BETWEEN LOGIC AND PSYCHOLOGY:
Jean Buridan on Mental Language*

1. Two Theses About Thought

BURIDAN, in common with other philosophers of the fourteenth century, Jean Buridan holds that thought is literally a language—a familiar thesis in contemporary philosophy. As such, thought has a vocabulary, syntax, and formation-rules. Buridan, following Aristotle's lead in *De int.* 1 16^a3–8, recognizes three distinct levels of language: written, spoken, and mental, associated respectively with the activities of writing, speaking, and thinking; the languages are hierarchically ordered, and the ordering is piecemeal rather than holistic: particular inscriptions are said to 'immediately' signify particular utterances, and particular utterances immediately signify concepts. Hence the vocabulary of 'Mental Language' consists in concepts, which are mental particulars—"acts of the soul" (*QM* 5.09 fol. 33rb). A concept is a natural likeness of that of which it is a concept, and it signifies what is conceived by the concept. Written and spoken terms, which are the vocabulary of languages in their own right, are said to 'ultimately' signify what is conceived by the concept (*SDD* 4.3.2 39.13–18). Whereas immediate signification is conventional, the signification of concepts is natural and the same for all. Thus Mental Language is a natural language, unlike spoken or written languages, which are conventional; it is universal to all thinking beings (other than God), unlike the diversity of merely conventional 'natural' languages such as Danish or English, and indeed explains the possibility of translation among these languages. Mental Language therefore functions as the semantics for written and spoken language. It is the vehicle through which written and spoken languages are 'given meaning' or have an ultimate signification, which, in the last analysis, is due to the ways in which a concept signifies that of which it is the concept. The terms of Mental Language are concepts, and propositions in Mental are acts of thought (*QLP* 1.7 33.20–28).

* Presented at the conference "John Buridan and Beyond" held in Copenhagen, September 2001. All translations are mine. See the Bibliography for abbreviations, editions, and references; when citing Latin texts I use classical orthography and occasionally alter the given punctuation and capitalization. For details on each of Buridan's works see Michael [1985].

Concepts are therefore components of two systematic bodies of theory. On the one hand, concepts are psychological entities. They are literally the elements of thought: *thinking of* φ just is *having a concept of* φ, which manages to be 'about' φ in virtue of 'naturally resembling' it (*QM* 6.12 fol. 41vb). Furthermore, concepts are the primary building-blocks of thought itself. We acquire them from our interaction with the world, and an adequate psychological theory should detail the process of concept-acquisition, in light of the operation of other mental faculties (such as sense-perception). Thus mental language provides a description of the way our minds actually function. Since the basic conceptual apparatus of all humans is the same, psychology can be a universal natural science.

On the other hand, concepts also have a semantic dimension. In addition to descriptive psychology, concepts are normatively governed and have semantic features that can be considered independently of their psychological properties. Three features characterize Mental Language as a semantic system: (*i*) universality; (*ii*) expressive adequacy; (*iii*) unambiguousness. As for (*i*): Since the structure of conceptual thought was held to be the same for all thinking beings, as described above, the language naturally constructed from these common constituents is universal.[1] As for (*ii*): Since to think of φ just is to have a concept of φ, anything that can be thought is expressible, and in fact thereby expressed, in Mental Language; hence anything expressible is expressible in Mental Language. As for (*iii*): Since the terms of Mental Language are concepts having a "natural likeness" to their objects, an ambiguous term in Mental Language would have to be a concept applicable to two distinct kinds of things; by definition, it must have a natural likeness to each group of things, and so is not ambiguous—it is perhaps a broader concept than we may have originally believed, but not ambiguous.[2] Ambiguity is thus confined to Spoken Language or Written Language,

[1] The universality of Mental must be due to its structure, not its content, since two thinkers may have different (if not disjoint) stocks of concepts, depending on their past causal interaction with the world. To claim universality for the structure of Mental, then, is roughly to say that a set of conceptual abilities is common to all thinkers, in virtue of which each is a thinker. Any thinker can combine simple concepts into complex concepts, for instance.

[2] Buridan avoids amphiboly (and in general ambiguity that arises through combining terms) by adopting the rule that the subjects of Mental sentences always stand for what they signify—see *SDD* 7.3.4: "Sciendum est ergo, ut mihi uidetur, quod suppositio materialis non est nisi ratione uocis significatiuae; nullus enim terminus mentalis in propositione mentali supponit materialiter, sed semper personaliter, quia non utimur terminis mentalibus ad placitum, sicut uocibus et scripturis. Numquam enim eadem oratio mentalis diuersas significationes, uel acceptiones, habet; eaedem enim sunt om-

present when a term immediately signifies several distinct concepts.

These semantic features of Mental Language, which it has in virtue of literally being the language of thought, make it a powerful language. Modern interpreters have further attributed a second thesis to Buridan, namely that the language of thought, Mental Language, is a logically ideal or canonical language—roughly, that the language of thought is first-order logic, as we might put it.[3] This daring hypothesis seems attractive on any number of counts. First, Mental Language as described by Buridan has nearly all the features required by an ideal language. Second, it identifies the key elements of a (descriptive) cognitive psychology as concepts and mental operations on concepts. Third, it provides a framework in which to pursue both logic and psychology as natural sciences.

Attractive as it may be, I now do not think that Buridan holds that Mental Language is logically ideal. To see why, let me first develop the thesis in some detail (§§2–4), and then trace its downfall (§5) on both the semantic and psychological fronts.

2. Mental Language as an Ideal Language

Mental Language seems to have two further features in addition to (*i*)–(*iii*), which, when combined with them, render it a logically ideal or canonical language: (*iv*) non-redundancy; (*v*) logical perspicuousness. Each deserves a closer look.

The non-redundancy of Mental Language is a matter of its not containing any synonyms—or, to put the point a different way, inscriptions and utterances are synonymous if and only if they immediately signify the same

nibus passiones animae, sicut etiam res quarum ipsae sunt similitudines, ut habetur primo Peri Hermeneias. Unde ego dico quod propositio mentalis correspondens huic propositioni, prout est uera, *Homo est species* non est propositio in qua subiicitur conceptus specificus hominis, sed est propositio in qua subiicitur conceptus quo concipitur specificus hominis, et ille non supponit pro se, sed pro conceptu specifico hominis. Ex quo satis patet quod praedicti paralogismi secundum talem mutationem suppositionum pertinent ad fallacias in dictione." Buridan justifies this rule by his realism about Mental as the language of thought, where having a concept in mind just is to be thinking about what the concept is the natural likeness of. For Jones to have a concept that doesn't stand for that of which it is the natural likeness would be for him not to think about what he is thinking about, which is impossible.

[3] This hypothesis was first formulated in Trentman [1970] with regard to William of Ockham. Trentman does not consider all the characteristics of Mental listed here, but they seem necessary for Mental to be an ideal language; see the introduction to King [1985].

concept(s).[4] Let 'vixen' and 'female fox' be exact synonyms. As inscriptions they are distinguished by their orthography, as utterances by their phonetics. As concepts, however, there is no discriminatory medium by which to tell them apart, so long as the concept itself encapsulates the meaning of each expression—unless perhaps logical structure does the job: 'female fox' seems to be logically complex, composed of parts that immediately signify, respectively, the concept *female* and the concept *fox*. Buridan accepts the intuition behind this proposal, namely that Mental Language includes expressions literally composed out of simpler expressions. (This is implicit in the conception of thought as a language with a vocabulary, syntax, and formation-rules.) Yet he denies that internal logical structure of this sort has the same signification as the expression to which it is supposed to be equivalent, so that 'female fox' and 'vixen' are not synonymous. Instead, Buridan endorses the 'Additive Principle' for the signification of logically complex expressions:[5]

> The signification of a complex expression is the sum of the signification of its non-logical terms.

