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CRITICAL STUDY OF OSWALDO CHATEAUBRIAND'S *LOGICAL FORMS I* CLE, UNICAMP, CAMPINAS, BRASIL 2001, 442pp., AND *LOGICAL FORMS II*, UNICAMP, CAMPINAS, BRASIL 2005, 521pp.

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Abstract: In this critical study I try to highlight some of the most important issues discussed in Chateaubriand's excellent book. In particular, I discuss in some detail Chateaubriand's criticism of one of the icons of analytic philosophy, namely, Quine, as well as some of his own valuable contributions to philosophy in this book – for example, his refutation of the various forms of the slingshot argument and his characterization of logical truth.

Oswaldo Chateaubriand's book *Logical Forms* is a seminal and monumental book – amounting to 963pp. – on most of the central issues of analytic philosophy. It discusses in depth the most important problems in philosophy of logic and philosophy of language, as well as issues in the philosophy of mathematics and epistemology. However, it is not so much the wide scope of problems discussed in the book what makes it outstanding, but the depth of the analyses and the independence and originality of Chateaubriand's views. In some sense, this book

* I would like to thank Prof. Chateaubriand for correcting a few mis-interpretations of his views.

represents, probably like no other book, the maturation of analytic and, in general, rigorous philosophy in Latin America. The whole book consists of a long introduction, twenty-five chapters and an Epilogue. The first volume consists of the introduction and twelve chapters, under the general heading *Truth and Description*, whereas the second consists of the remaining chapters and the Epilogue, under the general heading *Logic, Language and Knowledge*. To give the reader of this critical study a brief idea of the contents of this exceptional book, before commenting on single issues, I will enumerate the chapter headings:

Chapter 1: Truth, description, and identification
Chapter 2: The True and the False
Chapter 3: Use, mention, and Russell's theory of descriptions
Chapter 4: Arguments for Frege's thesis
Chapter 5: Objections to facts
Chapter 6: Truth, denotation and, interpretation
Chapter 7: Tarski's semantic conception of truth
Chapter 8: The True and the False revisited: Frege's logic
Chapter 9: Structuring reality: properties, sets and states of affairs
Chapter 10: Identity and extensionality
Chapter 11: Senses
Chapter 12: Truth and correspondence
Chapter 13: Language meaning and reference
Chapter 14: Syntax and Semantics
Chapter 15: Grammar and logical form
Chapter 16: Propositional logic
Chapter 17: Predicate logic
Chapter 18: Grammar and logical truth
Chapter 19: Proof and logical deduction
Chapter 20: Proof and Proving
Chapter 21: Proof and truth
Chapter 22: The tyranny of belief
Chapter 23: Ockam's razor

Chapter 24: Knowledge and justification
Chapter 25: Logic and Knowledge
Epilogue: Plato, Zeno, Parmenides, and Frege

Since I have dealt with the first volume of Chateaubriand's book in a critical essay precisely in this journal[1] I will try to comment on the first volume rather briefly. Already in the Introduction, p. 16, Chateaubriand makes it clear that he conceives logic as metaphysical and epistemological, thus, as inserted both in a general theory of what exists and in a general theory of knowledge. In fact, on p. 26 Chateaubriand underscores that he, as Frege did, believes in the existence of logical objects, though, as will be seen later, he seems to be using the word 'object' in a wider sense than Frege's – much more similar to Husserl's usage and to Carnap's in *Der logische Aufbau der Welt*[2] –, and referring specifically to properties and states of affairs. Hence, he vehemently rejects the proof-theoretic and syntactic views of logic current nowadays. Chateaubriand conceives logic as essentially concerned with truth, and since truth is not a syntactical notion, then – as pointed out on p. 19 – proof, which is supposed to preserve truth, cannot be purely syntactic either. Hence, Chateaubriand objects – see p. 24 – to Quine's disqualification of second-order logic because its semantics cannot be completely mirrored by its syntax. This basic disagreement with Quine marks the beginning of one of the most complete and decisive criticisms of Quine's views throughout the whole book, with which the present author completely agrees, and which constitutes a thorough dismantling of the influential philosopher's misdirection of research in rigorous philosophy. Chateaubriand correctly points out – see also p. 24 –, that the restriction of logic to first-order logic, which goes back to Skolem and Hilbert, and has been championed by Quine, has helped to sediment

[1] Rosado Haddock (2004).
[2] Carnap (1974).

the identification of logic and proof with syntax. Nonetheless, as will be seen below when commenting on the second volume, Quine's definition of logical truth in his *Philosophy of Logic* is by no means totally unrelated to Chateaubriand's own definition, being a sort of failed attempt, aborted by his views on logic and grammar, to conceive logical truth as linked to logical form. On this issue of logical truths and logical properties Chateaubriand makes already on pp. 27-28 an important distinction between a logical law and its instantiations, a distinction to which I will return when discussing the second volume. In any case, it should already be mentioned that Husserl made essentially the same distinction in the Third Logical Investigation using the expression 'analytic necessity' for the instantiations in contradistinction with what he called 'analytic laws'. In fact, as will be seen throughout this critical study, though Chateaubriand seems not to be acquainted with Husserl's *Logische Untersuchungen* or any other of Husserl's writings, there are many affinities between some of his views on logical and semantic issues and those of the great philosopher.

