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TRUTH AND MEANING IN THE PORT-ROYAL *LOGIC*

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Abstract

The redundancy theory of truth, according to which a sentence of the form *'p' is true* is equivalent to *p*, is commonly attributed to the philosophers Gottlob Frege (1848-1925) and Frank Ramsey (1903-1930), and is viewed as an important development in 20th century philosophical logic. In this paper I argue that such a perspective on truth may in fact be found much earlier, in Antoine Arnauld and Pierre Nicole's *Logic, or the Art of Thinking* (also known as the Port-Royal *Logic* and published in its final form in 1683). Although ignored by many philosophers who work on the concept of truth today, Arnauld and Nicole should be credited as the originators of the redundancy theory. In addition to identifying and explaining the relevant passages of the Port-Royal *Logic*, I discuss the authors' strikingly modern take on linguistic meaning. Their approach to this issue, also generally overlooked in current discussions, merits serious consideration, and, I argue, is to be preferred to other, currently popular, approaches to this topic. Theirs is a sophisticated and subtle «internalist» account of meaning-one that, as we shall see, is largely immune to the usual objections to semantic internalism.

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Truth and Meaning in the Port-Royal *Logic*

1. Introduction

The redundancy theory of truth,[1] according to which a sentence of the form *'p' is true* is equivalent to *p*, is commonly attributed to the philosophers Gottlob Frege (1848-1925) and Frank Ramsey (1903-1930), and is viewed as an important development in 20th century philosophical logic. In this paper I argue that such a perspective on truth may in fact be found much earlier, in the 17th century, in Antoine Arnauld and Pierre Nicole's *Logic, or the Art of Thinking* (also known as the Port-Royal *Logic*). Although ignored by many philosophers who work on the concept of truth today, Arnauld and Nicole should be credited as the originators of the redundancy theory. Here I will identify and explain the passages of the Port-Royal *Logic* that support this assessment, and I will also argue that Arnauld and Nicole developed a sophisticated and subtle account of linguistic meaning-an account that, unfortunately, has also been largely overlooked in contemporary philosophical discussions of meaning.

The discussion is organized as follows. First I will show that Arnauld and Nicole clearly articulated a redundancy view of truth, centuries before Frege, Ramsey, and others did. Second, I will discuss their account of meaning. Our discussion will be based on the standard Clair and Girbal text (ARNAULD & NICOLE, 1683/1965), which derives from the fourth and final edition of the Port-Royal *Logic*, published in 1683.[2] The Port-

[1] The redundancy theory is also known as «the disquotational theory of truth.»

[2] All of the translated passages are from (BUROKER, 1996). However, I have made a couple of minor emendations to her translation for greater naturalness in English. The pagination given is always that of (ARNAULD & NICOLE, 1683/1965), not the Buroker translation.

Royal *Logic* was widely used in France and England for nearly 200 years as a logic textbook; in the last section of the paper, I offer some brief remarks concerning the place of the Port-Royal *Logic* in the history of philosophy, suggesting a positive reappraisal of this valuable but somewhat neglected work.

2. Truth

We begin with the issue of truth. The classic and still dominant take on truth in Western philosophy is the correspondence theory, which was first formulated by Aristotle in Book Gamma of his *Metaphysics*. Aristotle says: 'To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, or of what is not that it is not, is true.' (*Metaphysics* G, 7, 27) Truth, according to the traditional Aristotelian view, is correspondence between a statement and reality.[3]

In 20th century philosophy, the correspondence view is clearly expressed by Willard Van Orman Quine in his famous article, «Two Dogmas of Empiricism» (QUINE, 1953). Quine says:[4]

> It is obvious that truth in general depends on both language and extra-linguistic fact. The statement 'Brutus killed Caesar' would be false if the world had been different in certain ways, but it would also be false if the word 'killed' happened rather to have the sense of 'begat.' Thus one is tempted to suppose in general that the truth of a statement is somehow analyzable into a linguistic component and a factual component. (QUINE, 1953, p. 36)

Putting the matter a bit more technically, the Aristotelian correspondence theory claims that, despite syntactic appearances, which

[3] Throughout this paper, single quotes will be used for mentioning linguistic expressions and for short direct quotations within the body of the text; double quotes will be used as scare quotes.

[4] In later works Quine espouses a redundancy theory of truth; Quine is, indeed, one of the main names associated with this view.

would suggest that the expression 'is true' is a monadic predicate, the expression in fact denotes a two-place relation of agreement between language and world. Truth is the output of two inputs: a linguistic input-the sentence-and an extra-linguistic input-a fact.