The signification of 'female fox,' if the immediate signification is piecemeal, is the sum of the concept *female* and the concept *fox*—all females, foxes or not, and all foxes, female or not. Thus if Mental contains a concept corresponding to 'vixen,' it need not have any other expression that has the same signification, and the logically complex expression 'female fox' doesn't have the same signification as 'vixen.' (It stands for vixens, but that is a matter of supposition rather than signification.) Thus Mental Language does not include co-significative expressions. Just as it has no room for ambiguity, it has no room for redundancy.

The last feature that would make Mental an ideal language is logical perspicuousness. Consider two expressions with the same non-logical constituents, such as "Socrates is taller than Plato" and "Plato is taller than Socrates."[6] Unlike written and spoken languages, Mental Language has no discriminatory medium. Hence the difference between these two expressions must be explained as a product of the behavior of their logical constituents. Here 'is taller than' is sensitive to order. Hence logical operations in Men-

[4] Immediate signification plays the role in Buridan's system that translation-rules play in ours, namely correlating expressions in some 'ordinary' language with their perspicuous canonical representations.

[5] Buridan states the Additive Principle in *e. g. SDD* 4.2.3, *Soph.* 2 Thesis 5, *QM* 5.14 fol. 23vb.

[6] Nothing rides on these being sentences; the same point could be made with "Socrates and Plato" and "Socrates or Plato."

tal Language are like functions that take concepts into expressions, some sensitive to order, others not. These "functions," or logical operations in Mental Language, are themselves concepts; Buridan calls them *complexive*. Their role is to combine concepts into new complex concepts; they are thus term-forming or sentence-forming functors.[7]

Now Buridan's distinction between syncategorematic and categorematic terms, roughly parallel to the modern distinction between logical and non-logical particles, is explained by complexive and non-complexive concepts respectively.[8] Pure syncategorematic terms lack an ultimate signification, but they do not lack all signification: they are or immediately signify complexive concepts, and they have an ultimate signification only in combination with categorematic terms. Pure categorematic terms, on the other hand, have an ultimate signification, and they are or immediately signify non-complexive concepts.[9] Only such logical considerations as precedence, order, scope, and the like are relevant to the individuation of expressions in Mental Language. Furthermore, such considerations are self-intimating, since Mental Language is the language of thought; we cannot help but be aware of scope distinctions and the like. Therefore, it is logically perspicuous.

Given (i)–(v), Buridan's Mental Language has been thought to be much like the 'logically ideal languages' in vogue at the beginning of the past century. Such ideal languages have been put to various uses by various philosophers: Carnap for the logical reconstruction of the world, Wittgenstein to show what can be said and what cannot, Russell and Quine for uncovering (or avoiding) ontological commitment. Buridan's use of Mental

[7] *SDD* 4.2.3 20.4–8: "Et etiam illae copulae *est* et *non est* significant diuersos modos complectendi terminos mentales in formando propositiones mentales, et illi modi complectendi sunt conceptus complexiui pertinentes ad secundam operationem intellectus, prout ipsa addit supra primam operationem. Et ita etiam istae dictiones *et*, *uel*, *si*, *ergo* et huiusmodi designant conceptus complexiuos plurium propositionum simul uel terminorum in mente et nihil ulterius ad extra." See also *QLP* 1.7 33.23–24.

[8] Modern logicians take the difference between logical and non-logical terms as primitive, such that the logical constants are listed separately and appear in the syntactical rules in special ways. Buridan, however, distinguishes logical and non-logical terms semantically, by their signification.

[9] There are 'mixed' cases in spoken and written languages that are neither purely syncategorematic nor purely categorematic (*SDD* 4.2.3); they immediately signify some complex combination of complexive and non-complexive concepts. For our purposes we may ignore them, though Buridan does think that the identification and analysis of such mixed terms is at the heart of the logician's activity, as he says in *SDD* 1.2.2: "Nec etiam credendum est quod logicus a sua consideratione debeat excludere syncategoremata; immo ex eis sunt in logica quasi omnes difficultates."

Language, it has been maintained, is closest to the Russell-Quine approach: it is a case of semantics in the service of ontology. To see how this can be, we have to examine two other semantic relations.

3. Supposition, Definition, and Appellation

It's one thing to correlate terms with their significates so that a language may be established in the first place; that is done by signification. It's another thing to actually use the terms to talk about their significates, which is a distinct semantic relation that obtains between terms and their significates. This latter semantic relation is called 'supposition,' which accounts for the referential use of categorematic terms. Hence signification and supposition differ in two ways. First, terms retain their signification at all times, but it is only in a sentence that terms are used referentially, that is, to talk about things and say something about them. Thus a term has supposition only in a sentential context. Second, we do not always use terms to talk about everything those terms ultimately signify; we mention, as well as use, terms, and sometimes we speak only of a subclass of all a term's significates. Thus a term may have different kinds of supposition depending upon its sentential context. Buridan identifies two varieties: personal supposition, which occurs when a term stands for what it ultimately signifies, and material supposition, which occurs when a term does not stand for what it ultimately signifies.[10] Hence the term 'Socrates' in the sentence "Socrates is human" has personal supposition, referring to Socrates himself, whereas in "Socrates is a three-syllable word" it has material supposition, referring to the utterance 'Socrates.' (Note that it is still the same term in each sentence.) Much as signification is the mediæval correlate to a theory of meaning, supposition is the mediæval correlate to a theory of reference—and, like any theory of reference, is the guide to ontology. We can uncover the ontological commitments of a theory by discovering which terms appearing referentially in the (mental) sentences of the theory are

[10] More exactly: a term t has personal supposition in a sentence if and only if either (i) some sentence of the form "This is t" is true, or (ii) some clause of the form 'and that is t' can be added to an existential sentence, or to a sentence presupposing an existential sentence, to produce a true sentence. The demonstrative pronoun and the copula of (i) and (ii) should be taken in the appropriate tense, grammatical number, and mood. This definition is a generalization of the account of personal supposition Buridan sketches in *SDD* 4.1.2 10.8–10: "Vel possumus dicere quod ad hoc quod terminus possit supponere, sufficit quod uere possit affirmari uel de tali pronomine uel de relatiuo referente aliquem terminum priorem." A term has material supposition at all other times, *e. g.* when an inscription such as 'Socrates' supposits for the inscription or for the concept of Socrates rather than for Socrates himself.

ineliminable. The natural suggestion is that the ineliminable terms are precisely the primitive terms, *i. e.* the terms that cannot be defined. Hence a closer look at the theory of definition is needed.

Mediæval philosophers recognized two competing requirements on definition: (*i*) the definiens was to be synonymous with the definiendum; (*ii*) the definiens was to express the real nature or essence the definiendum. Definitions satisfying only (*i*) were called "nominal," for they do not specify the nature of the definiendum and instead only give information about how the term that is the definiens is to be applied, and are thereby informative only about the "name"; definitions satisfying (*i*) and (*ii*) were called "real" or "quidditative."[11] Buridan holds the following thesis:[12]

> A term is or immediately signifies a complex concept if and only if the term has a nominal definition.

Thus if a term is or immediately signifies a complex concept, it is by definition synonymous with the expression stating how the relevant concepts are combined. Hence we may view such terms as abbreviations for their nominal definitions. This is why Buridan suggests that indefinable substantial terms are or immediately signify indefinable concepts (*QSP* 1.04 fol. 5rb and *QM* 4.14 fol. 23va), and that purely syncategorematic terms are or immediately signify simple complexive concepts.

Therefore, it seems as though ontological commitment is carried only by those terms that are not eliminable—that is, we can dispense with terms that have a purely nominal definition in favor of those that have a real definition.[13] Which terms are they?