Already in Chapter 1, p. 47, comes to the fore another coincidence of Chateaubriand with Husserl's views. As Chateaubriand and every Fregean scholar should remember, but usually forgets, in a letter to Husserl of May 1891 Frege acknowledges that Husserl had independently obtained the distinction between sense and reference, and correctly comments that probably the two points in which they disagree are about the referent (and sense) of what he called 'conceptual words' and about the referent of statements, which for him are the truth values. As is clear from Husserl's *Logische Untersuchungen* and other related writings, for Husserl the referents of statements are states of affairs. For Chateaubriand also the referents of statements are states of affairs, and though he relates such a view to Russell, one should not forget that Russell more than once confused the notion of state of affairs with that of proposition. Husserl, as well as Chateaubriand, did not commit such

an elementary sin.[3] Continuing with Chateaubriand, he mentions the possibility – see p. 47 – that to adequately deal with states of affairs, one would have to take into account not only actual states of affairs, but also factually non-actual states of affairs – like that referred to by the statement 'My personal computer is made of chocolate' – and impossible states of affairs – like that referred to by the statement '2+2=5'. However, Chateaubriand rejects such a possibility, opting for an ontologically more economic but also intuitively less clear alternative, namely, that both true and false statements "state something of an identifying character about the world, but true statements identify something whereas false statements do not". As Chateaubriand points out on p. 48, such a rendering is similar to that given to a definite description, which fails to refer.

But Chateaubriand does not want to distance himself too much from Frege, and on p. 53 states that "…one can combine Frege's views on truth as denotation with Russell's views on truth in terms of facts or states of affairs". Chateaubriand rejects Russell's view of proper names as abbreviations of descriptions – see pp. 54-55 –, and, in fact, does not accept either Russell's or Frege's theories of description. For him there is a strong analogy between descriptions and statements. Statements serve to identify states of affairs, as descriptions serve to identify objects. In fact, a statement is true for Chateaubriand – see p. 57 – when it identifies a state of affairs. It is unnecessary to underscore that Chateaubriand views favourably the correspondence theory of truth – see p. 58 – and that, as many others before him, he rejects Frege's argumentation to try

[3] In Husserl there is a further distinction between states of affairs and situations of affairs, but it is unnecessary for the present purposes to discuss such a distinction, which I have treated at length in many of my writings.

to establish his thesis that the referents of statements are truth values.[4] On pp. 60-61, Chateaubriand's affinity with Husserl's conception of states of affairs as the referents of statements, while propositions are the senses of statements, reaches its maximum expression when he states: "Propositions are senses which purport to individuate states of affairs – this is an analogue of Frege's thoughts –, for propositions in this sense are non-linguistic modes of presentation". Sentences similar to the last quoted sentence can be found in the First Logical Investigation. In fact, for Husserl, propositions are the senses of statements, are what Frege called 'thoughts', and are non-linguistic entities, since they are ideal entities similar to Frege's thoughts, as propounded in 'Der Gedanke'. Indeed, it should be stressed here that for Husserl the ideality of meanings and of abstract objectualities (e.g., mathematical objects or states of affairs) has nothing to do with idealism in its usual sense, but is essentially concerned with what Frege tried to express later less clearly as 'belonging to the third realm'.

In Chapter 3 Chateaubriand is especially concerned with Russell's and Frege's theories of descriptions. As already mentioned, he does not accept either of them, but will develop a new theory of descriptions which combines features of both Russell's and Frege's theories. Chateaubriand is perfectly conscious of Russell's well-known confusions between use and mention and, in general, his sloppy way of philosophizing, in comparison to Frege's clarity. Paraphrasing Quine, Chateaubriand states on p. 97 that 'Russell's theory of descriptions was conceived in sin'. Chateaubriand compares the strong and the weak points of Frege's and Russell's theories of description, and basically concludes – see p. 100 – that, though both Frege's and Russell's theories did not offer a correct analysis of sentences involving descriptions, he

[4] On this issue, see the present authors papers (2) and (11) in Hill and Rosado Haddock (2000), (2003), as well as Herman Weidemann's paper (1982), and Barwise and Perry's paper (1981).

will try to combine some aspects of those theories. In synthesis, Chateaubriand's view – see pp. 104 and 105 – is that when in a sentence a description appears in subject position, Frege's referential analysis is correct and Russell's wrong; but when the description appears in predicate position, it is Russell's theory which is essentially correct, whereas Frege's is wrong. Though I cannot dwell longer on this issue, I think that this third intermediate way of Chateaubriand deserves serious consideration.

