

Det Kongelige Danske Videnskabernes Selskab

udgiver følgende publikationsrækker:

The Royal Danish Academy of Sciences and Letters

issues the following series of publications:

*Historisk-filosofiske Meddelelser*, 8

*Authorized Abbreviations*

Hist. Fil. Medd. Dan. Vid. Selsk.  
(printed area 175 x 104 mm, 2700 units)

*Historisk-filosofiske Skrifter*, 4  
(History, Philosophy, Philology,  
Archaeology, Art History)

Hist. Filos. Skr. Dan. Vid. Selsk.  
(printed area 2 columns,  
each 199 x 77 mm, 2100 units)

*Matematisk-fysiske Meddelelser*, 8  
(Mathematics, Physics,  
Chemistry, Astronomy, Geology)

Mat. Fys. Medd. Dan. Vid. Selsk.  
(printed area 180 x 126 mm, 3360 units)

*Biologiske Skrifter*, 4  
(Botany, Zoology, Palaeontology,  
General Biology)

Biol. Skr. Dan. Vid. Selsk.  
(printed area 2 columns,  
each 199 x 77 mm, 2100 units)

*Overstgt. Annual Report*, 8

Overstgt. Dan. Vid. Selsk.

The Academy invites original papers that contribute significantly to research carried on in Denmark. Foreign contributions are accepted from temporary residents in Denmark, participants in a joint project involving Danish researchers, or those in discussion with Danish contributors.

#### Instructions to Authors

Manuscripts from contributors who are not members of the Academy will be refereed by two members of the Academy. Authors of papers accepted for publication will receive galley proofs and page proofs; these should be returned promptly to the editor. Corrections other than of printer's errors will be charged to the author(s) insofar as their costs exceeds 15% of the cost of typesetting.

Authors receive a total of 50 free copies. An order form, quoting a special price for additional copies, will accompany the page proofs. Authors are invited to provide addresses of up to 20 journals to which review copies could profitably be sent.

Manuscripts can be returned, but only upon request made before publication of the paper. Original photos and art work are returned upon request.

#### Manuscript

*General.* Manuscripts and illustrations must comply with the details given below. The original manuscript and illustrations plus one clear copy of both should be sent to the editor of the series. Manuscripts on digital media may be accepted; contact the editor in advance, giving technical specifications.

A manuscript should contain not fewer than 32 printed pages. This also applies to the *Mat. Fys. Medd.*, where the contributions to the history of science are welcome.

## John Buridan and Jerónimo Pardo on the Notion of *Propositio*

PALOMA PÉREZ-ILZARBE\*

*Summary:* The first section of this article offers a reconstruction of Buridan's theory of propositions, along the following lines: on the syntactic plane, propositions obtain a special type of unity from the presence of a copula; on the semantic plane, the fact that a proposition does not have any specific significate (different from the significate of terms), does not eliminate the distinction between propositions and terms: the copula performs an act of "saying", in virtue of which propositions can be true or false. The second section summarises Pardo's theory of propositions, showing how in this case a Buridanian starting point led to a result very different from that which Buridan reached.

The best place to start in trying to reach an understanding of the medieval notion of the proposition<sup>1</sup> is the basic contrast between the simple and the complex: propositions are a kind of complex expression (*oratio*). But, because they are complex expressions of a certain kind, one can legitimately ask how propositions differ from other kinds of complex expressions. In the present paper I shall argue that John Buridan (c.1292-c.1360)<sup>2</sup> attributed a specific character to propositions that distinguished them from terms (even from complex terms), and I shall try to discover the precise nature of this specific character, together with the commitments Buridan has to make in order to maintain this.<sup>3</sup>

\* I wish to thank Jennifer Ashworth, Jaime Nubiola, Angel d'Ors, and Stephen Read, and also the participants in the conference "John Buridan and Beyond", for their helpful comments on previous versions of this article. I am also grateful to Jack Zupko for kindly providing me with the text I needed from his edition of the *Quaestiones in libros de Anima (tertia lectura)*.

1. On the medieval and postmedieval discussions concerning the proposition, see Nuchelmans 1973, 1980a, and 1982; Ashworth 1978; Kretzmann 1970.
2. The most recent bibliography of and about Buridan is that by Fabienne Pironet ("Bibliographie spéciale sur Jean Buridan", available online at: <http://mapageweb.umontreal.ca/pironetf>).
3. General information on Buridan's theory of the proposition is to be found in Nuchelmans 1973: 243-50; Biard 1989: 181-85 and 192-97; Scott 1966; King 1985; Reina 1959: 394-404 and 1960: 141-65.

To better illuminate some aspects of Buridan's theory, I will contrast it with the ideas of the Spanish logician Jerónimo Pardo (†1502) on the same topic.<sup>4</sup>

I shall base my analysis of Buridan's theory on texts from the Commentary on the *Metaphysics* (*In Met*), the *Summulae* (*Summ*, particularly treatises I<sup>s</sup> and IV) and the *Sophismata* (*Soph*). As subsidiary sources I will also refer to texts from the Commentary on the *Physics* (*Quaest Phys*), the Commentary on the *De anima* (*Quaest de Anima*), the *Quaestiones Elenchorum* (*Quaest Elenc*), the *Quaestiones Longae super Librum Peri Hermeneias* (*Super Perih*), the *Quaestiones in Libros Priorum Analyticorum* (*Quaest Priorum*), and the *Consequentiae* (*Conseq*). As for Pardo's theory, I include as an Appendix a transcription of the relevant pages of his *Medulla dyalectices* (*MD*).

## 1. Buridan's theory

### 1.1 Syntactic analysis: kinds of complexity

Before approaching Buridan's discussion of propositions, it is important to bear in mind that Buridan's main theses about the proposition concern primarily the mental proposition, and can only be applied to spoken or written propositions by extension.<sup>6</sup> In his commentary on the *Summulae*, Buridan explicitly disagrees with Peter of Spain, who (following Aristotle)<sup>7</sup> had defined the proposition as a kind of *vox*.<sup>8</sup> Buridan prefers (also following Aristotle)<sup>9</sup> to distinguish three kinds of *ora-*

4. For more information on Pardo, see Pérez-Ilzarbe 1999.

5. This treatise was partly edited by J. Pinborg (1976a: 82-88), and Ria van der Lecq is preparing the critical edition (available on her website: <http://www.phil.uu.nl/~lecq>). She is part of an international team (the Buridan Society) which is working on critical editions of all the treatises (on this publishing project, see the introductions to the editions which have already appeared, included in the bibliography below).

6. On mental language in Buridan, see Reina 1959: 382-87; Pinborg 1976a: 79-80; Nuchelmans 1980a: 17-20; King 1985: 7-14, and Forthcoming; Biard 1989: 169-71; Panaccio 1999: 295-300.

7. *Peri Hermeneias* 1, 16b 26.

8. Peter of Spain, *Tractatus* 1, 6 and 7.

9. *Peri Hermeneias* 1, 16a 3-4.

*tiones* (mental, spoken, and written),<sup>10</sup> and he introduces the necessary modifications to adapt Peter of Spain's ideas to this threefold division.

According to Buridan, the basic syntactic structure of every mental proposition is that it is made up of three principal parts: subject, copula, and predicate. Correcting Peter of Spain's description of a categorical proposition as a composite of two principal parts, the subject and the predicate,<sup>11</sup> Buridan asserts that the copula is also a principal part of every categorical proposition (making three parts rather than two).<sup>12</sup> This three-part structure holds for all mental propositions, even if they are signified by a spoken proposition that appears to have a different structure. For example, adjectival verbs conceal a structure of copula-plus-predicate, so that the spoken phrase 'Homo currit' must be analysed, in Buridan's view, as 'Homo est currens'; and even the verb 'est' when occurring as second adjacent can be broken down into a copula and predicate, so 'Homo est' becomes 'Homo est ens'.<sup>13</sup> The key point is whether Buridan recognises this structure as a special type of unit, or whether the three elements are simply linked together as a mere list of

10. *Summ* I, 1.6: "Ad evidentiam dictorum et dicendorum quod voces significativae incomplexae sunt termini orationum, dicenda sunt aliqua de terminis significativis et orationibus modicum disgregiando. Sciendum est ergo quod triplex potest distingui oratio et triplex terminus vel dictio, prout tangitur in principio libri Peri Hermeneias, scilicet mentalis, vocalis et scripta."

11. Peter of Spain, *Tractatus*, I, 7.

12. *Summ* I, 3.2: "Ad secundam dubitationem dicendum est quod illa copula vere est pars principalis categoricae, quia sine illa non potest esse categorica propositio et habet se per modum formae ad subiectum et praedicatum, et forma est principalis pars compositi, ideo bene suppleverunt secundam clausulam vel tertiam dicentes quod propositio categorica est illa quae habet subiectum et praedicatum et copulam principales partes sui." *Q L super Perih* I, 7: "... de propositione categorica, cuius principales partes sunt subiectum et praedicatum et copula." See also Maierù's contribution to this volume, at and around nn. 35-38, 68-70.

13. *Summ* I, 3.2: "Tertia clausula exponit dictam descriptionem propositionis categoricae exemplificando de ista propositione 'homo currit', in qua hoc nomen 'homo' est subiectum et hoc verbum 'currit' est praedicatum. Circa quod est notandum, sicut statim innuit auctor, quod verbum non est praedicatum proprie loquendo, sed copula praedicati cum subiecto vel implicans in se copulam cum praedicato. Nam hoc verbum 'est' tertio adiacens est copula et quod sequitur est praedicatum, sed hoc verbum 'est' secundo adiacens, ut cum dico 'homo est', vel etiam quodlibet aliud verbum implicat in se copulam cum praedicato vel cum parte principali praedicati. Ideo ad accipiendum subiectum, praedicatum et copulam tale verbum debet resolvi in hoc verbum 'est' tertium adiacens, si propositio sit de inesse et de praesenti, et in participium illius verbi, ut 'homo currit' idest 'homo est currens'. Similiter 'homo est' idest 'homo est ens'."

terms. In order to answer this question, it is useful to compare propositions with other kinds of complex expressions.

