In in Jean-Yves Beziau and Gillman Payette, eds. *The Square of Opposition: A General Framework For Cognition,* (Bern: Peter Lang, 2012), pp. 61-97.

Existential Commitment and the Cartesian Semantics of the Port-Royal Logic

John N. Martin

Received 23 September 2007 , Accepted 16 December 2008, Revised 10 October 2009.

John N. Martin
Professor, Department of Philosophy
Charles Phelps Taft Reaserch Fellow, Taft Humanities Center
University of Cincinnati
e-mail: john.martin@uc.edu

Existential Commitment and the Cartesian Semantics of the Port-Royal Logic

Abstract The paper investigates the truth-conditions put forth in the Port-Royal Logic for categorical propositions in terms of "extension". The new Cartesian semantics was motivated by the rejection of medieval logic's causal theory of reference because of its commitment to the transmission of formal properties from material objects to the mind. Arnauld and Nicole formulate a new referential theory of signification that retains large parts of the medieval semantics of mental language but adopts a dualist metaphysics committed to causal occasionalism. The new account is founded on the use of objective being, a concept developed in medieval philosophy but rejected as problematic by major medieval logicians committed to Aristotelian semantics. Considered as a term in mental language, the objective being of a subject – the idea's comprehension – contains modes that describe the subject and these determine the possible objects outside the mind that the idea signifies. Signification, a relation between mental terms and external things, in turn is used to define extension, which in the Cartesian context is a relation among ideas: the extension of a term, which is understood to be a mental "species", consists of its inferiors, namely those species-ideas that signify entities that instantiate the modes in the higher species' comprehension. Truth-conditions are then defined in terms of extension. Objective being of a subject, as the object of consciousness, also correlates with the propositional knowledge that predicates its content modes of a subject. This correlation is used to unpack the medieval notion of false idea – one with a descriptive content false of every actual being. It is explained how the truth-conditions of the categorical propositions, which are stated in terms of extension, and the analysis of false idea entail (contra the interpretation of Jean-Claude Pariente) that the terms of a true affirmative categorical carry existential import.

Keywords Arnauld, Nicole, Descartes, Pariente, Port-Royal Logic, Categorial Logic, Syllogistic, Existential Import, Reference, Signification, Comprehension, Extension, False Idea, Objective Being

Existential Commitment and the Cartesian Semantics of the Port-Royal Logic[1]

In this paper I will explore the semantic theory of the Port-Royal Logic. My main purpose is conceptual. I will endeavor to explain how the theory manages both to adhere to a correspondence theory of truth and at the same time to define truth solely in terms of ideas denying any causal interaction between concepts and the material world. Central to the explanation are the concepts of a false idea and objective being. As part of the analysis, I will argue, contra to the interpretation of Jean-Claude Pariente[2], that as part of its commitment to correspondence the Cartesian logic remains committed to the claim that affirmative categorical propositions carry existential import and thus conform to the immediate inferences of the traditional Square of Opposition. To facilitate comparison to modern semantics, I will make use as necessary of concepts from metalogic. Since at the same time the paper is interpretive, I will also endeavor to ground its novel or controversial readings in the text itself. To clarify the concepts at issue – especially the novelties imposed by the switch from Aristotelian to Cartesian ontology – it will be useful to compare 17th semantics to the preceding medieval tradition.[3] Since the paper is not about medieval logic, however, these remarks will draw on the established interpretations of others, with no claim to originality.[4]

To situate 17th century logic, it will be helpful to begin with some remarks on medieval logic. The mature semantics of the 14th century incorporated elements of both a causal and descriptive theory of reference.[5] Logic drew upon a philosophical psychology of concept formation that had been developing since the time of Aristotle. Though opinions differed, Aquinas' account is representative. On his view accidental sensible qualities that are instantiated in an individual outside the mind are causally transferred in stages from the individual to the soul, first to the sensory medium, like air, then to sense organs, like the eyes or ears, and ultimately to the body's central organ of sensation. Though in each stage of the causal transfer an accident *P*, like redness, is instantiated in a substance *S*, like the air or the eye, it is present only in a

diminished or “intentional way” in the sense that it is not true of *S* that it is *P*. Though redness is in the air and the eye, they do not become red. Once instantiated in the central sense organ, the agent intellect may then cause the individual originating the perceptual chain to be “experienced” by the agent in all its sensory detail. Aquinas called the individual’s sensible accidents experienced as true by the agent a *sensible species*, and the accidents instantiated in the perceiver a *phantasm*. Due to the nature of the causal transfer, the accident in the object of sensation is the same as that transferred to the agent’s sense organs though instantiated naturally in the object and intentionally in the sense organs. Because it is the same, Aquinas was able to maintain with Aristotle that the accident was the same “form,” and because the object and the agent shared the same form, they too

Once the agent senses the object by instantiating a phantasm, abstraction is possible. This is the action by which the intellect operating on the phantasm as a necessary condition “prescinds” or abstracts some of the individual’s form. The abstracted form though true naturally of the object of sensation in instantiated intentionally in the agent, in his “intellect.” This form is abstract – it is also called general, common and confused – because it is no longer unique to the sensed individual. Though it is true of the object, it is also naturally true of other actual or possible individuals. Moreover, though the phantasm consists of only sensible accidents of the object sensed, its abstracted form may be of some non-sensible, even essential, form of the sensed object. How it was possible to abstract non-sensible universal form from individual sensible accidents was not explained very well.) Because the abstracted form was actively instantiated in the intellect and done so intentionally, it was regarded as a mental act and was called a concept. Because the form was “understood” by the intellect to be true of the sensed individual though not uniquely, Aquinas called it an *intelligible species*. Because, as in sensation, the form instantiated in the intellect intentionally is true of the sensed object naturally, that form is the same in each, and in that sense the object and the agent’s intellect are also “the same.”

Because a concept was a form that was in general true of more than one individual, Aquinas regarded a concept as a mind-dependent universal.

Two features attributed to a concept in this influential theory are important to the role of concepts in subsequent semantics. These two features duplicate each other in establishing the same concept-world relation, and medieval logicians, some stressing one feature rather than the other, would identify this relation with signification, the medieval reference relation. The first feature is that a concept is that on Aristotle and Aquinas' account a concept is causally linked to objects outside the mind. This linkage may be formulated as rule or natural law: a concept (a mental mode) *M* is causally linked to an object *S* outside the mind if, and only if, *M* could have been abstracted from *S*. The second feature is that a concept is descriptive of the objects it is true of in a way that may also be formulated as a rule or law: *M* describes *S* if, and only if, *M* is a mode naturally true of *S*. According to this rule, the concept grounds the fact that the soul to be the "same" as the sensed because it is true of both though in different ways, one naturally and the other intentionally. [6]

In the 14th century concepts understood in this way were incorporated into a logically sophisticated theory of mental language. Spoken terms, propositions composed of terms, and arguments composed of propositions were understood to be conventionally associated to modes of the intellect – respectively to terms, propositions and arguments understood as mental acts. This conventional pairing was understood to link spoken terms in a many-one relation to mental terms understood as concepts. Mental terms were understood to be syntactic "parts" (subjects or predicates) of mental propositions, and propositions in turn to be parts of mental arguments, all composed in a manner that mirrored the syntax of spoken sentences and arguments. The semantics of mental language was then explained by the psychology of sensation and abstraction described earlier and illustrated by Aquinas' version.

The central semantic concept in these theories is signification, the medieval reference relation. Characterizations varied, but all stressed signification's explanation in terms of a concept's causal-abstractive link to

objects outside the mind. They could say that a concept signifies all those possible objects from which it could have been abstracted. This rule's may be formulated in terms of species by those that believed in species and in terms of similarity by those who did not: a concept signifies all possibilia "in the same species as" or "similar to" that individual that caused the sensory phantasm from which it was abstracted. It is precisely this multiple signification that allowed Aquinas to understand a concept as a universal. Though it came to be a matter of dispute whether the distinction between intentional and natural instantiation made any sense, some continued to agree to accept the distinction and to with Aquinas that a concept was "the same" in form both in the intellect and in objects. They could then use this descriptive link to explain signification. They could say a concept that consists of the mode *M* instantiated intentionally in the intellect signifies all possibilia that instantiate *M* naturally.

All agreed that a concept was an accident of the agent, more specifically of his soul or intellect. As such it was counted as a form and was said to have formal being, *esse formale.* All also agreed in the usage that because a concept signifies objects it was an exemplar or representative of them.

This elaborate theory, however, was unacceptable to Descartes. Both the Aristotelian psychology of concept formation and the semantics based on it, is inconsistent with Cartesian metaphysics. Descartes seems to have denied, as Arnauld and Nicole certainly did, the possibility of Aristotelian property transfer from material to spiritual substance.[7] According to the Cartesians there can be no causal theory of reference using Aristotelian property transfer because no material substance can transmit a form to the soul so as to form a concept. The challenge facing Arnauld and Nicole, then, was to reconceive the semantic link between concepts and things in such a way that reference and description do not depend on Aristotelian causation. What is interesting is that they did so while retaining a large part of the medieval theory of mental language and its semantic apparatus.

Let us turn then to Cartesian semantics. It may be reconstructed as built upon a series of definitions that culminate in the truth-conditions for categorical

propositions. The elements are contrived so that the resulting truth-conditions fit a formulation with roots in Aristotle: a universal affirmative is true if the subject and predicate "stand for the same". The "gentlemen of Port-Royal" impart a new reading to this formula by analyzing "sameness" in terms of *extension,* a technical term of their own coinage. It is this new notion that makes their "Cartesian semantics" distinctive because, unlike extension in modern logic, the Cartesian version is a relation among ideas.

The definition of extension is constructed in steps. Adopting a view of medieval nominalists, Arnauld and Nicole understand genera and species to be abstract ideas. Accordingly, the inferiority-superiority relation among species is understood as a relation among ideas. Extension is then defined in terms of this relation: the extension of a term in mental language is defined as consisting of all its inferior species.

This use by Arnauld and Nicole of the French é*tendue* and Latin *extensio* to refer to a collection of subordinate species is new to logic. In Latin philosophy *extensio* had always occurred as a technical term in physics used to mean the property that makes matter continuous,[8] and it continued to be used in this sense by Descartes and his followers in their physics and ontology where it describes the essential mode of matter.

