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COMPLEXIO, ENUNCIATIO, ASSENSUS:
THE ROLE OF PROPOSITIONS IN KNOWLEDGE
ACCORDING TO JOHN BURIDAN

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This paper is an attempt to rethink Buridan's ideas concerning knowledge (which are well known after the work of de Rijk and Zupko)¹ from two perspectives: On the one hand, I explore Buridan's theory of knowledge in the hope that it will shed some light on the intuition that the structure of propositions determines the justification of our beliefs on various different levels. On the other hand, I would like to contribute to demonstrating the consistency of Buridan's thought, which has been remarked by almost all scholars working on Buridan: in particular, I am interested in exploring the benefits of using supposition theory when applied to the theory of knowledge.

The aim of this paper, suggested in the subtitle: the role of propositions in knowledge, is therefore to explore the interweaving between Buridan's theory of propositions and some aspects of his theory of knowledge. I will start by examining Buridan's conception of *scientia* (as opposed to *error*, *opinio* and *fides*), from the perspective of two distinctions which are very

¹ On Buridan's theory of knowledge, see: E. A. MOODY, *Ockham, Buridan and Nicholas of Autrecourt*, «Franciscan Studies», VII, 1947, p. 113-146; T. K. SCOTT, *Nicholas of Autrecourt, Buridan and Ockhamism*, «Journal of the History of Philosophy», IX, 1971, p. 15-41; J. M. M. H. THIJSSSEN, *John Buridan and Nicholas of Autrecourt on causality and induction*, «Traditio», XLIII, 1987, p. 238-255; M. E. REINA, *Comprehensio veritatis. Una questione di Marsilio di Inghen sulla Metafisica*, in *Filosofia e teologia nel Trecento. Studi in ricordo di Eugenio Randi*, ed. by L. Bianchi, Louvain-la-Neuve, Fédération Internationale des Instituts d'Études Médiévales, 1994, p. 283-335; L. M. DE RIJK, *John Buridan on man's capability of grasping the truth*, in *Scientia und Ars im Hoch- und Spätmittelalter*, ed. by I. Craemer-Ruegenberg and A. Speer, Berlin, Walter de Gruyter, 1994, p. 281-303; L. M. DE RIJK, *Foi chrétienne et savoir humain. La lutte de Buridan contre les theologizantes*, in *Langages et philosophie. Hommage à Jean Jolivet*, ed. by A. de Libera et al., Paris, Vrin, 1997, p. 393-409; G. KRIEGER, «'Naturaliter principiis assentimus': Naturalism as the foundation of human knowledge?», in *The Metaphysics and Natural Philosophy of John Buridan*, ed. by J. M. M. H. Thijssen and J. Zupko, Leiden, Brill, 2001, p. 97-125; J. ZUPKO, *Buridan and skepticism*, «Journal of the History of Philosophy», XXXI, 1993, p. 191-221; J. ZUPKO, *On certitude*, in *The Metaphysics and Natural Philosophy of John Buridan* cit., p. 165-182.

important to Buridan's theory of the proposition: *complexio / enunciatio* and *enunciatio / assensus*.² Then I will recall Buridan's analysis of propositions (and his use of supposition to define truth conditions) to show their consistency with this conception of knowledge.

1. Buridan's idea of science

According to Buridan, humans are related to the world in a particular way: on the one hand, they are naturally inclined to know it, but, on the other hand they are also open to error and doubt; moreover, the realm of knowledge is extended by a new possibility absent in Aristotle: faith. Buridan's idea of science is drawn up against these related notions. Among the four senses of *scientia* that he distinguishes in the eighth tract of his *Summulae*, I will take the wider sense, according to which science is contrasted mainly with opinion,³ a sense which is captured by the following definition:

² I shall base my analysis of Buridan's theory on texts from the *Summulae: De Demonstrationibus* (*Summ VIII: Johannes Buridanus Summulae De Demonstrationibus*, ed. by L. M. de Rijk, Groningen-Haren, Ingenium, 2001, Artistarium 10-8), the question-commentary on the *De Anima* (*De An: Le traité de l'âme de Jean Buridan (Prima Lectura)*, Edition, étude critique et doctrinale par B. Patar, Louvain-la-Neuve, Editions de l'Institut Supérieur de Philosophie, Longueuil, Editions du Préambule, 1991), the question-commentary on the *Metaphysics* (*In Met: In Metaphysicam Aristotelis Quaestiones*, Paris, 1518. Reprint: Frankfurt am Main, Minerva, 1965) and the question-commentary on the *Posterior Analytics* (*Q An Post*, the only of the works cited which is yet unpublished). I will also refer to some texts from the *Summulae: De Suppositionibus* (*Summ IV: Johannes Buridanus Summulae De Suppositionibus*, ed. by Ria van der Lecq, Nijmegen, Ingenium Publishers, 1998, Artistarium 10-4), the question-commentary on the *Physics* (*Q Phys: Quaestiones super octo Physicorum libros Aristotelis*, Paris, 1509. Reprint: Frankfurt am Main, Minerva, 1964), the question-commentary on the *Nicomachean Ethics* (*Q Eth: Quaestiones super decem libros Ethicorum Aristotelis*, Paris, 1513. Reprint: Frankfurt am Main, Minerva, 1968), and the *Sophismata* (*Soph: Sophismata*, Critical edition with an introduction by T. K. Scott, Stuttgart, Frommann-Holzboog, 1977).

