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If you are interested in joining, please contact Gyula Klima (Philosophy, Fordham University) by e-mail at: klima@fordham.edu

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The papers presented in this volume will be published in an expanded form, along with a number of other papers, in a new volume to be published by Fordham University Press:

Intentionality, Cognition and Mental Representation in Medieval Philosophy

It is supposed to be common knowledge in the history of ideas that one of the few medieval philosophical contributions preserved in modern philosophical thought is the idea that mental phenomena are distinguished from physical phenomena by their *intentionality*, their directedness toward some object. As is usually the case with such commonplaces about the history of ideas, especially those concerning medieval ideas, this claim is not quite true. Medieval philosophers routinely described ordinary physical phenomena, such as reflections in mirrors or sounds in the air, as exhibiting intentionality, while they described what modern philosophers would take to be typically mental phenomena, such as sensation and imagination, as ordinary physical processes. Still, it is true that medieval philosophers would regard all acts of cognition as characterized by intentionality, on account of which all these acts are some sort of representations of their intended objects.

The essays of this volume explore the intricacies and varieties of the conceptual relationships between intentionality, cognition and mental representation as conceived by some of the greatest medieval philosophers, including Aquinas, Scotus, Ockham and Buridan, and some of their lesser known contemporaries. The clarification of these conceptual connections sheds new light not only on the intriguing historical relationships between medieval and modern thought on these issues, but also on some fundamental questions in the philosophy of mind as it is conceived today.

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Joshua Hochschild (Mount St. Mary's University) – Aquinas on *Verbum Mentis*
Peter King (University of Toronto) – topic to be decided
Gyula Klima (Fordham University) – Aquinas on cognition and intentionality
Henrik Lagerlund (University of Uppsala) – Vague concepts in the Buridanian tradition
Stephan Meier-Oeser (Freie Universität Berlin) – Concepts in late scholasticism
Claude Panaccio (University of Quebec) – Ockham on concepts
Martin Pickavé (University of Toronto) – Henry of Ghent and his critics
Olaf Pluta (University of Nijmegen) – John Buridan on animal vs. human cognition
Giorgio Pini (Fordham University) – Duns Scotus on mental representation
Stephen L. Read (University of St. Andrews) – Concepts and meaning
Richard C. Taylor (Marquette University) – The Arabic tradition on intentionality
Jack Zupko (Emory University) – Intentionality in Buridan and Oresme

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Gyula Klima:

Tradition and Innovation in Medieval Theories of Mental Representation

In accordance with the Aristotelian-Thomistic conception (also shared by other medievals, but I'll restrict my initial observations to Aquinas), we may say that a representation is a form of a represented object or objects, existing in the thing representing the object or objects in question.

One can promptly notice a number of problems with this characterization of what a representation is, even assuming Aquinas' hylomorphist metaphysics.

In the first place, since a form is individuated by its subject, it is inconsistent to claim that one and the same form is in different subjects. But on this characterization, a representation is apparently a form both in the represented object and in the representing thing; so, if the represented object and the thing representing it are distinct, then it seems that this characterization is committed to the inconsistent claim that numerically one and the same form is in two subjects, i.e., it is not one form, but two forms.

To be sure, this problem can apparently be resolved by pointing out the difference between *the different ways* in which the same form is supposed to be in the object and in the representing thing. The form in question is supposed to be only in the represented object in its real, natural being [*esse reale*]. In the representing thing the same form is supposed to be merely intentionally, or in intentional being [*esse intentionale*]. But the individuation of the form is tied only to its *esse reale*, since it is *one entity* insofar as it has *one esse reale*. So, since the form has *esse reale* only in the object, its *esse reale* is not multiplied in the object and the representing subject, whence it is just one form, having only one real act of being in the represented object.

But this cannot be right. That one form in *esse reale* is just a form of the object. However, a representation is certainly not supposed to be anything inherent in the object represented.

Obviously, at this point we should pay careful attention to exactly what it is that we are talking about. What we call a "representation" is *definitely not* the inherent form of the represented thing *simpliciter*, but the inherent form of the represented thing *intentionally existing in the representing thing*. However, although this move may appear to dispel an explicit inconsistency, it does so at the expense of just obfuscating even more exactly what we are supposed to be talking about. For now we may be completely puzzled about how the inherent form of the represented thing *simpliciter* is the same as, or is distinct from, the inherent form of the represented thing *intentionally existing in the representing thing*. The arcane terminology, apparently making a

distinction while asserting the identity of the things distinguished, does not seem to be very helpful here.

When we are not quite sure what the abstract, technical terms of a theory are referring to, it is always useful to bring in a familiar example that we think appropriately instantiates the terms in question. Consider a representation we are all familiar with, say, the recording of a song on a CD, to avoid the pitfalls involved in the trite and often abused examples of visual images. Note that this is a non-cognitive representation. But there is nothing in the Thomistic description of representation given above that would demand that a representation has to be cognitive, i.e., a representation of something in a cognitive subject. In fact, Aristotle's famous example of the signet ring and its impression in wax is another such example, and Aquinas' talk about sensible species intentionally existing in the medium also indicates that he would not take the intentionality present in all representations as specific to cognitive representation, let alone a "a mark of the mental", as modern phenomenologists would.

The song itself, performed on a particular day at a particular time in a particular recording studio, existed then and there *in esse reale* as a modulation of air vibrations over a period of time. That was a real, individual, unrepeatable entity having its real being then and there. It is that song, in that particular performance, that got recorded on the master copy, which then got multiplied in millions of other copies, say, as track number one on any of these copies. Take one of these individual copies. Track number one on this particular CD is a particular, real accident of this CD, namely, a pattern of tiny pits burnt into its surface by the recorder. It is this pattern, I would say, that we can all appropriately call a representation of the song performed in the studio.

Now, note here in the first place that we can absolutely correctly say that the song is track number one on the CD, even if the song in its *esse reale* in the studio existed as a modulation of air vibrations, whereas the track in its *esse reale* is not any air vibrations, and it is certainly not *that* series of air vibrations that existed in the studio at the time of the recording. But track one on the CD *is* the song, not existing there as it did in the studio, but as encoded in the pattern of tiny pits. So, for the song to exist intentionally on the CD is nothing but for it to be encoded in track one. And so, saying that track one is the song in *esse intentionale* is just another way of saying that the song is encoded in track one.

However, this "explanation" may seem to be guilty of simply replacing some unfamiliar terminology with a more familiar one, without advancing the metaphysical understanding of the nature of the phenomenon itself. So, let us see what we can learn about the nature of a representation as such from this description of the phenomenon. Is it *really* appropriate to say that it is the song that exists on the CD? If the song we are talking about is that particular series of air vibrations that was produced by the particular performance of the band at the time of the recording, then how can we say it exists anywhere in any form, once it has ceased to exist when the band stopped playing?

Now, that particular series of air vibrations certainly ceased to exist when the band stopped playing. Yet, the song got recorded, and identifiably the *same song*, indeed, the *same performance of the same song* now can be replayed and copied indefinitely (well,

barring copyright issues). So, what is going on here? How can we say both that the song that existed in *esse reale* in the recording studio while the band was playing is now gone, and that it still exists on the CD, indeed, that it can exist again any time the CD is played?

It is clear that the series of air vibrations in the studio during the recording and the series of air vibrations in my living room when I play the CD are not the same entity; indeed, since they are certainly not accidents of the same body of air. Still, they are identifiably the same song, indeed, different materializations of the same performance of the same song. But then how can we say that these *two distinct* entities are *one and the same* song? After all no two things can each be one and the same thing (for that would go against the transitivity of identity).

Of course, it is at this point that Thomists (and for that matter Scotists as well) would appeal to the notion of *formal identity*. But it is at the same point that non-Thomists (and non-Scotists as well) would part company with them, declaring the notion to be incoherent, or just plain unintelligible.

But before addressing this issue of coherence and intelligibility, I should make two remarks concerning the need to introduce the notion of formal identity here. First, as we could see in the analysis of our example, this need has nothing to do with Aquinas' "theory of *universals*". Second, it has nothing to do with *mental* representation as such.

The example I have discussed involves the singular representation of a singular entity without any involvement of a cognitive subject. If the sound pattern of the song as well as the recording apparatus could spontaneously be generated in nature, then the recording of that sound would take place also spontaneously, without the need for any cognitive subject, yielding some natural record of the sound, just as any sorts of spontaneously generated imprints are the natural records of shapes. So, the representation in question is both singular and non-mental, indeed, non-cognitive at all. It would be cognitive, if it were the cognitive act of a cognitive subject, namely, an animal, and it would be mental, if it were the cognitive act of a mind, i.e., a cognitive faculty capable of receiving universal representations. But so far, in this example, we did not need any of these further conditions in analyzing what makes track one on the CD a representation of the song played in the recording studio. Still, to make sense of how this representation is supposed to satisfy the Thomistic conception of what a representation is we already *had to* invoke the notion of formal identity, for it is precisely this notion that is operative in the Thomistic conception when it claims that a representation *is* the form of the represented object in the representing thing, for the representation inherent in the representing thing can only formally, and not numerically, be identical with the form of the represented thing.

But returning to the issue of the alleged "incoherence" and "obscurity" of the notion of formal identity, I think the analysis of this example can easily help dispel such worries, still without reference to specifically mental representations. For in this case it should be clear in the first place that the song played by the band in the recording studio and the same song replayed in my living room are numerically distinct entities. Indeed, the first of these has long ceased to exist when the second begins to exist. Yet, it would be

preposterous to claim that the second entity is not the same song as the first. But, how can the two distinct entities be one and the same song? Clearly, the song, a certain modulation of air vibrations, exists only when it is actually played. And it is also clear that this modulation of airwaves in one body of air at one time is distinct from the same type of modulation of airwaves in another body of air at another time. But the crucial point here is that *if it is the same song*, then the *only* difference between the second and the first is precisely its time and/or subject. Referring to time and subject as the *material* conditions of the song's existence, we can say that the two instances of playing the same song *only differ in these material conditions*. Referring to the modulation of the airwaves now in this body of air, and then in that body of air as the *form* of the song, we can say that the two instances of playing the song do not differ in *form*. But a lack of difference or, as Aristotle would say, a lack of division of something is just the unity of that thing. So the lack of formal difference in the two instances of playing the song is nothing but the *formal unity* or *formal identity* of *the same song* played twice.

Again, it is important to realize that the sameness of the song in its two instances would be there even if nobody were there to *recognize* this sameness. It would be the same modulation of airwaves in different bodies of air at different times regardless of whether or not there is anybody to listen to it and to recognize this sameness.

Now, what secures this sameness in this scenario is the sameness of the information recorded on track one of our CD and played back again in my living room. Track one recorded exactly that modulation which is reproduced during playback, serving as the "blueprint" for the generation of formally the same, but numerically distinct modulation. But then there is nothing mysterious or absurd in the claim that it is the same information that is now recorded on the CD, encoded in the tiny pits of its surface. So the tiny pits of track one just *are* the song recorded, existing, *not* as it did in its realization as a series of sounds, i.e., as the modulation of the vibrations of a body of air, but as the information about this modulation encoded in track one of the CD. This is precisely what makes track one on the CD a representation of the song played in the studio.

To be sure, the tracks on the CD, which are just certain surface features of the CD, are not representations *insofar as* they are surface features of the CD, because clearly a surface feature of the CD *as such* is not a representation of anything. But the tracks *are* representations *in a system of encoding and decoding*, in which these surface features *are* encodings of information about something else, and can serve as the principle of reproduction of a different instance of the same kind of thing. It is just this condition of those surface features that we can summarily characterize, without knowing or even wanting to know the technical details, by saying that the song once recorded, next replayed *in esse reale*, now exists as track one of the CD *in esse intentionale*. Note that in this description of the familiar phenomenon we *do not* need to appeal to some peculiar mode of instantiation, possession, or exemplification without instantiation. Track one of the CD exists naturally, as a particular feature of the surface of the CD. But this surface feature of the CD in the system of encoding that involves CD burners and players is formally the same song as the modulation of airwaves that existed when it was recorded, and will exist whenever the song is played.

So much for intentionality in general, without any reference to a cognitive subject, let alone an intelligent cognitive subject. As I have already indicated, the difference between just any representation and a representation *of a cognitive subject* as such is that the latter is a representation that is a cognitive act of such a subject, i.e., one that enables the subject to act in possession of the information encoded in that representation as part of its overall vital activity. And the mental representation of an *intelligent* cognitive subject is simply an *intellective cognitive act* of the same. The distinctive feature of an intellective cognitive act is its *universality*. To be sure, as Aquinas often emphasizes against contemporary Averroists, such an act, an intelligible species, is universal *not in its being*, for it is a singular act inherent in an individual mind, but *in its mode of representation*, insofar as it represents several individuals in respect of what is common to them all.

But, apparently, there is nothing that is common to them all in their real existence. For, as Aquinas emphasizes time and again as a consequence of the convertibility of being and unity: whatever exists is one, individual entity. But then what can we say about the song that existed once in the recording studio, and then in my living room? Isn't *that* a really existing universal?

Well, the song exists only when it is played. When it is not played it *is not*. And obviously, any instance of playing it is a unique individual occurrence, none of which is repeatable. What is repeatable is what I referred to as the form of the song, which is recognizably the same in all these instances, even if it is not actually recognized as such by anybody. But when it *is* recognized as such by somebody, then the person in question forms a representation in his or her mind that *is* the representation of the same form as such. However, that form as such does not exist. Well, isn't that a problem? How can a representation be a representation of something, if there is nothing that it represents?

As we could see already in the case of singular representation, the existence of a representation does not entail the actual existence of the object represented. The track on the CD is still an existing representation of the song played by the band in the studio when the song is finished, and no longer exists in the air. Again, the recording can be further manipulated, cut, mixed, etc., so that the result is no longer a representation of the song played by the band, but a representation of a song that has never been played before, but which can be played, and which will first exist in the air when it is first played. Obviously this process of recording, storing and then further manipulating the record of the song played by the band is perfectly analogous to the workings of sensation, memory and imagination in cognitive subjects, namely, animals that have these faculties.

But the same song, not merely sensually recognized by means of hearing and memory or by means of some possibly mechanical comparison of voiceprints, but *understood* to be the same in its numerous replays, different performances, encoded in different recordings and music scores *does not exist* as such, yet it *is understood* as such, as something formally the same in its numerically distinct materializations and representations, abstracting from their material differences. So, the intellectual

representation of the same song has something as its direct, immediate object, the form of the song as such, and has the different individual materializations of the same as its indirect, ultimate objects.

So, for this direct object to exist is nothing but for it to be understood. But to be understood is not the same as to be *simpliciter*. Therefore, there is really nothing mysterious in the fact that we can have an intellectual representation of the same song, even when it does not exist, i.e., when it is actually not played at all, just as there is nothing mysterious in the fact that we can recall a particular performance of the same song in our sensory memory when it is no longer performed.

It is precisely such simple, intuitive observations that were systematically reflected on in the relevant medieval logical theories of signification, simple supposition, and the ampliation of supposition in intentional contexts, providing a coherent analysis of this sort of discourse about mental representations and their objects. But even without going into these technicalities, one may clearly see how this conception of mental representation can handle two apparent problems usually raised against it already in late-medieval philosophy, which may be dubbed “the problem of resemblance” and “the problem of ontological commitment”, respectively. So, in closing, let me briefly reflect on these problems.

The problem of resemblance may be summarized in the following, incredulous question: how can a mental representation resemble its objects? If we are talking about the intelligible species that is an inherent quality of a person’s mind, how can this immaterial quality resemble the material substantial form of a rock, for example, that it represents? Again, if we are talking about the intention that is the direct object of this intelligible species, a being of reason, then how can that being of reason resemble the real, substantial form of the rock, or for that matter, the inherent quality of the mind of which it is the direct object?

To answer these questions we should just ask back: how can a CD track resemble the performance it recorded, and how can a music score resemble all possible performances of the same song? Of course this is not the resemblance there is between two performances or two replays of a record of the same performance, which is the formal unity of these instances of the same song in their real being, existing as the modulation of airwaves in some place at some time. The resemblance in question here is the formal sameness of the same information encoded in different media, where the sameness of the information is secured by the relevant systems of encoding. So, the tiny pits on the CD or the bars and notes of the music score need not exhibit any physical resemblance to the modulation of the airwaves. Still, as parts of the relevant systems of encoding they preserve the same information, the same form that informs those airwaves when the song is played. So, in the same way, when an intelligible species encodes information about the substantial form of rocks in general, the intelligible species need not exhibit any physical resemblance to the substantial form of rocks. And the same goes for the immediate object of this species, the *intentio intellecta* of rocks in general. As Aquinas emphasizes time and again: *alii sunt modi essendi et intelligendi*.