[11] See for example *QM* 7.05 fol. 44va: "Quaedam definitiones sunt simpliciter quidditatiuae, quia per illas sciuntur passiones de subiecto per se, non solum quantum ad *quia* est, immo etiam quantum ad *propter quid* est. Alae sunt definitiones exprimentes quid nominis saepe enim aliquod nomen implicat ualde multos et diuersos conceptus diuersarum rerum, et definitio exprimens quid nominis debet explicite designare illos diuersos conceptus, et tales definitiones bene conueniunt tam terminis substantialibus quam accidentalibus." See also *SDD* 8.2.3 and Klima [2001] 30–33.

[12] In *SDD* 4.2.4 Buridan says that terms that are or immediately signify complex concepts have nominal definitions; in *QM* 4.14 fol. 23va and in *QSP* 1.04 fol. 5rb he says that terms that have nominal definitions are or immediately signify complex concepts. These statements, taken together, yield the following thesis—which Buridan endorses in *SDD* 4.2.6 23.15–17: "Duodecima regula est quod de omni dictione cui correspondet conceptus complexus dicendum est sicut de oratione cui ipsa aequiualet, scilicet quae explicat quid nominis ipsius orationis."

[13] Normore [1984] 191–193 presents Buridan's philosophy of language as endorsing this programme.

4. The Coordination Thesis

The hypothesis accepted by modern commentators is that the ineliminable terms are the absolute terms, as distinguished from appellative terms. Buridan explains appellation as follows:[14]

> Some terms are appellative and others are not. Nominative substantial terms, or terms connoting nothing whatsoever beyond that for which they supposit, are not strictly appellatives. But every term connoting something other than that for which it supposits is called *appellative*, and it appellates what it connotes in the manner of adjoining that for which it supposits. For example, 'white' appellates whiteness insofar as it adjoins a thing for which the term 'white' is apt to supposit.

Connotation is an oblique or indirect form of signification. The concrete accidental term 'white' supposits for the subject that is white, connotes whiteness, and appellates the whiteness *qua* adjoining the subject. More needs to be said, but note that Buridan gives us a test for (at least some) appellative terms by the 'Remainder Principle':

> If a term signifies something it does not stand for, the term is appellative.

Appellative terms that fall under the Remainder Principle have no real definition (*QM* 7.5 fol. 44va); they presumably have a nominal definition and thus are or immediately signify complex concepts.[15]

An appellative term governed by the Remainder Principle poses no problems for ontology. It involves only two kinds of items: those it stands for and those it does not. But items for which the appellative term does not stand, or supposit, are simply irrelevant to ontology, and those for which it does supposit may be picked out more directly by an absolute (*i. e.* non-

[14] *SDD* 4.5.1 80.1–7: "Sunt autem terminorum aliqui appellatiui et aliqui non appellatiui. Termini enim substantiales recti aut termini omnino nihil connotantes ultra ea pro quibus supponunt non sunt appellatiui proprie. Sed omnis terminus connotans aliud ab eo pro quo supponit dicitur appellatiuus, et appellat illud quod connotat per modum adiacentis ei pro quo supponit, ut *album* appellat albedinem tamquam adiacentem illi pro quo iste terminus *album* innatus est supponere." See also *SDD* 1.4.1, 5.1.1, 5.2.5; *Soph.* 1 Thesis 6; and *Soph.* 4 Remark 2.

[15] Buridan gives several examples of appellative terms: (*i*) every term in an oblique case (*SDD* 4.5.4); (*ii*) non-denoting terms, which may purport to refer to impossible objects such as 'round square' or imaginary objects such as 'centaur' (*SDD* 4.1.4); (*iii*) concrete terms in categories other than Substance (*QM* 4.06 fol. 17va); (*iv*) transcendental terms convertible with 'being,' such as 'thing,' 'one,' and the like (*QM* 4.05 fol. 15vb); (*v*) the term 'potency' (*QM* 9.06 fol. 59ra); (*vi*) most combinations of terms, so that complex subjects and predicates are appellative.

appellative) term. Hence if all appellative terms were to fall under the Remainder Principle—that is, if it were a biconditional (though Buridan never states it as one)—all and only absolute terms would be the bearers of ontological commitment. We might then endorse the Coordination Thesis:

> An absolute term is (or immediately signifies) a simple concept, and conversely.

Its name is derived from the fact that the thesis coordinates the semantic distinction between absolute and appellative terms with the psychological distinction between simple and complex concepts, so that the semantics and the psychology are in complete correspondence.

Now given the Coordination Thesis, a clear picture of Mental Language as ideal in the Russell-Quine fashion, the project announced in §2, finally emerges. We identify the simple concepts of Mental Language as its 'vocabulary' (all and only absolute terms), and give the standard recursive rules for the well-formedness of expressions concatenated out of the items in the vocabulary—or, to speak in the psychological style appropriate to Mental Language, we only have to countenance simple concepts; all the rest can be taken care of as combinations (*via* simple complexive concepts) of the simple non-complexive concepts, and these are natural psychological functions we can discover by scientific means. Therefore, we can read off the ontological commitments of a theory by just looking at its absolute terms. On this view, to give a Buridanian twist to a Quinean maxim, to be is to be signified by an absolute term.

The attractiveness and power of this view, to say nothing of its elegance, are undeniable. Under a few assumptions that seem well-grounded in the texts, we can explain why the common mediæval practice of analysis (*expositio*), that is, of producing a replacement for an expression that is held to mirror the mental form of the original, is so important in the writings of Buridan and others: the mental version of the expression is such that its ontological commitments are immediate and evident. The practice of ontology will be closely allied with the practice of logic, and it is no surprise that logic is seen as one of the central tools, if not itself the centerpiece, of philosophy: where thinkers of an earlier generation produced works such as the *Summa theologiae*, thinkers of Buridan's generation produce works such as the *Summa logicae*. The construal of Mental Language as ideal seems too good to be true.

And it is.

5. Difficulties

Mental Language was designed to serve two purposes, namely to provide

a vehicle for a semantics and to describe human psychology. The normative aspects of an ideal language, in which things can be formulated only in a certain way because that is how they ought to be formulated for some reason (such as *being truth-preserving*), do not fit a descriptive account of the way our minds actually do function. If Mental Language were ideal, mirroring our actual thought-processes as part of the content of the claim that it provides a descriptively adequate psychology, we would all necessarily reason in valid syllogisms!

Yet the mismatch between ideal types and actual behavior is not where the problems in coordinating semantics and psychology arise. Mediaeval philosophers generally seem content to account for the mismatch by offering various "error theories": our logical mistakes are due to our not paying sufficient attention, or are the product of confusion engendered by misleading though vivid mental images, or the surface grammar of spoken and written languages deceives us, or the like. (Whether such error theories are up to the job is another matter.) Yet the tension between the normative and the descriptive is no worse in the case of logic and psychology, after all, than it is in accepting Aristotle's claim that human beings are essentially rational, which also seems to fly in the face of experience.

Instead, the problems in construing Mental Language as ideal are clustered around the Coordination Thesis, in the enterprise of correlating logic and psychology in the first place.[16] On the one hand, problems arise on the semantic side: the Remainder Principle, it seems, does not cover all appellative terms, and there are reasons to believe that some appellative terms do not immediately signify complexes of simple concepts (§5.1). On the other hand, there seems to be conclusive textual evidence on the psychological side that Buridan rejected the Coordination Thesis, and moreover that he

[16] Problems arise elsewhere as well. For example, seemingly contrary to the claim that Mental Language is nonredundant, Buridan holds that two concepts differing only numerically could be in the mind simultaneously, as he argues in *QDA* (3) 3.16 72–87: "Quarta conclusio est quod in intellectu nostro possunt esse simul plures conceptus omnino consimiles ita quod solo in numero differunt, aliter enim non possemus formare et scire tales propositiones, *Homo est homo*, vel *Homo et homo sunt animalia*, vel etiam *Homo et homo et homo sunt tres homines*... Et non oportet in intellectu nostro sic confundi conceptus: scilicet quod duo conceptus, si sint eiusdem rationis, fiat unus conceptus. Et hoc, ut puto, sic ordinavit natura ad ratiocinandum, enim non posset formari syllogismus mentalis nisi quilibet illorum terminorum sumeretur bis sine confusione." It does no good to protest that Buridan is talking about two numerically distinct tokenings of the same concept, and hence that Mental Language is non-redundant after all; the problem stems from the fact that there can be numerically distinct tokenings in the first place—*i. e.* that non-semantic differences permit semantically indiscernible items to be distinguished.

had sound reasons for doing so (§5.2).