³ «Sed tamen oportet notare quod ad salvandum dicta philosophorum oportet distinguere de hoc nomine 'scientia', sicut distinguit Commentator, primo Posteriorum. Scientia namque quaecumque communiter accepta in nobis est notitia propositionis adhaesiva cum certitudine et evidentia, ut distinguatur ab opinione (ut dicitur post), sive sit propositionis necessariae, sive contingentis. Et certum est quod non omnis talis per demonstrationem acquiritur. Sed proprie nomen 'scientiae' restringitur ad notitiam intellectualem necessariae propositionis. Et ista notitia bene est non solum conclusionum, sed etiam principiorum indemonstrabilium, quae non sunt acquisita per demonstrationem. Adhuc, magis proprie, nomen 'scientiae' restringitur ad notitiam intellectualem conclusionis demonstrabilis, excludendo notitiam principiorum indemonstrabilium. Et ita, sexto Ethicorum, distinguimus nomen 'scientiae' contra nomen 'intellectus', prout intellectum dicimus habitum principiorum. Et sic omnis scientia acquiritur per demonstrationem. Et adhuc, propriissime, restringimus nomen 'scientiae' ad notitiam intellectualem adhaesivam cum certitudine et evidentia speculativae conclusionis necessariae et demonstrabilis. Et ita distinguimus, sexto Ethicorum, scientiam contra intellectum, artem et prudentiam. Unde sic omnis scientia habetur per de-

«Scientia est assensus firmus et evidens superveniens propositioni mentali, quo illi cum certitudine et evidentia assentimus». (*Summ VIII*, 3.7. p. 88)

That is, for Buridan, science is a kind of *assent*, having a *proposition* as its immediate object, and characterised (in contrast to error, opinion, and faith) as having *certitude* and *evidentness*. Let us examine separately each one of these four elements.

1.1. Propositions

According to Buridan, propositions are the immediate object of science. We may claim to have science of several non-propositional things (such as animals, stones, celestial bodies, etc.) only in so far as we have science of the corresponding propositions that include terms suppositing for them.⁴ This central role of propositions suggests the hypothesis that the features of scientific knowledge are determined by the structure of propositions and their relations to the world.

In Buridan's opinion, a proposition is a special type of complex linguistic expression, which has a special semantic relation to the world. On the one hand, a proposition, being an expression composed of significative terms, does signify something, and so it is similar to terms in so far as it has the same semantic relation to the world, namely, signification. But, on the other hand, signification, although present in propositions, is not the semantic relation specific to them. Buridan's distinction between *complexiones distantes* and *complexiones indistantes* is introduced to mark the dif-

monstrationem, sed non omnis conclusionis necessariae et evidenter demonstratae est scientia: sunt enim demonstrationes necessariae et evidentes in arte et in prudentia, ut in moralibus et in medicinalibus, et non est dicto modo scientia conclusionum demonstratarum, sed ars vel prudentia». (*Summ VIII*, 4.3, p. 109-110).

⁴ «Tertia clausula est quod omnis opinio est propositionis opinabilis et omnis scientia propositionis scibilis. Nullus enim dicit se scire vel opinari hominem vel asinum nisi quia (scitur vel) opinatur aliquam propositionem formatam ex istis terminis 'homo' vel 'asinus', ut quod opinatur hominem esse probum vel asinum esse fortem, et huiusmodi. Tamen non propter hoc debemus dicere quin habeamus scientias vel opiniones de animalibus, de lapidibus, de corporibus caelestibus, quae tamen non sunt propositiones; et quin etiam habeamus scientias et opiniones de subiectis scientiarum et eorum passionibus, quae etiam non sunt propositiones, sed termini significativi. Sed debemus dicere quod illud cuius immediate est scientia vel opinio, est propositio cui scientia vel opinione assentimus. De terminis autem scitis scientiam habere dicimus vel opinionem, ex eo quod scimus vel opinamur propositiones ex illis terminis constitutas. Et iterum res alias, ut lapides et ligna, dicimus esse scitas vel opinatas, vel de eis esse scientiam vel opinionem, ex eo quod significantur per terminos ex quibus propositiones scitae vel opinatae componuntur. Et hoc modo, et non aliis duobus modis, habemus scientiam de omnibus rebus». (*Summ VIII*, 4.3, p. 108). See also: *Q An Post* I, 32 and *Q Phys* I, 1, f. 2va.

ference between propositions and mere complex terms. Propositions are the only *complexiones distantes*, complexes in which the copula 'est' or 'non est' mediates between the terms combined: the result of this mediation is that the complex constitutes a unity of a higher level, an *enunciatio* rather than a mere *complexio*. That is, a proposition is intended to «say something about something», not just plainly to signify things (as terms do), and, as a consequence, propositions have a specific semantic relation to the world, by virtue of which they can be said to be true or false.⁵

Here is then a first quality of propositions, which determines the nature of science by contrast with error: as propositions are the kind of complex expressions that are open to truth and falsity, our attempts to know, which concern propositions, are open to being right and wrong, and what distinguishes science from error is that the former's object is a true proposition, whereas the latter's object is a false one.⁶ The fact that it consists of a kind of grasping some propositions is essential to the characterisation of science. To see what kind of grasping is indicated, we now need to examine the next element of the definition.