As for the issue of ontological commitment, the charge is that by allowing universals or other beings of reason in their universe of discourse, medieval philosophers espousing this conception are committed to an unjustifiably bloated universe. But a universe of discourse is not the universe, and a being of reason is not a being, just as a fake diamond is not a diamond or a fictitious character is not a character. Of course those who would regard beings of reason as a special kind of being may object to what they perceive as at least some sort of “soft” ontological commitment to some weird sort of entities. But this is not really an objection to Aquinas’ conception, according to which these are just not entities, but rather to Scotus’, who denies the Thomistic conception of the analogy of being, and thus ends up precisely with the objectionable conception of beings of reason that is the target of this sort of criticism. Indeed, in general, only those would object to any form of “soft” ontological commitment who reject the idea of the analogy of being in the first place. Those, however, who allow the notion of being to be analogically extensible to any objects of any cognitive act would see that this extension is ontologically harmless, as it does not multiply *beings simpliciter*, only allows us to talk about *beings secundum quid*.

On the other hand, those who reject this sort of talk are forced to account for the phenomena of mental representation exclusively in terms of individual mental acts, their properties, and their individual objects and their properties as Ockham and his followers did. In their case, therefore, there is no way to talk about the formal sameness of these acts and their objects, for there is no way to talk about the common information content of each as the direct object of some intellectual act of cognition. The intentionality of mental representation in their case therefore cannot be analyzed in terms of similarity or causality, whence it is reduced at best to some simple, unanalyzed feature of a mental concept, sometimes described as “indifferent representation”. But this “indifferent representation” cannot specify any formal aspect of the objects it is supposed to represent that would secure *the logically necessary formal unity between concept and object*, which is just *the sameness of information in a natural system of encoding*.

The really important point here is that in the earlier model (*via antiqua*), the formal unity of concept and object, that is, the sameness of their information content, could secure a logically necessary connection between them, even if the entities carrying the same information content are themselves contingent and contingently related. For despite possible appearances to the contrary, there is nothing absurd in the claim that logically contingently connected entities as such are logically necessarily related on account of their information content. For example, the premises and conclusion of a valid argument are distinct, contingent, and hence contingently related entities (inscriptions or utterances). Still, on account of the information they carry they are necessarily related with regard to their truth. But on the newer model (*via moderna*), concept and object cannot be characterized as formally identical, whence they become merely contingently related entities *without* some logically necessarily identical information content.

Therefore, on this conception it becomes logically possible for a mind to have exactly the same concepts with the same intrinsic features of “indifferent representation” even if these concepts are not matched ever by any formally identical objects in reality. Indeed,

it becomes logically possible for such a mind to have concepts that are systematically matched with objects of entirely different nature than the objects these concepts appear to represent to their cognitive subject. So, it becomes apparently possible for such a subject to have only non-veridical concepts, whence perfect, “demonic” deception becomes a logical possibility, opening up the way to all the epistemological troubles of modern philosophy.

Joshua P. Hochschild:

Does Mental Language Imply Mental Representationalism? The Case of Aquinas's *Verbum Mentis*

Introduction

Despite the ambition of my title, I cannot in this short paper begin to do justice to the many philological and philosophical questions which surround the notion of "*verbum mentis*" in Aquinas, nor to all the issues of psychology, epistemology and semantics suggested by the notions of mental representationalism and mental language. To do so would not only draw me into lengthy hermeneutic work in a variety of Thomistic texts, but would require engagement with the many other scholars who have addressed these and related issues. I want to circumvent such obligations by addressing just one recent scholar, John O'Callaghan, whose work on these subjects I find a fruitful occasion for some very particular clarifications.

In his recent book, *Thomistic Realism and the Linguistic Turn*, O'Callaghan marshals some of the resources of analytic philosophy's "linguistic turn" to recover some of the sense of Aquinas's "realism" in logic and psychology (I don't dare say "philosophy of mind").¹ O'Callaghan's main target are those who would try to understand Aquinas as holding that, in addition to the mind and the external world, there is a third class of things, *mental representations*, which are the primary objects of thought. As O'Callaghan rightly argues, for Aquinas concepts are acts of intellect, formally but not efficiently caused by "intelligible species," and are not the *objects* of thought but *that by which* the intellect grasps its object, that object being the "*res extra animam*" itself.

I agree with O'Callaghan's account of Aquinas's treatment of acts of intellect and their objects, and I further agree with the corresponding treatment of Thomistic semantics in light of this account. Since the "concept" is the act of understanding, by which something is understood, and is distinct from the object of understanding, the "intelligible character," or nature absolutely considered, O'Callaghan distinguishes the different ways in which these can be said to be "signified" by words: the intelligible character is signified as *what*, the concept as the *how* or *that by which*. The concept and its object are intrinsically linked by a relationship of "Similitude," but this relationship should not be regarded as the similitude of two like objects, as if we learn indirectly

¹ John O'Callaghan, *Thomistic Realism and the Linguistic Turn: Toward a More Perfect Form of Existence*, (University of Notre Dame Press, 2003)

about the (external) *res* by directly inspecting an (internal) concept. Rather, we primarily grasp the (external) *res* by means of an act of intellect, the (internal) concept.

As indicated, with these general and very basic points I am in complete agreement, and it is against this background of agreement that I want to carve out a modest area of disagreement. I want to defend, against O'Callaghan, the appropriateness of attributing a theory of "mental language" to Aquinas, or, at least (and even more modestly), the possibility of an authentically Thomistic theory of "mental language."

There are in fact two reasons that O'Callaghan thinks it is inappropriate to associate a theory of mental language with Aquinas. The first, not explored so much in his book but argued at length in a separate paper,² is that a particular part of the Thomistic vocabulary which might suggest a theory of mental language, the "*verbum mentis*," has no genuine *philosophical* import at all, and functions solely as a *theological* metaphor. The second is that a theory of mental language necessarily implies the mental representationalism from which O'Callaghan has worked so hard to separate an authentically Thomistic account of cognition. I will address these two points in turn.

The Concept as *Verbum Mentis*

Reviewing the context and significance of Aquinas's employment of the term "*verbum mentis*," O'Callaghan has concluded that "the *verbum mentis* plays no philosophical role in St. Thomas, but is rather a properly theological discussion. It has the theological purpose of providing nothing more than an image or metaphor for talking about man, made in the image and likeness of God as Trinity."³ O'Callaghan is moved to argue for this against several thinkers who have treated the notion of *verbum mentis* as if it were the key to Aquinas's philosophical psychology. I agree with O'Callaghan that it is odd to take the notion of *verbum mentis* as the starting point, or central feature, of Aquinas's account of intellectual cognition, especially since, as O'Callaghan notes, the "*verbum mentis*" terminology does not appear in Aquinas's most developed philosophical treatments of cognition: *Disputed Questions on the Soul*, the *De Anima* and *De Interpretatione* commentaries, and questions 75-89 of the *Summa Theologiae* (*prima pars*). Instead, the term "*verbum mentis*" tends to appear in explicitly *theological* contexts and, given its relation to the divine *Verbum*, it is reasonable to infer that the notion of "*verbum mentis*" always retains for Aquinas some of its Christian theological connotations.

Nonetheless, I don't think this means that the phrase "*verbum mentis*" is an item of purely theological, *as opposed to* properly philosophical, discourse, and I think O'Callaghan states the matter too strongly when he says that the notion has *no* properly philosophical role, and is rather a theological metaphor. First, even if we grant a theological connotation to the term "*verbum mentis*," the term still may be used to

² John O'Callaghan, "*Verbum Mentis*: Philosophical or Theological Doctrine in Aquinas?", *Proceedings of the American Catholic Philosophical Association*, 74 (2000): 103-119.

³ *Ibid.*, p. 108.

denote something that does play a role in a philosophical account of cognition. Indeed, as O’Callaghan is willing to grant, what Aquinas calls the *verbum mentis* is just the concept or first act of intellect, simple apprehension. (In fact, as I will explore in the next section, it means more than that: Aquinas also used *verbum mentis* to name the second act of intellect, composition and division or judgment.)

Secondly, I think there is evidence that the “theological” connotation of “*verbum mentis*” is not necessarily strictly a matter of *sacra doctrina* but of natural theology; in addition to the obvious connection to the Second Person of the Trinity, there is an apparent connection to the classical philosophical notion of a divine mind which conceives ideas. The extended treatment of the *verbum mentis* in *De Veritate*, for instance (e.g. q. 4) seems at least as indebted to Neo-Platonic notions (and a desire to describe God as a divine mind with ideas) as it is to Trinitarian notions (and the desire to find an image of the divine Trinity and its *Logos* in man).

Furthermore, it seems worthwhile to pay attention to the direction in which the metaphor (or analogy) of *verbum mentis* and Divine *Verbum* is supposed to move. On O’Callaghan’s account, we might assume that we know first that God has/is a “Word” which God conceives and expresses, and it is only by comparing our mind and its concepts with this that we may call our concepts “words.” However, Aquinas seems to think that the analogy stretches in the other direction. “[O]ur intellectual word... enables us to speak about the divine Word by a kind of resemblance” (*DV* 4.2).

Why do we call the inner word a word, then? Not because it is like the divine word, since the divine word is called a word because of its resemblance to the inner word! The inner word, it turns out, is so called because of its relation to the exterior, vocal word: “We give names to things according to the manner in which we receive our knowledge from things.... Consequently, since the exterior word is sensible, it is more known to us than the interior word; hence, according to the application of the term, the vocal word is meant before the interior word, even though the interior word is naturally prior, being the efficient and final cause of the exterior” (*DV* 4.1). In other words, by order of imposition, the term “word” belongs first to the vocal word and is extended then to the interior word or concept, which is more primarily a word in the order of nature (and so from it the term “word” can be extended to the Divine Word—which, presumably, is even more primary in the order of nature, but remains last in the order of imposition).

This is consistent with what we learn from the *Summa Theologiae* about the notion of “word,” its order of imposition and natural order. First, there is the extension of the notion of word from vocal word to concept, insofar as the concept *issues from* a power (the intellect) and directs us *toward* something else (the object of understanding): “...whenever we understand, by the very fact of understanding there proceeds something within us, which is a conception of the thing understood, a conception issuing from our intellectual power and proceeding from our knowledge of that thing. This conception is signified by the spoken word, and it is called the word of the heart signified by the word of the voice” (*ST* Ia.27.1, *corpus*). But the concept, while called a “word” later in the order of imposition, by its nature deserves the name more properly, as being cause of the vocal sound’s being a word: “The vocal sound, which has no

signification, cannot be called a word; wherefore the exterior vocal sound is called a word from the fact that it signifies the interior concept of the mind. Therefore it follows that first and chiefly, the interior concept of the mind is called a word” (*ST Ia.34.1 corpus*). Of course, we do well to remember that the context of both of these quoted passages is Trinitarian theology (q. 27 treats the Procession of the Divine Persons, q. 34 the Person of the Son). But within this larger theological context, the immediate dialectical context of the quoted passages is dedicated to articulating why the different things that we call words, vocal and mental words, are so called; and that is not done by reference to revealed Trinitarian doctrine but, in typical Aristotelian fashion, by reference to the order of natural knowledge.

If we look at another passage, as well, its larger theological context should not blind us to the immediate dialectical trajectory. Treating the notion of Eternal Law, Aquinas responds to an objection that law, which must be promulgated by word, must be related to one Person of the Trinity rather than to the essence of God as a whole. Aquinas’s response begins by clearing up why we call different things words: “With regard to any sort of word, two points may be considered: viz., the word itself, and that which is expressed by the word. For the spoken word is something uttered by the mouth of man, and expresses that which is signified by the human word. The same applies to the human mental word, which is nothing else than something conceived by the mind, by which man expresses his thoughts mentally” (*ST Ia-IIae 93.1 ad 2*). Although Aquinas goes on to clarify the sense in which what is conceived by the intellect of God is a Word, I don’t think we need to assume that when we speak of mental words we are working with a merely “theological” metaphor extended to mental acts from the revealed name of the Second Person of the Trinity. Rather, the logic here, as elsewhere, seems to present talk of the Divine Word as (at least in part) a semantic or psychological metaphor (or analogy) relating the Son to intellectual conceptions.

In short, these passages suggest that a concept is not called an inner word because it is somehow like the second Person of the Trinity, but because it is like an exterior word, in being expressed by something and in turn expressing something else.

Of course, it may still be the case that the notion of the Son of God as the Divine Word gives the Christian a particular reason to make and exploit this comparison of mental and vocal word. Aware that we will try to understand the Divine Word by its comparison with the human mental word, the notion of the *verbum mentis* might always retain, for a Christian theorist, a theological connotation. (In clarifying the distinction between formal and objective concept, Cajetan admits that calling the formal concept a “word” is more a theological than philosophical way of talking: “Conceptus formalis est idolum quoddam quod intellectus possibilis format in seipso repraesentativum objectaliter rei intellectae: quod a philosophis vocatur intentio seu conceptus, a theologis vero verbum.” *Commentary on De Ente et Essentia*, §14.) But that does not make the content of this notion theological as opposed to philosophical.

Mental Language and Mental Representationalism

In fact, it is not just the concept or first act of apprehension that Aquinas is willing to refer to as *verbum mentis*, but the second act, composition and division, or judgement, indeed, anything that can be an intellectual conception or intention (cf. *DV* 4.2). Is thinking, then, like language in some degree? As O'Callaghan notes, for contemporary philosophers this question naturally calls to mind the "language of thought" hypothesis associated most often with Jerry Fodor. And O'Callaghan is right to distance Aquinas from Fodor's theory of mental language, which is bound up with a representationalist, and functional-materialist, psychology, and according to which the universal "language of thought" is native or innate. But, in principle, might we be able to separate these commitments from the core idea that the name "language of thought" primarily suggests, namely that thought might have quasi-semantic properties and a compositional structure?

In raising this question, I take a cue from Claude Panaccio, who, in treating the history of the notion of "interior discourse" from ancient Greece through the middle ages, treats "mental language" not as a fixed abstract theory, but as a loosely organized theme, a family of similar responses to similar questions, all involving somehow the transfer of semantic functions associated with spoken or written language to the realm of thought.⁴ Following this lead, we can prescind from some of the features of Fodor's modern empiricist psychology, and still consider thoughts as being language-like in having something resembling *semantic properties* (*signification, supposition, connotation, truth values*) and falling into *syntactic categories* (like noun, verb, preposition, adverb) which make possible a *compositional structure* (according to which truth values of mental "propositions" are a function of the semantic values of their component parts.)

So as an interpretive matter we can follow O'Callaghan, rather than Panaccio, and not regard Aquinas's psychology as a theory of mental representationalism; but in doing so we can still follow Panaccio's general strategy as an historian of ideas and allow ourselves to explore the possibility that a theory of "mental language" need not exhibit all of the features of any given prominent "mental language" theorist. In this case, let us consider that for Aquinas a notion of mental language must be committed *neither* to mental representationalism *nor* to nativism; i.e. the mental language need not be an *object* of our thought, nor need it be an *innate* (and so *universal*) language, some common and complete stock of concepts to which we only have to attach the terms of spoken language. For a Thomist to consider a theory of "mental language," he must regard it instead as *acquired*, and so as only *potentially* universal; and it must be that *by which, not that which*, we understand. It would be called "mental language" only insofar as the acquired concepts or acts of intellect that make it up have some kind of syntactically and semantic regimented structure, and so compositionality.

⁴ Claude Panaccio, *Le Discours Intérieur de Platon à Guillaume d'Ockham*, (Paris: Éditions du Seuil, 1999), cf. pp. 22-23.

Conclusion

What, it may be asked, would be the advantage for Thomas, or for an authentically developed Thomism, of speaking of thought as mental language or of concepts as “mental words”? Obviously, acts of thought are like language only analogically; they are an “interior discourse”—and even to express this requires us to join terms that suggest originally distinct and even opposed notions. The very act of joining them requires the analogical extension of those notions (as was the case also, for instance, with the slow joining of Greek “*nomos*” and “*physis*” to arrive at a notion of “natural law”).

What is the motivation for effecting this analogical extension? One motive, for Aquinas, might be simply to acknowledge and inherit an analogy already established by history. (As Panaccio has shown, there is a philosophical pedigree for the idea, not just in the Christian notion of Divine *Logos*, but in pagan, especially Stoic and Neoplatonic, philosophy.) But then, we may ask, why would Aquinas, or one of his students, cooperate in this tradition? What significant philosophical addition does the terminology of “mental language” make to a Thomistic discussion of the mind, its concepts, acts, and judgments which, as O’Callaghan has displayed, can be treated at length and in detail without such terminology? I propose (but cannot explore the thesis here!) that the philosophical contribution is not in the *theory of mind*, but in the realm of logic or *semantic theory*. Practically speaking, if semantics helps us to disambiguate equivocal expressions in vocal language by associating their different possible significata with alternative (univocal) intellectual acts, it can be useful to regard those intellectual acts themselves as “expressions” with precise compositional syntax and semantics which determine their relation to their objects. Treating intellectual activity as mental language, then—so long as we remember that it is not innate, and not the object of our thought—is in principle no less authentically Thomistic than other semantically motivated Thomistic developments, such as Cajetan’s distinction of different senses of the “concept,” or John Poinot’s elaboration of a sophisticated theory of signs.