Another interesting issue discussed in Chapter 3 is that of existence. The received view, adopted since Frege, does not conceive existence as a usual predicate of objects but as a second-order predicate, on the basis that if it were a predicate of objects, all objects would have that property and existence would become trivial. However, such an objection, as correctly argued by Chateaubriand on p. 111, would also apply to self-identity and, moreover, existence seems to be definable in terms of the first-order predicate of self-identity. Though I will not dwell much here on this interesting issue, I have mentioned it as an example of Chateaubriand's independence from the logical and analytic tradition in which he was schooled and in which he is, on the other hand, so deeply immersed. There is, however, a point brought by Chateaubriand on p. 113 that does not sound convincing, namely, that, as happens with self-identity and self-subordination, existence could never be truly denied. Once more, the difficulty seems to be grounded on the issue of the inclusion or non-inclusion of non-actual states of affairs. For example, let us consider the statement 'Frege exists', which seems to refer to a non-actual state of affairs. Intuitively, I do not understand why, if existence is a first-order property, I cannot truly deny such a false statement. Moreover, if existence is a first-order property, there is also no reason why I cannot truly deny the existence of a square root of – 1 in the real number system. Indeed, to say that the equation '$\sqrt{2}$=-1' does not have a solution in the real number system is just another way of denying the

existence of a square root of – 1 in that number system. Furthermore, the mathematical fact that such a number exists in the complex number system adds to the unclearness of Chateaubriand's views on existence. In a similar fashion, the statement 'Frege exists' is false in the temporal segment of the actual world in which Chateaubriand and I live, but true in any temporal segment that intersects the year 1900. Nonetheless, I acknowledge that trying to avoid the intuitively very attractive notion of non-actual worlds – as Chateaubriand does – is a healthy idea, since I am perfectly conscious that the notions of existence of objects and possible worlds do not add up to a happy marriage.[5] Thus, contrary both to my intuitions and those of Chateaubriand, perhaps Frege was right, after all, in considering existence as a second order property.

Chapter 4 is without doubt an exceptionally important one. Already in Chapter 2 Chateaubriand had correctly observed that Frege's argument on behalf of the truth values as the referents of statements was by no means compelling, something that already had been argued by many, including among others, Hermann Weidemann, Jon Barwise and John Perry, and the present author, as already mentioned in footnote 3. However, in Chapter 4 Chateaubriand shows that all the best-known versions of what has being called in the specialized literature 'the slingshot argument' are not compelling. Thus, Church's two different argumentations on behalf of Frege's thesis, Davidson's version and Gödel's version are fully discussed and rejected. The slingshot argument had hindered the acceptance of alternatives to Frege's choice for the referents of statements, and though intuitively the different versions of the argument seemed somewhat fishy, so far as I know, a general refutation of the various versions of the argument had not been given. Certainly, the fact that even a logician of the towering stature of Gödel had offered a version of the slingshot argument – indeed, the most

[5] See on this issue my short paper Rosado Haddock (1996).

detailed and solid version – stymied any critical stance against such an argument. Once more, by taking care of refuting even Gödel's version of the argument, Chateaubriand shows an independence of thought not frequently seen nowadays in analytic circles. It should be obvious that it is not possible in this review to discuss Chateaubriand's refutation of the different versions of the slingshot argument. Thus, I can only urge the reader to go directly to the source. Nonetheless, since I had already argued that Church's version of the slingshot argument in his *Introduction to Mathematical Logic* is fallacious, and identified the same Achille's heel as Chateaubriand does – see pp. 140-142 –, namely that the two middle statements of the four sentence argument do not have the same Fregean sense, if Fregean sense is understood as in 'Über Sinn und Bedeutung' and in *Grundgesetze der Arithmetik*, a brief remark seems pertinent. In fact, it should be pointed out that in his refutation of Church, Chateaubriand misses the fact that Frege had a second notion of sense, which is essentially his old notion of conceptual content of his *Begriffsschrift* and which he used in his letters to Husserl of 1906. Interestingly, Church is guilty of the same confusion as Frege and makes use of this second unofficial notion of sense in the transition from the second to the third statement of his fallacious argument.

In Chapter 5 Chateaubriand answers Quine's objections to the notions of fact and state of affairs, namely – see p. 163 –, that they lack a criterion of identity, that they are unnecessary intermediaries between sentences and the world, and that they originate from a confusion between use and mention. The second and third objections arise from basing the discussion on Russell's confusions, though the second objection also attests to a confusion of Quine himself, since facts or states of affairs are not intermediaries between language and the world, but are part of the world. To paraphrase a triviality in Wittgenstein's Tractatus Logico-Philosophicus, the world is a structuring of states of affairs. Propositions, on the other hand, are senses, and could be

interpreted as intermediaries between sentences and states of affairs, but they are not states of affairs. With respect to the first and most serious objection, Chateaubriand correctly observes on p. 165 that propositions, properties and states of affairs would in any case be – if Quine were right – in a similar situation as physical objects. Indeed, I would add that it is immensely more difficult to provide criteria of identity for electrons or any other elementary particles than to provide similar criteria for propositions, properties or states of affairs, and nonetheless research in microphysics has flourished in the last hundred years. Hence, there is no reasonable ground to reject the existence and investigation of propositions, properties and states of affairs because they presumably lack a criterion of identity. Chateaubriand's argumentation against Quine on this issue is different from and more detailed than the above, though not unrelated to it. It is concerned with physical objects, though more exactly with ordinary physical objects like a table or a rock, about which Quine thought that a criterion of identity in terms of molecular structure could be given. As Chateaubriand states – see pp. 168-169 –, even under the very dubious assumption that one could associate in a clear way a molecular description of a physical object to an ordinary description, such a molecular description "…would necessarily be vague and would neither identify a specific aggregate of molecules or would allow for a specific description of such an aggregate to be extracted from them".