1.2. Assent

Not only science, but also error, opinion and faith, are a special kind of intellectual operation: an assent to a proposition, which consists of a belief that a proposition is true.⁷ Assent is the second level distinguished by Buridan in a set of (up to) three levels of intellectual operations concerning propositions: first, one can consider a proposition without assenting to or dissenting from it; second, one can assent to or dissent from the proposition first considered; and third, if the proposition concerns something *agibile* (something than can be done), one can either want or reject it.⁸

⁵ See P. PÉREZ-ILZARBE, *John Buridan and Jerónimo Pardo on the notion of 'propositio'*, in *John Buridan and Beyond*, ed. by R. L. Friedman and S. Ebbesen, Copenhagen, Royal Danish Academy of Sciences and Letters, 2003, p. 149-177.

⁶ Concerning the possibility of error in sensory (non-propositional) knowledge, see *In Met* II, 1, f. 9r and *De An* II, 11, p. 316-324.

⁷ «Quod enim sic assentimus apparet, quia omnis scientia et omnis opinio est fides seu credulitas quaedam qua de propositione putamus vel credimus quod ipsa sit vera, vel quod ita sit sicut ipsa significat, ad sensum alias datum; et hanc fidem seu credulitatem (aut quocumque nomine vocetur) vocamus 'assensus'». (*Summ* VIII, 4.3, p. 107). See also *Q An Post* I, 32.

⁸ «Quantum ad primum sciendum est quod circa propositionem mentalem duo possunt esse motus animae. Unus est apprehensio vel consideratio illius propositionis sine assensu vel dissensu, et iste motus animae ab Aristotele aliquando vocatur 'phantasiatio' vel 'phantasia'; alius po-

Let us focus on the difference between merely considering a proposition and assenting to (or dissenting from) it. Buridan insists that assent cannot be assimilated to the proposition itself, but is a new operation of the intellect, added to the formation of the proposition.⁹ The strongest proof that they are different is, as usual in Buridan, the possibility of existing separately: in fact, it is possible to construct a mental proposition, without having a cause that generates either the assent to or the dissent from it.¹⁰ In the move from a proposition to the assent to it, the intellect always needs a cause that impels it into action.

So what are the causes that generate assent or dissent? Sometimes the intellect is moved to assenting to the proposition by an act of the will (this is, for example, the case of the assent of faith); on other occasions, the intellect is moved to assenting to the proposition not by an extrinsic cause, but by the very proposition that manifests itself as true (be that truth a real or an apparent one). This is a conclusion that can be drawn from Buridan's repeated thesis that the intellect is naturally inclined to assent to truth.¹¹ Given this natural inclination, the cause that moves the intellect actually to assent to a proposition, when there is no decision of the will, is that the proposition presents itself to the intellect as true. As we shall see, this may happen in two ways: either the truth of the proposition is manifested as «evident» (which, in turn, may happen in different ways that we will consider), or the proposition, true or false, just «appears» to be true.¹²

test esse motus animae circa talem propositionem, qui vocatur 'assensus' vel 'dissensus'. [...] Item, quandoque quando enuntiatio est de aliquo agibili, potest esse tertius motus qui vocatur 'velle' vel 'renuere'». (*De An* III, 16, p. 489).

⁹ «Haec ergo tertia pars ponit in quinque clausulis quinque convenientias scientiae et opinionis. Prima est quod neque scientia neque opinio est propositio, sed assensus additus quo propositioni assentimus». (*Summ* VIII, 4.3, p. 107) «Et credo quod scientia vel opinio non sit ipsa conclusio, sicut aliqui dicunt; immo scientia vel opinio est adhaesio sive assensus superveniens ipsi conclusioni formate». (*Q An Post* I, 32).

¹⁰ «Possibile enim esset quod aliquis habeat propositionem formatam in mente, tamen nec ei assentit nec ei dissentit, et postea per rationem vel per experientiam vel per sensum generatur sibi assensus, qui iam est scientia vel opinio». (*Q An Post* I, 32). See also: *De An* III, 13, p. 473 and 16, p. 489; *In Met* IV, 2, f. 13va.