5.1 Semantic Difficulties

Let me begin discussing the semantic problems by looking more closely at the metaphysical issue that Buridan himself identifies as motivating his philosophical break with Aristotle: separable accidents. Buridan argues in *QM* 5.08, in consequence of the phenomenon of the Eucharist, that accidents are capable of existing *per se* as separate from any substance: they may exist without inhering in anything at all, at least by divine power.[17] Now if it is not part of the nature of, say, whiteness to inhere in a substance, then a further special kind of metaphysical glue is required for the actual bonding of substance and accident. Buridan terms this glue an 'added disposition,' which is nothing other than an inseparable quality of inherence (inseparable since otherwise there would be an infinite regress of such qualities).[18] When Buridan discusses the question whether in what is said *secundum se* (such as 'whiteness') the thing and being the thing are the same, he declares:[19]

[17] Buridan establishes this claim generally (see De Rijk [1993]) without specifying which accidents exist. At least some accidents from the category of Quality, such as whiteness, genuinely exist, as do motions (see Normore [1984]); perhaps some relations also exist (see Schönberger [1994]).

[18] See *QM* 5.08 *ad* 2 fol. 32ra: "Dico quod oportet quod sit dispositio addita ad hoc quod albedo inhaereat lapidi, uel etiam ad hoc quod dependeat a lapide propter hoc quod possibile est quod ipsa maneat non inhaerens et non dependens (scilicet a lapide). Sed ultra tu dicis 'Illa dispositio inhaeret subiecto et dependet ab eo,' concedo, sed hoc est < inseparabiliter >*, sicut Aristoteles credidit quod albedo inhaeret lapidi. Unde Deus non posset facere quod esset inhaerentia albedinis ad lapidem et non esset albedo, quia implicaret contradictionem. Tales enim modos se habendi hoc ad illud non est possibile esse quin hoc sit uel illud; ideo cum separabilter inhaereant et dependeant, dicendum est quod seipsis inhaerent < et > dependent sine alia dispositioni ulteriori; ideo non proceditur in infinitum. Quando etiam quaerebatur cui subiecto inhaeret talis dispositio, credo quod dicendum est quod illa dispositio requisita ad hoc quod homo sit albus, praeter hominem et albedinem, est inhaerentia albedinis ad hominem et est subiectiue per ipsum; ita illa albedo est formaliter inhaerens illi homini per illam inhaerentiam et subiectiue per seipsam, et ita dicerem quod radius dependet a sole per dispositionem additam quae est dependentia sibi inhaerens et istae dispositiones uere sunt accidentia quae sic inseparabiliter se habent ad subiecta sua, sicut Aristoteles credidit de albedine uel de caliditate." [*Reading *inseparabiliter* for *separabiliter*, which makes no sense given the context.] Such added dispositions are inseparable, but may, of course, be destroyed, *e. g.* when God preserves the accident without its inhering in any substance: see De Rijk [1993] 49–50.

[19] *QM* 7.04 fol. 44ra: "Dicendum est quod idem est albedo et esse albedinem, quia quicquid diceret Aristoteles, de hoc tamen nos, dicentes albedinem esse separabilem, diceremus quod hoc nomen *albedo* connotat aliquam dispositionem aliam adiacentem

> It should be said that whiteness and being whiteness are the same, since whatever Aristotle may say about this matter, nevertheless for our part we, who hold that whiteness is separable, say that the name 'whiteness' connotes some other disposition adjoining whiteness, according to which whiteness is formally called whiteness. And what is more, it should be said that if *A* supposits for a whiteness and the subject together, without connoting an added disposition, then *A* and being *A* are the same.

The troublesome phrase here is: "the name 'whiteness' connotes some other disposition adjoining whiteness, according to which whiteness is formally called whiteness." The trouble in this troublesome phrase is as follows. Buridan says that it is something *other* than the whiteness that makes whiteness formally whiteness. Yet when discussing terms said *secundum accidens*, Buridan says that white is not the same as being white, because the term 'white' involves a reference to something other than itself. He remarks (*QM* 7.03):[20]

> Generally, whenever a concrete term suppositing for a subject connotes a disposition that is added to and adjoining that subject, the thing and being the thing differ.

But whiteness and being whiteness are the same, though, like 'white,' they connote some other disposition adjoining whiteness itself. It seems as though Buridan holds an inconsistent triad:

(1) Whiteness is the same as being whiteness.
(2) 'Whiteness' connotes a disposition adjoining (but other than) whiteness.
(3) If the term *t* connotes a disposition adjoining (but other than) the subject, then *t* and being-*t* are not the same.

Can the (apparent) inconsistency be avoided?

Buridan is searching for the feature making whiteness formally what it is, what makes whiteness formally *whiteness* rather than, say, blackness. A natural response is that whiteness is what it is in virtue of its power to make things in which it inheres white; whiteness is disposed to make things white when it inheres in them, not to make them black. Indeed, Buridan actually speaks of a 'disposition,' which could naturally be read as a power

albedini secundum quam albedo formaliter dicatur albedo. Postea etiam est dicendum quod si *A* supponeret pro albedine et subiecto simul sine connotatione dispositionis additae, tunc idem esset *A* et esse *A*."

[20] *QM* 7.03 fol. 43va: "Et uniuersaliter ubicumque terminus concretiuus supponens pro subiecto connotaret dispositionem additam et adiacentem illi subiecto, esset aliud *ipsum* et *esse ipsum*."

or potency of a thing. (It could also be read as a species of the category of Quality, but that saddles Buridan with the inconsistent triad.) Thus whiteness is what it is in virtue of a power.

An example may help to make this suggestion clear and even palatable. Humans are rational animals; each human is rational through the presence of rationality. Now rationality is a characteristic exemplified by individual acts of thought: only individual cases of thinking combine or disjoin or analyze or synthesize concepts in the right way, only certain trains of deliberation are indeed rational. Yet to say that humans are rational is not to ascribe to us a property which we all exhibit all the time in every instance of thinking; humans are certainly not always rational. But failures of rationality, whether rare or regular, do not make us less human, any more than the newborn infant's inability to prove theorems of modal syllogistic, or the senile person's similar inability, make them non-human or less human. We are what we are, namely human, by having rationality, but it is more accurate to say that we are what we are by having the power to act rationally, whether it is exercised in any particular instance or not. Thus the general idea that something is what it is in virtue of a power is natural to Aristotelian philosophy; it is rarely articulated, but lies beneath the surface in wait for extreme cases, like separable accidents, to bring it out.