Though the explanatory role and technical vocabulary of the second sense is new, the idea itself is not. A term's Cartesian extension in the terms of Aristotle's *Categories* is nothing other than the species that the term is truly "said of." Michael Thompson has recently argued that Aristotle himself understood the quantified subject term in a categorical proposition as ranging over the set of all species subordinate to the term. Thompson observes that when Aristotle asserts the particular affirmative *some animals are viviparous*, he does not give individuals like Helen and Penelope as instances. Rather he cites the species man, horse, and camel. Thompson argues that in its canonical form an I-proposition should be understood as *for some terrestrial life form S, the S is viviparous*. Likewise, he argues that when Aristotle asserts *some animals shed their front teeth, but there is no instance of an animal that loses its molars*, he will

not concede its falsity when faced with an actual denture wearer. He does not do so because it is a natural *species* he is "quantifying over," namely the species animal, not individual humans who wear dentures.[9] In a Cartesian context in which a species is understood as an idea, this quantificational range is nothing other than the term's Cartesian extension.

Though the *Logic* appears to be the first work in which the abstract noun *extensio* is used in its semantic sense, there are earlier uses of its cognates to refer to the species inferior to a genus, though these occur not in the statements of propositional truth-conditions, but in commentaries on Porphyry's use in the *Isagoge* of "more" when he says of a genus that it is "more of a collection" than its species.[10]

Duns Scotus, for example, uses the verb *extendere* to explain what Porphyry is saying about the relation of a genus to its species. He writes:

> … I say that [the reason why] a genus is [said to be] a greater [*magis*] universal is not because "greater" [here] speaks about the intension of its adjoined form, but rather because in a certain way it is "more" [*maior*] a universal because it is extended [*extenditur*] to more [*plura*], as a fourfold division is more numerous than a binary. Also as one most specialized species is not called more of a species than another, it is permitted that it may have more contained under it.[11]

Similarly Cajetan uses the adverb *extensive,* which he *contrasts* with *intensive,* to remark that *magis* is being used in this passage "extensively" rather that "intensively."

> To this it is briefly said that being "more [*magis*] a collective of many" can be understood in two ways. In one way intensively, and in this way a species is more of a collective because, being unified, it "more" forms a unit, as the quoted definition [i.e. of *human*] shows. The other way is extensively; and in this way the genus is "more" of a collective, because, as "a many", more [inferiors] fall under its unification than fall under the breadth of the species. Whence species and genus stand to one another as two generals one of whom has an army that is small but of a single mind, the other a large army but divided into factions. Porphyry thus was speaking here about an extensive collection, and therefore said that a genus is "more" of a collective.[12]

Toletus repeats the same commentary again describing the use of *magis* by means of the adverb *extensive.*[13]

The theoretical role of this new concept of extension is to serve as the key idea in the statement of truth-conditions for affirmative propositions. But before

we can see how this is done we must first delve more deeply into how mental terms related to the world outside the mind.

Like most logicians of their time, Arnauld and Nicole were realists.[14] On their view, the world consists of substances (material or spiritual) and their modes. Material modes, which all derive from the basic mode of corporeal extension (in the sense found in physics), are quasi-mathematical, like motion and figure. They determine a plenum of extended substance moving in vortices – a natural world rather unlike that of Aristotle's animals and plants classified by the Tree of Porphyry. Among the modes of spiritual substances are ideas, and in their version of the medieval semantics, these serve as terms in mental language. Because they are "forms" of the soul, terms as mental acts possess formal being. Because the Cartesian denied a causal link between the mental form and the material world, however, they could not appeal to the more usual causal account of signification to explain reference to objects outside the mind. Instead they made use of another device employed in medieval psychology to explain how concepts represent the world. According to this theory in addition to its being as a form of the mind, a concept, as an act of perception or understanding, is simultaneously an intentional object, or in the technical usage of the day it possesses objective being (*esse objectivum*).

Descartes also makes use of objective being, most famously in the ontological argument of *Meditations* III.[15] Arnauld's view, as detailed most completely in his essay *On True and False Ideas,* is that in both perception and thought what one understands (what is "present to" the mind[16]) is the idea as objective being. In the *Logic* the authors do not use the term *esse objectivum* as such, but rather make the same distinction using the somewhat awkward phrase "object as represented by an idea":[17] The more technical *être objectivement*[18] and *réalité objective*[19] occur in *On True and False Ideas.* Ontologically, objective being has no reality apart from the idea itself.

Medieval accounts of objective being varied widely and were developed over a long period of time.[20] One of the earliest clear cases is the view of Duns Scotus, who uses it to explain the object of God's understanding when he knows

a creature prior to its creation. What he knows is a concept as an objective being. Likewise Ockham in an early theory, which he later rejects, says that it is a concept as an objective being that is the object of knowledge when we know an abstract idea that is not realized by an object outside the mind. Peter Aureol similarly claims that it is an objective being that is the object of perception when we see an illusion that does not accurately represent what is outside the mind. Some like Suarez identified a possible being with an object of understanding in God's mind understood as a concept in objective being.

What is important in all these accounts for Cartesian semantics is the fact that as an objective being a concept comes with a descriptive content. In medieval accounts it is fair to say that a concept as objective being is understood as an exemplar because it literally possess modes. As such, it can be said to represent something outside the mind because it is literally similar to it by instantiating the very same mode or modes. Accordingly, concepts as objective beings were allotted the role of "object of understanding" and "object of perception" in representational accounts that reject direct perception.[21] By and large medieval philosophers, however, remained committed to Aristotelian psychology and versions of direct perception, and appeals to objective being in representational accounts were the exception. The distinction between the formal and objective being of concepts, however, was widely enough recognized that it was included in the standard lore about concepts detailed in the encyclopedic logic summaries known to Descartes and Arnauld, and which seem to be their source for the idea.[22]

The Cartesian notion of objective being, however, is somewhat different and in an important way more abstract. Arnauld certainly and probably Descartes rejected representationalism, subscribing instead to a version of direct realism in perception – indeed the falsity of representationalism is one of Arnauld's main claims in his famous dispute with Malebranche. The Cartesians did not believe that ideas possess, in any sense, modes shared with material substances – to do so would violate their dualism. Accordingly ideas for them could not be literally similar to objects outside the mind, and could not be

representatives or exemplars defined as such by appeal to a relation of similarity.[23] Arnauld and Nicole nevertheless maintain that associated with an idea is a "content" understood as a mode or modes. In this sense understanding an idea is not the same as it is for Malebranche who holds we "see" an abstract idea with its properties. Rather understanding an idea is simply the understanding of the mode or modes in the idea's content, the way you might understand life insurance or non-finite axiomatizability – cases in which it is not plausible to think there is some "object" abstract or otherwise that is there to be "looked at".

As Arnauld and Nicole explain, an idea "contains" (*contenir*) and "encloses" (*enfermer)* modes. This "content" is called the term's comprehension. Unlike the modes of possible or actual beings, however, the modes contained in objective being are intentional. Objective beings also vary in abstractness. Though we perceive an individual with the full panoply of sensory properties, when we think of an idea, its content is more limited. Indeed, the *Logic* explains abstraction (*abstraction, précision*) as a process of "selecting out" (*considerer sans faire attention à*) the modal content of perceptual experience[24] to form ideas with a simpler content or comprehension.[25]

It is a term's comprehension, its associated collection of modes, that determine its signification. Consider the case of the term *man.* Its traditional definition, *mortal animate living material substance*, details a list of progressively more general modes that form its essence and determine what the term stands for. It is from standard cases like this that Arnauld and Nicole abstract to nouns and adjectives generally. Each term has a comprehension that consists of modes that inhere in objects that are generally outside the mind. Because these objects are external to the mind, the modes link the idea to the world, and hence serve to define a term's signification.

The full theory posits that there is a grammar to mental language. Mental terms fall into two kinds: substantives (nouns) and adjectives. Nouns in turn are either simple or complex. Simple nouns are either innate or formed by abstraction. Arnauld and Nicole also allow for complex noun-phrases as in

medieval logic. A complex noun phrase is understood to be a mental mode constructed from a simple noun and adjective by the grammatical operation called restriction (*determination*): the "complex noun" *SP* is formed by affixing an adjective (or relative clause) *P* to a noun *S*.[26] Adjectives are simple.

Comprehensions vary according to this grammar and according to whether a term is simple or abstract. The comprehension of a simple innate idea is fixed by nature and Providence. That of an abstract simple noun consists of the abstracted mode or modes necessarily associated with them through abstraction. The comprehension of a complex noun *SP* is the combination or, as we would say, the union of the comprehensions of *S* and *P.*

The signification of a noun-phrase may now be defined in terms of comprehension: a noun-phrase signifies all objects that possess all the modes in its comprehension.[27] A proper noun signifies a single individual, and as in Aristotle it is possible for nouns to signify individuals in any of the Aristotelian categories, either substances or modes.

As in medieval semantics, the *Logic* refers to adjectives as connotative terms. According to the tradition a connotative term is one that may be paraphrased by two nouns, first by an abstract noun that signifies a kind or species, and second by the name of a mode that inheres in things of that kind. Ockham's example is *white,* which is paraphrased by (has as its "nominal definition") *some thing informed with whiteness.*[28] The connotative term is said in the *Logic* to primarily signify the significata of the kind term and secondarily a mode, and the associated mode. It is the adjective's associated mode that constitutes its comprehension. (In modern logic we would say that the kind term makes explicit the adjective's "type" or significance range.) Both the kind and mode associated with an adjective are fixed by nature as a feature of mental language. The kind is prior to the mode because in standard substance-mode ontology substances are ontologically "prior" to modes that inhere in them. An example given in the *Logic* is *prudent*, which is implicitly associated with the kind term *man* and the modal name *prudence.*[29]

The authors of the *Logic* also refer to the signification of a connotative term as relatively more or less confused. In medieval semantics *confused* is synonymous with *general* or *universal* (*universalis*), and the determinate-confused distinction is used to contrast concepts according to the breadth of the possible objects they signify.[30] Relative to one another, the term *Brunellus* is more distinct or determinate than the term *donkey,* and *donkey* is more confused than *Brunellus,* because *donkey* signifies a broader range of possible objects than *Brunellus,* which in fact is totally determinate because it signifies a unique individual.

In the *Logic* this distinction is applied to adjectives. An adjective confusedly signifies the significata of its associated kind term. It does so because the signification of the kind term, which is abstract and signifies a broad range of objects, is confused in a prior sense. The adjective signifies distinctly the significatum of its associated modal noun because that noun is proper and signifies a unique mode. Within this general theory of signification there are several additional details that bear directly on the issue of existential import.