First, propositions are distinguished from what are usually called *complexiones indistantes*, such as 'homo albus', in which a term is immediately linked with another term, without the mediation of any particle. But Buridan's view of the distinction between *complexio distans* and *complexio indistans* is rather unusual, inasmuch as Buridan takes *complexiones distantes* to include only combinations that make use of the copula 'est', while *complexiones indistantes* are those in which terms are combined without the mediation of the copula.<sup>14</sup> He thus seems to ignore combinations of the kind 'homo vel albus', in which there is a uniting element other than the copula 'est'. This apparent omission suggests that Buridan's intention when he makes this distinction is in fact to mark a difference between propositions and other complexes, and that the "distance" to which he alludes by using the word 'distans' has more to do with its being a composition of a different kind (i.e. a proposition) than with the presence or absence of a mediating particle.

In Buridan's view, a mental proposition is a combination of concepts that is constructed by adding to the terms that are to be combined a syncategorematic concept whose purpose is to join concepts together (*conceptum complexivum*).<sup>15</sup> Although there are other complexive concepts, like those corresponding to 'et', 'vel', 'si', 'ergo', and so on,<sup>16</sup> the type

14. *In Met* IV, 14: "Dico ergo quod apud intellectum est duplex complexio conceptuum: una potest vocari distans, alia indistans. Distans vocatur quando in propositione predicatum complectitur cum subiecto mediante copula, et hoc potest fieri affirmative vel negative, ut 'homo est animal', 'homo non est animal'. Sed complexio indistans vocatur quando adiectivum complectitur cum substantivo sine copula media, et etiam potest fieri affirmative aut negative, ut 'homo albus', 'homo non albus.'" *In Met* VI, 6: "Indistans est prout determinatio complectitur cum suo determinabili sine copula verbali mediante, ut si dico 'animal rationale', 'homo albus.'" *Quaest Elenc* 17.3.2: "Non tamen complexus complexione distante, que fit mediante hoc verbo 'est', sed complexione indistante, ut si fieret talis complexio 'homo albus' vel 'homo equus.'" *Quaest Priorum* I, 12 (cited in Reina 1959: 409 note 109): "Sed notandum est quod aliqua complectuntur ad invicem [...] mediante hoc verbo 'est', et talis complexio vocatur distans." On the distinction *distans-indistans*, see Nuchelmans 1980a: 31-33.
15. *Summ* IV, 2.3: "Illae copulae 'est' et 'non est' significant diversos modos complectendi terminos mentales in formando propositiones mentales, et isti <modi> complectendi sunt conceptus complexivi pertinentes ad secundam operationem intellectus, prout ista addit super primam operationem."
16. *Summ* IV, 2.3: "Et ita etiam istae dictiones 'et', 'vel', 'si', 'ergo' et huiusmodi designant conceptus complexivi plurium propositionum simul vel terminorum invicem in mente et nihil ulterius ad extra."

of combination effected by the mental copula 'est' or 'non est' is special: it is an act of affirming or denying one concept of another.<sup>17</sup> This understanding of the role of the copula is in agreement with one of the traditional definitions (of Aristotelian origins)<sup>18</sup> of the proposition as an expression in which "something is said of something", and seems to point towards a kind of unity specific to propositions which makes them something more than a mere list of terms.

Among the various types of combinations of terms, however, there is a group of very special ones: the constructions involving accusative and infinitive together, such as 'hominem esse album'. They seem to share the structure of propositions (subject, copula, predicate), but, Buridan says, they are not propositions in the true sense: the mere fact that under certain conditions a complex of this kind, taken materially, can stand for a proposition does not mean that it *is* a proposition.<sup>19</sup> The non-propositional nature of these complexes is due, it seems, to the fact that the infinitive verb acts not as a copula (and therefore does not state something about something), but as a noun. The proof of this is that the construction with infinitive and accusative can be converted into a construction with participle and nominative, in which the similarity with propositions fades: for example, according to Buridan 'hominem currere' is reducible to 'homo currens'.<sup>20</sup>

On the syntactic level, therefore, Buridan recognises that propositions constitute a special type of combination (different from other combinations of terms such as 'homo albus' and even 'hominem esse album'), a *complexio distans* in which there is a copula that performs a special act of "saying". The question now is whether this special kind of

17. *Summ* I, 3.2: "Propositio autem mentalis consistit in complexione conceptuum; ideo praesupponit conceptus simplices in mente, et super hos addit conceptum simplicem complexivum quo intellectus affirmat vel negat unum illorum conceptuum de reliquo."
18. Cf. *Prior Analytics* I, 1, 24a 16; *Peri Hermeneias* 4, 17a 21; *Posterior Analytics* I, 2, 72a 14.
19. *Quaest Phys* I, 18: "Secunda conclusio es quod 'generare' vel 'benefacere' vel 'Deum creare' vel 'Socratem secare lignum' et sic de aliis non est una propositio. Verum est tamen quod aliquando tales orationes infinitivi modi supponunt materialiter pro aliquibus propositionibus, ut si dicamus 'Deum creare est propositio affirmativa', sic enim ista oratio 'Deum creare' supponit pro ista propositione 'Deus creat'." See also: *In Met* IV, 6 and V, 7; *Conseq* II, 7; and *Summ* IV, 3.2 and VIII, 2.1.
20. *Soph* II, concl 3: "Nam sicut hominem currere, si est, est homo currens, et hominem esse album, si est, est homo albus, ita hominem esse asinum, si est, est homo asinus existens." See also *In Met* IV, 10.

combination has some special kind of relationship with the world outside the mind.

### 1.2 Semantic analysis

In my opinion, a proper semantic analysis of propositions cannot be carried out unless a clear distinction is made between two planes on which the relationship between language and reality unfolds: signification, on the one hand, and verification, on the other. In addition, a third intermediate level, the level of supposition, will be developed to bridge the gap between the two.

#### 1.2.1 Signification

Signification is a property of terms: in Buridan's theory, vocal terms are imposed to signify the concrete individuals in his ontology. It may be useful to recall here the distinction that Buridan draws between two types of signification for all vocal signs: first, they immediately signify the concepts by means of which they were imposed to signify (*significatio apud mentem*); and second, they indirectly signify (by means of these concepts) the things which are known by the corresponding concepts (*significatio ad extra*).<sup>21</sup> When we use a term, we signify (*ad extra*) by it all the concrete individuals that it is imposed to signify: not only existent individuals, but also past and future, and even merely possible ones.

But we are now dealing with combinations of terms. Complex terms are not themselves imposed to signify, but are able to signify through the signification of their parts. In Buridan's view, any complex term signifies the same as its parts signify separately ('homo albus' signifies men and white things).<sup>22</sup> Thus, in some sense, considered as a combina-

21. *Soph* II: "Et ad loquendum intelligibiliter, ego suppono, secundum dicta prius, quod voces habent duplices significationes, unam apud mentem, quia immediate significant conceptus sibi correspondentes a quibus vel sibi similibus imponebantur ad significandum. Aliam habent quia mediantibus dictis conceptibus significant res quae illis conceptibus concipiuntur. Et quia multoties illae res conceptae sunt extra animam, ut lapis et asinus, ideo ad placitum ego vocabo primam significationem apud mentem et secundam vocabo significationem ad extra."

22. This is what Spade calls the "additive principle", which is also attributed to Ockham in Spade 1975: 58. Although Buridan does not explicitly formulate the principle, it is evident that he admits it in various places: *In Met* IV, 14; *Q L super Perih* I, 2; *Soph* I concl. 8 and 11, II concl. 5.

tion of terms, a proposition may be said to signify; but since the proposition as a whole is not imposed to signify anything,<sup>23</sup> Buridan does not accept that there is a specific significate for the proposition taken as a whole (*significatum propositionis*). Since taken on their own syncategorematic terms have no signification *ad extra*,<sup>24</sup> it follows that if a proposition is said to signify something *ad extra*, it signifies exactly the same thing or things that are signified by its categorematic parts. This is why Buridan can say that two contradictory propositions signify *ad extra* exactly the same thing.<sup>25</sup>

It is clear that Buridan's opinion on the signification of propositions does not hold him to any special ontological commitment: to account for the signification of a proposition, he only needs to admit the individual things signified by the subject and predicate. Buridan explicitly rejects any real composition (such as Burley's *propositio in re*)<sup>26</sup> as a correlate of the syntactic composition of propositions.<sup>27</sup> And he also rejects that any special kind of entity, such as the *complexe significa-*

23. *Soph* II concl. 5: "Immo propositio imposita non est secundum se totam simul ad significandum, <sed secundum> terminos eius seorsum quos intellectus componit affirmative vel negative sicut vult."

24. *Summ* IV, 2.3: "Aliae autem sunt voces significativae quae ultra illos conceptus non significant per se res aliquas illis conceptibus conceptas, sicut sunt copulae et negationes et signa distributiva." See also n. 16 above.