I would like to comment rather extensively on one more issue treated in the first volume of Chateaubriand's book, namely, his criticism of Tarski's semantic theory of truth. Chateaubriand's objection is that Tarski's definition of truth is not really semantic but belongs to the morphology of language. There are two passages on p. 230, which contain the nucleus of Chateaubriand's objection and deserve to be quoted:

> Even the idea that when we do semantics with interpretations we are relating syntax to something non-syntactic that is somewhat like the world is basically an illusion, because the interpretations are part of our

> informal metatheory for which we assume a notion of 'true' whose fundamental characteristic is to obey the principles of classical logic as usually formulated. The sort of "reality" that is involved here is more like a syntactic feature of the metalanguage, and semantic interpretations may be better viewed as syntactic translations.
>
> It seems to me, therefore, that Tarski's semantic conception of truth is really a syntactic conception of truth….Tarski manages to recover the syntactic idea through the appeal to an indefinite sequence of metalanguages within each of which the definition is purely syntactic.

Chateaubriand's objections to Tarski's theory of truth are bold and interesting. Once more, Chateaubriand has no qualms in criticizing one of the icons of analytic philosophy. On this point, however, I have some disagreements with Chateaubriand, and I think that they are more deeply anchored in our respective conceptions of logic. In contrast to Chateaubriand's views, for the present author there are probably no logical objects, not only if by 'logical object' is understood something similar to what Frege conceived under that expression, but even if one includes states of affairs and properties. The postulation of logical objects was indispensable for Frege because of his logicist thesis, since it was for him unquestionable that mathematics deals with mathematical objects. Thus, not only did he need to obtain mathematical axioms as theorems from logical axioms and by means of logical rules of inference, and define mathematical concepts by purely logical means, but had also to show that mathematical entities are reducible to logical ones. However, since I am not a logicist, I can very well accept with Husserl that mathematics is ontological, in fact, a formal ontology, but consider logic an essentially syntactic and semantic enterprise. Such a conception of logic does not isolate it from ontological matters, first of all, because logic and mathematics are very near relatives, not mother and daughter like the logicists wanted, but sister disciplines: mathematics is the ontologically fat sister of logic. On the other hand, I am perfectly conscious that logic has also to be relevant to reality. Although logic is not directly and exclusively

concerned with reality, as physics or biology are – but also with every possible, though non-actual reality –, it is certainly not a simple play with formulas and languages, but should serve (as mathematics does) as a valuable instrument in discovering how things in the world are.

In the case of Tarski's defintion of truth, one should not forget that he very emphatically underscores in 'The Concept of Truth in Formalized Languages' and related writings that he is trying to make precise and define the classical notion of truth as correspondence with reality. Of course, since his attempt at a definition of such a concept for natural language, under some reasonable assumptions, failed, he opted to offer a definition for a concrete formalized language: the calculus of classes. If Tarski had limited himself to such an enterprise, up to this point, Chateaubriand's contentions would be perfectly right, since such a result would be language bounded, more specifically, bounded to a particular object language and to a particular metalanguage. However, Tarski immediately generalized his result to any language of finite order and then in the Epilogue even to languages that did not fulfil the requirements of the Husserl-Lesniewski theory of semantic categories. That is already a partial, though not a complete emancipation of the results from language. Of course, in Tarski's construction there is no explicit mention of states of affairs, which both for Chateaubriand and for the present author are the referents of statements. However, one could very well understand the result of the assignments of values to all the free variables of a sentential function as assignments of states of affairs. Clearly, those 'states of affairs' would not be the concrete states of affairs which we encounter everyday in the real world, but to ask that from Tarski's results would be beside the point. In fact, if one has followed the discussion about the concept of truth in natural language from Tarski's negative result to Kripke, to the revision theory of Herzberger, Gupta, Belnap, Yaqûb and others, to Yablo's agonistic theory of truth, one can very well understand the role of logical devices

and languages in their application to traditional philosophical problems. You have first to isolate the problem, as the physicist does, and then construct those sophisticated models in the traditional sense of the empirical sciences. For such models, you use all the logico-linguistic devices required. Without them, you cannot even attempt to tackle the problem. However, and on this point I suppose that there is complete agreement with Chateaubriand, you need to free your result from any bond to any particular language or logical system being used. To paraphrase once more Wittgenstein's *Tractatus Logico-Philosophicus*, once has to throw the ladder away after you have reached your result. But without the logico-linguistic ladder there is no climbing.

With respect to the remaining chapters of the first volume of Chateaubriand's book, I just want to make two brief and isolated comments without any elaboration. In Chapter 8 – see, for example, pp. 261-262 and 270 – Chateaubriand tends to confuse Frege's official notion of thought with Frege's old notion of conceptual content (his unofficial second notion of thought) as Church did in his fallacious argumentation discussed above. Frege's official notion of thought derives from his old notion of judgeable content, which he introduced in *Begriffsschrift* in § 3, after having introduced the notion of conceptual content in § 2. Although Fregean scholars have had the tendency to ignore the distinction between the two notions – and Chateaubriand is on this point in very good company – it would be completely anti-Fregean to introduce two names for the same notion one after the other, with very different characterizations, but without saying that the notions so introduced coincide. In Chapter 9, p. 330, Chateaubriand points out that Frege's argumentation for the undefinability of truth on the basis of being circular could easily be applied to his definition of identity. Interestingly enough, once more Husserl has anticipated Chateaubriand, this time for 110 years, since already in his *Philosophie der Arithmetik* of

1891 he argued that, besides having confused identity and equality, Frege's definition of identity was circular.[6]

At the end of Chapter 13, thus, at the beginning of the second volume, Chateaubriand continues his critical dialogue with Quine's views. Thus, on p. 37 he reminds the reader that at present it is widely accepted that there are some innate components in learning – some of which could very well be of a logical nature – and, moreover, that Quine's views on language learning – see p. 38 – can be proven false on empirical grounds, as can, in particular, Quine's belief in the primacy of one word sentences in our acquisition of language. Furthermore, on p. 39, Chateaubriand stresses that Quine's indeterminacy of translation argument is not compelling, even if taken as a loose plausibility argument.