Claude Panaccio:

Concepts as Similitudes in William of Ockham's Nominalism

Let us assume that concepts are mental states. The question then arises: how can a mental state — one of your mental states, let's say — *represent* anything out there in the world? This very problem is at the heart of today's philosophical discussions about cognitive sciences. Think of the work of Jerry Fodor, or Fred Dretske, or Ruth Millikan, and many others. And the point was also seriously investigated by the philosophers of the late Middle Ages. William of Ockham, for one, has intriguing suggestions to offer on the topic, which I have tried to explain a bit in a recent book.¹ The one aspect of the subject I want to deal with here is the idea that concepts are *likenesses* — or *similitudes* — of whatever they represent, and that they represent certain things in virtue, precisely, of being similitudes of these things. It is an old idea, of course, which was found in Aristotle and Boethius, and all along the Middle Ages. Yet several recent commentators have seen it as a problem that Ockham could still stick to this traditional line; and some even contended that Ockham did in fact drop the idea of the concept as similitude in his later works, or at any rate that he should have dropped it, and that the idea simply makes no sense within the framework of Ockham's later theory of concepts.

What I want to show is first — and very briefly — that even in his mature period Ockham did maintain the similitude view of concepts and that he used it in a crucial way to account for their representational generality. And second — most importantly — I would like to explicate how this view should be understood in the context of Ockham's nominalism. Rightly understood, I contend, it is still a very interesting philosophical notion.²

1.

Nobody doubts that the idea of the concept as a similitude was central to Ockham's former theory. Concepts in this approach were seen by Ockham as mere intelligible objects, produced before the mind, so to say, by mental acts of intellection. This is the *fictum*-theory of concepts: a concept is a purely ideal picture of whatever it represents. See, for example, the following passage from the *Ordinatio*:

[...] seeing something outside the soul, the intellect forms something similar within the mind, in such a way that if it had a productive capacity, just as it has a representational capacity, it would produce such a thing outside itself in real being, which would be

¹ Panaccio (2004)

² The account presented here is more fully developed in chapter 7 of the previously mentioned book (119-143).

numerically distinct from the prior one [...] And this [= the *fictum* in the mind] can be called a universal, for it is a portrait [*exemplar*] and it indifferently refers to all the [relevant] external individuals ; and it is in virtue of this similitude in objective being that it can stand for external things [...]. (*Ordinatio* I, dist. 2, q. 8, *Op. Theol.* II, 272; my translation and italics).

Later on, as is well-known, Ockham dropped the *fictum* view of concepts and simply identified the concepts (as general mental representations) with the mental *acts* themselves. Concepts, then, were seen as psychological states. This is the *actus*-theory of concepts. But even in this revised approach, Ockham did not drop the idea that concepts are similitudes: “[...] the concept”, he says in so many words, in his *Questions on Aristotle’s Physics* (clearly written from the point of view of the *actus*-theory), “is a similitude of the external thing” (“conceptus est similitudo rei extra”; *Questions on Aristotle’s Physics* 2, *Op. Phil.* VI, 399; my translation). And see the following passage, also from Ockham’s later period:

Therefore, I claim that both a first intention [i.e. a first order concept such as ‘man’] and a second intention [i.e. a second order concept such as ‘species’ or ‘genus’] are in reality acts of understanding, since whatever is preserved by appeal to a fictive entity [*fictum*] can be preserved by appeal to an act of understanding. For like a fictive entity, an act of understanding, (i) is a likeness of an object, (ii) is able to signify and supposit for things outside the soul, (iii) is able to be the subject or the predicate in a proposition, (iv) is able to be a genus or a species, etc. (*Quodlibeta* IV, 35, *Op. Theol.* IX, 474; transl. Freddoso and Kelley 1991, 390, with my italics).

It is clear in these lines that the first thing which is expected from a conceptual representation is that it be ‘a likeness of the object’, and the mental act of understanding is straightforwardly said to be such a likeness. Moreover, just as in the former theory, it is still *in virtue of* being such a likeness that the concept can signify a plurality of things and stand for them, as comes out from the following passage:

Seventhly, such an ideal picture [= *idolum* — or *fictum*] would differ more from a thing, than whatever thing from another one, since a real being and a rational being differ more from one another than any two real beings ; this is why such a picture would less assimilate to a thing, and consequently be less able to stand for a thing, than the intellection [or intellectual act] which assimilates more to a thing [...] This ideal picture or *fictum*, therefore, is superfluously posited (*Quest. on Aristotle’s Physics* 1, *Op. Phil.* VI, 398 ; my translation and italics).

Most importantly, the idea that concepts are similitudes or likenesses did *not* become theoretically inert in Ockham’s later theory, contrary to what several commentators have thought. It still was, saliently, the basis for one very important thesis, namely that we do not have simple singular concepts in our mind, Ockham’s argument for this being that since a concept represents something in virtue of being a similitude of it, it will equally represent in principle whatever it is that is maximally similar to this particular object:

Fourthly, I claim that our intellect cannot have any such proper and simple concept with respect to any creature, either with or without a vision of the creature. And this is because each such cognition or concept is equally a likeness of, and equally represents, all exactly similar individuals, and so it is not more a proper concept of the

one than the other. (*Quodlibeta* V, 7, *Op. Theol.* IX, 506; transl. Freddoso and Kelley 1991, 422-23).³

2.

So Ockham did seriously stick to the similitude view of concepts even in his later period when he saw concepts as mental acts, or mental states. But what exactly did he mean by that? How, for example, can a mental quality — or mental act — resemble everything that exists, as the concept of ‘being’ (*ens*) is supposed to in Ockham’s doctrine?⁴ How can the concept of ‘colour’ be a real quality of the mind naturally resembling rednesses and yellownesses and greennesses all at once? And how can the mental act corresponding to the concept of ‘animal’ equally resemble a butterfly and an elephant, but not an orchid nor the statue of an elephant? Those are the puzzles I want to address.

A number of familiar notions of resemblance must first be discarded as irrelevant:

(a) *Qualitative resemblance*. This is the standard Aristotelian idea that two things resemble each other if they share some accidental quality — or, at least, if they both have a certain accidental quality of the same sort. A black horse and a black dog, for example, resemble each other in this sense in both being black. Ockham, indeed, does use this notion from time to time.⁵ But obviously, this is not the idea of similitude we need here: the concept ‘red’ does not represent red things in virtue of being literally red itself, or in virtue of the mind literally becoming red.

(b) *Essential similitude*. Two horses, for example — or two animals for that matter — can be said to be *essentially* similar to each other, not because of the accidental qualities they have, but because of what they *are* in themselves: they both essentially are horses — or animals. This is also a notion Ockham uses sometimes.⁶ And it is obvious, once more, that it is not what is needed to account for conceptual similitude: trivially, the concept ‘horse’ is not a horse.

(c) *Pictorial likeness*. This is an idea which is implicitly present, I suspect, in the minds of many of those commentators who declare themselves unable to understand how a mental act could be a similitude of an external thing. It is the idea of a perceptible image which one could look at, like a photograph or a realistic drawing. How indeed could an intellectual act, or a mental state, be anything like a photograph of what it represents?

³ The same idea is also found in *Quodlibeta* I, 13 (*Op. Theol.* IX, 74).

⁴ See *Quodlibeta* VII, 12: “[...] the cognition that is the concept *being* is a likeness of infinitely many objects” (*Op. Theol.* IX, 749; transl. Freddoso and Kelley 1991, 631).

⁵ See for example his *Expositio in Librum Praedicamentorum* 15, 3: “It is to be noted that strictly speaking, nothing is said to be similar or dissimilar to something else except according to a quality” (*Op. Phil.* II, 292; my translation).

⁶ See for example *Ordinatio* I, dist. 2, q. 6: “[...] Socrates, according to his substance, is maximally similar [*simillimus*] to Plato” (*Op. Theol.* II, 211; my translation).

For one thing, the intellectual act, for Ockham, does not need to be looked at by the mind in order to represent; and it does not display, moreover, any perceptible features, like photographs or statues do. What we should conclude, however, is not that Ockham's idea of conceptual similitude is muddled, but that pictorial likeness is simply not the right model for it!

What *is* the right model, then? Suppose I grasp a ball, or a pen; and let the grasped object be removed without any change in the position of my hand. What is left is a likeness of the ball or of the pen in pretty much the sense we are looking for. What we have in the case of the grasping hand is a physical analog of a conceptual act. As long as the ball is there, the act of my hand can be seen as the singular grasping of this singular ball that causally shapes the posture of the hand. This is the equivalent of intuitive grasping. Yet I can also consider the position of the hand in abstraction from the actual presence of the ball; and then I have an analog of the conceptual act. Note in particular that insofar as my hand is now a similitude of the original ball, it is also, and to the same degree, a similitude of any other object which is sufficiently similar to the original ball: the posture of my hand, then, pertains to a multiplicity of possible objects and can be seen as a general representation of any object that would tightly fit into my hand when it is so placed. What I want to say is that the conceptual act in Ockham must be a similitude of the particular thing that originally caused it and of all the other ones that are sufficiently similar to this particular thing, exactly like the act of apprehension by which my hand grasps a ball must be a similitude of this particular ball and of all the other objects that are relevantly like it. What transforms the grasping act into a general representation is that it *fits* the grasped object, thus resembling it to some extent, and resembling for the same reason all the other objects which are relevantly like this one.

The required notion of similitude is quite distinctive. It is neither qualitative resemblance, nor essential similitude, nor pictorial likeness. The relevant sort of similitude typically follows upon a causal link and thus differs from both qualitative resemblance and essential similitude by being *asymmetrical*: a foot track, in this sense, is a similitude of the foot that caused it, but not conversely. And it differs from pictorial representation by being a wider and looser relation, more akin to what John Buridan later called a similitude 'by fitness' (*secundum convenientiam*), which he described as an appropriate fitting of something onto something else.⁷ Photographical likeness is a special case of this, admittedly, but the relevant appropriateness can vary widely, according to the sort of effect involved: the appropriate fitness of a foot track to a foot is quite different from that of an offspring to its parents, or of a heated thing to the fire that heats it. Yet these are all cases of this asymmetrical relation of similitude we are

⁷ See John Buridan, *Questions on Aristotle's Metaphysics* VII, 8: "[...] similitude can be taken widely or improperly for something other than the same quality: namely, in virtue only of some appropriate fitness of the agent with the effect" (Paris, 1588, fo. 46r; my translation).

now trying to circumscribe, and which holds, presumably, in one form or another, between any effect and its cause, as Buridan remarks.⁸

The concept of a horse, in short, is the typical intellectual posture that the mind becomes able to take on as a result of having met with a horse, *any* horse. Insofar as this same posture — or a highly similar one — could have been caused by any other horse, it can be said to be a similitude, in the required sense, not only of the particular horse that did cause it, but of any other horse as well. Which is why, precisely, it can be said to be general.

And the very same idea can be extended to even more general concepts. In Ockham's view, the first general concept we form when we meet with a single individual is the concept corresponding to the smallest natural kind (the *species specialissima*) to which this individual belongs : “ the concept of the species ”, he writes, “ can be abstracted from a single individual ” (*Quodlibeta* IV, 17, *Op. Theol.* IX, 385 ; transl. Freddoso and Kelley 1991, 317). This is how our concept of horse, for instance, comes to resemble every horse there is — or could be. But, if I meet with several individuals belonging to different but related species, I will form more general concepts, according to Ockham.⁹ Although more general, such a generic concept — the concept ‘animal’, for instance — will nevertheless be a similitude of every animal in the sense we have elucidated so far: the concept ‘animal’ will be the typical intellectual posture the mind becomes able to take on as a result of having met with several animals belonging to different species. And so on with the general concept of ‘colour’, and even for the most general of all concepts, that of ‘being’.

This idea of a typical posture that the mind becomes able to take on as a result of having met with one or more individuals in the world strikes me as entirely consistent with Ockham's *actus*-theory of concepts, as well as with his general nominalistic outlook. And it also strikes me as being quite interesting in itself, since we can, apparently, attribute to such mental postures or mental states the very functions we want to attribute to conceptual representations. One such salient function, for example, is to help recognizing a given individual as a horse, let's say, or as an animal, or even as a being for that matter. This is a function Ockham himself explicitly attributed to concepts:

[...] we can have a cognition of a *fictum* which is equally related to all men, and according to which we can judge of any particular thing whether it is a man or not. (*Ordinatio* I, dist. 2, q. 8, *Op. Theol.* II, 278; my translation).

⁸ See John Buridan, *Questions on the De Anima* I, 5 : “ [...] any effect has and bears in itself somehow a similitude with its cause [...] ” (from ms. Munich 761, as edited in an appendix of Patar 1995, 501 ; my translation).

⁹ See *Quodlibeta* I, 13 : “ [...] the concept of a genus is never abstracted from [just] one individual. “ (*Op. Theol.* IX, 77 ; transl. Freddoso and Kelley 1991, 67). See also *Summa Logicae* III-2, 29 : “ [...] the process is the following : first a man is cognized by some particular sense, and then this same man is cognized by the intellect, and when he is so cognized, a general cognition is formed which is common to all men [...] And after that, when one or more animals other than a man are apprehended, a cognition common to all animals is formed [...] ” (*Op. Phil.* I, 557; my translation).

The passage, it is true, was written from the point of view of the *fictum*-theory, but there is no reason why the same should not hold good under the *actus*-theory as well.

Concepts, in addition, should contribute to the truth-values of our thoughts somehow, and they should guide our expectations with respect to the world. And those are also functions that can be fulfilled, as far as I can see, by our abilities to take on certain intellectual postures, if each one of these abilities is indifferently connected in the required way with a given plurality of individuals, all horses, for example, or all animals, or all colours (understood as singular qualities), or all beings... This relation of being indifferently connected with a plurality of things in the required way is precisely what is expressed in Ockham's wording by the thesis that "concepts are similitudes of external things".

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Henrik Lagerlund:

Vague Concepts and Singular Terms in a Buridanian Language of Thought Tradition

1. Introduction

William Ockham and John Buridan are in agreement on basic ontological and epistemological principles, and can therefore be said to belong to the same late medieval philosophical tradition, but they differ in the ways that they spell out and develop these shared presuppositions. They both want to explain human thinking by a language of thought hypothesis, and they thus argue that thinking is a combination of mental acts, which function as terms in a language. This mental language also functions as a semantics for our spoken and written languages. Ockham argues that the acquisition of the terms of the mental language happens through intuitive or abstractive cognitions. An intuitive cognition, which is primary, is a direct acquaintance with an external object. The object acts on us and produces an act in the mind, which is a representation of the object by standing in for the object in the mind, and hence the object and the mental act can be said to co-vary. The mental act is thus also a sign, which plays a linguistic role in the so-called language of thought.¹

Ockham's nominalism tells him that everything that exists is individual and hence the object that in a sense cognition acts on the mind is a singular thing. The sign it causes in the mind will thus also be a singular thing and given its linguistic role a singular term as well. These singular terms are hence the most basic constituents of the mental language. A universal or common term will be a product of an abstractive cognition, which is a secondary operation that the mind performs on an act produced by an intuitive cognition.

Ockham does not give a detailed theory of singular terms. Buridan does, but his theory is formed by a problem he will encounter by having modified Ockham's theory of cognition. Before Ockham, the standard theory of cognition was a theory that relied heavily on some form of iconic representation, the so called species-theory of cognition.² The object cognized on this theory is represented to the cognizer through a similitude. Ockham had rejected this theory. One of his reasons for doing this was that it cannot account for singular thought, since a picture or a similitude will always be

¹ The most thorough study of Ockham's theory so far is Panaccio 2004. See also Lagerlund 2004 for the context and background of the theory.

² See Tachau 1988, for a discussion of this theory.

general and does not represent one object more than another.³ His own theory of cognition is developed in opposition to this theory. A drawback of Ockham's theory is that it gives no account of what the causal relation between objects in the external world and our mental representations of them look like.

Buridan seems on the contrary to have found Ockham's theory very unsatisfactory. He instead revives the species theory of cognition, which, despite its problems, at least gives him a scientific account of how the object can cause a representation of itself in us. The theory is also radically reworked in his account of it.⁴ On this theory we are aware of things surrounding us through a rich representation in the soul. The representation is called an intelligible species, a phantasm or an image and is supposed to be comprised of all sensations.⁵ The representation is both confused and confusing. It is confused because it is put together by so much sense information. Buridan says that substance is confused with accident, that is, put together or fused together into one phantasm or image representing things perceived. This was a rather common idea already before Buridan particularly among thinkers relying on a species-theory of perception. Scotus expresses it in his *Metaphysics* (VII, q. 15) in the following way:

[I]n the phantasy the substance is confused with accidents, or there are simply many accidents that are interconnected with one another. The intellect in understanding the universal, abstracts each of them [one at a time], so that it might eventually understand the singular, namely the nature which is [in fact] 'this' but not qua 'this'.⁶

Such an image can also be said to be confusing in the sense that it is difficult to tell exactly what is sensed and to be able to tell what we are aware of, what we need to focus on or attend to in the specific things represented, according to Buridan. The ability humans have to attend to some individual thing represented is called putting things in prospect (*in prospectu*) or in view by Buridan. In his commentary on Aristotle's *Metaphysics* he notes that the same thing is called by others intuitive cognition.⁷

Buridan is now, however, faced with the problem Ockham formulated, namely how can this kind of theory give an account of singular thought or how can it account for the acquisition of singular terms. Buridan shows this by an example. The example originated with Avicenna and it is about Socrates approaching from afar. First I cannot

³ See *Reportatio* 2, qq. 12-13; OTh 5.