25. *In Met* VI, 12: "Ultima conclusio potest poni quod cum metaphysicus de omni termino significativo et de omni propositione habeat inquirere et scire que res significantur vel connotantur, tamen principaliter debet hic considerare de termini quam de propositionibus, quia praeter significationes terminorum nihil aliud significant extra propositiones. Unde intentio Aristotelis esset quod illa propositio: 'Deus est bonus', et ista etiam: 'Deus non est bonus', non significant aliquid extra se nisi Deum et bonitatem, que etiam significant isti termini 'Deus' et 'bonus'. Et ista propositio: 'homo est albus', non significat nisi hominem et albedinem, que etiam significant isti termini 'homo' et 'albus'." See also *Soph* I, ad tertium.

26. See Nuchelmaus 1973: 219-25; Biard 1989: 151-59; Pinborg 1967: 394-404; Conti 1996: 268-78.

27. *Summ* I, 1.6: "Sed oratio mentalis non amplius dicitur oratio quia significat ultra in re aliam orationem, sed quia est complexio plurium conceptuum in anima [...]. Sed statim tu quaeres: si in rebus significatis vel re significata non sit aliqua complexio, quid ergo significat oratio mentalis qua scilicet intellectus dicit Deum esse Deum vel Deum non esse Deum? Respondeo quod nihil ad extra plus vel aliud significat una dictarum orationum quam alia. Neutra enim significat aliud quam Deum ad extra; sed alio modo significat affirmativa et alio modo negativa, et illi modi sunt in anima illi conceptus complexivi quos secunda operatio intellectus addit supra simplices conceptus, qui designantur per illas copulas vocales 'est' vel 'non est'."

*bilis* made popular in Paris by Gregory of Rimini,<sup>28</sup> are the “things” signified by a proposition.<sup>29</sup>

Now, although a proposition can be said to signify the same things that are signified by its categorical parts, propositions are not specifically designed to signify things (this task is already performed by the terms, and, strictly speaking, only by them). Rather, propositions are designed to accomplish something different: to perform an act of a higher level, i.e. to say something about something by means of the copula.<sup>30</sup> This special function of propositions endows them with a new property that is not present on the level of the terms: the capacity to be true or false. Although the vocal propositions ‘Deus est’ and ‘Deus non est’ do not signify *ad extra* anything different from God himself, each of them adds something to the signification of the terms: they signify *apud mentem* different ways of thinking of God; and precisely this difference is the reason why they have a different truth value.<sup>31</sup>

28. See Élie 1936; dal Pra 1956; Nuchelmans 1973: 227-37; Grassi 1976. As J. Zupko (1994-1997) shows, Gregory transmits a faulty interpretation of the teaching of Adam Wodeham, and this fuels the criticism of the theory of the *complexe significabile* on the part of the Parisian nominalists. For Wodeham’s original theory, see: Gál 1977; Nuchelmans 1980b; Grassi 1986; Reina 1986; Tachau 1987 and 1988: 303-10; Karger 1995.

29. On the one hand, Buridan holds that Gregory of Rimini’s *complexe significabilia* are absurd and inadmissible “entities” (*Quaest Phys I*, 18; *In Met V*, 7 and VI, 8). On the other hand, Buridan maintains that there is no need to propose any special “entity” that is the meaning of the propositions, since anything can be signified in different ways, by simple or complex expressions (*In Met V*, 7; *Quaest Phys I*, 18; *Soph I*).

30. The interest which Buridan shows in the problem of determining the subject of a categorical proposition (for example, in the case of propositions with oblique terms) is proof of his concern with “saying”: according to the accepted definitions of ‘subject’ and ‘predicate’ as “illud de quo aliquid dicitur” and “quod dicitur de alio” respectively, the problem of determining the subject of a categorical proposition seems to be a question of determining what is said of what in each case. See *Summ I*, 3.3, *Summ IV*, 2.6, *Super Perih I*, 6, and also Karger 1984.

31. *In Met IV*, 14: “Modo de complexione distante dico quod iste propositiones vocales: ‘Deus est ens’, ‘Deus non est ens’, habent oppositas significationes, ita quod significant propositiones mentales diversas et oppositas, unam veram et alteram falsam. Sed propositiones mentales correspondentes istis predictis vocalibus non amplius ad extra significant vel representant alias res, immo quicquid ego intelligo per illam mentalem ‘Deus est’, illud idem intelligo et nihil plus per istam ‘Deus non est’, quoniam per utramque propositionem nihil intelligo nisi Deum et esse vel ens. Sed tamen illa que ego intelligo, ego alio modo intelligo per propositionem affirmativam et alio modo per propositionem negativam, quoniam per istam propositionem ‘Deus est Deus’ ego intelligo Deum secundum conceptum complexum et compositionem compositam.

In my view, in Buridan’s theory the two perspectives that give rise to the two classic definitions of the proposition are brought together: the one that we have seen, i.e. a statement that says something about something, as well as the traditional definition (also Aristotelian in its inspiration, but formulated by Boethius),<sup>32</sup> i.e. a statement that signifies something true or false. It is precisely because the proposition says something about something that it has the property of being true or false.

### 1.2.2. *Debita correspondentia in re*

At this point, one might object that ‘homo rationalis’ and ‘homo hinnibilis’, for example, also have different “truth values”. In fact, Buridan sometimes applies the terms ‘true’ and ‘false’ to non-propositional complexes. This is the reason why Gabriel Nuchelmans maintains that Buridan reduces the difference between *complexiones distantes* (like the proposition ‘Homo est albus’) and *complexiones indistantes* (like the complex term ‘homo albus’) to such an extent that he “tends to treat a mental *propositio* as a complicated act of thinking of a thing and the corresponding vocal *propositio* as a referring expression”.<sup>33</sup>

In fact, Buridan draws a distinction between the *complexiones indistantes* that have a *debita correspondentia in re* (for example, ‘homo rationalis’) and those that do not have such a *correspondentia* (for example, ‘homo hinnibilis’). Although there are indeed passages in which complex terms of this type are called by Buridan ‘true’ or ‘false’,<sup>34</sup> in my view these words should be understood in an analogous

Sed secundum istam propositionem ‘Deus non est Deus’, ego intelligo Deum secundum complexionem divisivam. Et tunc complexioni compositivae est in re debita correspondentia, scilicet est pro quo subiectum et predicatum supponunt, et complexioni divisivae non est in re correspondentia debita, ideo illa complexio apud mentem est falsa.”

32. Cfr. *Peri Hermeneias* 4, 17a 3-4; *De Differentiis Topicis I* (Patrologia Latina 64, 1174B 7).

33. Nuchelmans 1980a: 245.

34. *In Met VI*, 6: “Modo ergo compositio indistans dicitur habere convenientem correspondentiam si res significata per determinationem sit eadem cum re pro qua determinabile supponit vel si ei adiaceat, et tunc illa compositio diceretur vera, sed si non esset ita diceretur falsa vel ficta. Verbi gratia, iste conceptus diceretur falsus vel fictus: ‘asinus rationalis’, ‘mons aureus’. Et e converso esset dicendum de divisione indistans: unde ille conceptus esset verus: ‘asinus non [est] rationalis’, et ille falsus: ‘homo non [est] rationalis’, ‘homo non [est] animal’. Et isto modo isti termini vocales ‘chimera’, ‘vacuum’, designant conceptus falsos sive fictos, designant enim conceptus complexos, quia idem significat ‘vacuum’ quod ‘locus non repletus corpore’, et idem ‘chimera’ quod ‘compositum ex impossibilibus componi’.”

sense, since in other passages Buridan says explicitly that this has to do with the "reference" of terms: the "correspondence" signifies that there is something for which the complex term supposit, and although the descriptions 'true' and 'false' may be applied, this is not in the same sense as propositions are true or false.<sup>35</sup>

Supposition is the property of terms that effects the linkage between terms and real things. A term that signifies present, past, future, and possible things, when it is used in a proposition, comes to supposit only for the things of which it is true to say 'this is x' (according to the time of the copula, etc.). A simple term that signifies several things actually refers to one or another when it is used in a proposition. When a complex term – which signifies all the things signified by its categorematic parts – is used in a proposition, it may come to supposit for some of them, or it may not supposit at all (because of the restrictive effect of one term on another).<sup>37</sup> It is in this context that Buridan considers the

35. *In Met* IV, 14: "Et si sit idem pro quo supponit 'album' et 'homo', conceptus compositus habet debitam correspondentiam in re et supponit pro illa re. Si autem idem nihil sit album et homo in re, tunc conceptus [divisivus] <compositus> non habet correspondentiam in re, ideo est conceptus fictus et pro nullo supponit. Et e converso si substantivum et adiectivum non supponant pro eodem, ut dicendo 'homo hinnibilis', iste esset conceptus fictus, et pro nullo supponeret, et tamen significaret veras res, scilicet omnes homines indifferenter propter istum terminum 'homo' et omnes hinnibiles equos propter istum terminum 'hinnibilis', sed tales res tali modo intelliguntur et significantur per istam orationem: 'homo hinnibilis', quia tali modo significandi non est in re debita correspondentia." *Quaest de Anima (tertia lectura)* III, 12: "Conceptuum autem qui non sunt propositiones, sed termini qui possunt subici vel praedicari in propositionibus, consonantia secundum quam dicuntur veri attenditur penes hoc quod possunt pro aliquo vel aliquibus supponere; et si non possunt, tunc dicuntur falsi. Talium autem conceptuum quidam sunt complexi ex determinatione et determinabili, et aliqui incomplexi. Et statim secundum haec dicta apparet quod complexi aliqui sunt veri et aliqui sunt falsi, nam illud complexum 'equus risibilis' pro nullo supponit, et illud 'equus non risibilis' pro aliquo supponit, et e converso illud 'equus hinnibilis' pro aliquo supponit, et illud 'equus non hinnibilis' pro nullo supponit."
36. *Quaest Priorum* I, 12 (cited in Reina 1959: 409 note 109): "Alia autem complectuntur ad invicem tanquam determinatio ad determinabile ... et talis complexio vocatur complexio indistans ... et complexa tali complexione indistante nec sunt vera nec falsa ... Sic ergo patet qualiter sint aliqui conceptus complexi, qui nec sunt veri nec falsi eodem modo quo propositio dicitur vera vel falsa, et quomodo talium conceptuum complexorum quidam supponunt pro aliquo ... quidam pro nullo ..."
37. *Soph* I concl. 6 and 8: "Sed de conceptu complexo est alia ratio. Nam si sit conceptus complexus per modum determinationis et determinabilis, ut conceptus correspondens huic orationi 'homo albus', si fieret propositio mentalis quod 'Homo albus currit', tunc licet conceptu hominis concipiatur indifferenter omnis homo, tamen conceptus

possibility of success or failure of the referential function of terms, and this is what he calls *debita correspondentia in re*, and sometimes "truth".