In Chapter 14, there is a long discussion on the Löwenheim-Skolem theorems and the so-called Skolem Paradox. Chateaubriand renders the Löwenheim-Skolem theorems in the same fashion as he rendered Tarski's theory of truth, namely, as a syntactic, not a semantic, result. In this case, however, Chateaubriand's rendering is more plausible, since the Löwenheim-Skolem theorems are language bounded. They are valid for first-order languages and for some of its less natural extensions, but false for second – and higher order logic in their usual non-Henkian rendering. As is well-known, the nucleus of the Löwenheim-Skolem theorem states that any set of first-order sentences that has an infinite model has a countable model. In its stronger Tarkian version, the theorem states that any infinite model of a set of first-order sentences has a countable elementary substructure, which is also a model of the set of first-order sentences. On the other hand, the so-called Skolem Paradox arises when we axiomatize set theory in a first-order language. Clearly, the intended model of the axioms is a uncountable totality. But in virtue of the Löwenheim-Skolem theorem, the set of axioms has a countable

[6] *Philosophie der Arithmetik* p. 119.

model. Thus, in virtue of a well-known theorem of Cantor, one cannot establish a bijective correspondence between the two models. According to Skolem's questionable rendering, though there is no bijective correspondence inside the model, one could establish the correspondence from outside the model. Hence, the notion of cardinality is not an absolute, but a relative notion.

Continuing with Chateaubriand – see pp. 70-71 –, since the notion of an elementary submodel is a first-order notion, the Löwenheim-Skolem theorem is not semantic, but syntactic. Moreover, as is also very well-known, the nowadays most usual proof of the completeness theorem, of which the Löwenheim-Skolem theorem is a corollary, proceeds by building a syntactic model, or more picturesquely, by extracting a rib from the enriched syntax of the first-order language. Thus, as Chateaubriand puts it on p. 71, "…what this shows is that the completeness theorem itself has a purely syntactic formulation…". With respect to the so-called Skolem Paradox, Chateaubriand rejects – see p. 72 – the contention of the supporters of first-order logic that on the basis of that so-called paradox they could in some sense reduce to absurdity the absolutist view of a reality not moulded by language.

Although I cannot dwell on this issue here – which I have discussed more thoroughly in a paper of 1996 –,[7] the lesson that in my opinion can be extracted from the so-called Skolem Paradox is that first-order logic is inadequate as a language for set theory, that set theory needs a second-order axiomatization. I suspect that on this point – as on many others –, Chateaubriand and I coincide.

Continuing with the exposition, after countering Skolem's relativism, Chateaubriand goes on to argue against other propounders of a syntactic view. Thus, on p. 75, he criticizes constructivists, who stress so much the importance of rules over abstract properties, but, on the

[7] See Hill and Rosado Haddock (2000), Chapter 15.

other hand, are very timid when it comes to the formulation of such rules. Since constructivism is not one of the central issues of the book, and I am not especially concerned with it here, it seems pertinent to refer now to another critique made by Chateaubriand much later, in fact, in the Epilogue of the best-known constructivist school, namely, intuitionism. Thus, on p. 468, Chateaubriand correctly observes that one could ask mathematical intuitionists and other related brands of constructivists, who give so much importance to their constructions occurring in time, what happens with such constructions as beings in time. This is a very serious objection, very similar in fact to that usually offered against historicist views by asking whether their views are also to be seen as historically bound to a determinate period of time. In the case of intuitionists, one may certainly wonder whether the mathematical objects being constructed in time will also disappear after a determined extension of time – like any of our physical constructions – or whether they will exist in time forever. Probably only the hybris of a Brouwer could make someone opt for the second possibility.

Continuing with the order of the book, on p. 78, Chateaubriand observes that the syntactic point of view is usually defended by nominalists, physicalists and empiricists, because of their rejection of everything abstract, since such a syntactic rendering of logic and mathematics would maintain alive their belief in a world exclusively of particulars. I perfectly agree with Chateaubriand on this and the foregoing points. However, when Chateaubriand refers on p. 79 to the Gestalt psychologists as having established the falsity of such a view by showing that there are abstract components in perception, I must once more refer Chateaubriand to Husserl, who said it first and who most surely influenced Gestalt psychology on that point. Already on p. 79 and once more on p. 89, Chateaubriand stresses that all efforts to formulate the fundamental logical notions as purely syntactic have failed, even though the notion of syntax taken as base is essentially as strong as the

structure of the natural numbers. Moreover, interestingly enough, as Chateaubriand observes on the same p. 89, to fully characterize first-order logic and also the structure of natural numbers one has to recur to second-order logic. A somewhat isolated point deserves being briefly mentioned here, namely, that on p. 92, Chateaubriand states that intentionality is "a very interesting and fundamental feature of humans and animals". Once more, Chateaubriand does not mention that it is Husserl who offered the most thorough theory of intentionality.