⁴ See Lagerlund forthcoming for a presentation of Buridan's theory.

⁵ See John Buridan, *Questions on Aristotle's De anima*, III, q. 15, and see also the account of cognition given in Lagerlund forthcoming.

⁶ John Duns Scotus, *Questions on the Metaphysics of Aristotle*, VII, q. 15.

⁷ "Et sic finaliter videtur mihi esse dicendum quod nullus est conceptus singularis nisi sit conceptus rei per modum existentis in praesentia et in prospectu cognoscentis, tanquam illa res appareat cognoscenti sicut demonstratione signata. Et istum modum cognoscendi vocant aliqui intuitivum." (John Buridan, *Quaestiones in Metaphysicam Aristotelis*, VII.20, f. 54va.)

exactly tell what I see approaching, as some thing (substance) is coming closer and closer. After a while I see that it is an animal of some sort, but I cannot tell exactly what kind of animal it is. As it comes closer I realize that it is a human being and close up I recognize Socrates. Although this example seems to have had a long tradition, it never plays a role as important as it does for Buridan and some of his followers. Cognition initially is always about ‘that thing’, then ‘that animal’, ‘that human being’, and finally about ‘Socrates’. Hence, in the first instance it is always about a singular thing. The example can be found in John Buridan, Nicholas Oresme, Marsilius of Inghen, Peter of Ailly, Gabriel Biel and later authors, and it is used in all these authors in virtually the same way. The example thus can be said to transform the theory of thought developed by Ockham into a Buridanian language of thought tradition.

Buridan’s solution to the problem of the generality of sense representation is quite interesting. By putting things in prospect or by attending to some thing in a representation we always understand particularly before we understand universally. Always ‘that cup’ before ‘cup’. This is a singular cognition, since it is of one particular individual, but it is in a sense a common cognition as well, since the cognition is not uniquely determining. This implies, I will argue, a huge difference between Ockham’s and Buridan’s theories of singular thought, and when this example and this theory is combined with a language of thought hypothesis, as it is in Buridan and his nominalist followers, something new emerges that will affect the structure of the mental language tremendously, since whatever it is I first singularly cognize it seems not to be something simple – ‘that thing’, ‘that animal’ and ‘that cup’ seem all semantically complex. Buridan calls these concepts that are first acquired and from which all others are derived vague or confused concepts. The rest of my paper will be about these concepts and about how the tradition after Buridan saw them.

2. John Buridan on Vague Concepts

Let us first take a look at some passages from Buridan’s works. In the *De anima* commentary (last redaction), Book III, q. 8, he writes:

[T]he sensible singular is considered in two ways, as was indicated earlier: one, which is usually called vague, as in ‘this man’ and ‘this man approaching’, which must be called singular absolutely and strictly (nevertheless, it is only called vague conventionally, because a similar utterance fits several things depending upon the different ways of picking it out), and another, which is usually called determinate, as in ‘Socrates’ or ‘Plato’, insofar as it is described by the collection of properties determined to one referent in such a way that as a matter of fact it is not received in another determinate referent, as Porphyry correctly states.⁸

⁸ “Et hoc provenit ex parte sensus, quoniam duplex ponitur singulare sensibile, ut tactum fuit: unum quod solet vocari vagum, ut ‘hic homo’ vel ‘hic veniens’, quod vocari debet singulare simpliciter et propria (solum tamen, vocatur ad placitum vagum, quia similis vox convenit pluribus secundum diversas demonstrationes), aliud quod solet vocari determinatum, ut ‘Sortes’ vel ‘Plato’, secundum quod describitur per collectionem proprietatum determinatam sic ad unum suppositum, quod de facto non

There are several things to note in this quote. Buridan distinguishes between vague and determinate singular concepts.⁹ A concept, according to Buridan's theory, is passively acquired by putting something in view.¹⁰ Such a concept is vague because it fits several things depending on what is perceived at that particular time or what is in the prospect of the cognizer, that is to say, 'that human' may signify both Socrates and Plato – though at different times. A determinate concept is on the other hand uniquely determining, that is, the concept which the term 'Socrates' is taken from signifies Socrates and nothing else, and it does so because a collection of properties uniquely picks him out – these properties do not fit anyone else.

In the *Physics* commentary, Book I, q. 4, Buridan writes:

[I] have initially a confused concept that represents substance and accident simultaneously, because when I perceive white I do not simply see whiteness, but something white and later I perceive the same thing moving and changing from white to black. I judge this to be something else than whiteness and the understanding then has the power to sort out this confusion.¹¹

Again, in the *De anima* commentary, he writes:

[I]t must be said that we understand singularly before we understand universally, because a representation confused with size, place and other things is produced in the intellect before the intellect can sort things out and abstract from this confusion.¹²

By confused concept in the *Physics* commentary, Buridan seems to mean what is expressed in the quote from the *De anima* commentary, namely some concept put together from lots of properties, and this is, as he says, also why it is singular, since these properties pick out unique individuals. Abstraction, i.e., moving towards universal

recipitur talis in alio supposito determinato, ut bene dicit Porphyrius.” (John Buridan, *Questions on Aristotle's De anima*, III, q. 8.)

⁹ See Ashworth 2004 for a discussion of Buridan's theory of singular terms, and see Ashworth 2003 for a general overview of medieval theories of singular terms including Buridan's.

¹⁰ For the arguments see Lagerlund forthcoming.

¹¹ “Tertio modo abstractive ut quia habeo primo conceptum confuse et simul representantem substantiam et accidens, ut cum percipio album non enim solam albedinem video, sed album et tamen postea percipio idem moveri et mutari de albo in nigrum. Iudico hoc esse aliud ab albedine et tunc intellectus naturaliter habet virtutem dividendi illam confusionem et intelligendi substantiam abstractive ab accidentem et accidens abstractive a substantia, et potest utriusque formare simplicem conceptum et sic etiam abstrahendo fit conceptus universalis ex conceptu singulari sicut debet videri tertio de anima et septimo metaphisice.” (John Buridan, *Subtilissimae Quaestiones super octo Physicorum libros Aristotelis*, I, q. 4, fol. Vrb-va.)

¹² “Ex illis dictis, apparet manifeste quod sit respondendum ad quaestionem, dicendum est enim quod prius intelligimus singulariter quam universaliter, quia prius fit in intellectu representatio confusa cum magnitudine et situ et aliis, quam intellectus posset distinguere et abstrahere illam confusionem.” (John Buridan, *Questions on Aristotle's De anima*, III, q. 8.)

concepts from singular ones, is a matter of getting rid of these properties – sorting out the confusion and then arriving at simple universal concepts.

The vague concepts are confused in the way expressed in the *Physics* commentary, and so are determinate concepts, but vague concepts are prior in acquisition to determinate concepts, since to go from vague to determinate is to add properties to the things perceived. Nobody after Buridan expresses this as clearly as Nicholas Oresme.

3. Nicholas Oresme on Vague Concepts

In q. 14 of Book III of his *De anima* commentary, Oresme discusses the question whether we cognize universals before singulars. In his answer to the question he writes:

First of all there is the distinction that a certain concept is universal with which some singular circumstance is not conceived, such as when the intellect conceives human absolutely, not imagining quantity, figure, color, place or time, and so forth. Such a concept is said to be absolute, quidditative, [and] not connotative. And certain such [concepts] are more general than others, such as substance [is more general] than animal, animal than human, etc.

Secondly, there is another concept which someone conceives with some singular circumstance, such as here and now. And it is in this way that a body seen from afar is sometimes conceived; it is conceived to be this body, situated here. But it is not yet known what color or figure it has, or if it is a human or a horse. In this way, such a concept is said to be singular, but it is in some ways also universal, since by the same concept another thing would be conceived if it were placed there, and we could not perceive the difference at such a distance. And some such concepts are more common, when they are conceived with few circumstances, and others are more special, when they are conceived with several circumstances, as when getting closer and seeing motion, it is conceived that it is an animal, then that it is a human being, and at last, when every circumstance is apprehended, it is perceived that it is Socrates. And then such a concept is, thirdly, said to be singular, since it is perceived that it is white, and of such a figure, and so on.¹³

¹³ “Quantum ad primum est distinctio quod quidam est conceptus universalis quo non concipitur aliqua singularis circumstantia, sicut quando intellectus concipit hominem absolute, non imaginando quantitatem nec figuram nec colorem nec tempus, et sic de aliis: et talis conceptus dicitur absolutus quidditativus non connotativus. Et quidam talium sunt communiore aliis, sicut substantia quam animal, animal quam homo, etc.

Secundo est alius conceptus quo aliquid concipitur cum aliqua circumstantia singulari, sicut hic aut nunc. Et isto modo quandoque concipitur corpus visum a longe, concipiendo quod hoc est hoc corpus hic positum; et nescitur adhuc cuius coloris sit aut figurae, vel si est homo aut equus. Et secundum hoc talis conceptus dicitur singularis, et cum hoc etiam est quodammodo universalis, quia isto eodem conceptu conciperetur unum aliud, si poneretur, nec a tali distantia perciperetur differentia. Et talium conceptuum quidam sunt communiore, quando concipiuntur paucae circumstantiae, et alii specialiores, quando concipiuntur plures circumstantiae, sicut approximando et videndo motum concipitur quod est animal, deinde quod est homo, et tandem, apprehensis quasi omnibus circumstantiis, percipitur, quod est

Before commenting on this let us have a look at another passage from the same question about the second type of concepts mentioned above. There Oresme writes:

The second conclusion is that a concept in the second sense is ... not simple, but connotative, as was said. And this is evident in the example: If some body is seen from afar, then it is conceived to be a body, and together with this that it is here and now. It can be said that the concept in a sense is confused... The fourth conclusion is that every concept in the second sense is said to be universal in one sense and singular in another. It is singular in that it is conceived with some singular circumstance. It is universal in that through such a concept another thing would be represented, if it were entirely similar in its sensible accidental qualities, as would be the case with two eggs. And [even] if it were but slightly different, then the sense would [still] not know that it is not cognizing the same thing.¹⁴

On Oresme's view, there are, thus, three types of basic concepts, or rather four, since the second can be distinguished in two, but I will for now ignore that. These concepts are:

1. Universal absolute/quidditative concepts
2. Singular 'confused' concepts
3. Singular concepts

The second type concepts are as he says confused, that is, put together by different properties in the same sense as we saw Buridan explicate, or circumstances, in Oresme's view. Such concepts are also complex or as he says, using Ockham's terminology, connotative. Note also that it is all the time the example I mentioned in the beginning that figures throughout Oresme's discussion. The type two concepts are also vague in the same sense as Buridan's vague concepts are vague, namely that the concept is about one particular thing although in a sense it applies to several things. I seems to me safe to assume that these concepts of Oresme are the same type of concepts that Buridan calls vague and also that the type three concepts are what Buridan calls determinate concepts.

An interesting aspect of Oresme's view is that the more determinate or rather the less vague a concept becomes, that is, as he says the more circumstances that are added, the

Socrates. Et tunc talis conceptus tertius dicitur singularis, quia iam percipitur quod est album et taliter figuratum, et sic de aliis." (Nicholas Oresme, *Quaestiones in Aristotelis De anima*, III, q. 14.)

¹⁴ "Secunda conclusio est quod conceptus secundo modo dictus est in intellectu et in sensu: patet, quia simul componitur ex specie quae est in intellectu et speciebus quae sunt in sensu. Nec est simplex, sed connotativus, ut dictum est. Et hoc patet in exemplo: si quis videat corpus de longe, concipit quod est corpus; et cum hoc quod est hic et nunc. Et licet iste conceptus sit aliquid universaliter confusus, ... [...] Quarta conclusio <est> quod omnis conceptus secundo modo dictus est aliquid universaliter et aliquid singulariter. Est singularis in eo quod concipitur aliqua circumstantia singularis. Est universalis in eo quod per talem conceptum repraesentaretur unum aliud, si esset omnino simile in omnibus accidentibus sensibilibus, sicut de duobus ovis. Et adhuc, si est parva dissimilitudo non semper sensus sciret eam cognoscere." (Ibid.)

more complex the concepts gets. It seems to me that a determinate concept, for example, ‘Socrates’, must be something very complex, since it includes all properties or all the circumstances he was perceived in as Socrates. This is what makes it a proper name picking out no one else but Socrates.

4. Marsilius of Inghen on Vague Concepts

I would like to claim that what we have seen in Buridan and Oresme became more or less the standard doctrine repeated by most nominalists. I will here note some examples, and first of all I will discuss Marsilius of Inghen. In question 2, of the first book of his *Sentence* commentary, he writes:

An incomplex [act of knowing (notitia)] is sometimes singular and sometimes common. The singular is twofold, namely, vague, which follows upon a sensitive act of knowing, and determinate, which is the most difficult of the acts of knowing, since it is the most distinct. And it is that to which individuals in the category of substance corresponds such as the concept to which the terms ‘Socrates’ and ‘Plato’ correspond. A common [act of knowing] is a simple apprehension of a thing common to several supposita in accordance with its mode of signification.¹⁵

Further down in the same passage he writes:

Among intellective acts of knowing a vague singular is first, since thus sense first represents.¹⁶

Marsilius is here talking about intellective acts of knowing (*notitiae intellectivae*), that is, concepts. The singular incomplex ones are either vague or determinate and the vague are primary in acquisition. Lets stop here for a moment since there now emerges a very interesting problem. Buridan and Oresme never claimed that vague and determinate concepts were incomplex or simple – on the contrary Oresme explicitly claimed that they were complex. For someone like Ockham, on the other hand, it was obvious that the first acquired concepts through intuitive cognitions were simple and incomplex, but this was not Buridan’s view, I have claimed. How can Marsilius claim that the vague concepts are simple? Before attempting an answer let us first take a look at what Peter of Ailly says.

5. Peter of Ailly on Vague Concepts

In his *De anima*, Peter of Ailly writes:

¹⁵ “Incomplexarum aliqua est singularis et aliqua communis. Singularis est duplex, scilicet vaga, quae sequitur notitiam sensus; et determinata, quae difficillima est inter notitias incomplexas, quia distinctissima. Et est illa, cui correspondent individa praedicamenti substantiae sicut conceptus, quibus correspondent hi termini ‘Socrates’ et ‘Plato’. Communis est simplex apprehensio rei ex modo suae significationis communis multis suppositis.” (Marsilius of Inghen, *Quaestiones super quattuor libros sententiarum*, I, q. 2.)

¹⁶ “Tertio, inter intellectivas vaga singularis est prima, quia ita primo repraesentat sensus.” (Ibid.)

A singular concept is twofold for a certain concept is that which is called a vague singular, such as ‘that human’, ‘that animal’... .. Another singular concept is that which is called determinate singular, such as ‘Socrates’ and ‘Plato’ If Socrates is approaching from afar, I cognize him first to be an animal before [I cognize him to be] a human and finally I cognize him to be Socrates, but I cognize him to be this animal singularly before [I cognize him to be] an animal universally.¹⁷

Further down he writes:

Therefore, every universal has its [corresponding] vague singular, such as ‘body’/‘this body’, ‘animal’/‘this animal’, ‘human’/‘this human’. In this way when the senses cognize singularly, a vague singular and not a determinate singular, it has first a vague singular of a major universal than of a minor universal, namely, this body before this animal and this animal before this human; therefore, the intellectual abstraction correspond first to a cognition of a major universal.¹⁸

As is obvious from these quotes Peter is working with the same distinctions and the same theory as we have seen a number of Buridan followers do.

Peter’s psychology is generally a terminological mix or unification of Ockham’s and Buridan’s psychological theories, and according to him vague concepts are first acquired through an intuitive cognition or, which for him is the same thing, by putting something in view. In the *De anima*, he also notes that “an intuitive act of knowing (*notitia*) is a simple act of knowing”.¹⁹ The idea seems to be the same as the one Marsilius expressed, that is, since concepts are acquired through simple acts of cognition they must themselves be simple. But Peter does not stop at this, in the *Insolubilia* he famously claims that:

¹⁷ “Circa quod tamen est advertendum, quod duplex est conceptus singularis; nam quidam est, qui vocatur singulare vagum, ut ‘hic homo’, ‘hoc animal’, et tale est proprie singulare, licet ad placitum vocetur vagum, quia vox ei correspondens convenit pluribus secundum diversas demonstrationes. Alius est conceptus singularis, qui vocatur singulare determinatum, ut ‘Socrates’, ‘Plato’ et huiusmodi, et quantum ad tale singulare videtur, quod non oportet prius intelligere singulariter quam universaliter, sed bene quantum ad singulare vagum. Nam, si Socrates a longe veniat, prius cognosco ipsum esse animal quam hominem et ultimo cognosco ipsum esse Socratem, sed prius cognosco ipsum esse hoc animal singulariter quam animal universaliter.” (Peter of Ailly, *Tractatus De anima*, c. 12, secunda pars.)