In contrast, Buridan does not consider propositions to be "referring expressions". This is because a proposition as a whole, taken personally, cannot supposit for anything: no term can supposit unless it is the subject or predicate of a proposition, but no proposition, taken personally, can be the subject or predicate of another proposition.<sup>38</sup> In addition, a further proof of the distinction between referring expressions and propositions is the relationship of the latter to assent and dissent. In Buridan's view, propositions are the only type of linguistic unit that can be met with assent or dissent.<sup>39</sup>

Propositions are not referring expressions. But, even so, it is possible to investigate some kind of "fit" between propositions and reality. When a proposition does "fit", it is said to be true; when it does not, it is said to be false.

### 1.2.3. Verification

Just as propositions are not imposed to signify as a whole, so they are linked to reality not directly, but via the medium of the semantic properties of their terms. More specifically, the relevant semantic property is, according to Buridan, not signification, but supposition. It is true that

ille non supponit pro omnibus hominibus, sed solum pro albis, quia per conceptum albi sibi coniunctum restringitur. Nec conceptus albi supponit pro omnibus albis, sed restringitur per conceptum hominis ad supponendum solum pro illis albis qui sunt homines. [...] Octava conclusio sequitur, scilicet quod aliquis conceptus complexus factus subiectum vel praedicatum in propositione mentali pro nullo supponit [...]. Possum enim formare conceptum asini et conceptum risibilis simul per modum determinationis et determinabilis [...]. Et tamen ille conceptus complexus pro nullo supponit, quia conceptus risibilis prohibet ne supponat pro aliis quam pro risibilibus, ideo non potest supponere pro asinis. Et conceptus asini prohibet ne supponat pro aliis quam pro asinis, ideo non potest supponere pro risibilibus."

38. *Summ* IV, 1.4: "Quia nullus terminus proprie loquendo supponit, nisi subiectum et praedicatum propositionis, ut suppono." *Summ* IV, 2.6: "Sexta regula est quod nulla perfecta oratio potest subici vel praedicari. [...] Sexta regula etiam conceditur, quia apud omnes grammaticos oratio esset incongrua."
39. *Quaest de Anima (tertia lectura)* III, 12: "Notandum est quod ad simplicem conceptum, vel etiam ad complexum non per modum enuntiationis, nullus sequitur assensus vel dissensus. Sed ad propositionem formatam potest sequi assensus vel dissensus [...]. Ideo saepe restringimus haec nomina 'verum' vel 'falsum' ad iudicia assentiva vel dissentiva, aut ad conceptus ad quos innati sunt consequi assensus vel dissensus. Cuiusmodi sunt propositiones mentales."

a proposition is able to say something about something precisely by means of the ability of its terms to signify. But, at the same time, a proposition surpasses the mere signification of its terms. This is the reason why the different attempts to account for truth in terms of signification do not work, as Buridan shows in the second chapter of his *Sophismata*: "saying" does not amount to adding up significates, nor to signifying a new thing.

Rather, a proposition involves a different type of intellectual operation. As we have seen, the copula is the "complexive act" by means of which the intellect affirms or denies something about something. The act of affirming, as Buridan states, is an act of identifying something with something, the act of denying an act of distinguishing something from something.<sup>40</sup> According to the syncategorematic nature of the copula, the proposition does not *signify* an identity, but it *makes* an equation. This is why propositions demand a different type of link to reality: verification cannot be reduced to signification. This special nature of the "fit" between propositions and reality results in a concrete method for determining the truth or falsity of a given proposition. As is well known, Buridan substitutes some new truth conditions based on supposition for the traditional rules based on signification.<sup>41</sup> As far as verification is concerned, supposition acts as an intermediary between propositions and reality. For something to be identical with something, the things have to be real, and the link to real things is a matter of supposition. Thus, to say that real things verify the proposition 'A est B' is tantamount to saying that real things are such that the subject and predicate of the proposition supposit for the same things.<sup>42</sup>

40. *Soph II*: "Idem valet dicere 'A est B' et dicere 'A idem est quod B', sicut etiam dicere 'A non est B' valet idem sicut dicere quod A non est idem quod B."

41. *Soph II*: "Et sic videtur mihi quod in assignandis causis veritatum et falsitatum non sufficit ire ad significationes terminorum, sed ire ad suppositiones."

42. *Soph II*: "Decima conclusio est quod ad veritatem categoricae affirmativae requiritur quod termini, scilicet subiectum et praedicatum, supponant pro eodem vel eisdem. Ideo etiam ad eius falsitatem sufficit quod non supponant pro eodem vel eisdem. Et forte quia haec non est conclusio sed principium et indemonstrabile, vel si est conclusio, ipsa est propinqua principio indemonstrabili, tamen in libro Posteriorum apparet quod aliquando principia indemonstrabilia indigent beue aliqua declaratione vel exemplari vel inductiva aut huiusmodi, ideo dictam decimam conclusionem ego sic declaro. Certum est quod in hac propositione: 'A est B', iste terminus 'A' vel pro nullo supponit vel supponit pro A, et ita de 'B'. [...] Deinde etiam manifestum est quod dicendo 'A est B', posito quod non sint termini ampliati ad praeteritum vel futurum, idem valet dicere 'A est B' et dicere 'A idem est quod B'. Sicut etiam dicere 'A non

However, this way of expressing truth conditions ("supposit for the same things") is an oversimplified way of formulating the issues, and may lead us to misinterpret Buridan's theory. To avoid misunderstandings, Buridan insists that there cannot be a single way of formulating truth conditions that would be valid for all propositions. On the one hand, there is the special problem raised by self-referential propositions (*insolubilia*):<sup>43</sup> for these to be true, identity of supposita is not enough. On the other hand, as far as non-self-referential propositions are concerned, the basic structure of the subject-copula-predicate can be modified by different syncategoremata, which of course do not alter only the outward appearance of the proposition, but also modify what the proposition says about things. If the simple 'A est B' (or 'A non est B') is according to Buridan an identification (or a distinction), the presence of the different quantifiers responds to the possibility not of simply identifying A with B, but of specifying how many of things A can be identified with how many of things B. When something more specific is said about things, it would be expected that the truth conditions of each proposition would also be more specific. For this reason, Buridan has to indicate which supposita of the subject must be identified with which supposita of the predicate so that the categorical propositions of each of the basic types are true or false. Thus, instead of accepting a general formulation of truth conditions valid for all propositions, Buridan offers, in the second chapter of his *Sophismata*, the set of rules that determine the truth/falsity conditions (based on supposition) for the basic forms of categorical proposition.<sup>44</sup>

est B' valet idem sicut dicere quod A non est idem quod B. Et tamen si est verum quod A est idem quod B, oportet quod isti termini 'A' et 'B' supponant pro eodem, quia 'A' pro A et 'B' pro B, quod quidem A ponitur idem esse quod B. Et ita similiter est de praeterito vel futuro."

43. Buridan devotes the eighth chapter of his *Sophismata* to this subject, and there is a wealth of literature on this. Some examples are: Hughes 1982; Pironet 1993; Prior 1962; Sirridge 1978; Spade 1978.

44. *Soph II*: "Ideo recolligendo ponitur ista decimaquarta conclusio, quod omnis propositio particularis affirmativa vera ex eo est vera quia subiectum et praedicatum supponunt pro eodem vel eisdem. Et omnis universalis affirmativa vera ex eo est vera quia pro quocumque vel pro quibuscumque subiectum supponit, pro eodem vel pro eisdem praedicatum supponit. Et omnis particularis affirmativa falsa ex eo est falsa quia subiectum et praedicatum pro nullo eodem supponunt nec pro eisdem. Et universalis affirmativa falsa ex eo est falsa quia non pro omni illo nec pro omnibus pro quo vel pro quibus subiectum supponit supponit praedicatum. Et omnis particularis negativa vera ex eo est vera ex quo universalis affirmativa sibi contradictoria est falsa, et dic-

As was the case on the level of signification, it is once again clear that Buridan's handling of verification does not hold him to any special ontological commitment: to account for the truth of a proposition, all he needs to accept are the individual supposita of subject and predicate. More specifically, in consonance with his rejection of the *complexe significabilia* as the significates of propositions, Buridan rejects anything like "facts" or "states of affairs" as truthmakers of propositions: that is, the *ita esse in re* or *non ita esse in re* in the traditional definition of truth.<sup>45</sup> On the one hand, the individual things signified by the categorical terms are the only truthmakers admissible.<sup>46</sup> On the other hand, in many cases no truthmaker is needed: when the truth/falsity conditions involve a non-identity of supposita, the condition might be met if there were no suppositum at all, because then there is obviously nothing with which anything can be identified. For the truth of a negative proposition, as for the falsity of an affirmative, no real cause is required.<sup>47</sup>

tum est unde hoc esset. Et omnis universalis negativa falsa ex eo est falsa ex quo particularis affirmativa sibi contradictoria esset vera. Et dictum est quod haec est decima quarta conclusio quae continet octo conclusiones partiales. Apparet omnino ex praexistentibus propter hoc principium quod quicquid est causa veritatis unius contradictoriarum vel requisitum ad veritatem eius, illud est causa falsitatis alterius vel requisitum ad eius falsitatem."