¹¹ «Ex his videtur quod assentire vero insit intellectui naturaliter; nec credo istud aliter posse probari nisi finaliter per experientiam. Unde imaginari debemus intellectum naturaliter esse inclinatum ad assentiendum vero, sicut grave naturaliter est inclinatum ad descendendum, etc.». (*De An* III, 14, p. 480) «Hoc erat argumentum Platonis, quod non potest solvi nisi dicendo quod intellectus noster naturaliter inclinatur ad scire et ad veritatem sicut ignis naturaliter inclinatur ad calefaciendum». (*In Met* I, 5, f. 6ra). See also texts in notes 16 and 17.

¹² This is the sense of Buridan's distinction between *apparentiae* that generate opinion (*quae generant opinionem*) and *apparentiae* that generate assent with evidentness (*apparentia qua fit assensus cum evidentia*): there are two ways in which a proposition offers itself to the intellect. See *De An* III, 13 (concl. 4 and 5, p. 476-477).

Just as the possibility of *enunciationes* being true or false opens the intellect to both science and error, the different causes of *assensus* mark the difference, in the first place, between the «extrinsically caused» assent of faith and the «naturally caused» assent of both science and opinion; and, in the second place, between the scientific assent caused by an «evident» truth and the opinion assent caused by an «apparent» truth (that moves the intellect with a different strength). Let us now discuss in detail the two features that characterise science in contrast to other kinds of assent.

1.3. Evidentness

Buridan characterises evidentness (as far as human cognition is concerned) as something by virtue of which «the cognitive power, either by its nature or due to an evident consideration, is bound to assent to some true proposition». ¹³ That is, evidentness is a kind of strength inherent in some true propositions, by virtue of which the truth of certain propositions forces the intellect to assent. The distinction «either by its nature or due to an evident consideration» introduces two kinds of evidentness, which may be called 'direct' and 'indirect': sometimes the intellect is directly moved by the proposition, given its inclination to truth (Buridan also says it assents «per se»), some other times the proposition can only move the intellect with the help of some intermediary (and so, the intellect is forced to assent not «per se» when faced with the proposition, but «ex quibusdam aliis»). ¹⁴

This distinction explains the two different answers to the question concerning the possibility of error: can the intellect dissent to an evident truth? Only in the cases of 'indirect' evidentness, when the intellect is forced to assent «ex quibusdam aliis», that is, «due to an evident consideration», but this reason that forces the intellect to assent has not yet been considered (and there is, instead, another reason that may cause the dissent). For ex-

¹³ «Nam evidentia quaedam humana est secundum quam virtus cognoscitiva ex eius natura vel per rationem evidentem determinatur ad assentiendum veritati seu propositioni verae [...]». (*Summ VIII*, 4.4, p. 114).

¹⁴ «Tunc de secundo motu de quo principaliter est quaestio, videlicet de assensu, sit primo ista distinctio quod intellectus aliquibus assentit per se ut, quamcito cognoscit terminos, ipsa cognoscit et eis assentit, sicut est de primis principiis; aliquibus autem assentit ex quibusdam aliis, sicut conclusionibus assentit propter praemissas et propter quasdam apparentias et probabilitates». (*De An III*, 16, p. 490) «Cum ergo propositio in mente formata sit nobis dubia et intellectus non ex sua natura est determinatus ad assentiendum ei, necesse est, si debeat ei assentire cum certitudine et evidentia, quod ad hoc determinetur per alias propositiones istam concludentes quibus sic assentiat». (*Summ VIII*, 3.7, p. 88).

ample, the intellect is not forced to assent to the conclusions (such as «omnis triangulus habet tres angulos aequales duobus rectis»), when the reasons that support them are not yet available, ¹⁵ nor is it forced to assent to the principles acquired by experience (such as «omnis ignis est calidus») before having gained the necessary experience. ¹⁶ In contrast, when the intellect is moved «per se» or «by its nature», for example, when faced with the first principles (either with first principles evident by their logical form, such as «impossibile est eundem hominem currere et non currere», or with first principles evident by their terms inclusion, such as «nullum calidum est frigidum») the intellect cannot dissent, although it can decide not to consider them. ¹⁷

Along with this division of assent according to the mediated or immediate nature of the relation between intellect and truth, Buridan establishes another division of assent according to the nature of the truth of the proposition. On the one hand, there is the evidentness of necessary propositions; on the other hand, there is the evidentness of contingent propositions (as, in the first, wider sense of science that we are examining, contingent propositions may also be scientifically known: for example, when I see Socrates running, I am forced to assent to the proposition «Socrates currit», and this

¹⁵ «Secunda conclusio: de aliquibus quae non occurrunt prima facie, in potestate hominis est ut advertat circa probabilitates vel demonstrationes vel experientias ex quibus potest deduci ista conclusio: "mundus est aeternus", vel ista: "triangulus habet tres aequales duobus rectis". Tertia conclusio: habitis talibus apparentiis quod tale est verum, homo non potest libere ei dissentire, stantibus talibus apparentiis, nec libere assentire ei opposito; immo quodammodo cogitur per illas apparentias ut credat taliter esse». (*De An III*, 16, p. 490).