¹⁸ “Unde quodlibet universale habet suum singulare vagum, ut ‘corpus’ ‘hoc corpus’, ‘animal’ ‘hoc animal’, homo’ ‘hic homo’; modo sensus cognoscens singulariter singulari vago et non singulari determinato prius habet singulare vagum magis universale quam minus universale, scilicet huius corporis quam huius animalis et huius animalis quam huius hominis; ideo intellectus abstrahendo correspondenter prius cognoscit magis universaliter.” (Ibid.)

¹⁹ See Lagerlund 2003 for a discussion about Peter’s theory of cognition.

No categorical mental sentence is essentially put together out of several partial acts of knowing, one of which is the subject, another the predicate and another the copula.²⁰

Not even mental sentences are complex, according to him.

This, I think, suggests that when they talk about these concepts as simple, that is, the vague or the determinate, they mean that they are simple metaphysically and not semantically. They are obviously not simple semantically, neither vague concepts nor Peter's mental sentences, that is, 'that cup' or 'the cup is on the table' are not simple. However, they might still be simple metaphysical entities or simple qualities of the intellectual soul; hence a simple act, an intuitive cognition, produces a simple concept, but the content of such a concept need not be simple. In other words, something metaphysically simple in the soul might have a semantically complex content. It is only in the light of such a distinction that Marsilius' and Peter's discussions make any sense.²¹

6. Gabriel Biel on Vague Concepts

Before I recapitulate what I have been saying so far I would like to draw attention to Gabriel Biel. In his *Sentence* commentary, Book I, dist. 3, q. 6, he develops the same kind of distinctions we now have seen Buridan, Oresme, Marsilius and Peter outline. He distinguishes between singular and common acts of knowing (*notitiae*), and in the same way as Marsilius divides singular concepts into vague and determinate. He notes that the vague concepts are such that their signification can change, while determinate concepts never change or remain unchangeable.²² This is exactly the same theory of concepts seen in Buridan, but this time with a completely Ockhamistic terminology. It thus seems to have remained an influential theory well into the fifteenth century.

²⁰ "Secunda conclusio: nulla propositio mentalis cathgorica est essentialiter composita ex pluribus partialibus noticiis, quarum una sit subiectum et alia predicatum et alia copula." (Peter of Ailly, *Conceptus et insolubilia*, fol. Biv^b.)

²¹ Many commentators have noted that some kind of distinction must be drawn between metaphysical and semantical simplicity. See, for example, Klima's introduction to John Buridan, *Summulae de Dialectica*, pp. xxxvii-xli, and Lagerlund 2003.

²² "A notitia ergo prima intellectiva intuitiva abstrahit intellectivam abstractivam singularem vagam sicut sensus. Deinde abstrahit duplicem notitiam, singularem et communem.

Singularem, nam habita singulari vaga significante multas circumstantias sensu perceptibiles, considerans aliquas variari aliis manentibus, abstrahit duos conceptus: unum eius quod mutatur, alium repraesentantem praecise illud quod manet immutatum. Et omnes hi sunt singulares. Nec ab illa abstractione cessat, donec perveniat ad conceptus simplices significantes tantum unam qualitatem absolute.

Item: Considerans plura singularia convenientia sibi similia inter se in aliquibus quam cum aliis, abstrahit conceptum communem adequate repraesentantem huiusmodi convenientia. Et si fuerit convenientia essentialis, potest formare conceptum absolutum. Si accidentalis, format conceptum connotativum. Et secundum quod convenientiae sunt plurium vel paucorum, format conceptus magis vel minus communes." (Gabriel Biel, *Collectorium circa quattuor libros sententiarum*, I, dist. 3, q. 6, art. 1.)

7. Conclusions

In this paper, I have wanted to claim that Buridan starts medieval discussions on mental language onto quite a different path than most have thought so far. Buridan does by no means take up where Ockham left off. Instead, his attempt to hold onto the traditional species theory of sense representation as images of some sort forces him to grant that the concepts first acquired and which all others are based on are complex (at least semantically). He thus must make a distinction between the priority of acquisition and the priority of signification. Let me explain. The concept 'that cup' is semantically analyzable into 'that' and 'cup', hence 'cup' has priority of signification over 'that cup', but the vague concept 'that cup' is acquired before 'cup' which is causally derived from it.

What does all this mean for the late medieval language of thought tradition? I think it undermines the original idea of the theory and ultimately destroys the whole theory. If mental acts all 'look' the same, that is, are simple metaphysical entities or qualities of the mind, while they at the same time have different complex contents, then the language of thought seems not to have a syntax, which destroys the notion of compositionality. It is simply not a language any more!

Furthermore, by having to draw a distinction between the priority of acquisition and the priority of signification, the tradition pulls apart the mental acts and their linguistic roles, which is another blow to the language of thought hypothesis. It seems to me that it is another kind of theory of thought that we can see emerge from the late medieval language of thought tradition. It is a theory that has more in common with Descartes' theory of thought than with the Ockhamistic notion of a language of thought, but this remains to be shown in more detail.

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Gyula Klima:

The Demonic Temptations of Medieval Nominalism: Mental Representation and “Demon Skepticism”

Introduction

In his *Summulae de Dialectica*, John Buridan (ca. 1300-1361) provided the following, striking description of a line of reasoning that later came to be famous in Descartes’ “Demon-argument”:

“... some people, wanting to do theology, denied that we could have knowledge about natural and moral [phenomena]. For example, we could not know that the sky is moving, that the sun is bright and that fire is hot, because these are not evident. For God could annihilate all these, and it is not evident to you whether He wills to annihilate them or not; and thus it is not evident to you whether they exist. Or God could even put the sky to rest or remove light from the sun or heat from fire. And finally they say that it is not evident to you concerning the stone you see as white that it is in fact white, for even without the whiteness and the stone God can create in your eye an image [*species*] entirely similar to the one you have now from the object; and thus you would judge the same as you do now, namely, that there is a white stone here. And the judgment would be false, whence it would not be certain and evident; and, consequently, it would not be evident even now, for it is not evident to you whether God wills it so or not.” [SD 8.4.4, p. 708.]¹

Although nominalists were often charged with skepticism, it is important to note here that Buridan is referring to this line of reasoning to *refute* its skeptical conclusion. Equally important, however, is to notice Buridan’s strategy in fending off the skeptical argument in his subsequent discussion. He acknowledges the possibility of divine deception as a mere *logical* possibility, while rejects it as a *natural* possibility.

In this paper I am going to argue that in these reasonings Buridan is relying on an implicit principle that I call “the principle of natural invariance of mental representation”. As I will show, strict adherence to this principle is what fundamentally distinguishes Buridan’s account of mental representation from Ockham’s *within* the nominalist conception. Both accounts are distinguished, however, from a (moderate) realist conception that endorses a much stronger invariance principle in the “thesis of the formal unity of the knower and the known”, which is excluded by the principles of 14th-century nominalism.

¹ Cf. Johannis Buridani *Quaestiones in Duos Aristotelis Libros Posteriorum Analyticorum*, ed. H. Hubien, unpublished, lb. 1, q. 2, esp. objections 6-10. *Quaestiones super duodecim libros Metaphysicorum Aristotelis*, lb. 2, q. 1.

The possibility of absolute skepticism: is perfect deception possible?

To see the connections between the issues of Demon-skepticism and the identity conditions of mental representations, we first have to spell out exactly what (at least a relevant version of) Demon-skepticism is, exactly what it is that is at stake in Demon-skepticism, and what conception of mental representation it involves. Therefore, I begin this discussion with the exposition of a certain version of the Demon-argument, which I take to be the most obviously relevant to the subsequent considerations concerning concept-identity.

The Demon-argument

We may assume as our background story the philosophical tale of a brain kept alive in a vat by a mad scientist, or Descartes' possibly disembodied *res cogitans* manipulated by an omnipotent demon, or anything else we might take to be the *locus* of consciousness of a cognitive subject capable of human thought. It really does not matter from our point of view whether the cognitive subject in question is assumed to be a disembodied spirit, an isolated brain, or Neo, the protagonist of the Matrix-trilogy. All these philosophical fables are provided merely to give credence to the possibility of complete, in principle undetectable cognitive isolation, that is to say, the possibility of there being a cognitive subject with a human "consciousness-as-we-know-it", fed with cognitive input that in its own nature is radically different from what it appears to be to the cognitive subject in question. In the subsequent reconstruction of the skeptical argument, therefore, I will refer to this hypothetical cognitive subject as a BIV, with reference to the brain-in-a-vat story, but with the understanding that really nothing depends on the particulars of that story: the only thing that matters is that it assumes the possibility of a cognitive subject that has only non-veridical cognitive contents, and yet whose consciousness is phenomenally absolutely indistinguishable from ours (while I assume we are not in the same deplorable situation).

So, let us stipulate the following definitions: a BIV is a thinking subject having no veridical concepts; a veridical concept is one that represents what it appears to represent, while a non-veridical concept is what represents something different from what it appears to represent. (For example, a veridical concept that appears to represent donkeys does represent donkeys, while a non-veridical concept that appears to represent donkeys does not represent donkeys, but something else, say, electronic impulses generating a virtual reality containing virtual donkeys.)

With these definitions in place, the skeptical challenge posed by the BIV-story and its cognates can be summarized in the following argument:

(I)

1. A BIV can have exactly the same concepts as a non-BIV
2. A thinking subject *s* can distinguish its concepts from those of a BIV only if *s* cannot have exactly the same concepts as a BIV
3. But then a thinking subject *s* cannot distinguish its concepts from those of a BIV

4. A thinking subject *s* can know whether it is a BIV only if it can distinguish its concepts from those of a BIV
5. So a thinking subject *s* cannot know whether *s* is a BIV
6. Thus, being a thinking subject, for all I know I might be a BIV.

What is at stake here?

Obviously, the most perplexing thing about this argument is the conclusion that I may be absolutely, radically mistaken about virtually anything and everything. Whatever I thought I knew before, by virtue of this reasoning is now in serious doubt. But that is not the only thing that should worry us about this argument. For even if the possibility of being mistaken even about our most fundamental beliefs is bad enough, some of the assumptions of the argument may actually be worse. In the first place, is it really true that, given the definition of a BIV and that of a veridical concept, a BIV can have exactly the same concepts as a non-BIV? Or, equivalently, is it true that I or any other cognitive subject could have exactly the same concepts whether they are all non-veridical or not? Why should we simply swallow the possibility of complete cognitive isolation, and hence the possibility of perfect, in principle undetectable deception on the basis of the common philosophical fables referred to above?

Buridan's version of the argument quoted above provides divine omnipotence as the ultimate rationale for accepting this possibility, as does later on Descartes' version in his *Meditations*. But, as we know, for medieval philosophers and theologians divine omnipotence is coextensive with logical possibility; so the rationale provided here is simply the claim that it is at least logically possible, i.e., a contradiction-free assumption, that a BIV has exactly the same concepts as a non-BIV. But is this really a logical possibility, or is it just a *de facto* self-contradictory thought merely supported by our false imagination? After all, we may often think of an assumption that it is logically possible, just because we can *imagine* the situation in which it is true, just like the assumption that there is a greatest prime number, and yet, upon closer scrutiny the assumption turns out to be logically impossible, entailing an explicit contradiction.

The following argument, taking its cue from Hilary Putnam,² is devised to show that with the "Demon-assumption" this is precisely the case, namely, that despite what the philosophical fables about the possibility of perfect deception suggest to our imagination, no thinking substance can be a BIV, because the concept of a thinking substance with no veridical concepts at all is contradictory:

(II)

The argument begins with the following self-evident claims.

1. A thought meant to express an actual state of affairs, whoever forms it, can be true only if it contains no non-veridical concepts

² Cf. Putnam, H., *Reason, Truth, and History*, chapter 1, pp. 1-21 (Cambridge University Press: 1982). But the argument I am presenting here is significantly different from Putnam's.

2. A thought meant to express an actual state of affairs, whoever forms it, is true if and only if it expresses an actual state of affairs
3. A BIV has no veridical concepts

Now suppose

4. *s* is a BIV
5. Then, the thought that *s* is a BIV, whoever forms it, is true (by 2, since it expresses the actual state of affairs stated in our hypothesis).
6. So, the thought that *s* is a BIV, formed by *s*, is true (a direct consequence of 5 by universal instantiation)

On the other hand,

7. The thought that *s* is a BIV, formed by *s*, contains no veridical concepts (since *s* has no veridical concepts by our hypothesis and by 3)
8. So the thought that *s* is a BIV, formed by *s*, is not true (by 1 and 7)

But line 8 contradicts line 6, and since all the other premises are necessarily true, we can blame this contradiction only on our hypothesis, whence it has to be false, for any arbitrarily chosen *s*. Therefore, nothing can be a BIV.

Thus, this argument shows that the concept of a thinking subject having no veridical concepts at all is contradictory, whatever we think about what concepts are. On the other hand, by showing this, the argument also shows that if on account of some particular conception of what concepts are it seems plausible to accept the possibility of there being BIV's, then there must be something wrong with that conception.

What is wrong with the conception of mental representation that allows the possibility of Demon-skepticism?

So, exactly what is wrong in Buridan's conception, if it in fact allows the possibility of Demon-skepticism? From Buridan's own response to the skeptical challenge it is clear in the first place that his conception does allow the possibility of Demon-skepticism:

... in the genus of human cognition there are several kinds of certainty as well as of evidentness. For as far as we are concerned, certainty or assent should not be called that of knowledge, unless it is firm, without any fear [of falsity]. But as far as the proposition is concerned, one sort of certainty is that which pertains to a proposition so firmly true that it, or one similar it, can by no power be falsified. And in this way we should certainly concede, as they [Buridan's skeptical opponents] have argued, that it is impossible for us to have such certainty about an assertoric categorical affirmative proposition, unless it consists of terms suppositing for God, or, perhaps if we admit natural supposition, of which we spoke elsewhere.³ But this sort of certainty is not required for natural sciences or metaphysics, nor even in the arts or morality [*prudential*]. Another sort of human certainty on the part of the proposition, however, is that of a true proposition that cannot be falsified by any natural power and by any

³ SD 4.3.4.

manner of natural operation, although it can be falsified by a supernatural power and in a miraculous way. And such certainty suffices for natural sciences. And thus I truly know, by natural science [or knowledge, *scientia*] that the heavens are moved and that the sun is bright.

Accordingly, it seems to me to be possible to conclude as a corollary that supernaturally it is possible for my [act of] knowledge, while it remains the same, to be converted into non-knowledge. For as long as the sun and the sky are moving in accordance with all their natural ways, the assent by which I firmly and with certainty assent to the proposition 'The sun is bright' is true, evident and certain natural knowledge [*scientia*], endowed with the evidentness and certainty appropriate to natural science [*scientia*]. I posit, then, that if this [act of] assent, which is knowledge at the present time, remains in me for the whole day, and at nine o'clock God removes light from the sun without my knowing this, then that [act of] assent of mine will no longer be knowledge after nine o'clock, for it will no longer be true, nor will it have a true proposition as its object.⁴

As this passage makes it clear, Buridan's response to the skeptical argument is not a rejection of its conclusion, but rather its "absorption" into a wider epistemological framework with "lowered expectations" as to what is humanly knowable and how.

But besides providing Buridan's reaction to the skeptical challenge, this passage also indicates some further important points concerning Buridan's conception of mental representation, in particular, concerning the identity conditions of our concepts with regard to their objects. For Buridan's talk about the supernatural possibility but natural impossibility of the same act of knowledge becoming false opinion is certainly indicative of what I will call Buridan's *principle of the natural invariance of mental representation*, namely, an invariance principle that has only natural, but not logical necessity. But then, if Buridan does indeed subscribe to such an invariance principle, then what is wrong with this conception of mental representation is precisely the fact that it clearly allows the first premise of the Demon-argument as expressing a *logical possibility*, which is not excluded by the mere *natural necessity* of Buridan's invariance principle. Therefore, it allows the logical possibility of perfect deception in its conclusion, which, however, is in fact *not* a logical possibility, provided that the previous, Putnam-inspired argument is correct.

⁴ SD 8.4.4, p. 708. This passage quite faithfully echoes both a position attributed to Ockham, censured by the Avignon commission in 1326, and the position of Nicholas of Autrecourt. Cf. "... Omnis res absoluta distincta loco et subiecto ab alia re absoluta potest per divinam potentiam existere alia re absoluta destructa. Sed visio intuitiva tam sensitiva quam intellectiva est res absoluta distincta loco et subiecto ab obiecto viso, sicut si videam intuitive stellam existentem in celo, ista visio intuitiva, sive sit sensitiva sive intuitiva, distinguitur loco et subiecto ab obiecto viso. Ergo ista visio potest manere stella destructa." A. Pelzer: "Les 51 articles de Guillaume Occam censurés, en Avignon, en 1326", *Revue d'histoire ecclésiastique*, 1922, pp. 240-70. Quoted by E.A. Moody: "Ockham, Buridan, and Nicholas of Autrecourt", in his *Studies in Medieval Philosophy, Science and Logic*, UC Press, Berkeley-LA-London, 1975, p. 134. See also: "Sed forsán dicetis, prout mihi videtur, volebatis innuere in quadam disputatione apud Predicatores, quod, licet ex visione non possit inferri obiectum visum esse, quando visio ponitur in esse a causa supernaturali vel conservatur ab ipsa, tamen quando posita est in esse a causis naturalibus precise, concurrente influenza generali primi agentis, tunc potest inferri. Contra. Quando ex aliquo antecedente, si esset positum ab aliquo agente, non poterit inferri consequentia formali et evidenti aliquod consequens: nec ex illo antecedente poterit inferri illud consequens, a quocunque fuerit positum in esse." *ibid.* p.135.