45. *Soph II*, ad primum: "Et hoc valde facit homines errare, scilicet quod si quis dicat propositionem veram, dicimus quod ita est sicut ipse dicit. Et male intelligentes credunt quod hoc sit dictum quod ita est in rebus significatis sicut illa propositio significat. Et isti male intelligunt." Buridan only accepts the formula "*ita esse*" as an abbreviation for the set of rules which he had already provided (see above, n. 44); *Soph II*: "Sed ultimo notandum est quod nominibus uti possumus ad placitum; quando plures communiter hoc modo loquendi utuntur, ut de omni propositione vera dicamus quod ita est et de omni falsa quod non est ita, ego non intendo illum modum loquendi removere, sed ad brevius loquendum ego forte utar eo, semper intendens per eam non quod significat de primaria impositione, sed causas veritatum vel falsitatum prius assignatas, diversas in diversis propositionibus, sicut dictum est."
46. *Soph II*: "Ad secundum sophisma, respondetur quod istae sunt concedendae: 'equus Aristotelis ambulavit', 'equus Aristotelis est mortuus', et non quia ita est in rebus significatis, sed quia subiectum et praedicatum supponunt pro eadem re (non tamen quae est, sed quae fuit)."
47. *In Met VI*, 8: "Alia conclusio ponitur quod ad falsitatem affirmative nulla est causa, quia nihil requiritur in re significata vel in rebus significatis, quia sufficit quod sit formata et non vera, si enim sit formata et non vera sequitur quod est falsa. Modo ad hoc quod non sit vera non oportet aliquid esse a parte rei significate, sed sufficit non esse eam propter quam esset vera si esset vera, et hoc patet etiam per argumenta que fiabant in principio questionis, quia si nunquam fuisset vel etiam nunquam foret equus vel asinus, adhuc illa esset falsa: 'equus est asinus', et ista vera: 'equus non est asi-

Once again, it seems to me that this stance towards truthmakers reflects Buridan's attitude concerning the specific character of propositions. Propositions are "about" things, but do not simply "mirror" things. The asymmetry that can be found in Buridan's treatment of true affirmative propositions and false negative ones on the one hand, and the false affirmative and true negative propositions on the other, is a proof that verification is not a simple relationship of mapping. The possibility of being compared with reality in a way that is not simply a quest for correspondence arises out of the radically different nature of propositions as opposed to terms.

## 2. Pardo's theory

Leaving aside some interesting topics, such as the reception of Buridan's theory by his students in Paris,<sup>48</sup> or how it spread through European universities in the fourteenth and fifteenth centuries,<sup>49</sup> I shall jump to the very end of the fifteenth century, when Buridan came back into fashion at the University of Paris (where Buridanism was vigorously reintroduced by Thomas Bricot, after the repeal, in 1481, of the decree passed by Louis XI banning the teaching of nominalist ideas).<sup>50</sup> Around 1500, one of the nominalists in Paris, the Spaniard Jerónimo Pardo, declared himself to be a follower of Buridan, yet he betrayed the spirit of Buridan's ideas. I would like to summarise Pardo's theory, and to

nus', et tamen huiusmodi falsitas non est in rebus significatis aliqua causa, nihil vero est in eis ex quo nihil sunt. Tunc statim sequitur alia conclusio: quod ad veritatem negative nulla causa requiritur, immo nihil requiritur ex parte rerum significatarum, quia dictum fuit quod quaecunque cause requiruntur ad veritatem alicuius propositionis, eedem requiruntur ad falsitatem sue contradictorie; igitur, si ad veritatem negative alicue cause requiruntur ex parte rerum significatarum, ille eedem requiruntur ad falsitatem affirmative sibi opposite. Sed statim dictum est quod nihil requiritur ad falsitatem affirmative, et hoc ex parte rerum significatarum; igitur, nihil requiritur ad veritatem negative." On the possibility of truly saying something about non-existent things, see Spruyt 1993.

48. On the theories of the proposition of Albert of Saxony and Marsilius of Inghen, see Nuchelmans 1973: 240-42 and 251-54.
49. See Federici Vescovini 1976; Markowski 1984.
50. See Ashworth 1974: 6-7.



contrast his points with the main theses that I have attributed to Buridan.

In the first chapter of his *Medulla dyalectices* (1500, 1505), Jerónimo Pardo discusses the problem "of the truth and falsity of propositions". To approach this problem, since he believes that truth and falsity should be based on signification, he examines three famous theories about the signification of propositions: that of Gregory of Rimini, which he considers erroneous; that of Buridan, which he says is the correct view; and that of Pierre d'Ailly, which he examines only with regard to the aspects which might come into conflict with Buridan's theory (in order to defend the latter from possible objections).<sup>51</sup> However, when Pardo tries to base truth and falsity on signification, Buridan's theory proves insufficient, and Pardo decides to enrich it with certain modifications,<sup>52</sup> thereby, I submit effectively changing the essence of Buridan's semantics of propositions.

The strong point of Buridan's theory is, in Pardo's view, his refusal to accept extraneous entities as significates of propositions: the proposition can have no significate beyond the individual things signified by its terms.<sup>53</sup> The weak point of the theory, on the other hand, is that it does not permit an explanation of truth as a function of signification. Buridan was aware of this, but Pardo wants precisely this type of an explanation,<sup>54</sup> so he adds to the Buridanian ontology some "relative modes of being" (the different ways in which things may be related: *modus se habendi*), which in some sense are not different from the related things,<sup>55</sup> but which in some other sense are the added aspect of reality that acts as spe-

51. *MD*, 1ra-7ra.

52. *MD*, 5ra-7ra. (A part of this text is included in the Appendix, and a preliminary edition of the whole first chapter is available on my website: <http://sophia.unav.es/pilzarbe/medulla.html>).

53. *MD*, 2va: "Alius est modus dicendi [Buridanus] qui licet verus multas tamen oppugnationes patitur, ut contra veritatem plerumque contingere solet. Pro quo ponitur talis conclusio: complexe significabile seu significatum propositionis non distinguitur a significationibus terminorum. Ut ista propositio 'homo est animal' significat hominem esse animal, tunc dicit quod hominem esse animal non distinguitur ab homine et animali seu ab illis que significantur per istos terminos 'homo' et 'animal'."

54. See Appendix, A.1 and A.5.a.

55. Appendix B.1.d.

cific significate and ground for the truth and falsity of propositions.<sup>56</sup> The great difference between Pardo and Buridan is that Pardo does not believe in the autonomous activity of the intellect, but rather interprets the phrase "intellectus movetur a re" as the demand for a strict parallelism between language and reality.<sup>57</sup> As a result, a) in contrast to the ontological economy implied by the compositional nature of language, Pardo ends up by proposing a specific significate for each linguistic entity (which makes it difficult to distinguish between propositions and terms, because both have a "referent" in reality); and b) abandoning the autonomy of the semantic plane of verification, Pardo adheres to the idea that truthmakers are rigorously needed for every proposition (which makes it difficult to distinguish between signification and verification, because every proposition has a real correlate which is at the same time its significate and the cause of its truth or falsity).

Pardo's theory can be summarised as follows.<sup>58</sup> Mental propositions are special acts of the intellect: by means of a proposition, the intellect conceives the same things that are conceived by the categorematic terms, but (due to the syncategorematic nature of the copula) it conceives them in some way (*aliqua*liter). Since (in Pardo's opinion) the intellectual act must be caused by reality, for the intellect to be able to form an affirmative proposition (so conceiving things *affirmatively*) there must be in reality an affirmative way of being (the way in which the things signified by subject and predicate are *affirmatively related*); and for the intellect to be able to form a negative proposition (so conceiving things *negatively*) there must be in reality a negative way of being (the way in which the things signified by subject and predicate are *negatively related*). Thus, although strictly speaking the significate of a proposition can be nothing other than the things signified by the categorematic terms, the meaningfulness of propositions requires cer-

56. *MD*, 17ra: "Non sequitur: cognosco Socratem, ergo cognosco Socratem unitive in ordine ad seipsum; nam per noticiam cui subordinatur iste terminus 'Socratem' cognosco Socratem et tamen non cognosco Socratem unitive in ordine ad seipsum. Et ex hoc videtur apparentia quedam, quod ille modus se habendi unitive non omnino ydemptificetur cum Socrate, ex eo quod stat aliquem cognoscere Socratem et tamen non cognoscit quod Socrates se habeat unitive in ordine ad seipsum. Et istud argumentum posset applicari universaliter de omnibus modis se habendi unius ad aliud, probando esse aliquam distinctionem inter rem et modum se habendi (sed hoc omitto quia non est presentis inquisitionis)."