¹⁶ «Secunda conclusio: intellectus principis acquisitis non statim cum sibi praesentantur assentit. Patet, quia non sunt ita manifesta intellectui quin intellectus circa ea possit dubitare». (*De An III*, 14, p. 480) «Postea etiam sunt aliqua principia universalis que propter experimenta in multis singularibus consimilibus conceduntur ab intellectu propter naturalem inclinationem intellectus ad veritatem, sicut quod omnis ignis est calidus, quod sol est calefactivus, quod omne reubarbarum est purgativum colere, quod omne quod fit fit ex aliquo presupposito, quod omne mixtum est corporale, et sic de multis principis naturalibus. Et ista principia non statim a principio cognoscuntur (immo possemus de eis diu dubitare), sed ideo dicuntur principia quia sunt indemonstrativa et omnino non possunt demonstrari nec etiam probari per rationem formaliter concludentem, immo solum conceduntur quia sic[ut] vidimus in pluribus singularibus et in nullis positivis invenire instantia». (*In Met II*, 2, f. 9vb).

¹⁷ «Tunc sit prima (conclusio): principis complexis innatis intellectus non potest dissentire. Patet, quia sunt ita manifeste vera, quod quamcito praesentantur intellectui, intellectus iudicat ea esse vera, eo quod apparent intellectui esse vera; et cum intellectus inclinatus sit ad assentiendum vero sibi manifesto, statim eis assentiet et nullo modo dissentiet. Nihilominus intellectus primo principio potest non assentire, quia intellectus potest omnino non considerare; cum autem non considerat, primo principio non assentit, ex eo quod assentire est considerare». (*De An III*, 14, p. 480). See also *De An III*, 16, p. 490, *Summ VIII*, 5.3, p. 124-125, and *Q Eth VI*, 11, f. 127ra.

is science in the wider sense).¹⁸ As for the evidentness of necessary propositions (that is, propositions that cannot be falsified) there is a further distinction: there is the evidentness of those propositions that cannot be falsified at all (or *simpliciter*, that is, by any power, not even divine power) on the one hand, and there is evidentness, by contrast, of those propositions that cannot be falsified in natural circumstances (or «ex suppositione communis cursus naturae», although they can be falsified by divine power, in a supernatural way).¹⁹ It should be noted that this division of kinds of evidentness does not introduce any difference concerning the degree of assent: whether it is a contingent or a necessary truth, either *simpliciter* or *ex suppositione*, when faced with an evident truth, the intellect is always determined to assent to it.

But the intellect is not always determined to assent to the proposition that causes the assent. The intellect can even give its assent to a false proposition,²⁰ and Buridan is convinced that there can only be determination to assent about true propositions: a false proposition cannot have any kind of evidentness²¹ (unless we admit a weak and improper sense of 'evidentness', the one that suffices for moral acts).²² But if the intellect can, sometimes, give assent to a non-evident proposition, it must be moved not by evidentness, but by other causes: Buridan says «per rationes et persuasiones proba-

¹⁸ «Sed tu quaereres, si ego manifeste video Socratem currere, an ego scio quod Socrates currit vel quod ego solum hoc opinor. Et ego respondeo quod tunc hoc non opinor sed scio. Omnes enim sic loquuntur "scio quod hoc ferrum est calidum, quia manifeste sentio ipsum esse calidum" et "scio firmiter quod Socrates heri currebat, quia vidi eum currere". Sed haec scientia non est in secundo vel in tertio vel in quarto modorum prius distinctorum, sed in primo modo. Ille tamen primus modus bene universaliter distinguitur contra opinionem. Et si iste assensus quo ego assentio quod Socrates currit, videns eum currere, remaneat, recedente Socrate a sensu, iste amplius non erit scientia, sed opinio. Ideo talis modus scientiae cito et faciliter mutabilis est in opinionem». (*Summ VIII*, 4.4, p. 114).

¹⁹ «Proportionabili modo distinguitur de evidentia sicut de certitudine. Nam evidentia quaedam humana est secundum quam virtus cognoscitiva ex eius natura vel per rationem evidentem determinatur ad assentiendum veritati seu propositioni verae, non possibili falsificari per aliquam potentiam; et ista non requiritur ad scientiam naturalem. Alia est secundum quam virtus cognoscitiva determinatur ex natura sua (vel per rationem evidentem) ad assentiendum veritati seu propositioni verae, non possibili falsificari naturaliter, licet falsificari (posset) supernaturaliter. Et haec requiritur ad scientiam naturalem». (*Summ VIII*, 4.4, p. 114). See also *Q An Post I*, 2.

²⁰ «Ymo non solum possumus assentire propositioni vere, ymo sepe assentimus falsis». (*In Met II*, 1, f. 8vb).

²¹ «Quarta conclusio: impossibile est quod aliquis habeat apparentias evidentes de falso. Patet, quia de falso non potest esse evidentia». (*De An III*, 13, p. 475).

