illud pro quo supponitur est subiectum isto modo dictum, improprie loquendo."

[86] See (at least) P. Boehner, "Ockham's Theory of Supposition and the Notion of Truth," *Franciscan Studies* 6 (1946): 261–292.

thesis of the threefold object of science as derived from Ockham's theory of supposition.

A question of priority remains to be settled. The thesis of the threefold object of science has been associated with Marsilius of Inghen in the literature, and it is apparently through Marsilius that it has been transmitted to the *nominales* of the fifteenth century.[87] Marsilius lectured on the *Sentences* in Heidelberg in 1392–1394, but he started his theological studies sometime around 1366 in Paris and could have gathered material around that time. His dates are thus close to the presumed dates of Pseudo-Scotus (1350s). But it is unlikely that the latter knew of Marsilius's commentary, for he doesn't report any of the otherwise interesting argument he contributes to the discussion. More importantly, the thesis of the threefold object of science is in circulation at least since Buridan, who reported it in several places, including his *Meteorology*: (1) Buridan presents the threefold sense of the *scibile*—which is the basis for the threefold object of science thesis—in his *An. Post*. I, q. 2: the proposition is the *scibile primum et immediatum*, the terms of the proposition are a second sense of the *scibile*, and the signified things are a third sense.[88] (2) Buridan applies the threefold object the-

[87] E.g., A. de Libera, *La référence vide*, 190 speaks of "la théorie de Marsile de Inghen, devenue au XVI[e] siècle la 'thèse commune' " (he is basing this on Ashworth). H. Élie, *Le complexe signifiable*, 56–57, maintains that Marsile takes the thesis directly from Ockham, without offering any proof. According to the indexes of the Franciscan Institute edition, a tripartite distinction of the *scibile* in Ockham is not to be found. See also S. Lalla, *Secundum viam modernam: ontologischer Nominalismus bei Bartholomäus Arnoldi von Usingen* (Würzburg: Königshausen & Neumann, 2003), 315–318, for Usingen's attribution of the thesis to Marsilius.

[88] Buridan, *In I An. Post*., q. 1, 6 in *Iohannis Buridani Quaestiones in duos libros Aristotelis Posteriorum Analyticorum*, unpublished transcript by H. Hubien, URL: http://individual.utoronto.ca/pking/resources/buridan/QQ_in_Post_An.txt (May 2014): "Et tunc sciendum est quod triplex est 'scibile', scilicet per demonstrationem. Primum et immediatum scibile est conclusio demonstrabilis, quae ex eo dicitur sciri quia ex praemissis notis concluditur. Secundo modo, 'scibilia' dicuntur ex quibus conclusio demonstrabilis componitur. Unde, sicut dicimus nos scire talem conclusionem et eam nobis esse demonstratam, ita saepe dicimus tale praedicatum esse scitum et demonstratum de tali subiecto. Deinde, tertio modo, scibilia sunt res significatae per terminos conclusionum demonstrabilium, et ita dicimus nos habere scientiam de animalibus et lapidibus, de deo et intelligentiis, et sic de aliis."

sis in the first question of his commentary on the *Physics* I, saying that the demonstration does not consist in just the conclusion, but also in the terms that compose the conclusion together with their significate.[89] (3) His *Meteorology* then uses the thesis fully, in the same way as Pseudo-Scotus.[90]

Conclusion

We can now locate the valuable questions on meteorology published by Wadding with a little more precision in the Parisian intellectual setting of the second half of the fourteenth century. The Parisian discussion of the object of science suggests the following chronological sequence. As far as we know, Buridan is probably the initiator of the theory of the threefold object of science maintained by all Parisian masters associated with him whom we have discussed in this essay.[91] The fact that when Marsilius reports the threefold object thesis, he presents it as an Ockhamist position, suggests that the perception of Ockham's on the matter has evolved since Gregory's critique of the conclusion thesis (via Oxford). Initially, Ockham is read by someone like Gregory (indirectly, through Adam's report on Chatton's critique) as proposing that the object of science is the conclusion of a syllogism, with the skeptical danger that this prevented access to the *res extra*.

[89] Buridan, *In I Phys*., q. 1, in *Quaestiones super octo libros Physicorum Aristotelis*, ed. J. Dullaert (Paris, 1509, reprint Frankfurt am Main: Minerva, 1964), fo. IIva: "Ad demonstrationem autem plura concurrunt, scilicet premisse et conclusio et termini ex quibus constituuntur premisse et conclusiones, et res significatae per illos terminos, et de omnibus illis dicitur haberi scientia."