First, the *Logic* is very generous in its conception of species. It counts any genuine abstract noun-phrase, including those formed by restriction, as a species, and hence it counts as species many nouns that would not count as such in Aristotle's metaphysics.[31] The *Logic*, nevertheless, continues to apply the traditional terminology of the predicables to this more generous notion of species.[32] A mode is *essential* if it falls in a noun's comprehension; it is a *proprium* if it is non-essential but necessarily true of those entities that satisfy its comprehension; it is *accidental* if it is true but not necessarily true of some entity. The traditional terminology, however, should not obscure the fact that the natural world presumed by the Cartesian semantics is rather non-Aristotelian. It is an extensional plenum informed by quasi-mathematical modes, any possible combination of which qualifies as the comprehension of a species. The species cited in the *Logic* are, in fact, strikingly unlike the biological examples common in Aristotle. The author's examples of material species, i.e. of abstract nouns signifying material objects, include: *body, transparent body, motion, time, even*

number, odd number, prime number, line, triangle, equilateral triangle, right triangle, quadrilateral, trapezoid, parallelogram, chiliagon, cube, pyramid, cylinder, rational animal, prudent person, knowledgeable person, sun, moon, and *star*.[33] This Cartesian world of mathematized matter is more like that of modern physics than the common sense world of macro-sized animals and plants described by Aristotle's essentialism. Within its framework the *Logic* nevertheless succeeds in representing the diminished importance of the Aristotelian essence-accident distinction. It does so not by rejecting essentialism as false in the manner of Quine, but by diluting it to triviality. Species do not differ from "arbitrary sets" because every well-formed abstract noun has a comprehension and, in this sense, has an essence. Species therefore include groupings like *prudent person,* which Aristotle would regard as accidental.

It should be remarked that although Arnauld and Nicole avoid Aristotle's essentialism, their account has oddities of its own, especially when combined with a commitment to knowledge as awareness. If understanding an idea consists of being conscious of its content, then when we cognize an idea, we know its essence, or, to use alternative terminology, we know its real definition. Because this knowledge is a variety of direct awareness, it is *a priori*, even if the idea is itself abstracted from sensation. Moreover, if an idea *S* "contains" a mode *M*, the proposition *S is M* is rightly called analytic. Hence, though Arnauld and Nicole do not use this terminology, they, like other rationalists, hold that we have *a priori* knowledge of real definitions and that these are analytic. Moreover, as we shall see below, the authors hold that if these ideas are experienced "clearly and distinctly", then a proposition predicating the content of the idea is true. This picture is a major departure from medieval semantics in which real definitions are regarded as empirical truths, which are often difficult to discover.

Second, the *Logic* makes very clear that proper names and singular term phrases count as noun-phrases. A singular term may serve as the grammatical subject of a singular categorical proposition. Indeed, the *Logic* espouses the seventeenth century view that a singular proposition is a special case of a universal.[34] Hence a singular term possesses a comprehension and extension.

Moreover, an abstract noun, like *pope*, can be restricted, e.g. *the present pope*, so that its comprehension signifies only a unique actual entity.[35] The extension of a singular term, to be sure, is a kind of degenerate case because it consists of only the idea itself, which signifies the unique individual that satisfies its comprehension. Thus, unlike Aristotle, who denied that a singular term has an essence or could be defined,[36] the *Logic* generalizes comprehension and essence to all noun-phrases including singular terms. Singular terms therefore count as species in a generalized Cartesian sense.

The final step in setting out the theory's core semantic ideas is the formal definition of extension. It is defined by signification, the reference relation. Species S_1 is said to be inferior to species S_2 if all the modes in the comprehension of S_1 are true of all objects that satisfy all the modes in the comprehension of S_2. The extension of S is then defined as the set of species inferior to it. Thus, a term's extension includes any species such that all the modes in the term's comprehension are true of all entities that satisfy the species' comprehension. Nouns may either signify substances or other modes, e.g. *earth* or *heat* (aka *hotness*).

It may be remarked that there is a systematic relation between the Cartesian and the modern notions of extension. It follows from the definition of the Cartesian sense that the extension of any noun literally includes all true singular terms inferior to it, i.e. it includes any singular term with a comprehension that is true of any actual entity that satisfies the modes in the noun's comprehension. Thus, there is a sense in which the *Logic*'s Cartesian extension, which consists of ideas, incorporates the referential notion of extension found in modern logic: there is a 1-1 mapping that pairs an object in a term's modern extension with that singleton species in its Cartesian extension that has that entity as its sole signficatum. It then follows directly from the definitions that sameness of Cartesian extension must be a relation of ideas, but because extension is defined in terms of signification, it also follows that sameness of Cartesian extension entails sameness of extension in the modern

sense. As we shall see shortly, it is this pairing that insures a genuine correspondence theory of truth.

Given the concept of extension in its Cartesian sense, we may now state the truth conditions for affirmative categoricals as they are explained in the *Logic*, Book I, vxii. The conditions for both the universal and particular affirmative are formulated as identity statements:

> …the nature of affirmation is to unite and identify…[37]

This identity is one of extension:

> …it is the nature of affirmation to put the attribute in everything expressed in the subject according to its extension in the proposition.[38]

The relevant extension of the predicate (*attribut*) is determined by the subject:

> Thus because affirmation puts the idea of the attribute in the subject, it is properly speaking the subject that determines the extension of the attribute in the affirmative proposition. The identity it indicates takes the attribute as restricted to the extension equal to that of the subject…[39]

Here "determinate" is understood in its medieval sense of "less general". The operation that limits the extension of the predicate is restriction. As defined earlier, restriction is a grammatical operation that joins an adjective to a noun to form a noun-phrase that has as its comprehension the union of the comprehensions of the noun and adjective. As the authors describe restriction for an A-proposition, it is the subject *S* that restricts the predicate *P*. Hence in this application it is the subject that is understood in the role of adjective, which as a connotative term would signify secondarily the modes in its comprehension. Because the comprehension of the complex noun *SP* is the union of those of *S* and *P,* its extension will be a restricted subset of that of *S* and *P.*

In addition to the identity of extension, we must add an implied secondary condition. This is necessary in order to retain the standard inferences of the Square of Opposition in which A-propositions entail I-propositions, both understood as possessing existential import. To be added is the condition, which was standard in the logic of the period, that the subject term of true affirmatives must be non-empty. This is a substantive requirement, and its inclusion as part of the interpretation of Port-Royal Logic is somewhat controversial. For the purposes of exposition let us postpone for the moment the interpretive argument

showing why it was required by Arnauld and Nicole. With the understanding that we will return to the issue of non-empty terms below, we may state the truth-conditions for the universal affirmative as follows:

> *Every S is P* is true iff the non-empty extension of *S* is identical to that of *SP*.

If *Ext* is the operation that assigns to each term its extension, the conditions may be expressed in a more modern notation as:

> *Every S is P* is true iff, $Ext(S) \neq \varnothing$ and $Ext(S)=Ext(SP)$.

Because of the 1 to 1 correspondence noted earlier in the paper between the modern and Cartesian notions of extension, the universal affirmative is true if and only if *Ext*(*S*) is included in that of *Ext*(*P*), as in the equivalence in modern set theory between $A=A\cap B$ and $A\subseteq B$. It also follows that the *Logic*'s truth-conditions are essentially equivalent to George Boole's representation of an A-proposition in terms of sets as *a=ba.*

From a modern perspective there is an odd consequence to this analysis of universal affirmatives as conceptual identities between ideas. Since as terms in mental language the subjects and predicate of a true proposition are literally identical, it follows that for any given subject, all true propositions predicated of that subject in mental language – regardless of any defference in the verbal form of their predicates in speech – posses in mental language literally the very same predicate, namely the subject-idea.[40] Hence the ideas identified with the subject in *every man is rational, every man breathes, every man is risible, every man is a descendent of Eve* are the same, and hence the propositions formed from these ideas must also be the same. It seems that not only do *Scott is the author of Waverley* and *Scott is Scott* express the same proposition, but so do any true propositions with the same subject.

How then would the *Logic* explain differences in "information content"?" The only explanation that seems available might be that on different occasions of thought the same mental act may come about by different acts of restriction and in this sense on different occasions have distinct generative histories – grammatical trees in modern terms. Thus if you assert to me *every S is P*, I learn

that you think that if I form the idea with the content of *S* and that with the content of both *S* and *P,* then those two will extend to the same species in the sense that a species *S′* signifies only entities that *S* signifies if and only if *S′* signifies only entities that the restriction of *P* by *S* signifies. God presumably would be an exception since his ideas are fixed and ungenerated. For him all true propositions about *S* would have the same content, namely *S.*

The *Logic* is somewhat less precise in its statement of the truth-conditions for the particular affirmative. This much is clear. We have been told in the passage quoted above that like the universal case the particular affirmative asserts the identity of two ideas. As the authors explain, in this case too the two ideas are formed by restriction:

> So in particular affirmative propositions, for example, when we say "some people are just": the subject and the attribute are both particular, since the subject "people" is particular by the mark of particularity added to it. The attribute "just" is also particular, because its extension is restricted by that of the subject, and so it signifies merely the justice found in some people. [41]

This passage tells us that the predicate *just* is restricted by the subject *people.* Unlike the universal case in which the predicate would be restricted by the whole of the subject, in this case it is restricted so that it signifies only some of the entities signified by the subject. At one point the authors explain that restriction "can be done in two ways" [*se peut faire en deux manières*]:

> Now the extension of a general idea can be restricted or narrowed in two ways.
> The first is by joining another distinct or determinate idea to it, as when I join the idea of having a right angle to the general idea of a triangle. Then I narrow this idea to a single species of a triangle, namely the right triangle.
> The other is by joining to it merely an indistinct and indeterminate idea of a part, as when I say "some triangle." In that case the common term is said to become particular because it now extends only to a part of the subjects to which it formerly extended, without, however, the part to which it is narrowed being determined.[42]

It is the second way of restriction that is employed in the truth-conditions for an I-proposition. Here the predicate is restricted by an "indistinct or indeterminate idea" formed from the subject – the *some triangle* of this example or the *some people* of the example above.