²² «Immo est adhuc alia debilior evidentia que sufficit ad bene agendum moraliter, scilicet quando visis et inquisitis omnibus circumstantiis factis quas homo cum diligentia potest inquirere, si iudicet secundum exigentiam huiusmodi circumstantiarum illud iudicium erit evidens evidentia sufficiente ad bene agendum moraliter, etiam licet iudicium sit falsum propter invincibilem ignorantiam alicuius circumstantie». (*In Met II*, 1, f. 9ra).

biles».²³ Some propositions, which are not evident, manifest some appearance of truth. It is this appearance, given (again) the natural inclination of the intellect to truth, that causes the assent.

But appearance does not move the intellect in the same way as evidentness does. Unless the intellect is determined to assent by an added decision of the will (as is the case with «obstinate heretics» who firmly maintain their opinions),²⁴ appearances do not force the intellect to assent firmly, but they just incline it in one direction or the other. This distinction leads us to the last element in the definition of science: certitude.

1.4. Certitude

Buridan distinguishes (as Jack Zupko has remarked) an «objective» sense of *certitudo* («certainty», also called *firmitas veritatis*) and a «subjective» sense («certitude», also called *firmitas assensus*).²⁵ Objective certainty is the same as the truth of the proposition²⁶ (or its necessary truth, when it comes to the stricter senses of 'scientia'),²⁷ and it is required in order to have science as opposed to error, since something false cannot be known. Subjective certitude, on the other hand, is required in order to have science as opposed to opinion.²⁸ Buridan distinguishes three ways to obtain certitude: first, by evidentness (this is scientific assent); second, by an act of the

²³ «Si intellectus aliquando assentit falso, hoc est propter hoc quod intellectus illud falsum credit esse verum propter aliquas rationes et persuasiones probabiles». (*De An III*, 14, p. 480). See also *In Met II*, 1, f. 8vb.

²⁴ See note 29.

²⁵ For an explanation of the two senses, see J. ZUPKO, *On certitude* cit. (note 1), p. 167-168.

²⁶ «Certitudo enim requiritur duo. Unum ex parte propositionis cui assentitur, scilicet quod sit vera; non enim est certa credulitas qua falso assentimus, sed incerta et fallax; et manifestum est quod hoc modo certitudo requiritur ad scientiam, quia falsum non scimus». (*Summ VIII*, 4.4, p. 111). See also *Q An Post I*, 2.

²⁷ «Dico quod exigitur firmitas veritatis ad hoc ut conclusio sit scibilis; ideo de possibilibus aliter se habere, id est de propositionibus contingenter se habentibus, non est scientia». (*Q An Post I*, 32) «Et tunc oportet notare quod ad assentiendum veritati cum certitudine requiritur firmitas veritatis et firmitas assensus; modo firmitas veritatis est possibilis: uno modo, simpliciter, ut in hac propositione: "Deus est", quia in nullo casu falsificari potest, sed etiam est firmitas veritatis ex suppositione communis cursus nature, et sic esset firma veritas quod celum movetur, quod ignis est calidus et sic de aliis propositionibus et conclusionibus scientie naturalis». (*In Met II*, 1, f. 8vb).

²⁸ «Et aliud ex parte nostra, scilicet quod assensus noster sit firmus, scilicet sine dubitatione seu formidine ad oppositum; et hoc etiam requiritur ad scientiam, quia assensus dubitativus et formidinalis non transcendit metas opinionis. Si quis enim assenserit propositioni cum formidine ad oppositum, numquam dicit se scire quod ita est, sed quod putat vel credit ita esse». (*Summ VIII*, 4.4, p. 111). See also *Q An Post I*, 2.

will added to some authority (this is the assent of catholic faith, for example), and third, as we shall see, it is also possible to obtain firmness of assent from some strong appearances of truth.²⁹ But only the first mode of certitude generates science, and I consider this kind of certitude to be the natural result of evidentness: when truth manifests itself as truth, the intellect, naturally inclined to do so, is *determined* to assent (evidentness), and so it gives a *firm* assent to this truth (certitude).

When there is no evidentness, by contrast, the intellect is not determined to assent, but it may compare the *apparentiae* for and against (that is, the *apparentiae* for the proposition and for the contradictory of the given proposition), and consequently it assents, dissents or neither assents nor dissents. For example, when a proposition is not evident and the *apparentiae* for it and for its contradictory are balanced, the intellect does not give assent nor dissent.³⁰ But as soon as the *apparentiae* for one of them increase, the intellect is inclined to assent to it, although, because of the lack of evidentness, there is not a determination to assent and this inclination can be reversed if some new *apparentiae* are presented. This is how different degrees of assent are possible, always confined to the sphere of opinion. According to Buridan, the appearances that give rise to opinion can be so strong as even to move the intellect to assenting without fear (both to true propositions and to false ones), but this lack of fear does not convert opinion into science, because the firmness of assent that constitutes science is always caused by an objective certainty (*firmitas veritatis*) which is able to manifest itself as true, so that it can determine the intellect to assent (*evidentia*).