What kind of relation is there between (*a*) whiteness's power to make things white through inherence, and (*b*) the whiteness itself? In *QM* 7.04 fol. 44ra Buridan says that the appellative term 'creative' connotes a disposition, namely the power to bring things into being *ex nihilo*, yet he also says that the connoted disposition is not "extrinsic" (*non alienae dispositionis*), and so doesn't signify some thing, some *res*, distinct from God.[21] It seems

[21] Buridan also mentions "extraneous" and "extrinsic" connotation in *QM* 4.01 fol. 13ra and *SDD* 3.1.3; in *SDD* 4.1.4 he asserts that nominative substantial terms, including 'whiteness,' have no appellation precisely because they do not connote any extrinsic disposition (13.4–8): "Prima est de terminis supponentibus et non appellantibus, qui illi sunt termini recti de praedicamento Substantiae. Et hoc est quia non connotant alienam dispositionem cum substantia quam significant et pro qua supponunt, et ita etiam est de multis terminis abstractis de praedicamento Qualitatis, ut *albedo*, *caliditas*, *humiditas*." He also says that 'rational' in the combination 'rational animal' does not connote any accident since it doesn't appellate a distinct disposition, but is instead a constitutive differentia here: "Sed tu quaeres an dicendo *animal rationale currit* sit ibi aliqua appellatio a parte subiecti. Et ego dico quod non, supposito quod *animal* sit uere terminus de praedicamento Substantiae et *rationale* sit uere differentia specifica animalis nullum accidens connotans. Sed solum ibi est contractio suppositionis sine appellatione dispositionis alienae" (*SDD* 4.1.4 80.21–25).

as though a new wrinkle has to be added to the picture sketched above: terms may be absolute or they may be appellative, but some appellative terms have extrinsic connotation and others what we may call 'intrinsic' connotation.

This distinction between intrinsic and extrinsic connotation allows us to resolve the problem of whiteness. The term 'whiteness' is appellative, since it connotes some other disposition adjoining whiteness in virtue of which whiteness is formally whiteness, namely it connotes the power to make things white through inherence, but it has intrinsic connotation, since what it connotes is not really distinct (*aliena*) from whiteness itself. Thus Buridan denies (2): the disposition connoted by 'whiteness' is not really other than the whiteness itself.[22] He is no longer saddled with inconsistency.

The price paid for this solution, though, is high. Appellative terms with intrinsic connotation do not fall under the Remainder Principle, since they do not connote anything for which they do not supposit. Hence appellative terms with intrinsic connotation correspond to simple concepts. But if the view that some appellative terms correspond to simple concepts is correct, which seems forced on us by Buridan's claims that (*a*) whiteness is a simple concept (*SDD* 4.1.4 and 4.2.4), and (*b*) something other than whiteness makes it formally whiteness, which thereby makes 'whiteness' appellative, then the elegant formal semantics made possible by the Coordination Thesis is incorrect.

A more careful examination of appellation only makes matters worse. As noted, Buridan holds that a term like 'white' supposits for the subject that is white, connotes whiteness, and appellates the whiteness *qua* adjoining the subject (see *SDD* 3.1.3 12.18–20). The kinds of 'adjoining' are the Aristotelian categories, he maintains; corresponding to each mode of predication is a different manner of adjoining:[23]

[22] De Rijk [1993] 48 n. 23 claims that the text of *QM* 7.03, according to two manuscripts, inserts a '*non*' in the troublesome phrase cited earlier; Buridan would therefore be denying that whiteness connotes some "other" disposition. If so, the way to read his denial, I think, is in line with the reconstruction I have given here.

[23] *QC* q.3 18.96–104: "Sed sumuntur ex diuersis intentionibus, secundum quas termini sunt diuersimode connotatiui uel etiam non connotatiui. Ex quibus diuersis connotationibus proueniunt diuersi modi praedicandi terminorum de primis substantiis; et ita directe et immediate distinguuntur penes diuersos modos praedicandi de primis substantiis. Si enim praedicentur in quid siue essentialiter de ipsis, tunc tales termini sunt de praedicamento Substantiae; si uero praedicantur denominatiue in quale, tunc sunt de praedicamento Qualitatis; et si in quantum, sunt de praedicamento Quantitatis. . ." There are many illustrative comments to this effect, *e. g. QM* 4.06 fol. 17va and *Soph.* 4 Remark 3.

> But [the categories] are taken from diverse intentions, according to which terms are connotative (or even non-connotative) in different ways. From these diverse connotations, the diverse modes of predicating terms of primary substances come about; hence [the categories] are immediately and directly distinguished according to the different modes of predicating with regard to primary substances. If terms are predicated *in quid* or essentially of them, then such terms are in the category Substance; if they are predicated denominatively *in quale*, they are in the category Quality; if *in quantum*, they are in the category Quantity...

Buridan describes such 'manners of adjoining' further in *QM* 5.08. To resolve a version of Bradley's Regress, he asserts that there is a special relation he calls an "inseparable disposition" that is the inherence of an accident in a subject.[24] To destroy the disposition is to destroy the inherence, and conversely; they are "accidents that are inseparably related to their subjects in this manner." Hence these inseparable dispositions are not a new kind of entity; they are unusual entities of a familiar kind, namely qualities. Therefore, when it is said that a concrete accidental term like 'white' appellates whiteness *qua* inhering in its subject, the meaning must be that it appellates the special disposition of inherence (*SDD* 4.1.4), itself a quality (in fact a quality of a quality) that is inseparable from the white thing without the destruction of the white thing. Of course, to signify the added disposition is not to signify that the disposition is added, as Buridan points out. Hence appellation appears to involve a kind of naming, or at least the denotation of the inseparable disposition that is the appropriate manner of adjoining, and hence to be absolute terms, or at least candidates for absolute terms. But this undermines the Coordination Thesis.

On the semantic side, then, there are serious problems. Yet I think that for all the semantic difficulties, worse problems are found in the psychology, problems that conclusively show that Buridan could not have held the view of Mental Language attributed to him.

[24] The regress-argument is initially given in *QM* 5.06 fol. 30ra–b: "Si Socrates est diuersus a Platone per diuersitatem sibi additam, tunc illa diuersitas est < diuersus >* a Socrate, et Socrates diuersus ab alia, et tunc: uel Socrates et illa diuersitas sunt abinuicem diuersi seipsis, uel per aliam diuersitatem: si seipsis, pari ratione standum erat in primus; et si hoc sit per aliam diuersitatem, procederetur de illa ut prius, et sic in infinitum, quod est inconueniens." [*Reading *diuersus* for *diuersitas*.] A similar version is given in *QM* 5.08 fol. 31rb–va. Buridan's solution is given in n.19 above. Normore [1984] 194–200 discusses this text at length.

5.2 Psychological Difficulties

We can make a start on seeing how this is so by asking what makes a concept 'simple' in the first place. In *QSP* 1.04, Buridan puts forward the thesis that we have a simple concept of substance, and defends it by means of four arguments. In each argument Buridan takes the simplicity to be definitional: the question is whether a given concept can be further resolved into other concepts. It's rather obscure just what this amounts to—how can we tell whether a concept is resolvable?—but let's pursue the spirit of the suggestion by following Buridan's remark that "complexes are composed of simples." If he means to be speaking literally, then those concepts are simple that are used to construct other concepts through combination by simple complexive concepts. This is what we should expect given the Coordination Thesis. It is this fact that allows us to treat thought not merely as a language, but as a canonical language—as a logic, in a word. Simple concepts are the building blocks of Mental Language, and the logical operations (the complexive concepts) are the mortar. His claim should therefore be that the definitional priority of simple concepts is a matter of complex concepts literally being constructed out of them.

Yet Buridan rejects this claim. In his extended *ex professo* examinations of cognition in *QSP* 1.07, *QDA* (3) 3.08, and *QM* 7.20, he maintains instead that the process of concept-acquisition begins with highly dense and complicated concepts arriving in the intellect, out of which we gradually abstract concepts that are definitionally simple. But that is enough to overturn the Coordination Thesis. The building blocks of our actual psychology are rich singular concepts that include a wealth of detail fused together, and these are the first elements of our thought. Let's take a closer look.