The identity conditions of concepts

So, what is Buridan's position on concept-identity? Concepts, being ontologically simple qualities of individual minds, on Buridan's conception are primarily individuated by their subjects and time. Therefore, these individualized qualities of the same mind at the same time can differ only if they differ in kind. And the kind of concept we are talking about is always determined by the kind of object or objects this concept is supposed to represent and the way it represents whatever it represents. But then, the question of the individuation of concepts of the same subject at the same time boils down to the issue of the identity and distinctness of their objects and their modes of representation. Hence, in the case of concepts representing different objects in the same way, the question of the necessity of their distinctness (or the possibility of their identity) is the question of whether these concepts are related to their objects contingently or necessarily, and if necessarily, then by what type of necessity.

In discussing the kind of supposition, that is, the type of reference of the subject term of the mental counterpart of the spoken proposition 'Man is a species', Buridan makes it absolutely clear that in his view a concept cannot vary its natural representational relation to its objects:

"We should know, therefore, that (as it seems to me), material supposition occurs only where significative utterances are concerned. For no mental term in a mental proposition supposits materially, but rather always personally, for we do not use mental terms by convention [*ad placitum*] as we do with utterances and written marks. This is because *the same mental expression never has diverse significations, or acceptations*; for the affections of the soul [*passiones animae*] are the same for all, just like the things of which they are the likenesses, as is said in bk. 1 of *On Interpretation*. Therefore, I say that the mental proposition corresponding to the proposition 'Man is a species', insofar as it is true, is not a proposition in which the specific concept of men is the subject, but rather it is a proposition in which the subject is the concept by which the specific concept of men is conceived; but it supposits not for itself, but rather for the specific concept of men. And from this it is sufficiently clear that paralogsms involving such a change of supposition come under the fallacies of words."⁵

Buridan here quite significantly departs from Ockham, who would see no problem in attributing this type of ambiguity to mental terms. For Ockham, it would be quite possible to take the concept to which the term 'man' is subordinated in material supposition, i.e., as referring to itself in the mental proposition designated by the spoken proposition 'Man is a species', just as we can take the subject of the spoken proposition to refer to itself.

For Buridan, however, this is unacceptable.⁶ For him, specifying the objects and the subject of a concept (along with the time of its formation or actual use and the way it

⁵ SD, 7.3.4, p. 522.

⁶ The first thorough discussion of Buridan's solution in the modern literature was provided by Ebbesen, S. "The Summulae, Tractatus VII, De Fallaciis", in: *The Logic of John Buridan*, edited by J. Pinborg, Copenhagen: Museum Tusculanum, 1976, pp. 121-60. A very useful comparative analysis of Ockham's, Buridan's and Albert of Saxony's treatment of the problem is provided by Berger, H. "Simple Supposition in William of Ockham, John Buridan, and Albert of Saxony", in: *Itinéraires d'Albert de*

represents its objects) uniquely determines which single token-concept of which single mind we are talking about, whereas specifying the objects of a concept disregarding whose concept we are talking about, determines the same inter-subjective concept-type we are talking about. This is *precisely* what allows Buridan in the previously quoted passage to base his solution of the problem of the subject of the mental counterpart of 'Man is a species' on the "sameness" (that is, sameness *in type*) of concepts for all, as opposed to the differences in the various spoken languages of various peoples. For specifying that we are talking about the concept by which we conceive of human beings indifferently (i.e., disregarding their individual differences), we uniquely determine the type of concept of which each one of us has a token in mind, namely, the concept by which I conceive of human beings indifferently, and the concept by which you conceive of human beings in the same way, etc. And this is so because, being members of the same species, we all have the same type of natural capacities to form this type of concept, based on the same type of natural input we are all exposed to.

But *this is all there is* to guarantee the resemblance of our token concepts, namely, the natural necessity of the laws of nature governing the processes of concept formation of individual human minds. And again, *this is all there is* to guarantee for any human mind that its concepts are related to the same objects in the same way as other concepts of other human minds. Thus, it is no wonder that on this conception it seems plausible that a supernatural power, capable of overriding the necessity of nature, could produce the very same concepts in the same human minds *without* their natural connection to their objects. Therefore, since the sameness of their objects only naturally, but not logically, figures into the identity-conditions of human concepts, the logical possibility of Demon-skepticism is definitely open for this conception.

Exorcizing the Demon vs. learning to live with it

But is there any other conception that would be able to get rid of this possibility at all? The answer to this question may become clear if we consider the following argument, exorcising the Demon once and for all:

(III)

1. Necessarily, concepts differ specifically iff their objects differ specifically
2. Necessarily, veridical concepts have specifically different objects from non-veridical concepts (a virtual-donkey-impulse being specifically different from a donkey)
3. So, necessarily, veridical concepts differ specifically from non-veridical concepts
4. Therefore, a BIV cannot have exactly the same concepts as a non-BIV

Saxe: *Paris-Vienne au XIVe siècle*, edited by J. Biard. Paris: Vrin, 1991, pp. 31-43. Cf. also Ashworth, E.J., "Nulla propositio est distinguenda: la notion d'*equivocatio* chez Albert de Saxe", *ibid.*, pp. 149-160, and Ebbesen, S.: "Can Equivocation be Eliminated?", *Studia Mediewistyczne*, 18(1977), pp. 103-124.

The conclusion of this argument is the contradictory of the Demon-assumption of the first argument, provided their modal verbs express the same type of modality, that is, *logical possibility versus impossibility*. For Ockham, who would apparently see no problem in the contingency of the relation between concepts and objects, the first premise of this argument would simply be false (although he would certainly accept an assertoric version of the claim). For Buridan, on the other hand, it would be true *only if* it expressed natural necessity. But the “exorcism” provided by this sort of argument *can* work for those thinkers who, on the basis of their conception of mental representation, would subscribe to this premise as expressing *logical* necessity. Such thinkers, in my view, would be the medieval *moderate realists* opposed by Ockham’s and his followers’ innovative conception of the relationships between mind language and reality. The reason is that for moderate realists the relationship between concepts and their objects is *formal identity*, which is precisely the kind of relationship that makes the *formal identity* of their objects part of the identity conditions of concepts, by logical necessity. But Ockhamist nominalism is definable in part *precisely* in terms of the rejection of the notion of formal identity. Thus, it is no wonder that the *possibility* of Demon-skepticism emerged with the emergence of Ockhamism, forcing a non-skeptical Ockhamist like Buridan (as well as Ockham himself) to try to find ways of somehow learning to live with it.

Olaf Pluta: Mental Representation in Animals and Humans – Some Late-Medieval Discussions

In his *Philosophical Investigations (Philosophische Untersuchungen)*, Ludwig Wittgenstein makes the following remark about animal thinking:

“It is sometimes said that animals do not talk because they lack the mental capacity. And this means: “they do not think, and that is why they do not talk.” But—they simply do not talk. Or to put it better: they do not use language—if we except the most primitive forms of language.”¹

We should thus be careful not to assume a necessary connection between the use of language and a capacity for thought. In fact, thinking may be an ability not connected to language at all, even though for humans it is natural to express thoughts with words.

As far as language is concerned, some animals *are* capable of understanding what Wittgenstein calls a “complete primitive language”² where words are linked to actions. Wittgenstein gives the example of a builder and his assistant. The builder calls out words such as “block”, “pillar”, “slab”, “beam”, and the trained assistant brings the particular stone that he has learnt to bring in response to a given command.

In a recent article published in *Science*, a 9-year old border collie named Rico was reported to know more than 200 words.³ Rico had been trained to fetch items, and he usually retrieved the correct item when being asked by his owner. Even more impressive, however, was the dog’s ability to learn in just a single trial, akin to the “fast mapping” abilities of children. That is to say, Rico inferred the names of novel items by exclusion learning and correctly retrieved those items right away. In general, Rico’s retrieval rate was comparable to that of 3-year-old toddlers. The authors of the article conclude that word learning “appears to be mediated by general learning and memory mechanisms also found in other animals and not by a language acquisition device that is special to humans.”⁴ The limitations of animals would thus reflect differences in degree, not in kind.

¹ Ludwig Wittgenstein, *Philosophische Untersuchungen/Philosophical Investigations*. Translated by G. E. M. Anscombe, Oxford: Blackwell, 1953, Part I, No. 25 (p. 12).

² *Ibid.* Part I, No. 2 (p. 3).

³ See Juliane Kaminski, Joseph Call, Julia Fischer, “Word Learning in a Domestic Dog: Evidence for “Fast Mapping”,” in: *Science* vol. 304 (11 June 2004), pp. 1682-1683, and Paul Bloom, “Can a Dog Learn a Word?,” in: *Science* vol. 304 (11 June 2004), pp. 1605-1606, who wrote a commentary accompanying the original article.

⁴ “Word Learning in a Domestic Dog: Evidence for “Fast Mapping”,” see above, p. 1682.

While Rico's vocabulary of around 200 words is comparable to that of language-trained apes, dolphins, and parrots, his word-learning abilities surpass those of nonhuman primates such as chimpanzees, who have so far never demonstrated this sort of fast mapping. Rico's word-learning abilities will, however, appear less amazing if one considers that humans and dogs have co-evolved for a very long time – the fossil record offers evidence that domestic dogs originated about 15,000 years ago.⁵ Ever since dogs and humans started to live together, dogs have been close to children and have thus been constantly exposed to word-learning. And border collies are known for their intelligence and their eagerness to learn.

How Rico interprets or mentally represents a command such as “Rico, where is the sock?” does, however, remain an open question. When Rico is requested by his owner to fetch a sock, he may or may not understand that the word ‘sock’ refers to a group of objects, and that the rest of the command means that he should act in a particular way (fetching) towards a member of this group.⁶

This brings me to the topic of my paper. I would like to introduce some late-medieval discussions concerning mental representation in animals and humans, and dogs will play a major part in these discussions. Given the ubiquity of dogs during the Middle Ages, it is no surprise that their abilities were studied and that dogs were used as examples for animal thinking. For this paper, my focus will be on the works of John Buridan, a fourteenth-century Arts Master in Paris.

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We come across dogs in almost all of John Buridan's works. In his writings on logic, dogs appear in logical fallacies such as: “Every dog runs; a star (*sidus caeleste*) is (called) dog;⁷ therefore, a star runs.”⁸, or “This dog is a father; this dog is yours;

⁵ See Elisabeth Pennisi, “A Shaggy Dog History. Biologists chase down pooches' genetic and social past,” in: *Science* vol. 298 (22 November 2002), pp. 1540-1542.

⁶ See “Can a Dog Learn a Word?,” see above, p. 1605.

⁷ Sirius, a star of the constellation *Canis Major*, is the brightest star in the heavens – called also *Dog Star*. Alternatively, ‘*sidus caeleste*’ also refers to the constellation dog, that is to say, either to *Canis Major*, the Great Dog (Sirius marks the dog's nose), or *Canis Minor*, the Small Dog, which comprises of just a few stars dominated by bright Procyon.

⁸ “Secundo, nam hic est bonus syllogismus simpliciter: ‘omnis canis currit; celeste sydus est canis; igitur celeste sydus currit’. Et tamen est syllogismus sophisticus; committitur tamen in eo fallacia equivocationis.” (Buridan, *Quaestiones Elenchorum*, ed. van der Lecq/Braakhuis 1994, 2.2.2, see also 20.3.2.3) “Notandum quod, licet iste terminus ‘canis’ praedicetur de latrabile, de pisce marino et de caelesti sidere, tamen non est genus ad illa, nec iste terminus ‘ens’ ad decem praedicamenta, quia non praedicantur de eis univoce, sed aequivoce.” (Buridan, *Summulae de praedicabilibus*, ed. De Rijk, p.16, 29-31)

therefore, this dog is your father.”⁹ In Buridan’s works on natural philosophy, dogs appear in examples of animal intelligence – sometimes alongside horses, donkeys, cows, or apes. We do not know if Buridan himself owned a dog, but he certainly had plenty of opportunity to study dogs. Buridan was an astute observer, and the astounding abilities of dogs clearly amazed him.

As far as the question of mental representation in animals and humans is concerned, we need to distinguish between particular knowledge and universal knowledge, and between conceptual knowledge and propositional knowledge.¹⁰ It is obvious that animals do not use language – if we exclude language in its most primitive forms – and hence do not possess propositional knowledge in the sense that they could utter propositions such as “Every fire is hot.” However, it remains to be seen if animals are able to represent mentally all these forms of knowledge in a way that is similar or maybe even equal to the corresponding ability in humans.

Particular and Universal Knowledge

In a passage from his *Questions on Aristotle’s Prior Analytics*, which has so far escaped the attention of scholars,¹¹ Buridan distinguishes four different forms of knowledge,¹² that also differ with regard to their mental representation.

The first kind of knowledge is based on actual sensation (*per actualem sensum*). For example, in the proximity of a fire you sense: ‘This fire is hot.’¹³

⁹ “Sicut iste paralogismus ‘ille canis est pater; et ille canis est tuus; ergo ille canis est pater tuus.’” (*ibid.*, 14.4.4, see also 14.3.3.3) “Ad septimum sophisma, dicitur quod non valet consequentia ‘iste canis est pater, et est tuus; ergo est pater tuus’: quia mutatur appellatio huius termini ‘tuus’, sicut dictum est.” (John Buridan, *Sophismata*, Pars II, Sophisma 7)

¹⁰ For the distinction between conceptual knowledge and propositional knowledge in medieval philosophy see, for example, Duns Scotus, *Ordinatio*, Prol. q. 1: “Whether man in his present state needs to be supernaturally inspired with some special knowledge he could not attain by the natural light of the intellect.” Scotus answers that (a) all conceptual knowledge that is required for our perfection, can in fact be obtained naturally, that is to say, we can obtain the concepts ‘God’, ‘perfect happiness’, ‘highest possible perfection’, ‘specific end’, ‘face-to-face vision’ etc. in a natural manner; (b) all propositional knowledge, however, that is required for our perfection, such as “the face-to-face vision and enjoyment of God are the end of man”, cannot be obtained naturally.

¹¹ Jack Zupko, *John Buridan. Portrait of a Fourteenth-Century Arts Master*, Notre Dame, Indiana: University of Notre Dame Press, 2003, makes use of Hubien’s unpublished edition of Buridan’s *Questions on Aristotle’s Prior Analytics*, but fails to discuss this particular question (see the Index of Quotations on p. 429).

¹² “Alia autem sunt principia quorum termini non manifeste et evidenter se includunt vel excludunt, tamen dicuntur ‘principia’ quia sunt indemonstrabilia, et quia sine demonstratione et sine necessaria consequentia possunt nobis fieri evidētia. Et hujus modi principia fiunt evidētia aliquo quattuor modorum.” (Buridan, *Quaestiones in Analytica Priora*, ed. Hubien 1987, lib. II, q. 20a: Utrum per inductionem probatur propositio immediata) Buridan refers to *synthetic knowledge* here. In the case of *analytic knowledge*, by contrast, the propositions are manifest and evident (propositiones verae et immediatae) due to their inclusion (‘albedo est color’) or exclusion (‘nulla albedo est nigredo’) in the nominal definition.