Thus, the difference between science and opinion is not just a matter of subjective firmness: in the determination of the intellect to assent (together with the natural inclination of the intellect to truth) there is a role played by the proposition itself. Buridan uses the metaphor that compares the intel-

²⁹ «Quod autem de inevidentibus et non scitis homo habeat firmam credulitatem, scilicet si ne ulla formidine, apparet per Aristotelem, septimo Ethicorum, dicentem "quidam credunt nihil minus quibus opinantur quam alteri quibus sciunt". Provenit autem in nobis talis firmitas assensus sine aliqua formidine de opposito tripliciter: uno modo per evidentiam, et ille est assensus scientificus; alio modo ex voluntate, cum auctoritate sacrae scripturae, et sic est de fide catholica in sanctis qui pro ea sustinenda eligunt mori; et adhuc, tertio modo, ex apparentia falsa cum voluntate ad hoc detenta, sicut est de pertinacibus haereticis, qui etiam mori eligunt pro sua falsa opinione sustinenda». (*Summ VIII*, 4.4, p. 112). See also *In Met II*, 1, f. 8vb.

³⁰ «Tunc sit prima conclusio: si aliqua propositio non est certa, et si sunt apparentiae aequae fortes pro ea et sibi contradictoria, intellectus neutri illarum assentiet nec dissentiet. Patet, quia tantum quantum apparentia pro una movet intellectum ad assentiendum illi, tantum apparentia pro alia retrahit intellectum; et per consequens intellectus tenet se in suspensio, non iudicans nec sententians pro una nec alia». (*De An III*, 13, p. 474).

lect with a fair judge, who listens to what propositions have to say to defend themselves.³¹ This emphasis on the role played by propositions also explains the fact that for Buridan the assent of faith is not a scientific assent: because the proposition, although necessarily and firmly true, does not manifest itself as true.³²

In sum, Buridan's idea of science seems to be based on the presupposition that some propositions are specially suitable for human minds: certain propositions *fit* the intellect in a particular way, while some other propositions, even some which are *verissime*, do not fit the intellect in this sense. And so I interpret Buridan as claiming that there must be something in the structure of propositions that makes them deserve various different kinds of assent.

2. The role of propositions in knowledge

By way of a conclusion, I want to show the consistency of Buridan's claims about science with his theory of propositions. I will give some examples showing how Buridan's analysis of the structure and truth conditions of propositions allows him to explain the evidentness of truth (and thus the certitude of assent) that generates scientific knowledge.

As we have seen, sometimes the intellect is forced to give its assent to a proposition as soon as it is considered: the reason is that some propositions immediately manifest their truth to the intellect, so that it cannot fail to assent. Now, truth and falsity are properties of propositions that arise from the specific nature of the *enunciatio*, which consists, according to Buridan, of an act by which the intellect affirms or denies an identity between subject and predicate.³³ Consequently, the truth of an *enunciatio* is determined

³¹ *De An III*, 13, p. 474.

³² «Dico etiam "cum evidentia" ad differentiam illius credulitatis quam nos fideles habere debemus de articulis fidei catholicae, ut quod Deus est trinus et unus. Nam certissima est illa credulitas ex parte propositionis; est enim verissima propositio quod Deus est trinus et unus. Et debet etiam esse firmissima sine aliqua formidine ex parte nostra, iuxta illud in Symbolo, in fine videlicet: "Haec est fides catholica; quam nisi quisque firmiter fideliterque crediderit, salvus esse non poterit". Et tamen cum hac perfecta certitudine certissime stat quod propter inevidentiam non habemus proprie scientiam de illis articulis. Est autem improprie evidentia, ex eo quod virtus cognoscitiva ex sua natura cum ipsis suis circumstantiis concurrentibus est determinata ad assentiendum veritati». (*Summ VIII*, 4.4, p. 111) «Deinde etiam requiritur evidentia, ad differentiam fidei: quia articulus cui assentitur per fidem est firmissimae veritatis, et ille assensus etiam debet esse firmus sine aliqua formidine, sed tamen non est scientia, quia deficit evidentia». (*Q An Post I*, 32).

³³ See P. PÉREZ-IZARBE, *John Buridan and Jerónimo Pardo ... cit.* (note 5).

by the corresponding identity or lack of identity between the *supposita* of subject and predicate.³⁴ So we can connect Buridan's theory of evidentness with his theory of supposition, because a categorical proposition will evidently manifest its truth if it evidently manifests this identity or lack of identity between *supposita*.³⁵

This is what happens with propositions that are manifestly true because of the relations between their terms, such as «*omnis equus est animal*», «*omne ferrum est metallum*», etc.: because of the inclusion relation between subject and predicate, patent to the intellect, these propositions immediately manifest the identity of *supposita*.³⁶ As for the problem of the contingency of the entities supposed for (if they were annihilated, the terms would supposit for nothing and then the affirmative proposition would be false), it is solved by having resort to a «natural supposition», a kind of personal supposition not restricted to any actual time connoted by the copula.³⁷

It is also clear why Buridan can include among *propositiones scitae* (although in the weaker sense of 'scientia') some contingent propositions such as «*Socrates currit*»: when the identity of the *supposita* is being perceived by the senses, the intellect cannot fail to assent to this truth.