Jean-Claude Pariente has interpreted this text as positing a second *sui generis* variety of restriction used in the truth-conditions for I-propositions that is different from the restriction operation that is used to form complex ideas

generally, which is also employed in the truth-conditions of A-propositions. This second restriction, he suggests, operates on an idea – in this case the subject – to form a new "indeterminate or indistinct" idea. The predicate is in turn restricted by this indeterminate idea, and the proposition is true if the indeterminate idea is identical with the restriction of the predicate. [43]

The authors of the *Logic*, however, do not define or give examples of either a second restriction operation or a new category of "indeterminate" ideas. These phrases occur only in the passages quoted. I would like to suggest a simpler interpretation that does not require new distinctions.

Aristotle sometimes explains why an I-proposition is true by ecthesis, the "setting out" of a species that is a subspecies of both the subject and predicate.[44] If two terms can be restricted so as to form a common species, then their extensions are identical, and the corresponding I-proposition is true. Arnauld and Nicole suggest that an I-proposition be understood in just this way. As they put it, the extension of the predicate is determined or restricted by "a part" of the subject:

> If the subject is particular, the attribute is conceived only in a part of the extension of the subject.[45]

The authors indicate what they mean here by the phrase "conceived of only in a part of the extension." They use the same phrase in an adjacent text to describe the restriction of the predicate in the truth-conditions of the universal affirmative.[46] As they use the expression to explain the A-proposition, "to be conceived in a part of the extension" of *a* term *P* means simply that a new idea *SP* is formed from *P* by restricting it in terms of a second idea *S,* with the result that the extension of *SP* is included in that of *P.* Partial-conception in the truth-conditions for an I-proposition should be understood in the same way. As in the case of a true A-proposition, two ideas are identical. In the case of a true I-proposition, however, the first idea is the partially conceived subject term, and the second is a restriction of a predicate by this partially conceived subject.

Which ideas are appropriate for this restriction? Normally it would be some species in the extension of the subject. In a given case a suitable term

may be implicit from the context[47], similar to the way that a connotative term has implicitly associated with it a kind term that specifies the range of application. However, all that is required for a statement of the truth-conditions is that there be some term that meets the relevant conditions.

Why do the authors call the restricted subject in this case “indefinite or indistinct”? The way to understand “indefinite” here, I suggest, is as a higher-order property. It is not that the idea in terms of which the predicate is restricted is itself indefinite. The extension of both the subject and its restricting subspecies may or may not be broad. Their extensional scope is irrelevant so long as they are non-empty. Nor need we appeal to any restriction operation other than the single operation that has already been mentioned, namely that used in the formation of noun-phrases generally and in the interpretation of A-propositions. Rather “indefinite” is to be read as a true second-order description of the meta-name for the class of species relevant to the subject’s restriction; i.e. *indefinite* is a meta-adjective that is true when it modifies the meta-name *suitable idea in terms of which the restriction is preformed.* It is that second intention that is indefinite, or in the medieval sense “confused”. It is so because any number of ideas could serve that purpose of restricting the subject so long as it is a subspecies[48] of the subject term. In the examples quoted, then, *some people* is short for the metalinguistic expression “some term in the extension of *people*”*,* and “restriction by *some people*” means “restriction by some term in the extension of *people*”

Before stating the truth-conditions formally, we must also note again that the terms mentioned in the truth-conditions must be non-empty. Not only is this requirement necessary to insure that I-propositions with false ideas as subjects are false, it is also required to coordinate syllogistic inferences with A-propositions. As previously stated, A-propositions have a similar clause requiring non-empty terms, and the *Logic* validates subalternation.[49]

With these understandings we may state the truth-conditions for an I-proposition in general form:

> *Some S is P* is true iff the restriction of *S* by some term has the same non-empty extension as the restriction of *SP* by that term.

In the idiom of modern metatheory this would be expressed in terms of the existential quantifier:

> *Some S is P* is true iff, for some *T, Ext*(*TS*)$\neq \varnothing$ and *Ext*(*TS*)=*Ext*(*TSP*).

Because of the correspondence between the modern and Cartesian notions of extension, this analysis is similar to George Boole's representation of an I-proposition as *ax=bax* in which the variable *x* serves the role of restricting the set-theoretic extensions of both the subject and predicate.[50]

To complete the statement of truth-conditions, it is necessary to state those for negative propositions. For our purposes here it is sufficient to remark that the *Logic* stipulates that the universal negative is the contradictory of the particular affirmative, and the particular negative of the universal affirmative.[51]

Let us now turn directly to the issue of whether the truth-conditions for true affirmative propositions should be formulated so as to require that the subject terms be non-empty. The key interpretive argument we advanced here is that the requirement of non-empty terms is entailed by the *Logic*'s doctrine of false idea and the correspondence theory of truth it presupposes. Both false ideas and truth as correspondence are required by Descartes' epistemology. Of central importance to understanding Cartesian epistemology is the relation that comprehension bears to propositional knowledge. It is this link that ultimately entails the requirement of existential import for affirmative propositions.

Explaining the relevant epistemology requires a discussion of the operations of the soul. Unfortunately, by modern standards Descartes and his followers do not do a very clear job of explaining the relations among the various mental acts of conceptualization, judgment, and reason. These relations, however, especially that between, on the one hand, clear and distinct conceptualization and, on the other, warranted judgment, are central to their epistemology. This much is clear: the act of being mentally "aware of" the content of an idea – of "understanding" the idea in an abstract sense as an objective being – entails propositional knowledge. The relation can be

formulated as a rule: if an agent conceives an idea *S* with modal content *P* clearly and distinctly then he is warranted in asserting the proposition *S is P*. In the *Logic'*s words:

> everything that is contained in (*contenu dans*) the true idea of a thing (i.e. in the clear perception that we have of it) can be truthfully asserted (*affirmé*).[52]

By modern standards what is unclear are the details of act individuation among the related mental acts of conception, proposition formation, judgment (i.e. assertion and denial), and reasoning. Medieval logicians, in contrast, clearly maintain that these acts are distinct, and have views on the details of their relations. Ockham, for example, holds to a part-whole theory in which concepts can be parts of one another, and these in turn parts of propositions. Buridan, in contrast, denies that propositions have parts but holds that acts of conceptualization are necessary conditions for and ontologically prior to acts of judgment.[53]

Though Descartes and the Port-Royal logicians are silent on the criteria for individuating mental acts in general, when they are careful, they too distinguish among conceptualization, judgment, and reasoning. What is unclear is the difference between, on the one hand, the act of being conscious clearly and distinctly of the idea S with content *P* and the act of knowingly asserting the proposition *every S is P,* on the other. The issue is complicated by the *Logic*'s doctrine that a true universal affirmative is to be understood as an identity assertion. On this view the different predicates said of the subject *S* cannot be used to differentiate the various propositions in which *S* is the subject because it is literally the case that every proposition true of *S* simply identifies *S* with the same idea, namely *S* itself. To distinguish among the clear and distinct conceptualizations of the subject and predicate, and the propositional act that identifies them, it would help to have some account of how the various acts involved in their grammatical construction differ from one another. On this topic, however, the *Logic* says little.

When the authors are careful, they write as if there are two distinct mental acts: clear and distinct perception of an idea *S* as *P* and affirming with epistemic

warrant the proposition *every S is P*. Indeed the authors begin the *Logic* by distinguishing among four mental acts.[54] They draw a tripartite distinction, common in medieval logic, among conception (to conceive, *conçevoir*), judgment (to judge, *juger*, i.e. to either affirm or deny), and reasoning (to reason or deduce, *raisonner*). To these they add a fourth distinction, which was common in 15th and 16th century logic, the methodological organization of knowledge (to order, *ordonner*). In drawing these distinctions, the authors explain that the proper object of conception is an idea, that of a judgment is a proposition (i.e. the judging of one idea that it is or is not another idea), and that of reasoning is a series of related judgments in which one judgment is formed or concluded (*former, concluir)* to be true as a result of judging others to be true.

On the other hand, the authors often write less precisely using terms for one sort of act that strictly speaking should apply to others. They use *to conceive, to contain,* and *to signify,* which are properly appropriate for conception, in contexts that describe propositional assertion and even steps of logical reasoning.[55] Conversely, they use terms appropriate to judgment and reasoning to describe conceptualization.[56] Indeed, the fluid relations among conceptualizations, judgments and acts of reasoning – Jill Buroker has remarked that for Descartes conceptualizations and propositional acts "shade into" one another[57] – are related to Descartes' understanding of logical inference, which is rather different from that of modern logic and seems to be shared by Arnauld and Nicole. In their view a step in a deduction is a transition from a state of understanding one idea clearly and distinctly to a second state of understanding another idea clearly and distinctly. Being clear and distinct, moreover, each step of the reasoning process consists of a state of knowledge that is independently warranted in its own right[58]

For our purposes here it will suffice to note that the relations among these acts is very close, and that a clear and distinct idea of *S* as *P* entails knowledge that *S* is *P*. The contrapositive is also important: if I assert *S is P* but am mistaken – if I fall short of knowledge – then I do not have a clear and distinct

idea of *S* as *P*. What is important to our semantic investigation here is that this sort of knowledge and error has implications for the existential import of ideas.

Consider knowledge first. If an idea is perceived clearly and distinctly, the propositional act is said to qualify as certain or "scientific" knowledge. Quoting Descartes with approval, Arnauld writes

> …he understands the word 'idea' in the proposition that 'everything that I perceive clearly as being in the idea of a thing can correctly be asserted of that thing [*tout que je vois clairement être enfermé dans l'idée d'une chose, eut avec vérité être affirmé de cette chose*],' which he claims, with good reason, to be the foundation of all the natural sciences. If, examining the idea that I have of a triangle (by reflecting on the perception that I have of it), I find that the equality of its three angles to two right angles is contained in [*est enfermé dans*] this idea or perception, I can correctly assert that every triangle has three angles equal to two right angles[59]

The case of error is more complex, and it is this that has implications for the semantics of existential import. In error, as the *Logic* explains, the proposition-idea entailment typically works in its contrapositive form: propositional error leads to the formation of defective ideas. The *Logic*'s epistemology uses this relation to explain why people commonly believe that sensory qualities affect the mind. The explanation proffered has a general form. We form the habit of judging the proposition *S is P*. This habit in turn leads us to form the complex idea *SP* by combining the subject and predicate. If the proposition is false – for example *fire causes pain* – the corresponding idea, e.g. *corporeal pain,* is false or even confused.