It is precisely in Chapter 14 where Chateaubriand offers his most decisive criticism of Quine's views. In an extensive footnote on pp.101-102, Chateaubriand contrasts Gödel's detailed procedure in his famous paper of 1931 with Quine's vague holistic thesis. It is best to quote this devastating criticism here.

> If Gödel had argued loosely in terms of Richard's paradox that somehow syntax can be arithmetized by proxy functions in some unspecified way, nobody would have accepted the incompleteness results….Gödel did the arithmetization of syntax very carefully, and this was an absolutely essential part of his proof. Moreover, while Gödel was only talking about the specific formal system of *Principia Mathematica*, and similar well-defined systems, Quine is talking about the whole of science, and without any rigorous formulation and development he wants us to accept an "arithmetization" of (an alleged interpretation of) that, and some kind of impossibility result.

I completely agree with such a criticism of Quine, having more than once expressed similar views.[8] Nonetheless, what is astonishing is that very few analytic philosophers, especially in North America, have dared to criticize Quine on this and other issues.

[8] See the paper referred to in the preceding footnote, as well as my recent paper "Kritische Fußnoten zu Bernulf Kanitscheiders Naturalismus Aufsatz" (2006) as well as Chapter 4 of my forthcoming book *The Young Carnap's Unknown Master*.

There is a passage on p. 110, already in Chapter 15 that once more reminds us of Husserl's *Logische Untersuchungen*. Chateaubriand says:

> If logic is indeed universal in the sense of not being language specific, then it would seem that the object of logical analysis must be something that is common to the various specific languages, and that, perhaps, manifests itself in each language in specific ways.

Precisely the study of that logical nucleus common to all languages is the task of Husserl's pure logical grammar, expounded in the Fourth Logical Investigation. Husserl's theory of meaning categories is clearly an attempt in such a direction. Of course, Chateaubriand can always try to distance himself from Husserl by underscoring that he understands by logic something essentially non-syntactic. But the fact of the matter is that such a logical nucleus was conceived by Husserl as being present in each language and, thus, as not bounded to any particular language, and the quotation of Chateaubriand immediately above approaches him once more to a Husserlian conception.

On pp. 114-116 Chateaubriand once more criticizes the syntactic view of logic. For him – see p. 115 –, it is the concept of truth which anchors the whole of classical logic. Moreover, the syntactic attempt to avoid logical and mathematical abstract objects by reducing logic to formal languages does not take into account the fact that formal languages are themselves infinite mathematical structures of significant complexity – see pp. 115-116 –, and, thus, nothing is gained by those allergic to abstract entities and infinities by proceeding in that direction.

Chateaubriand returns to Quine and his grammatical view of logical truth. Thus, he reminds us that for Quine two expressions are interchangeable if they can be replaced for each other in a grammatically well-formed sentence so as to obtain a new grammatically well-formed sentence. Chateaubriand correctly observes – see pp. 127 and 128 –, that

Quine wanted to have the benefits of not remaining completely anchored in language without having to acknowledge abstract entities like properties or attributes in his ontology, or having to acknowledge that he is speaking about truth and reality.

On p. 131, Chateaubriand discusses an interesting issue, also discussed by Husserl in the Sixth Logical Investigation and even ten years earlier in the posthumously published 'Zur Logik der Zeichen (Semiotik)'.[9] It is the problem of the role of symbolism in mathematics (and logic), without which the astonishing progress in those disciplines would be unattainable, but which, on the other hand, seems also to make some believe that symbolism is all what there is to mathematics and logic. Chateaubriand correctly observes – see p. 131 –, that sometimes the symbolism used is so adequate that mathematicians get accustomed to reason over the symbols and in some sense forget about the mathematical structures underlying the symbolism. Moreover, he considers that the fact that the syntax of first-order logic is so adequate to its semantics has played a decisive role both in the frequent restriction of logic to first-order logic successfully championed by Skolem and Quine, and in taking logic to be essentially syntax. Chateaubriand, of course, underscores once more his rejection of both contentions.

On pp. 132-133, Chateaubriand states that the logical forms are the logical properties, and that in different systems of notation – depending on the strength of the logical system – different logical properties can be expressed. Thus, as Chateaubriand puts it on p. 133, it is not the structure of reality that depends on language but the structure of language that is dependent on reality. A less powerful language cannot represent as many logical properties or features of reality as a more powerful one.

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[9] That paper of 1890 was published only in 1970 as an Appendix to his *Philosophie der Arithmetik*, pp. 340-373.

In Chapter 16, p. 162, there is an interesting assertion of Chateaubriand, which deserves being mentioned. He says that in the same way in which the simple theory of types blurred the definability distinctions made by Russell in his ramified theory, two-valued extensional logic blurred the distinctions of sense made by Frege and, presumably, incorporated into his logical system. On the first point, I just want to mention that since the simple theory of types, together with the distinction between object language and metalanguage can protect against the semantic paradoxes as effectively as the ramified theory but in a more natural and uncomplicated fashion, it seems perfectly natural to avoid the unnecessary complications of the ramified theory. On the second point, one should not forget that it was Frege himself who blurred many of the distinctions of his (and Husserl's) theory of sense. First of all, Frege's logic is a two-valued extensional logic. Furthermore, it was Frege who blurred the most basic sense distinction when he, as made perfectly clear in his letters to Husserl of 1906, identified sameness of meaning with interderivability, that is, with sameness of conceptual content. Thus, for the Frege of the letters to Husserl of 1906 and for his uncritical followers the Axiom of Choice, Zorn's Lemma and Tychonoff's Theorem in general topology should be considered as expressing the same sense.