Buridan argues first that intellective cognition causally depends on sensitive cognition: the intellect requires input from sense to function. (This is not to spell out how it functions, of course.) *Nihil in intellectu quod non prius fuerit in sensu*: there is nothing in the intellect not previously in the senses, as the Aristotelian maxim has it. Buridan treats the claim as sufficiently obvious to use as a minor premiss and not to need further proof.[25] We can readily construct an argument for it. First, the analysis of

[25] *QSP* 1.07 fol. 8va: "Et de hoc ponitur prima conclusio communiter concessa, scilicet quod necesse est hominem cognoscere prius esse singulariter quam uniuersaliter, quia necesse est hominem prius cognoscere aliquid cognitione sensitiua quam intellectiua; et tamen nos supponimus quod cognitione sensitiua nihil cognoscatur nisi singulariter; ergo etc." See also fol. 9vb: "Cum ergo dictum sit quod cognitio intellectiua dependet ex sensitiua. . . "

the functioning of the sensitive soul applies equally to humans and the brute animals, who by definition lack intellective souls. Second, the intellective soul is immaterial (held on the grounds of faith if nothing else); that means it is not the form of any given sense-organ, or, to put the same point another way, the intellect has no means whereby to pick up information about the world. Hence any material processed by the intellect must already be in the soul, and the only way for it to get there is through the senses.

Next, Buridan argues that sensitive cognition is always singular.[26] However, he rejects the traditional claim that the singularity of sensitive cognition follows from the fact that the sensitive soul, unlike the intellective soul, is material and extended:[27] He offers two reasons. First, the sensitive appetite is just as material and extended as sensitive cognition, yet sensitive appetite is not targeted at individuals. A thirsty horse wants some water, but no particular water more than any other. This holds generally: natural agents acting as causes seem not to single out individuals *qua* individuals. Fire heats up any wood in the range of its causal activity; it is not restricted to acting only on some particular piece of wood. The inference from materiality to singularity fails in these cases; why think it holds in sensitive cognition?[28] Second, our perceptual abilities do not seem to put us in touch with individuals. After all, Buridan notes, we cannot tell the

[26] See the end of *QSP* 1.07 fol. 8va cited in the preceding note. Buridan thinks that Aristotle endorses this claim in *De anima* 3.07 431^b1–20, which he summarizes in QDA(1) 1.04 196.82–83 as follows: "Sicut patet tertio huius: dicitur enim ibi quod sensus est singularium."

[27] *QDA* (3) 3.08 167–170: "Visum fuit aliquibus quod sensus, ex eo quod habet extensionem et situm determinatum in organo corporeo, non habet naturam cognoscendi uniuersaliter sed singulariter." See also *QSP* 1.07 fol. 8va. (Buridan also rejects the parallel inference from the intellect's immateriality to its universal cognition.

[28] *QSP* 1.07 fol. 8va–b: "Tertio quia appetitus sensitiuus ita est extensus et materialis sicut sensus, et tamen equus et canis per famem et sitim appetunt modo uniuersali, non enim hanc aquam uel auenam magis quam illam sed quamlibet indifferenter; ideo quodcumque eis portetur, bibunt ipsum uel comedunt. Et est intentio posita uel appetitus ignis ad calefaciendum est modo uniuersali, non determinate ad hoc lignum sed ad quodlibet calefactibile indifferenter, licet actus calefaciendi determinetur ad certum singulare. Et ita potentia uisiua est modo uniuersali ad uidendum." Cfr. *QDA* (3) 3.08 223–232: "Et iterum apparet quia uirtus materialis et extensa fertur bene in obiectum suum modo uniuersali, nam appetitus equi secundum famem aut situm non est singulariter ad hanc auenam uel ad hanc aquam, sed ad quamlibet indifferenter; unde quamcumque primitus inueniret illam caperet. Et intentio naturalis uel appetitus ignis ad calefaciendum non se habet modo singulari ad hoc calefactibile uel ad illud, sed ad quodlibet indifferenter quod ipse posset calefacere; ideo quodcumque sibi praesentetur, calefaceret ipsum; ergo etc."

difference between qualitatively indistinguishable substances unless we perceive them relative to one another; nor can we tell whether a given object is the same or different from one we saw previously, even for items that are merely similar rather than indistinguishable. Such failures of discernibility suggest that sensitive cognition does not reach the individual, but some qualitatively more general level.[29] The singularity of sensitive cognition, then, is due to neither its material composition nor its being intrinsically singular.

Buridan offers an alternative original account of what it is to perceive something as singular:[30]

> Let me therefore declare that something is perceived singularly in virtue of the fact that it is perceived as existing within the prospect of the person cognizing it...

Buridan is not (merely) saying that an object has to be present in the perceiver's sensory field to cause a perception. His point is more subtle: the singularity of perception is a function of the object's presence in the perceiver's sensory field. That is, the singularity of sensitive cognition does not stem from its inherent nature or from some characteristic feature of the object, but from the circumstances in which it occurs:[31]

[29] See for example *DUI* p.2 q.1 153.14–29, *QSP* 1.07 fol. 8vb, *QDA* (3) 3.08 263–274. There is a particularly clear instance at *QM* 7.17 fol. 52va–b: "Si essent duo lapides omnino similes in figura, in magnitudine, in colore, et sic de aliis, et successiue apportarentur in tua praesentia, tu nullam uiam haberes ad iudicandum utrum secundus apportatus esset ille idem qui primus apportatus fuit an alter. Et ita etiam de hominibus si omnino essent similes in figura magnitudine et colore et sic de aliis accidentibus; immo etiam hoc non solum ueritatem habet de substantiis immo etiam de accidentibus: si enim essent albedines consimiles in gradu et essent in subiectis consimilibus in figura magnitudine et caetera, tu non haberes uiam cognoscendi utrum esset eadem albedo an alia quae tibi prius et posterius praesentaretur."

[30] *QSP* 1.07 fol. 8vb–9ra: "Dicam ergo, sicut magis uideri debet septimo Metaphysicae, quod ex eo <aliquid>* percipitur singulariter quod percipitur per modum existentis in prospectu cognoscentis. (Ideo enim Deus omnia percipit distinctissime ac si perciperet ea singulariter: omnia clara sunt quia in prospectu eius.)" [*Reading *aliquid* for *aliud*.] The same account is given in *QDA* (3) 3.08 298–303: "Ad soluendum illas dubitationes, debemus ex septimo Metaphysicae uidere modum percipiendi rem singulariter: scilicet quia oportet eam percipere per modum existentis in prospectu cognoscentis. (Ideo enim deus quasi per modum singularem cognoscit omnia distinctissime et determinate, scilicet quia omnia habet perfecte in prospectu suo per se.)"

[31] *QDA* (3) 3.08 304–308: "Sensus ergo exterior quia cognoscit sensibile per modum existentis in prospectu suo secundum certum situm, licet aliquando false iudicat de situ propter reflexiones speciorum, ideo cognoscit ipsum singulariter uel consignate, scilicet quod hoc uel illud. See also *QSP* 1.07 fol. 9ra: "Sensus autem exterior obiectum suum apprehendit confuse, cum magnitudine et situ ad ipsum tamquam apparens in

> Therefore, because external sense cognizes what is sensible in the way that something exists within its prospect in a definite location, even if sometimes it does make a false judgment about its location (due to the reflection of appearances), it cognizes it singularly and distinctly, namely as *this* or as *that*.

Roughly, singularity is due to the here-and-now conjunction of perceptible general features that make up an object. These features are fused together (*con-fusa*) in acts of sensitive cognition, as Buridan explains in detail, and make up the content of sense:[32]

> Although external sense cognizes Socrates or whiteness or a white item, then, this nevertheless occurs only in an appearance representing [the object] as fused together with the substance, the whiteness, the size, and the location according to which it appears within the prospect of the cognizer. Now sense cannot itself untangle that kind of fusion, that is, it cannot abstract the appearance of substance and of whiteness and of size and of location from one another; hence it can only perceive the whiteness or the substance or the white item the way that something exists within its prospect, and so it can only cognize the aforementioned [objects] singularly.