57. Appendix A.4.b.

58. On Pardo's theory of the proposition, see: Nuchelmans 1980a; Ashworth 1978; Coombs 1995; Pérez-Ilzarbe 1999.

tain "ways of being related" as the real correlate for each proposition.<sup>59</sup> On the other hand, propositions, in addition to being meaningful, can be true or false, and these properties also require, in Pardo's opinion, some real correlates: for the intellect to be able to conceive things *truly*, these things that must be affirmatively/negatively related *in re* must also be *truly related*; and for the intellect to be able to conceive things *falsely*, these things that must be affirmatively/negatively related *in re* must also be *falsely related*. For this reason, Pardo posits "relative modalities" *in re*, prior to any act of the intellect, as the real ground for every propositional modality.<sup>60</sup> Since the intellect's potentiality is infinite, Pardo admits that there are infinite "modes of being related", although these modes are not really (*non realiter*) different from the related things themselves.<sup>61</sup>

Thus, for every proposition (affirmative, negative, present, past, modal, and so on), and for every propositional modality (truth, falsity, possibility, contingency, and so on), Pardo postulates in reality, as a foundation, not the individual things themselves, but those individual things related in different ways (affirmatively, negatively, etc.), and the different ways in which these relationships exist (*truly*, *falsely*, etc.). It seems that individual things "on their own" are not able to account for propositional semantics. The result is something as far removed from Buridan's theory as a theory in which:

a) The difference between propositions and terms is dissolved: given that there is a real correlate for every proposition, it seems that in Pardo's theory the reduction of propositions to referring expressions does take place. For example, the proposition 'Homo est asinus' would be a complicated way of naming men and donkeys insofar as they are affirmatively related (since in reality, in some way, "there are" men and donkeys related affirmatively although *falsely*).<sup>62</sup> Buridan is capable of escaping from this reduction through the important role that he ascribes to the copula, and therefore, the semantics of "saying" as opposed to "signifying".

b) The semantic evaluation of propositions is reduced to a referential relation, which seems to dilute the distinction between true and false propositions. Both 'Homo est asinus' and 'Homo non est asinus' have

59. Appendix, A.5.b, e.

60. Appendix, A.5.a, c, d, f.

61. Appendix B.1.d.

62. Appendix A.5.e.

their real correlate in Pardo's theory, which is the cause of their respective falsity and truth: men affirmatively related to donkeys in a false way, and men negatively related to donkeys in a true way. In Buridan, there is no such referentialism of truth and falsity, since he explicitly rejects the need for truthmakers for many kinds of proposition.

c) Because of all this, Pardo's theory runs the risk of taking on undesirable ontological commitments. It seems that the requirement that language and reality should be parallel turns his theory into a disguised version of the *complexe significabile* theory that he criticises so heavily. The propositions 'Homo est asinus' and 'Homo non est asinus' demand, as a foundation for their semantic properties, a more complex reality than the terms 'homo' and 'asinus'. Buridan, by contrast, only requires the individual things for which these terms supposit; what is more, sometimes he does not need them to supposit for anything at all. What he does require, though, is the acknowledgement of the independence of the intellect with regard to reality.

### 3. Conclusion

In this article, I have argued that Buridan is capable of maintaining that propositions have a specific character, without being obliged to take on any undesirable ontological commitment. What distinguishes a proposition from a mere list of terms is the fact that it contains a copula, and it can therefore be true or false. But on the one hand, the syncategorematic act of saying something about something does not require any object to be signified other than the individual things signified by the subject and predicate, whereas, on the other, the truth/falsity conditions do not require any real thing other than the individual things for which the subject and predicate supposit. In contrast, Pardo's theory of propositions requires *in re* some "modes of being related" (as the ground for the meaningfulness of propositions), and also some "relative modalities" (as the ground for their capacity for being true or false).

It would be interesting to explore whether Buridan's nominalism would be compromised if he were to admit a deeper structure for these individual things (which could help to explain, for example, the nature of essential and accidental predication).<sup>63</sup> But what I have tried to show

63. On Buridan's ontology, see: Scott 1966; Normore 1985; Klima 1999; Klima's contribution to this volume.

here is that Buridan's theory of propositions is rich enough to avoid an assimilation of propositions to terms, and consequently, a referentialist semantics of the proposition. By concentrating on signification and ignoring the special nature of predication and verification, one might easily fall into accepting an assimilation of this kind. In my opinion, although this charge may be levelled at some "Buridians", Buridan himself cannot be accused of it.

## Appendix

Jerónimo Pardo, *Medulla dyalectices* (Paris, 1505): cap 1, 5va-6rb.

### A. <Responsio ad quintum>

1. [f. 5va] Sed quod necesse sit et veritatem et falsitatem, et necessitatem et contingentiam, possibilitatem et impossibilitatem ex parte significationis sumi, quod negabat unus doctor, ostenditur maxime de necessitate et impossibilitate sic: propositio non dicitur necessaria vel impossibilis per intrinsecam denominationem secundum formalem necessitatem vel impossibilitatem sue entitatis, quia ipsa formaliter est res contingens; dicitur ergo necessaria vel impossibilis per extrinsecam denominationem, et non nisi quia ei correspondet aliquod intelligibile et necessarium vel impossibile pro suo per se significato.

2. Cuius oppositum probatum est de aliquibus propositionibus que sunt necessarie quibus non correspondet tanquam significatum nisi aliquod intelligibile contingens. Etiam probatum est quod nulli propositioni impossibili correspondet aliquod intelligibile impossibile tanquam eius per se significatum.

3. a) Ad quod respondet alius doctor [Andreas de Novocastro] quod per propositiones illas que sunt necessarie, de quibus probatum est quod non significatur per eas nisi res contingens, apprehenditur quoddam quasi intelligibile necessarium in proportione et figura vel forma loquendi, quia intellectus fertur super obiecta intelligibilia quasi sibi corresponderet tale intelligibile necessarium significabile complexum, sed non est ita secundum veritatem et proprietatem rei (sicut intellectus apprehendendo universaliter videtur per conceptum communem apprehendere aliquod universale intelligibile extra animam, et tamen non est ita in re).

b) Unde declarat doctor iste subtiliter causam erroris quam habet primus modus dicendi, quia sicut respectu rerum singularium forma-

mus conceptus individuales et específicos et generales, ideo ex hoc aliqui sunt ymaginati huiusmodi varietati conceptuum correspondere extra animam proportionabiliter <varietatem> de istis modis obiectorum intelligibilium, quorum unum esset singulare et inferius, aliud minus commune, aliud magis commune, et inquisiverunt quid sunt et ubi sunt; ita in proposito, quia de rebus existentibus et possibilibus apprehensiones varias formamus, quasdam incomplexas et quasdam complexas, et harum quasdam affirmativas et quasdam negativas, et quasdam veras et quasdam falsas, quasdam contingentes et quasdam necessarias, quasdam posibles et quasdam impossibles, ex hoc ymaginati sunt quod huiusmodi diversitati apprehensionum correspondet proportionabiliter differentia intelligibilium obiective terminantium. Et quia non potuerunt salvare esse incomplexa significabilia, posuerunt ista esse quorundam intelligibilium complexe significabilium, sed non ita est secundum veritatem et rei proprietatem, sed tantum secundum similitudinem et modum intelligendi, intelligimus enim varie et res dicuntur variari quasi esset talis diversitas in re.

4. a) Sed adhuc iste doctor non videtur satisfacere, quia, ut dicit, per tales propositiones necessarias aut etiam impossibles solum apprehenditur aliquod intelligibile quasi necessarium, et non quod ita sit in re, sed tantum secundum quandam figuram et modum loquendi; infero ergo etiam tales propositiones secundum rei veritatem non debent dici necessarie vel impossibles, sed tantum secundum figuram et modum loquendi. Quia, ut argumentatum est, propositio non dicitur necessaria vel impossibilis per denominationem intrinsecam, sed tantum per denominationem extrinsecam a suo significato. Sed, per ipsum, suum significatum non dicitur necessarium secundum veritatem, sed tantum secundum similitudinem et figuram, et ita non sufficienter assignat rationem necessitatis, contingentie, possibilitatis vel impossibilitatis propositionum.

b) Item, sic arguo: aliter concipitur res aliqua per propositionem necessariam, aliter per propositionem contingentem, et aliter per propositionem impossibilem, et illa alietas non tantum in conceptu est consideranda, intellectus enim movetur a re; si ergo res non aliter se habet ut concipitur per unam propositionem et per aliam, non videtur unde una propositio dicatur possibilis et alia impossibilis (et non capio ly 'ut' causaliter, ita quod causa quare res aliter se habet sit quia cognoscitur per talem noticiam). Et confirmatur, quia seclusa omni operatione intellectus quero an necesse sit ita esse taliter qualiter significabatur per istam 'Sortes possibiliter est albus' aut non. Si dicatur quod non, que-

ratur unde sumit illa propositio suam necessitatem quando est. Si dicatur quod sic, ergo aliqua necessitas est in re significata propter quam res apprehensa secundum talem necessitatem dicitur necessaria.