At the beginning of Chapter 17 Chateaubriand makes some important remarks on his conception of logic. On p. 211, he asserts that for him the theory of types is the core of logic, though he does not make it clear whether he means the ramified or the simple theory. Although in view of his prior assertion on p. 162 mentioned above, one could be inclined to render Chateaubriand as referring on p. 211 also to the ramified theory, a charitable rendering of that passage as referring to the simple theory of types is also possible. In fact, I am inclined to think that it is the simple theory, not the ramified, which forms the core of logic. On p. 212, Chateaubriand states that a fundamental feature of logic is its universality and, thus, "…should be formulated in terms of the broadest

possible categorization of reality". Those remarks of Chateaubriand are especially important, since as he points out on p. 213, logical properties require a logic somehow structured in types or levels. The universality of logical properties consists, for Chateaubriand – see p. 213 –, in the fact that "…once a logical property appears at a certain level, there will be "analogous properties" appearing at all higher levels". As Chateaubriand puts it more explicitly, when a property appears at a certain level, its range of application is certainly fixed by its type, but, nonetheless, at any higher level there will appear similar properties. Take, for example, the logical property of subordination – which together with identity, universality, existence and duality is one of the examples of logical properties given in the book. Subordination between concepts appears already at the level of first-order concepts, but from then on there occurs at each higher level a similar relation of subordination between concepts of that level. Such a feature of logical properties, as Chateaubriand underscores on p. 213, is not shared by non-logical properties.

Another remark of Chateaubriand in Chapter 17, which deserves being mentioned, since it also serves as preparation for the fundamental Chapter 18, occurs on p. 129. On that page, he observes that whereas propositional logic is essentially concerned with analyzing truth, predicate logic – in the wide sense of a theory of types, as used by Chateaubriand – offers an analysis of the structure of states of affairs.

Chapter 18 is probably the most important single chapter of the whole book. After some additional comments on what he calls – see p. 250 – Quine's linguistic view of logic, Chateaubriand expounds some of his most interesting views. Thus, on p. 251, he characterizes logical states of affairs as consisting exclusively of combinations of logical properties. Moreover, Chateaubriand correctly assumes that such logical properties either combine necessarily or do not combine necessarily. Furthermore, in the same extremely important paragraph Chateaubriand characterizes logical truths as propositions that denote logical states of affairs. The

above, however, is not a definition, but a first approach, since as Chateaubriand observes on p. 252, there can very well be statements that contingently denote a logical state of affairs. To make clear this distinction, Chateaubriand reminds the reader – on the same p. 252 – of Frege's definition of the number 0 in *Die Grundlagen der Arithmetik*, where he opted to define it as the extension of a concept that had an empty extension on logical grounds, in contrast to other concepts contingently having an empty extension. Thus, Chateaubriand adds to his characterization of logical truth that in order for a proposition to be a logical truth it is necessary that it be "…a logical proposition, that is, a proposition that consists exclusively of logical properties". Here Chateaubriand incurs in the confusion between sense and reference. He had already said on the previous page that logical states of affairs, which are the referents of propositions, are combinations of logical properties, whereas now he says that the logical propositions are the ones that are exclusively formed by logical properties. I am not going to dwell on this slip of Chateaubriand, since it is nothing more than a slip. Thus, precisely on p. 253, he makes perfectly clear the correct ontological status of logical properties. The passage, which contains Chateaubriand's definitions of logical truth and logical falsity, is so important that deserves being quoted.

> Given that logical properties either combine necessarily or do not combine, it seems reasonable to say that logical propositions whose parts denote logical properties that combine necessarily into a logical state of affairs, are logically true, and to say that logical propositions whose parts denote logical properties that necessarily do not combine, are logically false.

On p. 254, Chateaubriand reintroduces the important distinction already made in the Introduction between logical truths and its applications, which has not always been grasped by analytic philosophers. Chateaubriand considers three examples of instantiations of logical

truths, namely, (i) Frege=Frege, (ii) (∀x) (Human (x)→Human (x)), and (iii) Human (Russell)∨¬Human (Russell). All those three statements refer to existing states of affairs, but those states of affairs are not logical states of affairs. They depend on contingent circumstances, like the existence of the individuals Frege or Russell, or the non-logical property of being human. As Chateaubriand puts it on the same p. 254, "…they attribute logical properties to certain non-logical entities, and…these logical properties apply universally to any entities of the appropriate type". As Chateaubriand puts it on p. 255, such statements are simply applied logical truths. In each of the three cases, the universal applicability of a logical property to a non-logical entity is contingent on the existence of that entity. It seems convenient to quote here two important passages, the first from p. 262 and the second from pp. 262-263.