Though in modern semantics truth and falsity are understood as properties of sentences or propositions rather than of terms or ideas, the notion of a true or false idea has a long history in traditional logic, and requires some explanation here.

In medieval semantics truth and falsity are properties that inhere in mental acts like sensations or concepts, but only because they inhere in a prior way in propositions. Aristotle, for example, refers to sensations as true or false[60], but he does so only because in a more basic sense acts of composition or assertion, and of division or denial are true or false:

> For falsehood always involves a synthesis; for even if you assert that what is white is not white you have included not white in a synthesis. It is possible also to call all these cases division as well as combination. However that may be, there is not only the true or false

> assertion that Cleon is white but also the true or false assertion that he was or will be white. In each and every case that which unifies is mind.[61]
>
> Imagination is different from assertion [*phaseōs*] and denial [*apophaseōs*]; for what is true or false involves a synthesis of concepts [*noēmata*]. In what will the primary concepts [*noēmata*] differ from images [*phantasmata*]?[62]

In his view thoughts, even non-referring terms like *goat-stag*, are not true or false until they are used in propositions:

> Nouns and verbs, provided nothing is added, are like thoughts without combination or separation; 'man' and 'white', as isolated terms, are not yet either true or false. In proof of this, consider the word 'goat-stag.' It has significance, but there is no truth or falsity about it, unless 'is' or 'is not' is added, either in the present or in some other tense.[63]

The two-stage application of truth and falsity first to propositions and then concepts became standard in medieval semantics. In *De veritate*, for example, Aquinas explains the more basic role of propositional truth this way.

> Just as it is said that the true is found in a more prior way in the intellect than in things, so also is it to be found more in the intellect's act of putting together and dividing than in its act of forming the quiddity of things.

At the same time, however, he acknowledges the secondary usage in which a definition or a "composite thought" (*ratio compositionis*) is true or false. He cites as an example of a false definition *insensible animal.* He explains that it is false because the corresponding proposition *animal is insensible* that affirms one term of the other is false.[64]

The *Logic*'s account of error in terms of false ideas derives from Descartes, who in *Meditation* III includes false ideas as a sub-variety of factitious ideas, which is what he calls a complex idea of our own composition. In his usage a false idea is one that fails to be "like or to conform to things that are external to us" or that fails to be "an idea of a real object".[65] He wonders about the composition of the ideas *heat* and *cold*, whether *heat* is a composite from *negation* (*privation*) and *cold*, or cold from *privation* and *heat*. When construed as containing in addition the idea *caused by the external world*, both ideas are false.

Arnauld and Nicole appeal to false ideas to account for vulgar beliefs generally. In their account defective ideas fall into two types. The first and more

general is called simply a false idea. This is a complex idea with a comprehension that consists of modes that are jointly true of no actual object.[66] Some false ideas are possible in the sense that they contain modes that could be instantiated, for example *gold* and *mountain*; the *Logic* numbers objective beings of this sort – again using medieval terminology – among *beings of reason.*[67]

A second and more grievously defective type of idea has a comprehension consisting of modes that cannot possibly be instantiated. In the *Logic*'s technical vocabulary such an idea is called *confused*. Its modes may contain a logical contradiction or simply a metaphysical impossibility. Vulgar beliefs that attribute to the same subject a material mode like *has a material cause* and a mental mode like *is suffering pain* generate confused ideas of this sort because they describe an impossible content. It is impossible for the propositions *S has a material cause* and *S is suffering pain* to be jointly true. Examples of confused ideas that result from habitual false judgment include *corporeal pain, heat caused by fire, gravity*, and *happiness caused by material wealth*.[68]

The motivation for calling such ideas "confused" comes from a rather specialized and uniquely Cartesian application of the standard distinct-confused distinction from medieval semantics. According to this distinction a concept with broader range of signification is more confused and less distinct than one with a narrower range. When applied to defective ideas, however, this distinction is used in combination with another.

Medieval semantics and in like manner the Port-Royal Logic distinguish in addition between first- and second-order concepts. In its normal use the spoken word, for example, *donkey* is associated with the concept *donkey* which signifies things outside the mind, as in the proposition *Brunellus is a donkey,* but any word also has a second-order use in which it stands for an idea that signifies mental entities like other ideas, as in the sentence *donkey is a species.* A concept that signifies things is said to be a first intention and one that signifies ideas that in turn signify things is a second intention.[69]

In medieval semantics the determinate-confused distinction is normally applied to primary intentions. Relative to one another the concept *Brunellus* is more distinct or determinate than *donkey* and *donkey* is more confused that *Brunellus* because *Brunellus* signifies a narrower range of possible objects than *donkey.* If a term is completely determinate, like the proper noun *Brunellus,* it signifies a unique individual.

When the Cartesians apply the determinate-confused distinction to false ideas, the distinction is applied to ideas in second intention. A term in second intention that signifies ideas is confused if it signifies multiple ideas, and it is totally determinate or distinct if it signifies a unique idea. (Strictly, it is not correct to call a confused second-order idea ambiguous because such an idea does not signify one idea in one context and a different idea in a second context. Rather, it is confused because given its unambiguous signification, it signifies multiple ideas.)

This rather careful distinction is applied by Descartes, and by Arnauld and Nicole, to the false ideas of vulgar opinion. The complexes *rational animal* and *golden mountain* are false, but in the Cartesian use they are not called confused. Though false they are nevertheless well-formed complex ideas. Each describes a possible though non-actual object because the comprehensions of its parts are mutually compatible. The new complex is a well-formed abstract noun. Because this idea is unique, its second-order name[70] has determinate signification: “the idea *rational animal*” and “the idea *golden mountain*” each signifies a unique idea.

The idea *corporeal pain*, on the other hand, is a defective complex. The abstract nouns *body* and *pain* do not succeed in forming an abstract combination because the comprehensions of its component ideas *body* and *pain* fail jointly to describe a possible object. Ontologically the two sets of modes are necessarily disjoint. Though we might try to combine the ideas, the effort is futile. At best, we can form the second-order name “the idea *corporeal body*”, but this would necessarily be a confused idea in the technical sense. Its signification ranges over two different ideas. Though it is a well-formed name in second intention – it

is an idea signifying ideas – it fails to be determinate. This second intention, therefore, signifies confusedly.[71]

It remains to explain which among the ideas that describe possible objects are true and which false. As a general rule there is a correlation between objective being and possibility: there is an idea *S* with modal content *P* (in at least God's mind) iff the proposition *every S is P* is possibly true.[72] However, from what has been said so far, it is perfectly possible that the content of our idea fails to signify anything actual. It is possible that this idea fails to refer.

The theoretical commitment that insures the existential import of an idea with objective being is the *Logic*'s particular version of occasionalism.[73] On the authors' view, an undeceiving God would not allow the mind to possess an innate idea of a being, or to have a perceptual experience of one, if that being did not exist in the actual world.[74] It follows that the content of simple ideas, both those that are innate and those that are abstracted from perceptual experience, is actually realized in existing things.[75]

Like Descartes, the Port-Royal logicians hold that it is possible to distinguish in mental experience between those ideas that are distinct but false and those that are distinct and true: the criterion is clarity. Here *clarté* seems to be like Aquinas' *claritas,* a subjective property of ideas that enables conscious experience to occur, just as light enables vision.[76] Just as we are able to see an object only when it is illuminated by light, so we are able to be conscious of the content of an idea only when it possesses clarity. On this view, God has set up the world so that only distinct ideas that are true are experienced as clear.[77] This particular epistemic or psychological view has implications beyond semantics. What is important here, however, are the implications of the doctrine of clear and distinct ideas for existential import.

According to the theory, clear and distinct ideas are true and warrant knowledge. Moreover, true ideas carry existential import and false ideas do not. This result follows trivially from the definition of a false idea as one that has content that is not instantiated in an actual object. The definition also entails the more interesting result that a true affirmative categorical proposition cannot be

composed of false ideas. It follows, for example, that *some golden mountain is gold* is true only if some subject is jointly golden and a mountain, a conclusion that would contradict the assumption that *golden mountain* is a false idea.

With this background we may address directly the issue of existential import. It follows directly from the truth-conditions for the universal affirmative and the earlier definition of false idea, that the terms of a true affirmative proposition carry existential import. The argument goes as follows. By definition, a false idea is one such that if it is affirmed universally of a subject, the proposition is false. But if a false term were the subject of any universal affirmative, its extension and that of the predicate restricted by the subject would both be empty and hence identical. The assertion would hence be true. That is, any universal affirmative with a false term as subject would be true. Hence, for any term, that term is the predicate of some true universal affirmative that affirms, according to its truth-conditions, a self-identity. Hence there is no false term. It follows that if a universal affirmative is true when the extension of the subject is identical to that of the restricted predicate with no further condition, and if the content of a false idea is false of every subject, then there are no false ideas. The same result may be expressed as a contrapositive: a universal affirmative with an empty subject term is false even though the extensions of the subject and restricted predicate are identical.

The argument may be formulated as a reductio. Suppose both that *every S is P* is true and that *S* is a false idea. It follows that *S* is true of no actual object. But the truth or falsity of an idea is a function of the truth or falsity of propositions. What proposition could it be in this case? Because the term is false of every object, any universal affirmative with *S* as its predicate must be false: for any term *T, every T is S* is false. Then by the definition of restriction, it follows that *SP* is false of every term. By the truth conditions for the universal affirmative, then, it follows for every *T* that *every T is SP* is false. Hence *every S is SP* and *every S is P* are false. Hence the original assumption that *every S is P* is true and *S* is a false idea has led to a contradiction.

False ideas, however, have an important place in the *Logic*'s Cartesian epistemology. Accordingly, to accommodate them within the theory, it is necessary to attribute existential import to true affirmatives.

It is instructive to note the unacceptable consequences of the opposite interpretation. If the truth-conditions for the universal affirmative were defined so as to be true when the extensions of the subject and predicate are empty and hence the same, the following counter-intuitive propositions would be true:

every square circle is an infinite being,
every dragon is a god,
every dragon is a square,
every dragon is a round square,
some dragon is a god,
some square circle is a square,
some square circle is a cube,
something is a round square.

It would also follow that any traditional contrary pair, like *round* and *square*, or *odd* and *even* could both be true of the same subject. It would also follow that *nothing is a square circle* is false.