The second form of knowledge, which requires prior sensation, is based on memory (*per memoriam*). You may, for example, later recall that ‘This fire was hot.’ In memory, the sensation of fire is associated with the sensation of heat.¹⁴

The third form of knowledge is based on experience (*per experientiam*) and presupposes sensation and memory. For example, if you were to sense that fire A is hot, and later sense the same of fire B and so on, you would, upon seeing a subsequent fire C, be able to judge – by referring to your past sensations in memory and on the grounds of the similarity between fire C and the previous fires – that this fire C is hot – without having to get physically close to it. According to Buridan, this judgment is neither based on sense alone – because you have not actually come close to the fire and have thus not experienced its heat – nor on memory alone – because you have not actually seen this particular fire before. Such a judgment Buridan calls ‘experimental’ (*experimentale*), and he continues to say that “not only humans, but also animals in the very same way (*aequaliter*) make use of such a judgment.” A single sense experience may actually be enough to form such kind of experimental knowledge: a dog fears a stone, even if it has only hurt him once. All this ‘experimental knowledge’ is, however, particular in the sense that it refers to a particular sensation and memory or associates a series of particular sensations and memories.¹⁵

The fourth and final form of knowledge, which Buridan calls universal and scientific in the strict sense, is based on induction and presupposes sensation, memory, and experience (*per inductionem supponentem sensum, memoriam et experientiam*). To arrive at universal knowledge such as ‘every fire is hot’, ‘every magnet attracts iron’, or ‘all rhubarb purges bile’, the following steps are required: (1) In the past, you will have had many a *sensation* that ‘fire is hot’ and (2) all these sensations have been stored in *memory*. (3) You have considered this phenomenon in many diverse circumstances –

¹³ “Unus modus est per actualem sensum, sicut quod iste ignis est calidus: hoc enim est tibi evidens quando sentis ipsum; ita similiter quod Jacobus scribit, quando Jacobum vides scribere; et sic de pluribus aliis. Et non obstante quod tales propositiones sunt contingentes et singulares, et, per consequens, quod non sunt principia in demonstratione, nec intrans scientias demonstrativas, tamen habent locum in artibus et in prudentia, ut manifestatur sexto Ethicorum. Et ideo hujus modi propositiones singulares, ad sensum evidentes, sunt bene principia ratiocinationum artis et prudentiae.” (*ibid.*)

¹⁴ “Secundo modo hujus modi principia sunt nobis evidentes per memoriam, ut quod ille ignis erat calidus, et quod Jacobus tunc scribebat. Et adhuc illa principia habent locum in artibus et in prudentia. Saepe enim in moralibus, ad corrigendum, et ad praemiandum vel ad puniendum, oportet ratiocinari ex singularibus de praeterito nobis notis per memoriam.” (*ibid.*)

¹⁵ “Alia principia sunt nobis manifesta per experientiam, quae quidem experientia supponit sensum et memoriam. Verbi gratia, si tu ad sensum cognovisti quod ignis A erat calidus, et postea idem de igne B, et sic de multis aliis, tu postea videns ignem C, et non tangens ipsum, judicabis per memoriam de aliis et propter similitudinem quod ille ignis C est calidus; et hoc non est, proprie loquendo, iudicium per sensum, quia non tangis ipsum, nec solum per memoriam, quia memoria proprie non est nisi prius cognitorum et tamen ipsum ignem C numquam alias vidisti nec cognovisti; sed hoc iudicium vocatur ‘experimentale’. Et non solum homines, immo aequaliter brutae hujus modi iudicio utuntur; unde propter hoc canis timet lapidem si aliquis laesit ipsum. Et omnia praedicta principia sunt singularia, et sunt principia in arte vel in prudentia, et non in scientia speculativa vel demonstrativa.” (*ibid.*)

that is to say, you have compared your current sensation with similar sensations you have had in the past and which you have stored in memory –, and your *experience* (i.e. experimental judgment) has never revealed any factual counter-instance in any of your past sensations, nor any reason why there should be a counter-instance in another. When these three conditions are met, your intellect is bound to assert the universal knowledge-claim ‘every fire is hot’ and will consider it to be evident – not because of a necessary consequence, but simply on the basis of your intellect’s natural inclination toward truth. The induction over all of your past experiences works as follows: ‘This fire is hot, and this’, and so on with many others. Finally, the intellect completes this sequence by adding the clause ‘and so in all other instances’, thus considering it to be universally true that ‘fire is hot’.¹⁶

Buridan is clearly aware of what today is called the ‘problem of induction’: no experiment, however extensive, can render more than a finite number of observations; therefore, the statement of a natural law always transcends experience. In the twentieth century, this problem was most prominently discussed by Karl Popper in his *The Logic of Scientific Discovery (Logik der Forschung)*.¹⁷

Buridan describes the problem of induction in the following terms: a universal proposition such as ‘every fire is hot’ is not valid due to a necessary consequence. Even the sum of all past experiences is not sufficient to allow us to infer a universal conclusion, for there are potentially many other experiences that have not been taken into consideration. Therefore, such a universal proposition is not called a ‘conclusion’, but a ‘principle’ in the demonstrative sciences; and it is called an ‘immediate proposition’ because it cannot be proved by a necessary inference. Nevertheless, such a universal proposition is accepted by the intellect due to the latter’s natural inclination toward truth if the sum of past experiences is sufficient to infer the clause ‘and so in all other instances’.¹⁸

¹⁶ “Alia principia indigent inductione ad hoc quod fiant evidentia, et illa principia sunt universalia, ut quod omnis ignis est calidus, et quod omne rheubarbarum est purgativum cholerae. Illa enim principia sunt nobis nota per inductionem supponentem sensum, memoriam et experientiam. Cum enim saepe tu vidisti rheubarbarum purgare cholerae et de hoc memoriam habuisti, et quia in multis circumstantiis diversis <hoc> considerasti, numquam tamen invenisti instantiam, tunc intellectus, non propter necessariam consequentiam, sed solum ex naturali ejus inclinatione ad verum, assentit universali principio et capit ipsum tamquam evidens principium per talem inductionem ‘hoc rheubarbarum purgabat cholerae, et illud’, et sic de multis aliis, quae sensata fuerunt et de quibus memoria habetur; tunc intellectus supplet istam clausulam ‘et sic de singulis’, eo quod numquam vidit instantiam, licet consideravit in multis circumstantiis, nec apparet sibi ratio nec dissimilitudo quare debeat esse instantia, et tunc concludit universale principium.” (*ibid.*) See also the corresponding passage in Buridan’s *Summulae de dialectica*, 6.1.4, transl. Klima, p. 396. To bring it into line with the previous examples, I replaced ‘all rhubarb purges bile’ with ‘every fire is hot’.

¹⁷ Originally published in German in 1934. First published in English in 1959. See also Karl Popper, “Conjectural Knowledge: My Solution of the Problem of Induction,” in: Karl Popper, *Objective Knowledge. An Evolutionary Approach*, Oxford: Clarendon Press, 1972, pp. 1-31.

¹⁸ “Et vos bene videtis quod illa non est perfecta probatio virtute consequentiae necessariae. Quia omnia quae sensata fuerunt non sufficiunt ad inferendum conclusionem universalem, quoniam praeter illa sunt

Buridan does not explicitly mention higher animals here, and so the question remains as to what extent higher animals can perform such inductions. Obviously, they cannot utter the proposition ‘Every fire is hot’, but this does not exclude the possibility that animals can mentally represent this kind of knowledge in a similar or even in the same way as humans do. The question as to how animals mentally represent such knowledge is particularly difficult to answer since we cannot easily judge from their behavior whether they possess particular knowledge (‘this fire is hot’) or universal knowledge (‘every fire is hot’). Animals will hesitate to approach a particular fire in both cases.

To find a solution, I will first show that Buridan maintains that animals are capable of universal reference in the realm of conceptual knowledge. In our context, we may define conceptual knowledge as the ability to represent mentally an individual object of sensation as a member of a class or universal category or, conversely, to signify a plurality of individual objects by a single mental entity.

Conceptual and Propositional Knowledge

During the Middle Ages, it was generally assumed that the capacity to form universal concepts is characteristic of and unique to human thinking. While animal souls were considered to be material forms, that is to say, educed from the potency of matter, the human intellective soul was taken to be immaterial and immortal. Thomas Aquinas, for example, used the ability to form universal concepts as the key argument in his demonstration that the human intellect is immaterial and hence immortal.¹⁹

Buridan, however, argues against this common opinion, which, as he says, is held by many contemporaries and nearly all ancient commentators (*multi et quasi omnes expositores antiqui*), against the opinion, that is, that the human intellect apprehends universally because it is immaterial and unextended. In two parallel and complementary texts from his *Questions on Aristotle’s Physics* and *Questions on Aristotle’s De anima* respectively, Buridan shows that the human intellect is capable of universal cognition even if we assume that it is a material form.²⁰

multa alia; et si sufficiunt cum ista clausula ‘et sic de aliis’, tamen illa est accepta per intellectum sine probatione quae sit necessaria consequentia. Et ideo talis universalis propositio vocatur in scientiis demonstrativis non ‘conclusio’ sed ‘principium’; et vocatur ‘propositio immediata’ quia caret medio per quod posset probari illatione necessaria. Et sic habetis declaratum quo modo per inductionem, propter naturalem inclinationem intellectus ad verum, probatur propositio immediata.” (*ibid.*)

¹⁹ See Thomas Aquinas, *Disputed Questions on the Soul*, q. 14: “Manifestum est etiam quod huiusmodi intellectuum principium non est aliquid ex materia et forma compositum, quia species omnino recipiuntur in ipso immaterialiter. Quod declaratur ex hoc quod intellectus est uniuersalium, que considerantur in abstractione a materia et a materialibus conditionibus.” (Opera Omnia [editio Leonina] XXIV, 1, ed. B.-C. Bazán, Roma: Commissio Leonina/Paris: CERF, 1996, p. 126, 210-216)

²⁰ Buridan’s question is formulated in the following way: Can something extended and material (extensus et materialis) have universal knowledge? Buridan did not devote an entire question to this problem. Instead, his considerations form a digression within his question as to “Whether universals are more known to us than singulars” (Utrum universalia sunt nobis notiora singularibus), which is discussed in the first book of his *Questions on Aristotle’s Physics* (*Quaestiones in octo libros Physicorum* [ultima lectura],

What Buridan outlines here is a theory of representative likeness or similarity. According to Buridan, universal cognition is not constituted by directly referring to something universal but by a process of abstraction that finally results in a common concept (*conceptus communis*), which, while existing singularly in the intellect, becomes universal by indifferently representing or signifying all members of the same species. Thus, for Buridan the universality of concepts does not consist in their mode of existence, but in their capacity to signify a plurality of individuals.

Summarizing his theory of universal cognition, Buridan finally credits Alexander of Aphrodisias as the most famous ancient commentator who upheld a materialistic theory of universal cognition, emphasizing that Alexander actually permitted this faculty in humans to be called ‘intellect’ on account of its excellence and nobility over the cognitive powers of brutes.

In a series of four questions contained in his *Questions on Aristotle’s De anima*, Buridan defends Alexander of Aphrodisias, who held that the human intellect is a generated and corruptible material form, educed from the potency of matter (*educta de potentia materiae*), extended like matter, just like the soul of animals – “like the soul of a cow or a dog” (*sicut anima bovis aut anima canis*) – , and hence mortal.²¹

Aristotle and Averroes had claimed that if the intellect were educed from the potency of matter and extended, it would be unable to apprehend anything except singularly and individually, just as the senses, and it would cognize nothing universally. Thomas Aquinas had used this argument in his *Disputed Questions on the Soul* to demonstrate that the human soul is immaterial and hence immortal.²²

To this argument Buridan replies on behalf of Alexander that an extended power (*virtus extensa*) is indeed carried to its object in a universal way (*modo universali*), just as a thirsty horse or dog does not desire this water or that water, but indifferently any water whatsoever. If an extended power such as the appetite (*appetitus sensitivus*) desires in a universal way, we may readily assume that the human intellect, if taken to be a material and extended form, can cognize universally.²³

I, q. 7.). A similar question (Utrum intellectus prius intelligat universale quam singulare vel e converso) and a similar digression can be found in his *Questions on Aristotle’s De anima* (*Quaestiones in tres libros De anima* [ultima lectura], III, q. 8.). Surprisingly, the question is more elaborate in Buridan’s commentary on Aristotle’s *Physics*, and he expressly refers to this fact in his commentary on Aristotle’s *De anima*. For an edition and analysis of these texts, see Olaf Pluta, “John Buridan on Universal Knowledge,” in: *Bochumer Philosophisches Jahrbuch für Antike und Mittelalter* 7 (2002), pp. 25-46.

²¹ For a detailed analysis of these four questions, see Olaf Pluta, “Persecution and the Art of Writing. The Parisian Statute of April 1, 1272, and Its Philosophical Consequences,” in: Paul J.J.M. Bakker (ed.), *Chemins de la pensée médiévale. Études offertes à Zénon Kaluza*, Turnhout: Brepols, 2002 (Textes et Études du Moyen Âge, 20), pp. 563-585.

²² See footnote 19.

²³ John Buridan, *Questions on Aristotle’s De anima*, book III, q.3: “Ad quartam rationem dixisset Alexander quod virtus extensa bene fertur in obiectum suum modo universali, sicut appetitus ipsius equi. Equus enim sitiens appetit aquam, et non determinate hanc vel illam, sed quamlibet indifferenter appetit.

Buridan clearly affirms that animals – and dogs in particular – can refer to things universally. This also means that they can mentally represent a particular bowl of water as a member of the class or universal category ‘water’. We do not know if the mental representation of dogs is identical to human thought in this respect, but we can readily assume that dogs can form something like a universal concept.

After having dealt with conceptual knowledge in animals, we now come to the most intriguing question, namely whether or not animals can possess universal knowledge in the strict sense, that is universal propositional knowledge such as ‘Every fire is hot.’ As we have seen above, such knowledge is based on induction and presupposes sensation, memory, and experience.

Once again I would like to emphasize that animals obviously do not possess propositional knowledge in the sense that they could utter propositions such as ‘Every fire is hot.’ Nevertheless, they may be able to represent such universal knowledge mentally.

We already know that animals are capable of having sensation, memory, and experience (in the sense of experimental judgment). Higher animals such as dogs may be able to mentally perform the induction that is required for universal knowledge in the strict sense.

The answer to this problem can be found in another redaction of Buridan’s *Questions on Aristotle’s De anima*.²⁴ This redaction has not yet been studied thoroughly, even though, if the sheer number of surviving manuscripts is any indication, it was widely read.²⁵

Here, Buridan first talks about the mental abilities of humans and apes – please note that man and ape are grouped together here and thus stand apart from other higher species of animals. Buridan then continues to say that “dogs and other animals are similarly capable of thinking in a logical way, albeit not in such a sophisticated and complete manner as man or ape. This is obvious, for if a dog sees his home and wishes to go there and encounters a large pit on the direct route, it does not enter the pit, but searches for another way, even if it is longer. The dog would not do this unless he reasoned logically (*nisi ratiocinaretur et syllogizaret*) that it would not be good to fall into the pit.”²⁶

Ideo quamcumque invenit, eam bibit.” See also the following parallel passage from his *Questions on Aristotle’s Physics*, book I, q.7: “appetitus sensitivus ita est extensus et materialis sicut sensus, et tamen equus et canis per famem et sitim appetunt modo universali, non enim hanc aquam vel hanc avenam magis quam illam, sed quamlibet indifferenter; ideo quaecumque eis praesentetur, bibunt eam vel comedunt”.

²⁴ See Bernd Michael, *Johannes Buridan: Studien zu seinem Leben, seinen Werken und zur Rezeption seiner Theorien im Europa des späten Mittelalters*, Phil. Diss. Berlin 1985, Teil 2: Bibliographie, Überlieferung und Quellenkritik seiner Werke, pp. 684-689.

²⁵ Michael lists 15 manuscripts for this redaction (B) and 19 manuscripts for the final redaction (*tertia sive ultima lectura*) (C).

²⁶ “... canes et alia animalia ratiocinantur et syllogizant, quamvis non ita subtiliter ac complete sicut homo vel simia. Quod apparet, quia, si canis videt dominum suum et vult ire ad ipsum et in directa linea

Buridan here refers to a well-known example, namely a dog's use of logical reasoning – Buridan speaks of 'ratiocinari' and 'syllogizare' – in determining which way to go. This ability of dogs had been known since antiquity.²⁷

The Stoic philosopher Chrysippus²⁸, for example, describes a hunting dog's behavior as follows. When the dog comes to a three-way crossroads, he is said 'virtually' (*dunamei*) to go through a syllogism (*logizesthai*) about his prey. "The animal went either this way, or that way, or the other way. But not this way, or that way. So that way."²⁹ To come to a decision, the dog may, for example, refer to the absence of footprints or scent; and he may make use of previous hunting experiences stored in memory.³⁰

This example appears – with slight variations – in many places.³¹ In Philo and Aelian, the hunting dog comes to a pit (closely resembling Buridan's example) and has to decide if the prey turned left or right or went straight ahead and crossed the pit. Sextus

inveniat magnam foveam, non intrabit in illam, sed quaerit aliam viam, licet longiorem, quod non faceret, nisi ratiocinaretur et syllogizaret, quod non est bonum cadere in foveam et cetera." (Paris, Bibliothèque Nationale, Cod. lat. 15888, f. 70ra) See Olaf Pluta, "Der Alexandrismus an den Universitäten im späten Mittelalter," in: *Bochumer Philosophisches Jahrbuch für Antike und Mittelalter* 1 (1996), 81-109, here: p. 95. For a description of this manuscript, see Michael, pp. 586-587.

²⁷ The most important ancient text relating to animals is Porphyry's *On Abstinence from Animal Food*, which contains a wealth of arguments from other authors. First English translation by Thomas Taylor, 1823, repr. London: Centaur Press, 1965. Newly translated by Gillian Clark: Porphyry, *On Abstinence from Killing Animals*, Ithaca, New York: Cornell University Press, 2000. For a general defense of animals, see Plutarch's treatise *Animals Use Reason (Bruta Animalia Ratione Uti)* 985d-992e.

²⁸ Chrysippus was the head of the Stoic school from 232 to 207 BC. For a comprehensive account of his philosophy, see Josiah B. Gould, *The Philosophy of Chrysippus*, Leiden: Brill, 1971 (*Philosophia antiqua*, XVII).