In contrast with the traditional Aristotelian conception, the authors of the Port-Royal *Logic*, Arnauld and Nicole, put forth a redundancy view of truth.[5] There are two basic components to any redundancy theory of truth. The first is that expressions such as 'true,' 'is true,' 'it is true that,' and similar ones (such as 'I maintain that' or 'it is a fact that') are redundant and present in a proposition merely for emphasis.[6] The expression does not add any new information to a proposition containing it. Second, and related to the first point, the word 'true' does not denote a real property, in the way, for example, the term 'acidic' refers to the property of being acidic, or the adjective 'hairy' denotes the property of being hairy.

According to the redundancy theory, therefore, to say that a proposition *p* is true is to say no more than just *p*. So, for instance, the propositions, 'Vienna is the capital of Austria,' 'It is true that Vienna is the capital of Austria,' and '«Vienna is the capital of Austria» is true' say exactly the same thing, according to the redundancy account. The three

[5] It is unlikely that they did so consciously, and in the passages where the redundancy view is expressed (which I quote below), they certainly do not claim to be saying anything new or to be contradicting the opinions of other philosophers on the issue, such as Aristotle. Thus my point is not that Arnauld and Nicole self-consciously held a redundancy view of truth, just that they *in fact* did so, whether wittingly or unwittingly. In effect, in other passages they seem to express a correspondence view: «Since every proposition indicates the judgment we make about things, it is true when this judgment conforms to the truth and false when it does not.» (p. 108); and: «But there can be falsity…relative to the human mind or to some other mind subject to error, that falsely judges that a thing is what it is not.» (p. 116) Yet they do go on to articulate the redundancy thesis, so it is unclear what their position was exactly.

[6] Following Arnauld and Nicole's usage, by «proposition,» I mean the result of an act of judgment (*juger*) that is evaluable for truth or falsity, whether verbalized or not. When verbalized, a proposition amounts to an assertively uttered declarative sentence. The terms 'proposition' and 'sentence' will be used interchangeably in this paper.

propositions express the same content (or «judgment,» as Arnauld and Nicole would put it), despite the addition of 'it is true that' in the second sentence and 'is true' in the third. Nothing new is added by these references to truth.

The redundancy theory is usually attributed to Frege. However, the following passages from the Port-Royal *Logic* seem to show that Arnauld and Nicole had already articulated the idea centuries earlier, whether consciously or not (see note 5). On p. 129 of the *Logic* the authors state:[7]

> When I say, 'I maintain that the earth is round,' 'I maintain' is only a subordinate proposition that must be part of something in the main proposition [i.e. 'The earth is round']. Yet it is obvious that it is part neither of the subject nor the attribute: *for it changes nothing at all in them, and they would be conceived in exactly the same way if I simply said, 'The earth is round.'* (ARNAULD & NICOLE, 1683/1965, p. 129; emphasis added)

In the next paragraph (p. 129), they add:[8]

> The same is true when we say 'I deny,' '*it is true,*' 'it is not true,' or when we add something to a proposition that supports its truth, as when I say: 'The evidence of astronomy convinces us that the sun is much larger than the earth.' For the first part ['the evidence of astronomy'] is merely support for the affirmation. (p. 129; emphasis added)

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[7] [S]i je dis : *je soûtiens que la terre est ronde* ; *je soûtiens* n'est qu'une proposition incidente, qui doit faire partie de quelque chose dans la proposition principale ; & cepandant il est visible qu'elle ne fait partie ni du sujet ni de l'attribut : car cela n'y change rien du-tout, & ils seroient conçûs entierement de la même sorte si je disois simplement, *la terre est ronde*.

[8] C'est de même quand on dit : *Je nie ; il est vrai ; il n'est pas vrai* ; ou qu'on ajoûte dans une proposition ce qui en appui la verité, comme quand je dis : *Les raisons d'astronomie nous convainquent que le soleil est beaucoup plus grand que la terre*. Car cette premiere partie n'est que l'appui de l'affirmation.