It is the mark of the senses to present us with a jumble of impressions that are literally fused together (*confusa*) in the here-and-now: size, shape, color, and the like are all part of the appearance (*species*), indexed to a definite time and place. Sense is necessarily singular; it lacks the requisite mechanism to transform its input into something general. Sensitive cognition produces only these agglomerated impressions of individuals, intrinsically complex and inexpressibly rich.

prospectu eius, aut longe aut prope, aut ad dexteram aut ad sinistram; ideo percipit obiectum suum singulariter tanquam demonstratum hic uel ibi. Sensus autem interior non potest speciem obiecti ut colorum uel soni ab huiusmodi confusione absoluere et abstrahere; ideo in somno per phantasiam et sensum communem apparet totum ita esse in prospectu sensus secundum determinatum situm sicut in uigilia – ideo etiam sensus interior non percipit nisi singulariter." See also Miller [1985] and van der Lecq [1993].

[32] *QDA* (3) 3.08 308–326: "Quamuis ergo sensus exterior cognoscat Sortem uel albedinem uel album, tamen hoc non est nisi secundum speciem confuse repraesentatem cum substantia et albedine et magnitudine et situ secundum quem apparet in prospectu cognoscentis. Et ille sensus non potest distinguere illam confusionem: scilicet non potest abstrahere species substantiae et albedinis et magnitudinis et situs ab inuicem, ideo non potest percipere albedinem uel substantiam uel album nisi per modum existentis in prospectu eius. Ideo non potest cognoscere praedicta nisi singulariter." This conclusion also holds for the internal senses.

But if the content of sensitive cognition is necessarily fused together, then that is all the intellect has to start with as its building-blocks. In particular, the intellect takes its initial stock of concepts directly from sense, and so starts off with 'fused' concepts corresponding to our sensitive impressions of individuals.

Buridan endorses this conclusion. When something is present in the prospect of the perceiver, he first senses it and then conceptualizes it on the basis of sense. Thus Buridan declares that the intellect necessarily begins with sensitive cognition in its thinking about the world,[33] and so must begin with rich singular concepts:[34]

> The intellect cognizes things as singular before it does as universal, because sense, whether internal or external, only cognizes them as singular, namely as fused together with location and as existing within the prospect of the knower; therefore, etc. Sense thus represents a sensible object to the intellect with this sort of fusion. And just as sense primarily represents the object to the intellect, so too does the intellect primarily understand the thing. Therefore, the intellect is able to cognize the thing with this kind of fusion, and so as singular. (This is also apparent from what has been said, namely that by abstracting and so on the intellect understands as universal.) Furthermore, since the representation on the part of sense is in a singular manner, if the intellect were not to understand as singular on the basis of a representation of this sort, then we can't explain how it can understand as singular afterwards.

He emphasizes that his genetic account of concept-acquisition is based on

[33] Some call this 'intuitive' cognition, as Buridan notes in *QM* 7.20 fol. 54va: "Et sic finaliter uidetur mihi esse dicendum quod nullus est conceptus singularis nisi sit conceptus rei per modum existentis in praesentia et in prospectu cognoscentis tamquam illa res appareat cognoscenti sicut demonstratione signata, et illum modum cognoscendi uocant aliqui intuitiuum."

[34] *QSP* 1.07 fol.9ra–b: "Et ex his apparet mihi quod determinari potest quaestio principalis dicendo quod prius intellectus cognoscit res singulariter quam uniuersaliter propter hoc quod sensus non cognoscit eas nisi singulariter, siue sit sensus exterior uel interior, scilicet cum illa confusione situs et per modum existentis in prospectu cognoscentis; ideo etc. Sic sensus cum huiusmodi confusione repraesentat intellectui obiectum sensibile. Et sicut obiectum primo repraesentat intellectui, sic intellectus primo intelligit rem. Ergo cum huiusmodi confusione intellectus potest cognoscere rem, et sic singulariter. Et hoc etiam apparet ex dictis, scilicet quod abstrahendo etc., intellectus intelligit uniuersaliter. Et iterum, cum repraesentatio ex parte sensus sit modo singulari, si intellectus ex huiusmodi repraesentatione non intelligat singulariter, non poterit postea dici quomodo possit intelligere singulariter."

these rich singular concepts:[35]

> When the intellect receives the species or intellection of Socrates from the phantasm with this kind of fusion of size and location, making the thing appear in the manner of something existing in the prospect of the person cognizing it, the intellect understands him in a singular manner... We understand singularly before we do universally, since a representation fused together with size and location and other features occurs in the intellect before the intellect can untangle and abstract from that fused [representation].

The intellect has to begin with singular cognition, since that is the material passed along to it from sensitive cognition; the intellect then must sort out the agglomerated fusion of features in the singular intellective concept. Such concepts do not even distinguish substance from accident:[36]

> For example, because I have initially a 'fused concept' that simultaneously represents substance and accident... the intellect then has the power to untangle their fusion.

We don't need to pause now over exactly how the intellect accomplishes this 'untangling' since, for our purposes, the damage has already been done.[37]

Mental Language is natural, in the sense that the connection between concepts and their significates is non-conventional, and its formal structure is universal to all thinking beings other than God, but its 'material' elements—the concepts which make up the non-logical 'vocabulary' of mental language—must be acquired through experience. It is undeniable, in the face of these passages, that Buridan held that the first concepts we acquire are the 'confused' rich singular concepts he describes, which are so far from

[35] *QDA* (3) 3.08 391–395 and 411–415: "Dico quod cum intellectus a phantasmate recipit speciem uel intellectionem Socratis cum tali confusione magnitudinis et situs, facientem apparere rem per modum existentis in prospectu cognoscentis, intellectus intelligit illum modo singulari... Dicendum est enim quod prius intelligimus singulariter quam uniuersaliter, quia prius fit in intellectu representatio confusa cum magnitudine et situ et aliis, quam intellectus posset distinguere et abstrahere illam confusionem." See likewise *QDA* (1) 1.04 196.00–06: "Dico quod conceptus talis causatur ex conceptibus primo modo dictis: unde prius concipitur homo cum talibus circumstantiis quam sine talibus circumstantiis. Et secundum hoc, si conceptus primo modo dictus dicatur singularis, et conceptus secundo modo dictus dicatur universalis, tunc necesse est, antequam intellectus habeat conceptum universalem, quod prius habuit conceptum singularem correspondentem illi conceptui universali."

[36] *QSP* 1.04 *ad* 3 fol. 5rb–va: "Habeo primo conceptum confuse et simul repraesentantem substantiam et accidens... intellectus naturaliter habet uirtutem diuidendi illam confusionem.

[37] See Zupko [1990] and King [2001] for Buridan's account of abstraction.

being logically simple that they do not even discriminate substance from accident. Therefore, we cannot hold that other concepts are literally made up out of the abstracted 'simple' concepts. Instead, simple concepts are drawn forth out of confused concepts.[38] Thus the Coordination Thesis cannot be maintained.

Conclusion: Downfall of a Thesis

There are two responses to the collapse of the Coordination Thesis on the side of human psychology. On the one hand, it might be held that the initial attempt to equate logical or definitional priority with temporal priority was flawed in some fashion. On the other hand, it might be held that Buridan's theses about Mental Language only come into force after the creation of a body of 'simple' concepts by abstraction, as described above.

Neither response works. Take the first. It is true that definitional priority does not go together well with temporal priority. But there is no good ground on which to throw out the equation, given that Mental Language is supposed to be literally built up from its simple elements. It is a sad but unavoidable fact that the mind is not structured like that. Furthermore, it is clear from Buridan's remarks about simple 'fused concepts' that he cannot try to explicate their simplicity by reference to their distinguishable content—a single simple concept of this sort has, as its content, a mass of accidents and a substance fused together. The concept of a complex is not, after all, a complex of concepts. Such fused concepts are not so much building blocks as they are rich veins that can be mined for several different types of ore (which does not mean that there are several different mines for each vein!).