As Jennifer Ashworth as shown, logical theory from the Middle Ages to the 17th century as a standard practice required that a true universal affirmative have a non-empty subject.[78] If the *Logic* had rejected this assumption, it would have been contradicting centuries of doctrine. However, nowhere does the *Logic* explicitly reject this practice, nor does it cite as true any example of a universal affirmative with an empty subject.[79]

Jean-Claude Pariente has advanced the contrary interpretation, namely that the truth-conditions for categorical propositions do not carry existential import.[80] His reasoning is that the truth-conditions do not carry existential import because they are formulated in terms of relations on extensions, which are relations among ideas, not things in the world, and that in principle ideas may be empty. What he fails to observe is that if A-propositions with empty terms are true, then there can be no false ideas. Since the *Logic* is committed to false ideas, its semantics must also be assuming, in common with the logic of the period, that the terms of a true affirmative are non-empty.

It should also be remarked that particular affirmatives with a false idea as subject term, like *some square circle is a cube,* are counter-intuitive indeed. Even first-order logic, which accepts as true universal conditionals with false antecedents, treats these existential cases as false. Indeed, it is hard to conceive of a rationale for a logic that would accept the truth of particular affirmatives with empty terms. But given that the *Logic* is committed to subalternation, it would follow that if the *Logic* were also committed to the truth of universal affirmatives with empty terms, these particular affirmatives with empty terms would also be true. Again, the *Logic* cites no examples of true particular affirmatives with empty terms. Nor need it be interpreted as doing so. As I have shown above, its logic of ideas is perfectly coherent while at the same time maintaining traditional commitments to existential import.

In conclusion, I hope I have shown in some detail that not only is the existential import of affirmative propositions consistent with the Cartesian semantics; the theory of false ideas requires it. Its epistemology and semantics are formulated in terms of ideas, to be sure, but the Cartesians were dualists, not idealists. Their commitment to occasionalism and the truth of clear and distinct ideas ground signification in actual objects, and as a consequence, an affirmative proposition is true if two conditions are met: its terms must be non-empty and it must correspond to the world.

Works Cited

——— (1976). *Commentarii collegii Conimbricensis e societate Jesu in universam dialecticam Aristotelis*. Hildesheim: Georg Olms Verlag [reprint of 1607].

Abelard, Peter (1994). From the "Glosses on Porphyry" in his *Logica ingrendientibus*. In Paul Vincent Spade (Ed.), *Five texts on the mediaeval problem of universals*. Indianapolis: Hackett.

Arnauld, Antoine (1990). Stephen Gaukroger (Trans.), *On true and false ideas*. Manchester: Manchester University Press.

Alanen, L. (1990). Cartesian Ideas and Intentionality. In M. K. L. Haaparanta, I Niiniluto (Eds.), *Language, knowledge, and intentionality : perspectives on the philosophy of Jaakko Hintikka***,** 344-369. Helsinki: Philosophical Society of Finland.

Arnauld, Antoine and Pierre Nicole (1996). Jill Vance Buroker (Trans.), *Logic or the art of thinking*. Cambridge: Cambridge University Press.

Ashworth, E. J (1996). Antonius Rubius on objective being and analogy: One of the routes from early fourteenth-century discussions to Descartes' third meditation. In *Meeting of the minds: the relations between medieval and classical modern European philosophy. Acts of the international colloquium held at Boston College, June 14-16, 1996 organized by the société internationale pour l'étude de la philosophie médiévale*.

Ashworth, E. J. (1973). Existential sssumptions in late medieval logic. *American Philosophical Quarterly, 10*, 141-47.

Auroux, Sylvain (1993). *La logique des ideés.* Montréal, Paris: Bellamin, Vrin.

Boole, George (1951). *An investigation of the laws of thought, on which are founded the mathematical theories of logic and probabilities*. N.Y.: Dover.

Boole, George (1948). *The Mathematical Analysis of Logic* [1847]. Oxford: Blackwell.

Brown, D. (2007). Objective being in descartes: That which we know or that by which we know? In H. Lagerlund (Ed.), *Representation and objects of thought in medieval philosophy* (pp. 135-153). Aldershot, Ashgate.

Buridan, John (1985). Peter King (Trans.), *Jean Buridan's logic: The treatise on supposition, the treatise on consequence*. Dordrecht: Reidel, 1985.

Buridan, John (1988). Question on Aristotle's *De anima* (third redaction). In John Alexander Zupko (Ed.), *John Buridan's philosophy of mind: An ddition and translation of book iii of his 'Questions on Aristotle's De anima (third redaction), with commentary and critical and interpretative essays* (pp. 288-312). PhD. Dissertation, Cornell University. Ann Arbor, MI: University Microfilm.

Buridan, John (2001). Gyula Klima (Trans.), *Summulae de dialectica*. New Haven: Yale University Press.

Buroker, Jill Vance (1993). The Port-Royal semantics of terms. *Synthese*, *96:3*, 455-475.

Caietanus, Thomas de Vio (1936). P. Isnardus M. Marega O.P. (Eds.). *Commentaria in Porphyrii Isagogen, ad Praedicamenta Aristotelis* scripta philosophica. Roma: Insitutum Angelicum.

Cronin, T. J. (1966). *Objective being in Descartes and Suárez*. Vol. 154, *Analecta Gregoriana*, *154*. Rome: Gregorian University Press.

Descartes, René (1897-1909). C. Adam et P. Tannery (Eds.). *Œuvres de Descartes*. 11 vols. Paris: Vrin.

Dominicy, Marc (1984). *La naissance de la grammaire moderne*. Bruxelles: Pierre Mardaga.

Duns Scotus, John (1987). Peter King (Trans.), Ordinatio II d. 3 p. 1 q. 1. Ms.

Duns Scotus, John (1999). *Quaestiones in librum Porphyrii Isogoge,* R. Andrews, O. Bychkov, S. Ebbesen, G. Etzkorn, Fr. G. Gál, Fr. R. Green, R., Plevano, A. Traver, R Wood, T. Noone (Eds.), *B. Iohannis Duns Scoti opera philosophica*. St. Bonaventure: Franciscan Institute.

Eustace-of-St.-Paul (1609). *Summa philosophiae quadripartita, de rebus dialecticis, moralibus, physicis et metaphysicis*. Paris.

Fonseca, Pedro da (1964). *Institutionum dialecticarum libri octo*. Vols. 1 and 2. Coimbra: Universidade de Coimbra.

Fonseca S.J., Petrus (1599). *Commentarii in xii libros metaphysicarum Aristotelis*. Frankfurt.

Garber, Daniel (1993). Descartes and occasionalism. In Steven M. Nadler (Ed.),*Causation in early modern philosophy* (pp. 9-26). University Park, Penn.: Pennsylvania State University Press.

Gaukroger, Stephen (1989). *Cartesian logic.* Oxford: Clarendon Press.

Karger, Elizabeth (1999). Ockham's misunderstood theory of intuitive cognition and abstractive cognition. In Paul Vincent Spade (Ed.), *The cambridge companion to Ockham* (pp.204-26). Cambridge: Cambridge University Press.

King, Peter (1985). *Jean Buridan's logic, The treatise on supposition, The treatise on consequences.* Dordrecht: Reidel.

King, Peter (2007). Rethinking representation in the middle ages: A vade-mecum to medieval theories of mental representation. In H. Langerlund (Ed.), *Representation and objects of thought in medieval philosophy* (pp. 81-100). Aldershot: Ashgate.

Kremer, Elmar and Denis Moreau (Eds.) (2003) *Œuvres philosophique d'Arnauld*. 6 vols. Bristol: Theommes Press.

Marenbon, John (1997). *The philosophy of Peter Abelard*. New York: Cambridge University Press.

Martin, John N. (2004). Ecthesis and existence in the syllogistic. In *Themes in neoplatonic and aristotelian Logic* (pp. 19-24). Aldershot: Ashgate.

Martin, John N. (2011). Existential Import in Cartesian Semantics. *History and Philosophy of Logic*. In press.

Nadler, S. M. (1989). *Arnauld and the cartesian philosophy of ideas.* Manchester, Manchester University Press.

Nadler, S. M. (1992). *Malebranche and ideas.* New York, Oxford.

Nadler, S. M. (Ed.) (1993). *Causation in early modern philosophy : Cartesianism, occasionalism, and pre-established harmony.* University Park, Pa.: Pennsylvania State Univeristy Press.

Normore, Calvin (1986). “Meaning and objective being: Descartes and his sources.” In Amélie Oksenberg Rorty (Ed.), *Essays on Descartes' Meditations* (pp. 223-242). Berkeley: University of California Press.

Ockham, Willam of (1974). Michael J. Loux (Ed. & Trans.), *Ockham's theory of terms: Part I of the summa logicae*. Notre Dame, IN: University of Notre Dame.

Ockham, Willam of (1981). *Reportatio,question XIII. Opera philosophica et theologica,* Book II. St Boniventure, N.Y.: Franciscan Institute.

Panaccio, Claude (2004). *Ockham on concepts.* Aldershot: Ashgate.

Pariente, Jean-Claude (1985). *L'Analyse du language à Port-Royal*. Paris: C.N.R.S., Éditions de Minuit.

Robert Pasnau (1997), *Theories of cognition in the later middle ages*. Cambridge: Cambridge University Press.

Raconis, M. de (1648) . *Totius philosophia, hoc est logicae, moralis, physicae et metaphysicae, brevis et accurata, facilisque et clara methodo disposita tractatio*. Paris.

Spade, Paul Vincent (2007). *Thoughts, words and things; An introduction to late mediaeval logic and semantic theory*. Ms. http://pvspade.com/Logic/docs/Thoughts,%20Words%20and%20Things1_2.pdf.

Suárez, Francisco (1856-1878). *Opera omnia*. Paris: Ludovicum Vivès.

Tachau, K (1988). *Vision and certitude in the age of Ockham.* Leiden: Brill.

Thompson, Michael. “The representation of life.” In Gavin Laurence, Rosalind Hursthouse, Warren Quinn (Eds.), *Philippa Foot and moral theory*. Oxford: Clarendon Press.

Toletus S.J., F. (1596). *Commentaria una cum quaestionibus in universam Aristotelis logicam*. Cologne.

Toletus S.J., F. (1985). *Cur de specie post genus & non de differentia egerit? Commentaria in universam Aristotelis logicam.* Wilhelm Risse (Ed.), *Opera omnia philosophica,* Vol I [Köln 1615/16]. Hildesheim: Georg Olms.