The Port-Royal analysis of truth,[9] as evinced by these passages, seems to me indistinguishable from the one famously put forth by Frege in various places, most notably in his 1918 article «The Thought,» which is usually cited as the original statement of the redundancy theory. Let us compare what Frege says:[10]

> [T]he sense of the word 'true' is such that it does not make any essential contribution to the thought. If I assert 'It is true that sea-water is salty,' I assert the same thing as if I assert 'Sea-water is salty.' (FREGE, 1915/1997, p. 323)
>
> [W]ith every property of a thing there is tied up a property of a thought, namely truth…[T]he sentence 'I smell the scent of violets' has just the same content as the sentence 'It is true

[9] It might be objected that the second passage contains the «incidental propositions» (in Arnauld and Nicole's terminology) 'I deny' and 'It is not true,' which are certainly not redundant. Clearly, the sentence 'It is not true that Milan is the capital of Italy' does not mean the same thing as 'Milan is the capital of Italy.' Similarly, if I say 'I deny I took the car', I do not mean 'I took the car.' Two points. First, as previously noted, the *Logic* sometimes fails to be as clear as one would wish regarding certain key issues, despite the overall straightforwardness and plain language of the work. However, I don't think that's a major problem in this particular instance: for I would argue, second, that what Arnauld and Nicole might charitably be interpreted as meaning here is that those negative clauses add nothing (= are redundant) to corresponding sentences containing a negation. So, for example, the sentence 'It is not true that Milan is the capital of Italy' says the same thing (and its content would be «conceived in the same way») as 'Milan is *not* the capital of Italy'; the same applies to 'I deny I took the car' and 'I *did not* take the car.' Obviously this suggestion departs from the text –they nowhere state it explicitly– but I think it is consistent with what they do state and seem to mean in the above passages.

[10] In fact, Frege articulates the redundancy thesis at least as early as 1892, in what is probably his best known and most commented work, the article «On Sense and Reference.» (FREGE, 1892/1997) There he says the following: 'One can, indeed, say: «The thought that 5 is a prime number is true.» But closer examination shows that nothing more has been said than in the simple sentence «5 is a prime number.»' (p. 158) Also, in an unpublished introduction to a logic textbook he was working on, from 1906, he states: 'At bottom the sentence «It is true that 2 is prime» says no more than «2 is prime.» If in the first we express a judgment, this is not because of the word «true,» but because of the assertoric force we give the word «is.»' (FREGE, 1906/1997, p. 297) Indeed, one could argue that something like this redundancy view underlies Frege's discussion in *Begriffsschrift*, §3, regarding the all-purpose predicate 'is a fact.' *Begriffsschrift* is of course Frege's first philosophical publication and the starting point of contemporary logic.

> that I smell the scent of violets.' So it seems, then, that nothing is added to the thought by my ascribing to it the property of truth. (FREGE, 1918/1997, p. 328)

It's clear that Arnauld and Nicole are expressing the same basic idea as Frege. Just as for Frege, truth for them is redundant, a mere add-on to a proposition already possessing definite content and truth-value. For them, there is no «essence» to truth; the word 'true' and the phrase 'it is true that' do not refer to any worldly properties or facts. Content-wise, 'true' is just a sort of empty dummy expression, like the word 'it' in 'It is raining.'

So I think that on the basis of the textual evidence just presented, Arnauld and Nicole should be credited with articulating a redundancy view of truth in the Port-Royal *Logic*, long before Frege.[11] To my knowledge, this would be the first clear expression of the redundancy thesis in the history of Western philosophy.

3. Meaning

I now turn to the topic of meaning. In addition to these important insights concerning the nature (or lack thereof) of truth, Arnauld and Nicole have many valuable things to say regarding the concept of linguistic meaning. It is well known, for instance, that in the *Logic* Arnauld and Nicole make a distinction, the comprehension/extension distinction, which prefigures Frege's famous sense/reference distinction. Noam Chomsky also credits Arnauld as having anticipated the basic claim of Chomsky's generativist linguistics, namely that underlying the different human languages

[11] And a third component of some current redundancy theories—the supposed «prosentential» function of the truth predicate—may also be gleaned from the passages quoted above. The idea here is that 'true' serves as a proxy or shorthand for sentences mentioned previously in discourse, in much the same way that a pronoun stands for a previously mentioned noun. One may fairly interpret Arnauld and Nicole's example of 'the evidence of astronomy' (*les raisons d'astronomie*) as standing for and abbreviating all the individual true propositions of astronomy.

there is a single universal grammar–or a «rational» grammar, in Arnauld's terminology. Quite notable too is their great sensitivity to the pragmatics of language, that is, to the importance of context and the speaker's intentions in order to determine what is said by a given proposition. In this respect, Arnauld and Nicole are considerably more sophisticated than many philosophers of language writing today, who tend to see language as a closed, static system, with every meaning seemingly fixed for eternity.