5. a) Dico ergo, salvo meliori iudicio, quod a re sumenda est veritas et falsitas, possibilitas et impossibilitas, necessitas et contingentia, ita quod in re seclusa omni operatione intellectus reperitur veritas vel falsitas, necessitas vel contingentia, possibilitas vel impossibilitas. Ad quod deducendum pono talem distinctionem: duplex est necessitas, scilicet, absoluta et simpliciter dicta, alia est necessitas relativa; seu aliquid dicitur necessarium dupliciter, scilicet, absolute et relative. Similiter, de contingentia dicendum est quod est duplex, absoluta et relativa; et pariforma impossibilitas dicenda est duplex, absoluta et relativa.

b) Exemplum: circumscripserunt omni operatione intellectus homo et asinus sunt res diverse (hoc cuiuslibet est manifestum). Si ergo sunt res diverse, habent quandam divisionem inter se, propter quam diversitatem intellectus potest cognoscere hominem non esse asinum. Est ergo prius in re divisio quam in intellectu, immo ille actus cognoscendi hoc nomen 'divisionis' propter res ab eo representatas sumpsit, ideo homo relative dicitur ad asinum negative seu divisive. Ideo negatio in re importata per istam propositionem 'homo non est asinus' est homo negative se habens in ordine ad asinum, a qua negatione noticia illa qua cognoscitur homo negative in ordine ad asinum habet quod dicatur negatio. Et hoc videtur dicere commentator sexto Methaphisice commento octavo, dicens quod vera affirmativa significat compositionem in entibus, et vera negativa divisionem in entibus.

c) Et homo similiter in ordine ad asinum se habet negative, non solum negative sed vere negative, et ideo est veritas relativa in re, puta ipse asinus relative se habens in ordine ad hominem.

d) Et vere est amplius necessitas relativa, nam homo non solum negative et vere refertur ad asinum, sed etiam relative necessario, ita quod homo est quid necessarium necessitate relativa in ordine ad asinum negative, homo enim necessario non est asinus, licet non sit quid necessarium necessitate absoluta (illud enim dicitur necessarium necessitate absoluta quod non potest non existere in rerum natura). Homo igitur et asinus habent necessitatem relativam in re, a qua necessitate propositio habet quod dicatur necessaria.

e) Et si queras an illa res que est homo se habeat relative affirmative ad asinum, respondeo: homo se habet relative affirmative ad asinum, sed non relative vere sed relative false, ita quod est ponenda falsitas re-

lativa in re que est ipse asinus relative affirmative et false se habens in ordine ad hominem.

f) Et non solum relative false se habens in ordine ad hominem, sed relative impossibilitate, ita quod asinus est impossibilis impossibilitate relativa, a qua impossibilitate relativa in re existente propositio illa 'homo est asinus' dicitur impossibilis. Ideo bene concedo quod non est aliquid impossibile in re impossibilitate absoluta, illud enim dicitur impossibile impossibilitate absoluta quod non potest existere in rerum natura, sed aliquid bene potest esse in re impossibile impossibilitate relativa.

6. a) i) Et si obiiciatur auctoritate Aristotelis primo Peri Hermeneias, qui ait in sola compositione et divisione intellectus esse veritatem vel falsitatem, non ergo in re est veritas vel falsitas.

ii) Respondeo: ea que logice signis attribuuntur methaphisice rebus ipsis signatis attribuuntur, sicut est de illis: affirmatio, negatio, veritas, falsitas, possibilitas, impossibilitas, necessitas, contingentia, que logicus signis, puta propositionibus, attribuit, methaphisicus vero significatis propositionum.

iii) Et si omnino contendas in re seclusa omni operatione intellectus nichil dici verum vel falsum, immo res tantum dicitur vera quando supra ipsam cadit actus intelligendi aut saltem cognoscendi, de nomine tantum contendis, ut constat, non de re. Ideo, si non placet appellare veritatem nisi quando supra ipsam fertur actus intelligendi, non contradico, sed satis est quod in re ponendum est a quo propositio denominetur illis denominationibus, quo nomine appelletur non curamus.

b) i) Sed moralis philosophus fortasse obiceret quod etiam bonitas et malicia secluso actu volendi reperirentur in re volita vel nolita,

ii) sed dico quod hoc non est concedendum, licet in aliis sit concedendum. Actus enim volendi vel nolendi per denominationem intrinsecam dicitur bonus vel malus, et non per denominationem extrinsecam.

iii) Et si diceretur quod unum actus volendi unum actum exteriorem peior est altero, et hoc non est nisi quia in obiecto uno est maior malicia, etiam seclusa volitione, quam in altero obiecto,

iv) respondeo: hoc ideo est quia ratio dictat unum esse magis nolendum quam alterum conformiter ad voluntatem divinam que vult unum obiectum esse magis nolendum quam alterum, cuius ulterior non est assignanda causa. De hoc non plura, quia aliene est investigationis.

c) i) Sed preterea sophista investigaret huiusmodi veritatem vel falsitatem relativam: nam capiatur illa propositio 'homo non est asinus', et

ponatur quod nullus sit homo neque asinus, tunc nulla est veritas relativa, quia neque homo neque asinus.

ii) Respondeo: homo et asinus sunt veritas relativa, sic intelligendo: quod homo et asinus referuntur adinvicem vere negative, quod est dicere quod homo non est asinus, cum enim dico 'homo non est asinus', ly 'est' subordinatur umi conceptui quo concipiuntur homo et asi- [f. 6rb]-nus relative, puta unitive negative, et sic se habent negative, ideo copula modum illum relationis dat intelligere (de quo in sequenti capitulo), et ita de aliis propositionibus discutiendum est. Nec profecto in hac magna difficultate verba et rigor logices in modo loquendi est tantum aspiciendus quantum sententia.

d) i) Sed ulterius instaretur, quia capta ista propositione 'omne ens est Deus' ipsa non esset possibilis, quod est falsum. Consequentia tamen probatur, quia per eam significatur asinus secundum quod refertur ad Deum affirmative, et taliter refertur impossibiliter, ergo ab illa impossibilitate illa propositio debet denominari impossibilis.

ii) Respondeo: illa propositio simpliciter denominatur possibilis, quia licet per eam tunc significetur asinus ut se habet relative affirmative ad Deum (significatione accepta ex acceptione terminorum), tamen posito quod solus Deus sit non significabitur asinus ut relative ad Deum se habens (significatione accepta ex acceptione terminorum, penes quam significationem sumitur possibilitas vel impossibilitas propositionum, ut declarabitur postea).

## B. Ad rationes:

1. a) Ad primam respondeo quod propositio vera recte sic diffinitur: propositio vera est que significat taliter qualiter est, et accipitur 'qualiter est' large, ut se extendit ad significatum propositionis de presenti, preterito et futuro (quia de hoc postea fiet mentio), et in secunda diffinitione per ly 'qualiter est' explicatur modus se habendi unius extremi vere ad alterum. Ideo, ad formam argumenti cum dicitur quod ista propositio 'homo est asinus' esset vera, negatur, et ratio est quia non significat taliter qualiter est, significat enim hominem et asinum affirmative et non est vere, quia illi affirmationi unius extremi ad alterum extremum non correspondet veritas relativa in ordine ad idem extremum.

b) i) Et si dicas: bene sequitur ista 'homo est asinus' significat hominem et asinum affirmative, et affirmative se habet homo in ordine ad asinum, ergo significat taliter qualiter est.

ii) Respondeo: ut dictum est, per ly 'qualiter esse' intelligo vere esse.

Et ideo ad pleniorum diffinitionis predictae explicationem dicendum est quod propositio vera est que significat taliter esse qualiter vere est, intelligendo copulative, ita quod sensus sit quod significat aliquid esse et taliter vere est.

c) i) Et ideo ista 'homo est asinus' est falsa, quia significat hominem et asinum affirmative, et non taliter vere est veritate relativa correspondente affirmationi, unde per illos modos 'verum' et 'falsum' signantur veritas et falsitas relativa. Ideo hoc resolvendo, si queratur quare ista est falsa 'homo est asinus', respondeo quod ideo quia significat hominem affirmative in ordine ad asinum qualiter non vere est, ymo false.

ii) Ideo propositio falsa posset sic diffiniri: propositio falsa est que significat taliter qualiter false est, id est, significat aliquid false et taliter false est. Ideo ista est vera 'homo false est asinus' quia significat quod homo false se habet ad asinum et taliter vere est.

d) Ideo patet quod ad asinum relative false se habere ad hominem sequitur quod vere relative asinus false se habet ad hominem, neque est inconveniens aliquam rem infinitis modis se habere et in illis modis se habendi procedatur in infinitum, non tamen dico ut modum se habendi de quo in presenti est mentio realiter distinctum a re que se habet.

## Bibliography

### Primary Literature

- Iohannes Buridanus, *Summulae: De Praedicabilibus*, ed. L.M. de Rijk. Nijmegen: Ingenium, 1995. (= Tract. II.)
- Iohannes Buridanus, *Summulae: In Praedicamenta*, ed. E.P. Bos. Nijmegen: Ingenium, 1994. (= Tract. III.)
- Iohannes Buridanus, *Summulae: De Suppositionibus*, ed. R. van der Lecq. Nijmegen: Ingenium, 1998. (= Tract. IV.)
- Giovanni Buridano, *Tractatus de Suppositionibus*, ed. M.E. Reina in: *Rivista Critica di Storia della Filosofia* 12 (1957), 175-208 and 323-52.
- Jean Buridan's *Logic: The Treatise on Supposition. The Treatise on Consequences*, trans. P. King. Dordrecht: Reidel, 1985.
- Iohannes Buridanus, *Quaestiones Elenchorum*, ed. R. van der Lecq and H.A.G. Braakhuis. Nijmegen: Ingenium, 1994.
- Iohannes Buridanus, *Questiones Longe super Librum Perihermeneias*, ed. R. van der Lecq. Nijmegen: Ingenium, 1983.
- John Buridan, *In Metaphysicam Aristotelis quaestiones argutissimae Joannis Buridani*, Paris 1518 (rpt. [with incorrect date of original publication of

- 1588] with title *Kommentar zur Aristotelischen Metaphysik*, Frankfurt am Main: Minerva G.M.B.H., 1964).
- John Buridan, *Questiones super octo phisicorum libros Aristotelis*, Paris 1509 (rpt. with title *Kommentar zur Aristotelischen Physik*, Frankfurt a.M.: Minerva G.M.B.H., 1964).
- John Buridan's Philosophy of Mind. An Edition and Translation of Book III of his "Questions on Aristotle's De Anima" (third redaction), with Commentary and Critical and Interpretative Essays*, by J.A. Zupko, Ph.D. Dissertation, Cornell University 1989. Ann Arbor, Michigan: UMI, 1990.
- Le traité de l'âme de Jean Buridan (prima lectura). Édition, étude critique et doctrinale*, by B. Patar. Louvain-la-Neuve: Éditions de l'Institut Supérieur de Philosophie, 1991.
- Iohannis Buridani Tractatus de Consequentibus*, ed. H. Hubien. Louvain: Publications Universitaires, 1976.
- John Buridan, *Sophisms on Meaning and Truth*, trans. T.K. Scott. New York: Appleton, 1966.
- Jean Buridan, *Sophismes*, trans. by J. Biard. Paris: Vrin, 1993.
- Johannes Buridanus, *Sophismata*, critical edition with an introduction by T.K. Scott. Stuttgart: Frommann-Holzboog, 1977.
- Johannes Buridanus, *Summulae: De Practica Sophismatum*, ed. F. Pironet. Nijmegen: Ingenium (forthcoming).
- Peter of Spain, *Tractatus called afterwards Summule logicales*, ed. L.M. de Rijk. Assen: Van Gorcum, 1972.