Wells, Norman J (1990). “Objective reality of ideas in Descartes, Caterus, and Suárez,” *Journal of the history of philosophy 28:1,* 31-61.

[1] This reaserch was made possible in part through the support of the Charles Phelps Taft Humanities Center, University of Cincinnati.

[2] See Pariente 1985, pp. 232-244.

[3] Buroker 1993 provides a useful summary account of the Port-Royal semantics in modern terms. Also relevant are Dominicy 1984 and Sylvain Auroux 1993, which repeat what I shall be arguing is Pariente's interpretation of affirmatives as lacking existential import. The specific goal of this paper is to explain in modern terms the radical shift in the analysis of reference (signification) and truth imposed by Cartesian dualism, and how this new theory nevertheless incorporates existential import even though truth is defined as a "relation among ideas." See also my paper Martin 2011, to appear in *History and Philosophy of Logic.*

[4] Because this account is a broad summary of the views of Arnauld and Nicole, I will cite the textual basis for only those interpretations that might be considered controversial or novel. *La Logique ou l'Art de Penser* will be abbreviated as *LAP,* and *Des vraies et des fausses idée* as *VFI.* The standard edition of Arnauld's works, which includes *LAP* and *VFI,* is Elmar Kremer and Denis Moreau, ed., *Oeuvres philosophiques d'Arnauld*, 2003, abbreviated *KM,* and that of Descartes is René Descartes, *Œuvres De Descartes*, ed. C. Adam et P. Tannery, 1897-1909, abbreviated *AT,* both cited by volume and page The standard English translation of *LAP* is Jill Vance Buroker, *Antoine* A*rnauld and Pierre Nicole*. *Logic or the Art of Thinking* 1966, abbreviated *B*, and that of *VFI* is Antoine Arnauld, *On true and false ideas*, trans. Stephen Gaukroger 1990, abbreviated *G.*

[5] Aquinas' theory of sensation and abstraction is found among other places in *Summa theologica*, p. I.1, q. 79,80,84, and 85. An excellent summary of the relevant medieval psychology of sensation and abstraction in Aquinas and others, and some discussison of its later incorporation into semantic theory see Pasnau 1997. On the implication of the rejection of the the causal account of signification to Descartes' adaptation of objective being as as an alterntive link of concepts to the world see Normore 1986 for an account of medieval semantics relevant to Descartes.

[6] See Aquinas, *Summa theologica*, p. I.1, q. 85, a. 2. On Ockham see the discussion of intuitive cognition, which presupposed direct realism, in Karger 1999.

[7] Suárez, Arnauld and Nicole clearly deny the possibility of Aristotelian transmission of modes from matter to the soul, and espouse a version of occasionalism to the effect that on the occasion of the instantiation of a material mode in the sense organs, God causes there to be an idea in the mind in which that mode occurs as an intentional "content". See *LAP* I,i, *KM* V, 132-33, *B* 29-30; I,ix, *KM* V, 157-78, *B* 49-50; I,xii, *KM* V,168-170, *B* 58-60; *VFI* Chapt. 6, *KM* I,204, *G* 71-71; Chapt. 27, *KM* I,349-50, *G* 208. On Suárez see *De anima* iv 2:13,17,18, and 4,1; *Opera* III,719,721,731; and the discussion in Cronin 1966. Descartes' official view seems to be similar. See *AT* 8b 358:20-359:12, and the discussion in Garber 1993.

[8] See, for example, Aristotle, *Physics*, *V,*3-4.

[9] See Thompson 1995.

[10] Descendentibus igitur ad specialissima necesse est diuidentem per multitudinem ire, ascendentibus uero ad generalissima necesse est colligere multitudinem (collectiuum enim multorum in unam naturam species est, et magis id quod genus est, particularia uero et singularia semper in multitudinem e contrario diuidunt quod unum est; participatione enim speciei plures homines unus, particularibus autem unus et communis plures; diuisiuum enim est semper quod singulare est, collectiuum autem et adunatiuum quod commune est). Isagoge [02] II. *De speciem* 12.

[11] Ad aliud dico quod genus non est magis uniuersale, quia "magis" dicit intensionem formae eius cui adiungitur , sed quodammodo maius uniuersale, quia extenditur ad plura, sicut quaternarius est maior numerus binario, non magis. Sicut etiam una species specialissima non dicitur magis species quam alia, licet habeat plura contenta sub se. III, 7-8.23. *Quaestiones in librum Porphyrii Isogoge, B.* 1999.

[12] Ad hoc breviter dicitur, quod esse magis collectivum multorum potest intelligi dupliciter. Uno modo intensive; et sic species est magis collectiva, quia magis unit adunata, ut ratio adducta probat. Alio modo extensive; et sic genus est magis collectivum, quia multo plura sub sua adunatione cadunt, quam sub speciei ambitu. Unde species et genus se habent sicut duo duces, quorum alter habet exercitum parvum, sed valde unanimem, alter exercitum magum, sed diversam factionum. Porhyrius autem loquebatur hic de extensiva collectione, et ideo dixit genus est magis collectivum. Caietanus, p. 56., *Commentaria in Porphyrii Isagogen, ad Praedicamenta Aristotelis*1936.

[13] Hic notandum est dupliciter aliquid posse dici magis collectiuum; ut notat Cajetanus: priori modo id quod est magis unum, quod dicitur magi collectiuum intensive; altero modo id, quod plura comprehendit, & sic dicitur magis collectiuum extensive: Iuxta hoc intellige minus universale esse magis collectiuum intensive; quia magis sunt unum quae in minus universali conveniunt quam que solum in magis universali: at magis universale est magis collectiuum extensive quia sub se plura continet; & sic loquitur Porphyrius. Caput II, p. 53. Toletus, *Cur de Specie post Genus & non de Differentia egerit?* 1985.

[14] The authors declare the existence of modes outside the mind at the outset of the *Logic* (*LAP* I.i, *VFI* Chapt 2*, KM* I,204, *G* 71-71), and dismiss the realism-nominalism controversy as one of various scholastic debates that are difficult and of little use, *LAP, Discours* 1, *KM* V, 112-113; *B* 9-10. A commitment to the existence of forms outside the mind was, for example, standard among the Conimbricences. See I.87 in *Commentarii collegii Conimbricensis* 1976 and IV.4.C in Fonseca, *Institutionum dialecticarum libri octo*, 1964.

[15] See also *Preface to the Meditations* § 4, and *Responses* 2a, *AT* 7, 161:7-9, 162:8-9, 166:14-16, 166:23-25, and 2ae, *AT* 7 161:10-13, 166:22-25.

[16] *VFI* Chapt 6, *KM* I,204, *G* 71-71.

[17] In the *Logic* the authors use: « *Tout ce que nous consevons est représenté à notre esprit ou comme chose, ou comme manière de chose, or comme chose modifiée* », *LAP* I,2, *KM* V,134, *B* 30.

[18] *VFI* Chapt 4; *KM* I,193, 198-199, 200-201; *G* 61, 66, 68.

[19] *VFI* Chapt 6, *KM* I,204, *G* 71-71.

[20] For a general account see Tachau 1988.

[21] For a survey of various views see King 2007.

[22] See the discussion in Wells 1990, pp. 31-61. Some of the 16th and 17th century sources that discuss objective being are: Toletus, *Commentaria una cum quaestionibus in universam Aristotelis logicam* 1598, q. I, pp. 3. 30 & 32; Fonseca, *Commentarii in xii libros metaphysicarum Aristotelis*. 1599, q ii, §§1; Eustace-of-St.-Paul*, Summa philosophiae quadripartita, de rebus dialecticis, moralibus, physicis et metaphysicis* 1609, p. 1. For a discussion of Descartes' sources see Cronin 1966.

[23] The interpretation that Descartes and Arnauld subscribed to direct realism is now widely shared. For Descartes see Alanen 1990) and Brown 2007. On Arnauld see Nadler 1989 and 1992. The case for Descartes' direct realism must contend with the fact that the argument in Meditation III for God's existence appears to depend on a version of causation as the transmission of modes. The interpretation requires that Descartes be committed to the rather baroque causal principle:

> the reality of a mode in the content of an idea's objective being must be as great as the reality of the mode in its cause,

rather than to the more straightforward version of modal transmission:

> the reality of the mode possessed by an idea as an objective being must be as great as the reality of the mode possessed by its cause.

To the extent that Arnauld accepts Descartes' argument (as he does in *Logic*), he too would have to accept the more complex version of the principle. Nothing in the semantics of the *Logic* actually turns on direct realism. The definition of signfication would work as well if comprehension were defined simply as the set of modes instantiated in an idea as an objective being.

[24] *LAP* I,v,xi; *KM* V,142-43,168-170; *B* 37-38,58-59; *VFI, G* Chapt. 6, 56-58, 98-100.

[25] *LAP* I,v.

[26] *LAP* I,viii. For medieval restriction see Buridan, *Treatise on supposition* 4.1.46-47 and 4.63, and *Treatise on consequence* 6.3.1 in Buridan 1985, and Book III, pp 286, 648, and 835 of *Summulae de dialectica* in Buridan 2001.

[27] *LAP* I,viii. *KM* V, 153; *B* 46.

[28] See "On Connotative and Absolute Terms," *Summa logica* I,10 in Ockham 1974. The *Logic* makes these distinctions in *LAP* I,ii.

[29] *LAP* I,ii. *KM* V, 135; *B* 32.

[30] See for example the following texts from Aristotle, Abelard, Aquinas, and Buridan: Aristotle, *Physics* I.1 184[a]22-24; Abelard, *In Isagogen* ed. Geyer, *Logica ingredientibus* L1.01 /21/-/29/

Aquinas, *Summa Theologica* p I.1 ,q. 85, a. 3 *Responsio*; Buridan, Question on Aristotle's *De anima,* line 95 ff., p. 291 ff.Buridan 1989.

[31] *LAP* I,vii. *KM* V, 146-7; *B* 44-41. 17th century logic as a rule subscribes to both mental language and realism, as did many later medieval logicians after Ockham and Buridan. Concepts, or ideas in the Cartesian context, do not serve as they do in nominalism as mental proxies for universals, but rather are mental terms (modes) that correlate with universals (material modes) that have independent existence outside the mind.

[32] *LAP* I,vii.

[33] Examples of proper names and singular terms are: *myself, God, Alexander son of Philip, the present Pope, the earth*. Examples of false ideas: *rocks* (that fall from gravity), *fire* (that burns), *wealth* (that makes us happy), *corporeal pain, colored rainbow, bent stick in water*.