²⁹ Sextus Empiricus, *Outlines of Pyrrhonism* 1.69; Plutarch, *On Animal Cleverness (De Sollertia Animalium)* 969a-b; Philo *De Animalibus* 45; Porphyry *On Abstinence from Animal Food* 3.6; Aelian *On the Nature of Animals* 6.59; Basil *Hexaemeron* 9.4. See Richard Sorabji, *Animal Minds and Human Morals. The Origins of the Western Debate*, Ithaca, New York: Cornell University Press, 1993 (*Cornell Studies in Classical Philology*, LIV), p. 26. See also Urs Dierauer, *Tier und Mensch im Denken der Antike. Studien zur Tierpsychologie, Anthropologie und Ethik*, Amsterdam: B.R. Grüner, 1977 (*Studien zur antiken Philosophie*, 6), pp. 253-273 (*Die These von der Tierversunft*). Thomas Aquinas refers to Chrysippus' dog in *Summa Theologiae* Ia IIae, q. 13, a. 2, objection 3: "We see this plainly, in wonderful cases of sagacity manifested in the works of various animals, such as bees, spiders, and dogs. For a hound in following a stag, on coming to a crossroad, tries by scent whether the stag has passed by the first or the second road: and if he finds that the stag has not passed there, being thus assured, takes to the third road without trying the scent; as though he were reasoning by way of exclusion, arguing that the stag must have passed by this way, since he did not pass by the others, and there is no other road. Therefore it seems that irrational animals are able to choose."

³⁰ The logical reasoning of Buridan's dog on his way home or Chrysippus' hunting dog – "... not this way, or that way. So that way." – is very similar to the "fast mapping" ability of Rico mentioned above. When Rico hears a new word, he maps it – by excluding a number of familiar objects – to the single new object within sight, apparently appreciating, as young children do, that new words tend to refer to objects that do not already have names (see Bloom, "Can a Dog Learn a Word?," p. 1605).

³¹ See the references in footnote 29.

Empiricus, who ascribes the example to Chrysippus, even specifies the syllogism: “the dog makes use of the fifth complex indemonstrable syllogism”.³² According to Stoic logic, this syllogism was of the form: “Either A or B or C; but neither A nor B; therefore C.”³³

The dog cannot, of course, verbalize his decision or do so in propositional form, but he may mentally represent the three possibilities in a manner that may be akin to the way humans would try to figure out which way to go. We do not in fact know if dogs possess propositional knowledge, but we should not simply dismiss the possibility of propositional attitudes in animals, provided their behavior can be analyzed by us in intentional terms.³⁴

Even according to Aristotle, we would have to grant animals the capacity to engage in practical syllogism or reasoning (*sullogizesthai*). In the case of the thirsty horse or dog above, appetite says ‘I must drink’, and perception says ‘This is a drink’. The linking of the premises with the conclusion is a causal process as appears from Aristotle’s discussion of human practical syllogisms in the *Nicomachean Ethics*.³⁵ And there is no apparent reason why animals should not be capable of such causal processes. Thus, even if animals do not ‘explicitly’ go through a practical syllogism, this fact does not suffice to justify the conclusion that they do not think logically.³⁶

How can the blind man’s guide dog learn to refuse the command to cross the road in certain circumstances in which it would be unsafe to proceed, something termed “intelligent disobedience”? How do sheep dog and human shepherd communicate in order to protect the sheep day and night and keep the flock together – a particularly interesting example of interspecific communication? Dogs certainly do have amazing abilities.

But the question still remains: Do dogs possess universal propositional knowledge? According to Buridan, this would require that dogs can perform an induction over all past experiences such as ‘this fire was hot, and this’, and so on, and finally arrive at the universal propositional knowledge that ‘every fire is hot’. We already know that dogs can perform logical reasoning, or to be more precise, that they can make use of syllogistic reasoning.

³² Sextus Empiricus, *Outlines of Pyrrhonism*, 1.69; tr. R.G. Bury, Cambridge, Mass.: Harvard University Press, 1955, p. 43.

³³ The Stoics had five syllogisms which they termed ‘indemonstrable’, since they required no proof themselves but served to prove others. The syllogism was called ‘complex’ because of its multiple disjunctions.

³⁴ See Daniel Dennett, “Conditions of personhood,” in: A. Oksenberg Rorty (ed.), *The Identities of Persons*, Berkeley/Los Angeles/London: University of California Press, 1976 (Topics in Philosophy, 3), pp. 175-196, especially pp. 181-187.

³⁵ Aristotle, *Nicomachean Ethics* 7.3, 1147a24-28.

³⁶ See Richard Sorabji, *Animal Minds ...*, p. 88. According to Buridan, a syllogism is a simple mental act within the soul, even though it is a complex semantical structure. Such an act may easily be possible for animals, even though they cannot express it by means of language.

In another passage from his *Questions on Aristotle's Prior Analytics*, Buridan does indeed show that syllogistic reasoning is, in fact, sufficient for performing an induction. Buridan claims that every induction can be reduced to a syllogism if a supplement is added. If an induction is thus reduced to a syllogism, it is, in fact, a valid consequence. Buridan starts his argument with a distinction between different kinds of consequence. Consequences are divided into formal consequences and material consequences; material consequences are further subdivided into simple consequences and consequences *'ut nunc'*.³⁷

According to Buridan, no induction is a formal consequence – unless it is reduced to a syllogism by adding a supplemental proposition. For example, if a common term A has only two referents, namely B and C, then a valid induction would be 'B runs and C runs; therefore, all A's run'. Now, if we replace the common term A with 'homo' and the two referents B and C with 'Socrates' and 'Plato', then it is obvious that the consequence does not hold 'Socrates runs and Plato runs; therefore, all humans run'. Thus, the consequence is not formal, that is to say, valid independently of the terms used.³⁸

An induction that is reduced to a syllogism is a formal consequence in the same sense as a universal syllogism of the first figure (*syllogismus in primo modo primae figurae*) is. For example, let us assume the following induction: 'Socrates runs, Plato runs, and John

³⁷ "Notandum est primo quod consequentia dividitur in materialem et formalem. Et vocatur 'formalis' quae in omnibus terminis valet, vel cui omnis consequentia valet sibi consimilis in forma. Sed consequentia materialis est quae valet gratia terminorum, ita quod in multis aliis terminis non valet, quamvis consimilis forma observetur.

Et cum hoc vos debetis supponere quid in proposito debeat dici pertinere ad formam consequentiae. Dicendum est quod numerus terminorum et numerus propositionum, et omnia syncategoremata, et ordo terminorum, propositionum et syncategorematum, omnia haec pertinent ad formam consequentiae; consequentiae enim non erunt consimiles in forma si in aliquo praedictorum est discrepantia. Sed ad materiam consequentiae, prout in proposito loquimur, pertinent solum termini categorematici, scilicet subjecta et praedicata propositionum categoricarum. Si ergo aliqua consequentia sit formalis, numquam mutabitur nec falsificabitur propter mutationem dictae materiae, scilicet dictorum terminorum, retentis praedictis quae ad formam dicebantur pertinere.

Deinde materialis consequentia dividitur in consequentiam simplicem et in consequentiam ut nunc. Et vocatur consequentia 'simplex' quae, quocumque casu possibili posito, numquam possibile est antecedens esse verum sine consequente. Sed consequentia 'ut nunc' vocatur quando rebus stantibus ut nunc stant non est possibile antecedens esse verum sine consequente, licet simpliciter hoc sit possibile." (Buridan, *Quaestiones in Analytica Priora*, ed. Hubien 1987, lib. II, q. 29a: Utrum inductio sit bona consequentia)

³⁸ "Et tunc breviter pono conclusiones. Prima conclusio est quod nulla inductio est consequentia formalis nisi per supplementum sit reducta ad syllogismum. Et causa est quia retenta forma consequentiae, tamen possent sic mutari termini quod consequentia non valeret, immo antecedens esset verum sine consequente. Verbi gratia, si iste terminus communis 'A' habeat solum duo singularia, scilicet 'B' et 'C', tunc erit inductio sic 'B currit et C currit; igitur omne A currit'; et tunc mutes terminos, et ponas pro 'A' 'hominem', et pro 'B' et 'C' 'Socratem' et 'Platonem', tunc manifestum est quod consequentia non valebit; manifestum est enim quod non sequitur 'Socrates currit et Plato currit; ergo omnis homo currit', et tamen manent omnia consimilia quae ad formam consequentiae pertinere dicebantur." (*ibid.*)

runs; therefore, all humans run.’ If you were to add the proposition that ‘all humans are Socrates, Plato, and John’, then you would arrive at the following valid consequence: ‘Socrates runs, Plato runs, and John runs; all humans are Socrates, Plato, and John; therefore, all humans run’, because ‘all humans’ would be equivalent to ‘all that is Socrates, Plato, and John’ – provided that there is no equivocation and more than one person is called by this name.³⁹

No induction, however, can be a valid simple material consequence, that is to say, a consequence where the antecedent can never be true without the consequence being true as well, if the singular premises refer to the realm of generation and corruption. For example, let us assume that there are only three horses, namely Brunellus, Morellus, and Favellus. Then the following induction would be valid: ‘Brunellus runs, Morellus runs, and Favellus runs; therefore, all horses run.’ But it would be possible that another horse will be generated which does not run. In this case, if the three other horses still run, the antecedent would still be true, but the conclusion would be false.⁴⁰

In the given case, that is, in the case of the singular premises referring to the realm of generation or corruption, an induction can, nevertheless, be a valid material consequence ‘*ut nunc*’, that is to say, a consequence where the antecedent – as things now stand (*rebus stantibus ut nunc stant*) – can be true without the consequence being true as well. A simple material consequence can be reduced to a formal consequence by adding a necessary proposition; a material consequence ‘*ut nunc*’, however, can be

³⁹ “Secunda conclusio est quod inductio per supplementum reducta ad syllogismum est consequentia bona et formalis, eo modo quo syllogismus in primo modo primae figurae est formalis. Quia sic inductio fit syllogismus in primo modo primae figurae, supponendo unam propositionem in qua de subjecto conclusionis praedicentur omnia singularia sub disjunctione in quibus fit inductio. Verbi gratia, fiat inductio sic ‘Socrates currit, Plato currit et Johannes currit’, tunc addatur ista propositio quod omnis homo est Socrates, Plato vel Johannes, et sequitur, in prima figura, quod omnis homo currit. Et est in syllogismo major extremitas ‘currit’, minor extremitas ‘homo’, et medium est haec tria singularia ‘Socrates’, ‘Plato’ et ‘Johannes’; et in majori propositione hoc medium sumebatur universaliter, quia copulatio habet modum distributionis (sicut enim ad terminum distributum sequitur quodlibet singulare, ita ad copulationem plurium sequitur quodlibet illorum), et etiam quia ad istam ‘Socrates currit, Plato currit et Johannes currit’ sequitur haec universalis ‘omne quod est Socrates, Plato vel Johannes currit’, nisi sit aequivocatio quod plures vocentur eodem nomine singulari; et tunc, facta illa resolutione, manifesta est forma syllogistica.” (*ibid.*)

⁴⁰ “Tertia conclusio est quod in individuīs corruptibilibus si non sunt praemissae nisi singulares, numquam inductio est bona consequentia simpliciter. Et hoc probabat prima ratio quae in principio quaestionis fuit adducta.” (*ibid.*)

“1. Arguitur quod non: quia consequentia non est bona cuius antecedens potest esse verum consequente existente falso; sed sic est de inductione; igitur ... et cetera. Major est nota de se. Et minor probatur, ponendo quod modo sint solum tres equi, Brunellus, Morellus et Favellus; et erit inductio sufficiens sic dicendo ‘Brunellus currit, Favellus currit et Morellus currit; ergo omnis equus currit’; modo constat quod antecedens compositum ex illis tribus praemissis potest esse verum consequente existente falso; probatur, ponendo quod generetur quartus equus, qui non currat et tamen illi tres adhuc currant; in hoc enim casu, qui est possibilis, remanebit illud antecedens verum, et tamen consequens erit falsum, quia non omnis equus curret.” (*ibid.*)

reduced to a formal consequence by simply adding a contingent proposition that is true.⁴¹

The interesting point here is that any kind of induction can be reduced to a syllogism. When the intellect performs an induction such as ‘this fire is hot, and this’, and so on, and when it then completes this sequence by adding the clause ‘and so in all other instances’, the intellect is in fact adding the required supplement which reduces the induction to a valid syllogism and thus comes to the valid conclusion that ‘every fire is hot’.⁴²

According to Buridan, dogs can perform logical syllogistic reasoning, and every induction can be reduced to a syllogism. We may thus conclude that dogs can perform such an induction and mentally represent universal propositional knowledge such as ‘every fire is hot’. We do not know if dogs do in fact represent universal propositional knowledge in the same way as humans do – this would require a window into their consciousness –, but we should not easily dismiss the possibility that they can.⁴³

⁴¹ “Quarta conclusio ponenda est, quod in dictis individuuis potest esse consequentia bona ut nunc. Unde in casu posito prius erat bona consequentia ut nunc ‘Brunellus currit, Favellus currit, Morellus currit; ergo omnis equus currit’, quia rebus stantibus ut nunc stant, scilicet quando non sunt plures equi, non potest antecedens esse verum sine consequente. Et hoc etiam probatur. Quia consequentia materialis simpliciter et consequentia materialis ut nunc in hoc conveniunt quod utraque per additionem potest reduci ad formalem; sed differunt quia consequentia simpliciter potest reduci ad formalem per additionem propositionis necessariae vel propositionum necessariarum, sed consequentia ut nunc est bona si possit reduci ad formalem per additionem propositionis verae, licet contingentis. Modo sic erat in proposito, quoniam haec consequentia est formalis, ut dicebatur ‘Brunellus currit, Morellus currit, Favellus currit, et omnis equus est Brunellus, Morellus vel Favellus; igitur omnis equus currit’, et minor quae apponitur est vera secundum casum positum, licet sit contingens; igitur erat bona consequentia ut nunc.” (*ibid.*)

⁴² In his *Summulae de dialectica*, Buridan expresses some doubt if every induction can be reduced to a syllogism. Sometimes, it may be impossible to induce “based on all the singulars because of their infinity or exceedingly large number” (*Summulae de dialectica*, 6.1.5, transl. Klima, p. 398). And Buridan continues: “Now if we were to say that the clause ‘and so on for the others’ should not be added in the reduction, then the situation is such that the induction is performed over all the singulars or such that this is at least not impossible.” In fact, one may argue that adding the clause ‘and so on for the others’ constitutes a *petitio principii* if the number of singulars is infinite or exceedingly large.

Buridan replies that the validity of the statement ‘every fire is hot’ is not based on the possibility of reducing such an induction to a syllogism – for practical reasons, it may be impossible to perform the induction over all the singulars –, “but because of the intellect’s natural inclination toward truth”. (*ibid.*, p. 399) Formally speaking, an induction (and its reduction to a syllogism) requires that the antecedent consists of all the singulars, but because of the intellect’s natural inclination toward truth it is sufficient to enumerate “as many as would suffice to generate belief in the universal conclusion that is inferred” (*ibid.*, p. 400). Consequently, any kind of induction can be reduced to a syllogism.

⁴³ Buridan concedes that (1) animals have *propositional* knowledge such as ‘This fire is hot’ (particular knowledge), and that (2) animals have *universal* knowledge in the case of ‘water’ or ‘fire’ (conceptual knowledge). There is no reason why animals should not have *universal propositional* knowledge as well.

Mental representation in animals might in fact be quite different from ours. As Wittgenstein put it later in his *Philosophical Investigations*: “If a lion could talk, we could not understand him.”⁴⁴

⁴⁴ Ludwig Wittgenstein, *Philosophische Untersuchungen/Philosophical Investigations*, ... Part II, No. 11 (p. 223).

Susan Brower-Toland:

Against Ockham? Walter Chatton on Objects of Propositional Attitudes¹

Editor's Note: *The contribution that originally appeared here has been removed at the Author's request, as she has radically changed her mind about the main thesis of the paper. The revised version of the paper will appear in print in the volume forthcoming at Fordham University Press. The Author has provided the following abstract of the revised paper:*

William Ockham and Walter Chatton on Objects and Acts of Judgment

Recent scholarship has begun to uncover the nature and extent of the reciprocal--and typically adversarial--relationship between William Ockham (d. 1347) and Walter Chatton (d. 1343). We now know, for example, that Chatton, a slightly younger contemporary of Ockham, is both enormously influenced by and, at the same time, highly critical of his older colleague; he often takes up precisely those questions Ockham treats (and likewise the terminology and conceptual framework in which he expresses them) only to reject Ockham's conclusions. We also know that Chatton's criticisms leave their mark on Ockham, who frequently responds to Chatton's objections and occasionally even revises his views in light of them. My aim in this paper is to extend our current understanding of the relationship between these two Franciscan thinkers by looking in some detail at a debate between them over the nature of judgment and its objects. I argue that Chatton's criticisms of Ockham's theory of judgment force Ockham to radically modify his views. Indeed, as I show, Ockham's most mature treatment of judgment contains revisions which are calculated precisely in response to Chatton's objections, but which also bring Ockham's account of the objects of judgment fairly close to Chatton's own. In a final section of the paper, I consider the remaining points of disagreement between them, arguing that these differences help to shape the subsequent debate about judgment.

¹ This paper was presented in the SMLM satellite session at ACPA annual meeting in November of 2004. It is (as it was at the time) very much a work in progress. (Hence, the programmatic nature of the arguments and the incomplete notes and bibliography.) A much revised and completed version is forthcoming in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, Fordham University Press.