### Secondary Literature

- Ashworth, E.J. 1974. *Language and Logic in the Post-Medieval Period*. Dordrecht: Reidel.
- Ashworth, E.J. 1978. "Theories of the Proposition: Some Early Sixteenth Century Discussions", *Franciscan Studies* 38: 81-121 (rpt. in Ashworth 1985, ch. IV).
- Ashworth, E.J. 1981. "Mental Language and the Unity of Propositions: A Semantic Problem Discussed by Early Sixteenth Century Logicians", *Franciscan Studies* 41: 61-96 (rpt. in Ashworth 1985, ch. VI).
- Ashworth, E.J. 1985. *Studies in Post-Medieval Semantics*. London: Variorum Reprints.
- Biard, J. 1989. *Logique et théorie du signe au XIVe siècle*. Paris: Vrin.
- Conti, A. 1996. *Esistenza e verità. Forme e strutture del reale in Paolo Veneto e nel pensiero filosofico del tardo medioevo*. Roma: Istituto Storico Italiano per il Medio Evo.
- Coombs, J. 1995. "Jerónimo Pardo on the Necessity of Scientific Propositions", *Vivarium* 33: 9-26.
- Élie, H. 1936. *Le complexe significabile*. Paris: Vrin.

- Faral, E. 1949. "Jean Buridan: Maître ès arts de l'Université de Paris", *Histoire littéraire de la France* 38. Paris: Imprimerie Nationale: 462-605.
- Federici Vescovini, G. 1976. "A propos de la diffusion des oeuvres de Jean Buridan en Italie du XIVe au XVIe siècle", in: Pinborg 1976b: 21-45.
- Gál, G. 1977. "Adam of Wodeham's Question on the Complexe Significabile as the Immediate Object of Scientific Knowledge", *Franciscan Studies* 37: 66-102.
- Grassi, O. 1976. "La questione della teologia come scienza in Gregorio da Rimini", *Rivista di filosofia neoscolastica* 68: 610-44.
- Grassi, O. 1986. *Intuizione e significato. Adam Wodeham ed il problema della conoscenza nel XIV secolo*. Milano: Jaca Book.
- Hughes, G.E. 1982. *John Buridan on Self-Reference* (chapter eight of Buridan's *Sophismata*, with a translation, an introduction, and a philosophical commentary). Cambridge: Cambridge University Press.
- Kaluza, Z. and Vignaux, P. (eds.) 1984. *Preuve et raisons à l'Université de Paris*. Paris: Vrin.
- Karger, E. 1984. "Un débat médiéval sur le concept de sujet d'un énoncé catégorique. Étude d'un texte de Jean Buridan", in: Kaluza and Vignaux 1984: 111-25.
- Karger, E. 1995. "William of Ockham, Walter Chatton and Adam Wodeham on the Objects of Knowledge and Belief", *Vivarium* 33: 171-96.
- King, P. 1985. "Introduction: Buridan's Philosophy of Logic", in: idem (trans.), *Jean Buridan's Logic: The Treatise on Supposition. The Treatise on Consequences*. Dordrecht: Reidel.
- King, P. Forthcoming. "Jean Buridan on Mental Language", in: C. Norniore (ed.), *The Language of Thought: The Medieval Perspective*. Toronto: University of Toronto Press.
- Klima, G. 1999. "Buridan's Logic and the Ontology of Modes", in: S. Ebbesen and R.L. Friedman (eds.), *Medieval Analyses in Language and Cognition*. Copenhagen: The Royal Danish Academy of Sciences and Letters: 473-95.
- Kretzmann, N. 1970. "Medieval Logicians on the Meaning of the Proposition", *The Journal of Philosophy* 67: 767-87.
- Markowski, M. 1984. "L'influence de Jean Buridan sur les universités d'Europe centrale", in: Kaluza and Vignaux 1984: 149-63.
- Michael, B. 1985. *Johannes Buridan: Studien zu seinen Leben, seinen Werken und zur Rezeption seiner Theorien im Europa des späten Mittelalters*. Berlin: Freien Universität Berlin.
- Normore, C. 1985. "Buridan's Ontology", in: J. Bogen and J.E. McGuire (eds.), *How Things Are. Studies in Predication and the History of Philosophy and Science*. Dordrecht: Reidel: 189-203.
- Nuchelmans, G. 1973. *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North Holland.
- Nuchelmans, G. 1980a. *Late Scholastic and Humanist Theories of the Proposition*. Amsterdam: North Holland.

- Nuchelmans, G. 1980b. "Adam Wodeham on the Meaning of Declarative Sentences", *Historiographia Linguistica* 7: 177-87.
- Nuchelmans, G. 1982. "The Semantics of Propositions", in: N. Kretzmann, A. Kenny, and J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy*. Cambridge: Cambridge University Press: 197-210.
- Panaccio, C. 1999. *Le discours intérieur. De Platon a Guillaume d'Ockham*. Paris: Seuil.
- Pérez-Ilzarbe, P. 1999. *El significado de las proposiciones. Jerónimo Pardo († 1502) y las teorías medievales de la proposición*. Pamplona: Eunsa.
- Pinborg, J. 1967. "Walter Burleigh on the Meaning of Propositions", *Classica et mediaevalia* 28: 394-404.
- Pinborg, J. 1976a. "The Summulae, Tractatus I De Introductionibus", in: Pinborg 1976b: 71-90.
- Pinborg J. (ed.) 1976b. *The Logic of John Buridan*. Copenhagen: Museum Tusulanum.
- Pironet, F. 1993. "John Buridan on the Liar Paradox: Study of an Opinion and Chronology of the Texts", in: K. Jacobi (ed.), *Argumentationstheorie: scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*. Leiden: E.J. Brill: 293-300.
- dal Pra, M. 1956. "La teoria del significato totale della proposizione nel pensiero di Gregorio da Rimini", *Rivista critica di storia della filosofia* 11: 287-331.
- Prior, A.N. 1962. "Some Problems of Self-reference in John Buridan", *Proceedings of the British Academy* 48: 281-96.
- Reina, M.E. 1959. "Il problema del linguaggio in Buridano (I: Voci e concetti)", *Rivista critica di storia della filosofia* 14: 367-417.
- Reina, M.E. 1960. "Il problema del linguaggio in Buridano (II: Significazione e verità)", *Rivista critica di storia della filosofia* 15: 141-65.
- Reina, M.E. 1986. "Cognizione intuitiva ed esperienza interiore in Adamo Wodeham", *Rivista di storia della filosofia* 41: 19-49 and 211-44.
- Scott, T.K. 1966. "Introduction", in idem (trans.), *John Buridan: Sophisms on Meaning and Truth*. New York: Appleton.
- Sirridge, M. 1978. "Buridan. 'Every proposition is false' is False", *Notre Dame Journal of Formal Logic* 19: 397-404.
- Spade, P.V. 1975. "Ockham's Distinctions between Absolute and Connotative Terms", *Vivarium* 13: 55-76 (rpt. in Spade 1988, ch. XI).
- Spade, P.V. 1978. "John Buridan on the Liar. A Study and Reconstruction", *Notre Dame Journal of Formal Logic* 19: 579-90 (rpt. in Spade 1988, ch. VI).
- Spade, P.V. 1988. *Lies, Language, and Logic in the Late Middle Ages*. London: Variorum Reprints.
- Spruyt, J. 1993. "John Buridan on Negation and the Understanding of Non-being", in: E.P. Bos and H.A. Krop (eds.), *John Buridan: A Master of Arts. Some Aspects of his Philosophy*. Nijmegen: Ingenium: 23-39.

- Tachau, K.H. 1987. "Wodeham, Crathorn and Holcot: the Development of the *complexe significabile*", in: L.M. de Rijk and H.A.G. Braakhuis (eds.), *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*. Nijmegen: Ingenium: 161-87.
- Tachau, K.H. 1988. *Vision and Certitude in the Age of Ockham. Optics, Epistemology and the Foundations of Semantics (1250-1345)*. Leiden: E.J. Brill.
- Zupko, J. 1994-1997. "How It Played in the Rue de Fouarre: The Reception of Adam Wodeham's Theory of the *complexe significabile* in the Arts Faculty at Paris in the Mid-Fourteenth Century", *Franciscan Studies* 54: 211-25.