[34] *LAP* II,iii, *K V,*199, *B* 84; *LAP* III,ix, *K V,*278, *B* 160.

[35] *LAP* I,viii, *KM V,*151-152, *B* 44-45.

[36] *Metaphysics* VII.

[37] *LAP* II,xvii, *KM* V,247, *B* 129.

[38] *Ibid.*

[39] *LAP* II,xvii, *KM* V,248, *B* 130.

[40] The *Logic* does not allow for ambiguity in mental language – that their might be two mental terms for the same "idea." Since ontologically mental words simply are ideas, it follows trivially to each mental word there is a unique idea.

[41] *LAP* II,xviii, *KM* V,249-250, *B* 131.

[42] *LAP* II,vi, *KM* V,145, *B* 40.

[43] Pp. 247-238 in Pariente 1985.

[44] On ecthesis see Martin, Ecthesis and Existence in the Syllogistic in Martin 2004.

[45] Third axiom, *LAP* II,xvii, *KM* V,249, *B* 129.

[46] See the remarks about the universal case in the fourth axiom, *ibid.*

[47] Terance Parsons has suggest this to me in correspondence.

[48] If there are shared entities that satisfy jointly the comprehensions of the subject and predicate, and if every singular term is a species, then there will exist appropriate subspecies of the subject for a restriction that will make the appropriate identity true, namely the names for the shared entities.

[49] *LAP* II,iv. *KM V,*201; *B* 36. It would be an odd syllogistic system indeed if A-propositions and singular propositions carried existential import, I-propositions did not, and subalternation held. Ecthesis, the implication from *some S is P* to *every T is S* and *every T is P,* for some term *T,* would fail even though *T* is essentially the same as the *Logic*'s "indefinite" restriction of *S.* Though the *Logic*'s treatment of the syllogistic is relatively cursory, there is no textual evidence that the authors intend to depart from the standard set of inferences. Indeed one reason the treatment is cursory is that they regarded the standard account as true. See *LAP Discours* I, *KM* V,111, *B* 10*; Discours* I, *KM* V,121, *B.*19.

[50] These formulations are used in, for example, Boole 1948 and 1951. Boole assumes that a relevant *x* can be found.

[51] See *LAP* II,4.

[52] *VFI* Chapt. 6: *KM* I,209; *G* 76.

[53] See Panaccio 2004, and the introduction by King to Buridan 1985.

[54] *LAP* I Introduction; *KM* V 125; *B* 23.

[55] Examples :

… quand je dis que *tout homme est animal ;* je veux dire & je signifie que tout ce qui est homme est aussi animal ; & ainsi je conçois l'animal dans tous les hommes (*LAP* II,xvii ; *KM* V 247; *B* 129).

… il est vrai que l'on n'exprime pas toujours les deux prémisses, parce que souvent une seule suffit pour fair concevoir deux à l'esprit. (*LAP* III,ii; *KM* V 256; *B* 136).

Sachant donc par ce que nous avons dit dans las seconde partie, ce que c'est que l'étendue & la compréhension de termes, par où l'on peut juger quand une proposition en contient ou n'en contient pas une autre; on peut juger de la bonté ou défaut de tout syllogisme, sans considérer s'il est simple ou composé, complexe ou incomplexe, sans prendre-garde aux figures ni aux modes, par ce seul principe général : Que l'une des deux propositions doit contenir la conclusion, & a'autre fair voir qu'elle la contient. (*LAP* III, xi; *KM* V 284; *B* 175).

The remainder of the III,xi continues to use *contenir* to refer to a relation among propositions.

[56] For example,
Les propositions particulièrs son enfermées dan les générales de même nature, & non les générales dan les particuilièrs, I. dans A. & O. dans E. & non A. dans I. ni E. dans O. (*LAP* III, iii; *KM* V 258; *B* 139).
[57] P. 457 in Buroker 1993.
[58] For this interpretation see Gaukroger 1989. For a similar understanding by Arnauld see *VFI* Chapt. 5: *KM* I,199, *G* 67; and Chapt. 6, *KM* I,204, *G* 71-72; *KM* I,206, *G* 73; *KM* I,207-208, *G* 74-75; *KM* I,209, *G* 76.
[59] *VFI* Chapt. 6: *KM* I,206; *G* 73.
[60] See for example *De anima,* iii:3, $428^{a}11$.
[61] *De anima* III,6, $430^{a}25$-$^{b}6$.
[62] *De anima* III,8, $432^{a}8$-14. See also *De interpretatione* I, 16a10-19.
[63] *Parts of Animals* I,$16^{a}13$-19.
[64] See *De veritate* q. 1, a.3 co.; 51615. See also 54811.
[65] *Meditation* III, 7 and 19.
[66] The view that there could be definitions or, to use the terminology of the *Logic*, comprehensions that are unsatisfied dates from Aristotle. He says in the actual *Posterior analytics,* Book 7 (92a34-92b19):
How then by definition shall we prove substance or essential nature? We cannot show it as a fresh fact necessarily following from the assumption of premises admitted to be facts – the method of demonstration: we may not proceed as by induction to establish a universal on the evidence of groups of particulars which offer no exception, because induction proves not what the essential nature of a thing is but that it has or has not some attribute. Therefore, since presumably one cannot prove essential nature by an appeal to sense perception or by pointing with the finger, what other method remains? To put it another way: how shall we by definition prove essential nature? He who knows what human – or any other – nature is, must know also that man exists; for no one knows the nature of what does not exist – one can know the meaning of the phrase or name 'goat-stag' but not what the essential nature of a goat-stag is. But further, if definition can prove what is the essential nature of a thing, can it also prove that it exists? And how will it prove them both by the same process, since definition exhibits one single thing and demonstration another single thing, and what human nature is and the fact that man exists are not the same thing? Then too we hold that it is by demonstration that the being of everything must be proved – unless indeed to be were its essence; and, since being is not a genus, it is not the essence of anything. Hence the being of anything as fact is matter for demonstration; and this is the actual procedure of the sciences, for the geometer assumes the meaning of the word triangle, but that it is possessed of some attribute he proves. What is it, then, that we shall prove in defining essential nature? Triangle? In that case a man will know by definition what a thing's nature is without knowing whether it exists. But that is impossible. G. R. G. Mure, trans.
[67] Que si les objets rerésentés par ces idées, soit de substances, soit des modes, sont en effet tels qu'ils nous sont représentés, on les appelle véritables : que s'ils ne sont pas tels elles sont fausses en la mannière qu,elle les peuvent être; & c'est ce qu'on appelle dans l'école êtres de raison, qui consistent ordinairement dans l'assemblage que l'esprit fait de deux idées réelles en soit, même qui ne sont pas jointes dan la verité pour en former une même idée, comme celle qu'on se peut former d'une montagne d'or, est un être de raison, parce qu'elle est composée des deux idées de montagne & d'or, qu'elle représente comme unies, quoiqu'elle ne le soient point véritablement.
LAP II,ii, *KM* V,136, *B* 32.
[68] For passages in which the formation of such ideas are described see: *LAP Discour* I,. *KM* V, 110, *B* 9-10; I,ix. *KM* V, 157-78; *B* 49-50; I,xi. *KM* V, 168-170; *B* 58-60.
[69] *LAP* I,ii. *KM V,*136; *B* 32.
[70] In the *Logic* the idea of an idea is called the idea in second intention, which is its standard name in medieval logic, *LAP* II,ii, *K* V,136, *B* 32. Cf. Book 6.4, p. 428 in Buridan, *Summulae de Dialectica* 2001. .
[71] Antonius Rubius, a Spanish logician who worked in Mexico, anticipates this Cartesian usage by calling a term *confused* because it ambiguously names more than one *esse objectivum*. See Ashworth 1966..
[72] *VFI* Chapt 5-6, *KM* I,200,204, *G* 67,71-72. Though some in the medieval tradition identified *esse objectivum* and *esse possible*, e.g. Scotus and Suárez, and possibly Descartes, Arnauld himself viewed the notion of a possible non-actual substance as incoherent. See Letter Arnauld to Leibniz, May 13, 1686, *KM VI,* pp. 31-32. Accordingly the proper correlation as understood by Arnauld is one between a genuine *esse objectivum* and a proposition that is possibly true. On the earlier tradition see Suárez, *DM* XXXI.2.1 (Vivès XXVI.229) and *DM* XXXI.2.10 (Vivès XXVI.232), and the discussion in Normore 1986.
[73] For references to occasionalism by the authors of the *Logic* see note 6 above.
[74] *VFI* Chapt 5, *KM* I,202, *G* 69-70;Chapt 28, *KM* I,351,353-354, *G* 209,313-214.

[75] This is the Cartesian version of Aristotle's view that "perception is always true." See, for example, *De anima* 427[b]6-22.

[76] The *Logic* (I, ix) characterizes a clear idea as one that "*nous frappe vivement*," like pain. For Aquinas clarity, which finds its ultimate form in the beatific vision, is analogous to light in vision. It is something that when added to an essence brings it to consciousness. When Paul was knocked to the ground in the blinding light, he was, according to Thomas, experiencing God's essence with clarity. He writes,

> But *claritas*, which is the principle of the vision of the divine and the actualization of glory, is glory's endowment. If therefore the mind of Paul saw God through an essence, and was illuminated by the light that was the principle of his vision, he was simply glorified. [*Sed claritas quae est principium divinae visionis, quae est actus gloriae, est dos gloriae. Si igitur mens Pauli Deum vidit per essentiam, et illustrata fuit luce quae est principium huius visionis, fuit simpliciter glorificata.*] *De veritate*, q. 13 a. 2 arg. 4

Hence, clarity is a necessary condition for being conscious of the content of objective being. It comes in degrees and presumably, as Aquinas holds, is a gift of God. See *De veritate*, q. 13 a. 2 co., *Responsio*.

[77] See, for example, *LAP* I,ix. *KM V,*157; *B* 14.

[78] Subalternation was a fixed feature of syllogistic logic. On the existential presupposition of universal affirmatives see Ashworth 1973.

[79] Pariente 1985, p. 243 remarks correctly that two affirmative propositions with empty subjects could both express different propositions, but he fails to remark on their truth-values. In the conventional logic of the period, as well as the Port-Royal Logic, though non-synonymous both would be false.

[80] See the references in note 1.