On the other hand, it is clear why in other cases we need some experience or some proof in order to get to know the principles or the conclusions: in the case of propositions such as «*omnis ignis est calidus*» or «*triangulus habet tres angulos equales duobus rectis*», the identity of *supposita*

³⁴ In the second chapter of his *Sophismata*, p. 44-45, Buridan offers the set of rules which determine the truth/falsity conditions (based on supposition) for the basic forms of categorical proposition.

³⁵ I leave aside the case of propositions that are evident by virtue of their form: «*rex sedet vel non sedet*», «*nihil idem est et non est*», also immediately determining the intellect to assent.

³⁶ «*Deinde sunt alia principia que nullo predictorum modorum sunt concessa, immo conceduntur vel propter manifestam opinionem vel propter manifestam terminorum inclinationem: ut quod omnis equus est animal, quod omne ferrum est metallum, quod nullum calidum est frigidum, et sic etiam consimiliter primum principium, ista enim sine experientia precedente conceduntur et etiam absque demonstratione*». (*In Met II*, 2, f. 9vb) «*Et multa sunt etiam alia propter evidentem rationem nominum inclusorum, ut quod omne vacuum est locus, si est, et omne simum est nasus, si est. Haec enim necessario conceduntur ex "quid nominis", scita significatione terminorum*». (*Summ VIII*, 5.3, p. 125).

³⁷ «*Et sic bene concedendum est, sicut illi arguebant, quod impossibile est nos habere talem certitudinem de propositione categorica affirmativa de inesse nisi sit constituta ex terminis pro ipso Deo supponentibus, vel forte nisi ponatur suppositio naturalis, de qua alias dictum est*». (*Summ VIII*, 4.4, p. 113). On the distinction natural/accidental supposition, see *Summ IV*, 3.4, p. 45-49. On the general problem of the necessity of scientific propositions, see *Q Eth VI*, 6, ff. 122vb-123ra and T. K. SCOTT, *John Buridan on the objects of demonstrative science*, «*Speculum*», XL, 1965, p. 654-673.

does not follow from the logical relations between terms nor can it be perceived immediately by the senses. Other reasons, therefore, are needed, that move the intellect to assent firmly. In the case of the conclusions, it is necessary to go back to some other propositions that are immediately evident. In the case of the principles acquired by experience, the identity of *all* the *supposita* of the subject with one or other suppositum of the predicate, required for the truth of an affirmative universal,³⁸ is made evident by induction, when the identity has been observed in a sufficient number of cases with no case of lack of identity.³⁹

Finally, it is also clear in what sense the intellect can be mistaken about a first principle: Buridan says that this happens when we assent to a false proposition whose terms supposit for a first principle.⁴⁰ Unlike the first principle itself, which is evident, such a kind of proposition does not manifest itself immediately as true (that is, it does not manifest immediately the identity of *supposita*).

Through this little sample, I have tried to show the coherence between different parts of Buridan's thought. His analysis of the structure of categorical propositions and his definition of truth conditions based on the supposition of terms are in harmony with his view of science as a special kind of assent.

³⁸ «*Et omnis universalis affirmativa vera ex eo est vera quia pro quocumque vel pro quibuscumque subiectum supponit, pro eodem vel pro eisdem praedicatum supponit*». (*Soph II*, p. 44).

³⁹ On induction, see: *Summ VIII*, 5.4, p. 130-131, *Q Phys I*, 15, ff. 18vb-19ra and *Q Eth VI*, 11, f. 127ra. See also: J. M. M. H. THIJSSSEN, *John Buridan and Nicholas of Autrecourt... cit.* (note 1); and E. P. BOS, *A contribution to the history of theories of induction in the middle ages*, in *Argumentations theorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, ed. by K. Jacobi, Leiden, Brill, 1993, p. 553-576.

⁴⁰ «*Dicendum est breviter quod circa primum principium errare potest intelligi dupliciter. Uno modo, ore affirmare contrarium, et sic est valde possibile, prout quelibet potest experiri. Alio modo, errare circa primum principium est mente assentire propositioni false vel circa ipsum dissentire propositioni vere, et hoc potest esse dupliciter. Uno modo, quia nos assentimus propositioni false vel dissentimus propositioni vere in qua terminus aliquis supponit pro primo principio, et sic adhuc sine dubio possumus circa principium errare multipliciter, sicut in presenti questione vel in alia ponetur quid sit primum principium, vel in prima questione utrum omnes demonstrationes possunt resolvi in primum principium, et sic de aliis plurimis de quibus fuerunt contrarie opiniones, et sic aliqui in eis erraverunt. Alio modo errare mente circa primum principium est ipsi dissentire vel eius opposito assentire. Et de hoc dico cum Aristotele quod impossibile est sic circa primum principium errare, saltem naturaliter*». (*In Met IV*, 12, f. 21vb).