[90] Buridan, *In I Meteor*., q. 1, ed. Bages, p. 5: "De secunda dubitatione, dicendum est Primo posteriorum quod tripliciter potest esse de aliquibus scientia: uno modo, tamquam de conclusionibus demonstratis que sunt scibilia, propria et propinqua; alio modo, tamquam de terminis ex quibus ille conclusiones componuntur; et tertio, tamquam de rebus per terminos conclusionum significatis."

[91] T.K. Scott, "John Buridan on the objects of demonstrative science," *Speculum* 40 (1965): 654-673, shows that Buridan used the older theory of natural supposition to oppose Ockham's view that demonstrative propositions are to be considered as hypothetical ("Man is able to laugh" should be read as "if a man exists, it is able to laugh"). This is a side issue; Buridan seems to me to stay close to Ockham's understanding of personal supposition with his use of the threefold *scibile* as a mean to reach the objectivity of knowledge.

While arguing against Gregory's theory of the *significabile complexe*, Buridan and his intellectual circle, including Themon, Pseudo-Scotus and up to Marsilius, developed the theory of the threefold object of science. This theory is then read back into Ockham's theory of supposition, and rightfully so, at least by someone like Marsilius. It is worth thus noting that a consequence of the general rejection of Gregory's theory of the *significabile complexe* is a deeper appreciation of Ockham: Marsilius's threefold object thesis presents a truer Ockham than that of Gregory. By the sixteenth century, the discussion of the total significate of the proposition became a standard topic in commentaries on the *Posterior Analytics*, and the nominalist threefold object solution became the most common opinion.[92]

The solution developed by the Parisian masters justifies the study of language as part of the study of nature. Marsilius asks: what would be the purpose of studying the terms, other than to grant epistemic access to their reference?[93] From the point of view of securing the Aristotelian demonstrative science, the threefold object thesis has the obvious advantage of granting access to both contingent things (the ultimate object) and to necessary propositions (the immediate object): we can say necessary truths about changing things. In forging this view, Parisian philosophers adapted to what was asked of them. In addition to condemning the *significabile complexe*, the Statute of the Parisian Faculty of Arts of 29 December 1340 asked from its scholars a realist opinion about science as being, ultimately, about things, not about signs:

[92] See E.J. Ashworth, "Theories of the proposition," who investigates Thomas Bricot, Juan Celaya and Antonio Coronel.

[93] Marsilius, *In 1 Sent*., q. 2, a. 3, ed. Noya, p. 79: "Quae enim esset cura homini de cognitione orationis vel terminorum, nisi eis mediantibus haberet cognitionem rerum incomplexarum per terminos significatarum?"

> Quod nullus dicat scientiam nullam esse de rebus que non sunt signa id est que non sunt termini vel orationes quoniam in scientiis utimur terminis pro rebus quas portare non possumus ad disputationes. Ideo scientiam habemus de rebus licet mediantibus terminis vel orationibus.[94]

Lucian Petrescu
Université Libre de Bruxelles

[94] *Chartularium Universitatis Parisiensis*, ed. H. Denifle and É. Chatelain (Paris: Delalain, 1891–1899), vol. II, n. 1042. This article should be coupled with the articles condemning the *significabile complexe*: section VI of the Statute of 29 December 1940 ("quod nullus asserat [...] quod Deus et creatura nihil sunt") and Autrecourt's "semantic" articles condemned in 1346 (31 and 57: "quod Deus et creatura non sunt aliquid"; 58: "quod significabile complexe per istud complexum 'Deus et creatura distinguuntur' nihil est"). For more details on the condemnation of the *complexum significabile* in Paris, see Élie, *Le complexe significabile*, 37–40 (who saw Autrecourt as a scapegoat for Gregory), R. Paqué, *Das Pariser Nominalistenstatut: Zur Entstehung des Realitätsbegriffs der neuzeitlichen Naturwissenschaft* (Berlin: Walter de Gruyter, 1970), esp. 198–232, K. Tachau, *Vision and certitude*, 353–357 and J.M.M.H. Thijssen, "The 'semantic' Articles of Autrecourt's Condemnation. New Proposals for an Interpretation of the Articles 1, 30, 31, 35, 57 and 58," *Archives d'histoire doctrinale et littéraire du Moyen Âge* 57 (1990): 155–175.