The second response fares no better. It is likely true that not everything in our mental life is a part of Mental Language; the passions probably are not. But it is reasonable to think that everything conceptual, or cognitive broadly speaking, is a part of Mental Language, and the confused concepts that we initially acquire are indeed concepts. They must be, for we think by means of them; there is no good reason for excluding them. Now even if these fused concepts were somehow not the building blocks of Mental Language, they would seriously challenge the Coordination Thesis merely by belonging to Mental Language. For a fused concept is a single concept.

[38] Buridan continues *QSP* 1.04 *ad* 3 fol. 5va, cited in n. 40, as follows: "... et intelligendi substantiam abstractiue ab accidente et accidens abstractiue ab substantia, et potest utriusque formare simplicem conceptum." The intellect formulates a 'simple' concept by abstraction from a confused concept.

Hence it is either a primitive and indefinable—and so definitionally simple—appellative term, or not. If not, then there is some string of simple concepts that are combined in such a way as to be equivalent to the fused concept. But then Mental Language contains synonyms, and hence redundant elements. Either choice seriously jeopardizes its status as ideal, and choose we must on this alternative.

Therefore, the identification of Buridan's Mental Language as a Russell-Quine ideal language is untenable. I don't have a new or better theory of Mental Language to put in place of the old view that these problems seem to me to overturn decisively. However, it should be noted that much of its characterization as an ideal language was accomplished before introducing the Coordination Thesis. It may be that a reconceptualization of Mental Language along the lines not of Russell and Quine but rather, say, Carnap would be fruitful: Mental Language as constructed for a particular purpose, to be a medium for metaphysical argument by being a discourse that philosophers try to construct with as few ontological assumptions built in as possible—much a thinking itself ranges widely over the possible and the impossible. That's a much less grand role for Mental Language, but perhaps one it can more adequately fill.

BIBLIOGRAPHY

Primary Texts

DUI. Sławomir Szyller (ed.) "Jan Buridan: Tractatus de differentia universalis ad individuum" in *Przeglad Tomistyczny* 3 (1987): 135–178.

QC. *Iohannes Buridanus: Quaestiones in Praedicamenta*. J. Schneider (ed.), Bayerische Akademie der Wissenschaften, Band 11. München: Verlag der Bayerischen Akademie der Wissenschaften 1983.

QLP. *Johannes Buridanus: Questiones longe super librum Perihermeneias*. Ria van der Lecq (ed.), Ingenium Press: Nijmegen 1983.

QSP. *Johannis Buridani Quaestiones super octo Physicorum libros, secundum ultimam lecturam*, Paris 1509. Reprinted by Minerva G.m.b.H. as *Kommentar zur Aristotelischen Physik*, Frankfurt-am-Main 1968.

QDA(1). *Iohannis Buridani Quaestiones in Aristotelis De anima (De prima lectura)*. Benoît Patar (ed). *Le traité de l'âme de Jean Buridan*, édition, étude critique et doctrinale. *Philosophes médiévaux* 29, Louvain-la-Neuve 1991.

QDA(2). *John Buridan on the Soul and Sensation: An Edition of Book II of his Commentary on Aristotle's Book of the Soul*, with an Introduction and a translation of Question 18 on Sensible Species. Ph.D. Dissertation, Indiana University 1984.

QDA(3). *Iohannis Buridani Quaestiones in Aristotelis De anima secundum tertiam lecturam*. Jack A. Zupko (ed.) in *John Buridan's Philosophy of Mind: An Edition and Translation of Book III of his 'Questions on Aristotle's De anima' (Third Redaction), with Commentary and Critical and Interpretative Essays*. Ph.D. Dissertation, Cornell University 1989 (2 vols.). University Microfilms: Ann Arbor 1990.

QM. *In Metaphysicen Aristotelis Quaestiones argutissimae Magistri Iohannis Buridani in ultima praelectione ab ipso recognitae et emissae*, Paris 1518. Reprinted by Minerva G.m.b.H. as *Kommentar zur Aristotelischen Metaphysik*, Frankfurt-am-Main 1964 (incorrectly giving the original publication date on the title page as 1588).

SDD. *Summulae de dialectica*. Only *SDD* 2–4 have been published to date, as follows. *SDD* 2 (*Summulae II: De praedicabilibus*): L. M. De Rijk (ed.) in *Artistarium* 10-2, Nijmegen 1995. *SDD* 3 (*Summulae III: In praedicamenta*): E. P. Bos (ed.) in *Artistarium* 10-A, Nijmegen 1994. *SDD* 4 (*Summulae de suppositionibus*): Ria van der Lecq (ed.) in *Artistarium* 10-4, Nijmegen 1998. The editions of *SDD* 8 (Hubien and De Rijk) and *SDD* 9 (Pironet) should be published shortly. For the rest I have used the (unpublished) working transcription of Hubert Hubien, except in the case of the *Sophismata*, where I have given references to Scott's edition (see the next entry).

Soph. *Sophismata* (sometimes considered *SDD* 9), edited by T. K. Scott

in *Grammatica speculativa* Vol.I, Stuttgart-Bad-Cannstatt: Fromann-Holzboog 1977.

Secondary Sources

Biard [1989]. Joël Biard, *Logique et théorie du signe au XIV^e siècle*. Études de philosophie médiévale 64, Paris 1989.

De Rijk [1993]. L. M. De Rijk, "On Buridan's View of Accidental Being" in E. P. Bos and H. A. Krop (eds.), *John Buridan: A Master of Arts. Artistarium* supplementa 8. Ingenium Press, Nijmegen 1993: 41–51.

King [1985]. Peter King, *Jean Buridan's Logic*, Synthese Historical Library 27, Dordrecht: D. Reidel 1985.

King [2001]. Peter King, "John Buridan's Solution to the Problem of Universals" in J. M. M. Thijssen and Jack Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan*. Medieval and Early Modern Science, Vol. 2. E. J. Brill 2001: 1–27.

Klima [2001]. Gyula Klima, "Buridan's Theory of Definitions in his Scientific Practice" in J. M. M. Thijssen and Jack Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan*. Medieval and Early Modern Science, Vol. 2. E. J. Brill 2001: 29–47.

Michael [1985]. Berndt Michael, *Johannes Buridan: Studien zu seinem Leben, seinen Werken und zur Rezeption seiner Theorien im Europa des späten Mittelalters*. Inaugural-Dissertation, Freie Universität Berlin. 2 vols. Berlin 1985.

Miller [1985]. Richard Miller, "Buridan on Singular Concepts" in *Franciscan Studies* 45 (1985): 57–72.

Normore [1984]. Calvin G. Normore, "Buridan's Ontology" in Jim Bogen and Ted McGuire (eds.) *How Things Are: Studies in Predication and the History and Philosophy of Science*, D.Reidel: Dordrecht 1984, 187–200.

Schönberger [1994]. Rolf Schönberger, *Relation als Vergleich. Die Relationstheorie des Johannes Buridan im Kontext seines Denkens & der Scholastik*. Leiden: E. J. Brill 1994.

Trentman [1970]. John Trentman, "Ockham on Mental" in *Mind* 79 (1970) 586–590.

van der Lecq [1993]. Ria van der Lecq, "Confused Individuals and Moving Trees: John Buridan on the Knowledge of Particulars" in E. P. Bos and H. A. Krop (eds.), *John Buridan: A Master of Arts. Artistarium* supplementa 8. Ingenium Press, Nijmegen 1993: 1–21.

Zupko [1990]. Jack Zupko, "John Buridan on Abstraction and Universal Cognition" in Simo Knuutila (ed.), *Knowledge and the Sciences in Medieval Philosophy*, Vol. 2. Helsinki 1990: 392–403.