In this section of the paper, however, my aim is to discuss a less celebrated contribution of the Port-Royal *Logic*: its theory of meaning. This theory, which is developed in Chapter 1 of the First Part, is a species of semantic internalism, the view that meaning is a psychological property, internal to the mind. Meaning is not something that is to be found outside in the world; it is not a thing or a collection of things. Neither is it a Platonic entity inhabiting a non-material, non-spatio-temporal realm. Meaning is mental; it exists in the brains of individual speakers. Such an internalist view on meaning was shared by various prominent 17th century philosophers, including John Locke, Thomas Hobbes, Blaise Pascal, and René Descartes.

Though common in the 17th century, at present internalism is a minority position among philosophers. The reigning view nowadays is the opposite one, semantic externalism. In what follows I will argue that Arnauld and Nicole's brand of internalism is particularly plausible and largely immune to the usual objections against the position. Also, I want to suggest that, while it is true that the semantics of the *Logic* is evidently influenced by Descartes' theory of ideas, as has been pointed out many times before,[12] Arnauld and Nicole's application of the Cartesian theory to the question of linguistic meaning is much richer and more nuanced than what Descartes himself had to say on the subject. Descartes, after all, wasn't particularly interested in language.

[12] See, e.g., (BUROKER, 1993) for a helpful account of the role of Descartes' theory of ideas in the semantics of the Port-Royal *Logic*.

Now, the reason I say that Arnauld and Nicole's internalism is particularly plausible is because it is a non-imagistic type of internalism. This means that even though meaning is a mental entity, it is not supposed to be a mental image or picture. Unlike their famous contemporary John Locke, Arnauld and Nicole don't think the meaning of a word is like a mental photograph. It is true that for Arnauld and Nicole, just as for Locke, the meaning of a word is an «idea.» But whereas Locke understood ideas and meanings to be mental appearances or images of things,[13] Arnauld and Nicole do not. They say on p. 41: 'Whenever we speak of ideas…we are not referring to images painted in the fantasy, but to anything in the mind when we can truthfully say that we are conceiving something, *however we conceive it*' (emphasis added).

To me, the addition of the clause, 'however we conceive it,' is critical, since it acknowledges two very important things: (1) that the mind's rational operations are not limited to pictorial representation; and (2) that the non-imagistic aspects of the mind are a fact, even if we don't yet have an adequate explanation for this fact. (And indeed, the search for such an explanation continues to this day.)

Following Descartes, Arnauld and Nicole make a crucial distinction between imagining and conceiving. (p. 40-1) As they explain, some psychological states are indeed mental pictures –specifically those that involve the imagination– but some are «conceptions,» which need not be accompanied by a mental representation at all. To illustrate the distinction, Arnauld and Nicole use Descartes' example of the kilogon, a figure of a thousand angles. Regarding such a figure, they observe that:

[13] In section 1, Chapter 2, Book III of his *Essay Concerning Human Understanding*, Locke states: 'The use, then, of words is to be sensible marks of ideas; and the ideas they stand for are their proper and immediate signification.' The term 'idea' is notoriously vague in Locke, but in section 2, Chapter 1, Book II, Locke explains that all ideas come from either «sensation» or «reflection.» In the first case they are 'perceptions conveyed to the mind' of the qualities of external things by the senses; in the second case they are 'perception[s] of our own mind within us.' Also, in section 1, Chapter II, Book II, Locke characterizes simple sense-conveyed ideas as «appearances.»

> If I wish to think of a figure of a thousand angles, I certainly conceive the truth that it is a figure composed of a thousand sides as easily as I conceive that a triangle is a figure composed of only three sides. But I cannot *imagine* the thousand sides of that figure nor, so to speak, regard them as present to the mind's eye…I cannot imagine a figure of a thousand angles, since any image I might form of it in my imagination could as easily represent another figure of a great many angles as one of a thousand angles. Nevertheless, I can *conceive* it very clearly and distinctly, since I can demonstrate all its properties, such as that all its angles taken together are equal to 1,996 right angles. Consequently imagining is one thing and conceiving is another. (pp. 40-1, emphasis added)

The distinction between imagining and conceiving allows Arnauld and Nicole to escape some of the standard objections to semantic internalism; for instance that there might be no mental images for certain words, such as 'when,' 'in,' 'despite,' or 'from,' for example; or that different speakers might have different images for one word with a single meaning, a situation which, if the Lockean-style pictorial theory were correct, would render the word equivocal and would make communication impossible; or that different words with different meanings might be associated with a single image for someone, thereby rendering synonymous what are in fact heteronymous expressions. (For example, someone may associate the same image of a sleeping Dalmatian with the words 'dog,' 'animal,' 'mammal,' and 'biology.' These words have different meanings, but on Locke's theory they would wind up having the same meaning, since meanings are images, and they are all accompanied by the same image.)

But if meanings *aren't* images, but rather non-pictorial conceptions, as Arnauld and Nicole contend, then these issues are simply moot. It is worth pointing out, too, that the authors explicitly recognize the first problem we mentioned, i.e., that certain words might not be accompanied by mental pictures at all, on p. 41 of the text. This issue is in fact another motivating reason for positing the imagining/conceiving distinction.

But there is still a major potential objection that an account like Arnauld and Nicole's would have to overcome: how to explain the apparent objectivity of scientific knowledge. This is an issue that greatly preoccupied Frege and many other philosophers in the 20th century. The concern here is that if meanings are mental entities (of whatever kind), then they are subjective, since they belong to the particular mind and brain of each individual. They are private property. But science and mathematics, both of which require language, are public property. As Frege would say, if meanings were mental, then we wouldn't have *the* Pythagorean Theorem, but merely *my* Pythagorean Theorem and *your* Pythagorean Theorem, which seems absurd.[14]

In the Port-Royal *Logic*, Arnauld and Nicole are not explicitly concerned with the issue of objectivity (or at least not in the way the problem has been framed in contemporary philosophy). However, it is not too hard to see how they would respond to this worry. In the *Logic* and other works Arnauld consistently held the thesis that rationality is universal and that despite superficial differences, all known human languages had a basic rational grammar in common. It is this common rationality that, for them, guarantees the objectivity of mathematical truths. (Or, more precisely, reason plus a benevolent God.) As Arnauld and Nicole explain in the *Logic* (p. 43), even though the French and the Arabs speak different languages and assign very different sounds to the same meaning or «idea,» they are still able to agree on their judgments and inferences regarding geometry.

So the bridge here is natural reason, which Arnauld and Nicole view as a God-given property common to all humanity. (Let's not forget that Arnauld was one of the foremost Catholic theologians of his day, one renowned for his skill and subtlety in resolving doctrinal and philosophical paradoxes.) In the case of empirical science, what ensures objectivity is

[14] Another major objection is Putnam's Twin Earth thought experiment (originally presented in [PUTNAM, 1973]). We will not consider this issue here.

reason together with the highly similar perceptual apparatuses that different individuals of the same species will possess.

So ultimately, Arnauld and Nicole would explain objectivity not in terms of the literal identity of content plus some transcendent Platonic realm, as Frege did, but in terms of the high degree of similarity that different contents existing in different, but also very similar minds, will have. Personally, I think that such an explanation (minus the appeal to God, obviously) is more scientifically respectable than the Platonism favored by Frege and others in the 20th century. It is also, in fact, pretty much the same explanation that any scientifically minded semanticist would offer today.

4. Conclusion

In conclusion, Arnauld and Nicole's important contributions concerning truth and meaning in the Port-Royal *Logic* warrant, in my opinion, a positive reconsideration of this work. The Port-Royal *Logic* also has important contributions to make in other areas of current philosophical interest, such as the semantics and pragmatics of definite descriptions and the pragmatics of «what is said,» i.e. the truth-evaluable content expressed by a proposition in a given context. Furthermore, the work is notable for the extent to which experimental considerations come into play in deciding questions, which, in earlier philosophy, would have been considered purely metaphysical, and hence addressed solely via speculative argumentation. For instance, at one point they appeal to Pascal and Torricelli's contemporaneous experiments on air pressure to refute the Aristotelian-inspired view that it is possible to lift water as high as we like with suction pumps. (p. 244) A claim based on certain metaphysical «indubitable truths,» as they put it, had to give way to a new, empirically confirmed, understanding of reality.

Indeed, despite their well-known and powerfully defended rationalism, Arnauld and Nicole display a surprising willingness to resort to the findings of experimental science in order to sustain or reject

philosophical conclusions, thereby showing themselves to be quite modern in their approach to knowledge and truth. A true transitional work, the Port-Royal *Logic* is not only representative of its age, the 17th century, but is also remarkably prescient in its treatment of issues at the heart of contemporary philosophy of language.

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