> A logical truth must be true simply in virtue of the logical features of the world, but an applied logical truth may just happen to be true because of certain contingencies… given Frege's existence [a contingent fact: GERH], his self-identity is not only a necessary truth, but a logically necessary truth.
>
> An applied logical truth such as Frege's self-identity is contingent in the sense that the existence of the state of affairs in question is contingent, depending on Frege's existence. But given Frege's existence, the state of affairs necessarily exists; it is a necessary combination between a logical property and Frege….If an entity necessarily exists, but is not a logical entity [for example, presumably the God of Christianity: GERH], the self-identity of that entity would be an applied logical truth that is not contingent. This would not make it a logical truth, however, because, as I characterized them, logical truths must denote states of affairs that consist exclusively of logical entities.

As Chateaubriand mentions immediately afterwards, he is using the following complex combination of parameters in his classification of states of affairs: (i) the contingency or necessity of the existence of the state of affairs, (ii) the contingency or necessity of the entities that

combine to form the state of affairs, (iii) the logical or non-logical nature of such entities, and (iv) the necessity or contingency of the combination.

It is unnecessary to underscore the extreme subtlety of Chateaubriand's analysis, which seems to have few counterparts in analytic philosophy. Once more, the point of comparison is neither Frege nor Russell, nor Wittgenstein, Carnap or Quine, but Husserl, who in the Third Logical Investigation made a distinction similar to Chateaubriand's fundamental distinction between logical truths and their applications. Husserl was not trying to define logical truth but analyticity – in a very different manner than either Carnap or Frege, in fact, in a non-Kantian but Bolzanian way – and offered a definition of analyticity in terms of logical form, while distinguishing analytic laws, which are true in virtue of their purely categorial form, from their applications, which he called 'analytic necessities'. It seems appropriate to quote here Husserl somewhat extensively, since neither Chateaubriand nor most of his potential readers are used to reading Husserl.

> Analytic laws are unconditionally general laws (and, thus, free from any explicit or implicit postulation of individual existence), which contain no other concepts except formal [ones], [and] thus, when we go back to the primitives, nothing other than formal properties. In comparison with the analytic laws, are their particularizations, which originate by means of the introduction of material concepts and eventually of thoughts postulating individual existence…. As in general particularizations of laws produce necessities, so particularizations of analytic laws [produce] analytic necessities. What one calls "analytic propositions" are usually analytic necessities. [*Logische Untersuchungen II*, U. III, § 12.]
>
> Analytically necessary propositions, so we can define them, are such propositions, which are completely independent from the material peculiarity of their objectualities (determined or conceived in undetermined generality) and from the eventual factuality of the case, from the validity of the eventual postulation of existence, thus, propositions that allow being completely formalized and [being] considered as special cases or empirical applications of the formal or analytic laws obtained by means of such a formalisation. In an analytic proposition it must be possible to replace any material content with the void form something, while completely preserving the logical form of the

> proposition, and eliminate each postulation of existence by means of passing to the corresponding form of judgement of "unconditional generality" or lawfulness. [*Logische Untersuchungen II*, U. III, § 12]

Thus, Husserl's definitions of analytic law and analytic necessity, as well as their contrast, are very similar to Chateaubriand's definitions of logical truths and their instances, and their contrast. In particular, statements like "Frege=Frege" or the other examples given by Chateaubriand and reproduced above would be considered by Husserl not as analytic laws but as analytic necessities. Hence, Husserl's definitions should be rendered as forerunners of the corresponding definitions of Chateaubriand. Nonetheless, though Husserl's definition of analyticity is not liable to the objections offered against Frege's or against Carnap's completely different definitions, I think that such a sort of definition is more adequate for logical truth than for analyticity, since this last notion was meant by Husserl to include mathematical truths (with the exception of non-formal geometry). However, I suspect that not all mathematical truths (for example some, number-theoretic statements) could be considered analytic in Husserl's sense. Therefore, I agree with Chateaubriand in considering such a notion as one of logical truth instead of analyticity.

However, though I am inclined to accept Chateaubriand's definition of logical truth (or one very similar to it), there is a non-negligible difficulty. Chateaubriand in some sense presupposes that logic is type theory – be it ramified or simple type theory –, with some additional features. (I have acknowledged my subjective preference for simple type theory together with the distinction between object language and metalanguage, in order to deal with the semantic paradoxes without having to deal with the complications of ramified type theory.) Nonetheless, as a matter of fact, there exists a great diversity of logics, most of which can be considered as extensions of first-order logic in one or another sense. Thus, for example, there is a variety of what one could

call 'the vertical extensions of first-order logic', with which generalized model theory is concerned, and which includes not only higher-order logics, but also infinitary logics and logics with additional numerical quantifiers. There is no guarantee that the logical forms or properties, if not invariant to a change of logic, then at least are preserved in Chateaubriand's sense – that is, there is a similar logical property in the new logic, for example, when one goes from ramified type theory to a more powerful logic without type-theoretic distinctions –, and in any case that would have to be proved. Moreover, philosophical logicians are concerned with what one could call 'the horizontal extensions of first-order logic', for example, first-order modal logics, as well as other less central varieties, like epistemic or temporal logics. Once more, the logical forms or properties present in all these logics do not need to coincide with those of the logic preferred by Chateaubriand. Furthermore, many logicians of the constructivist schools would understand by logic not an extension but a restriction of classical first-order logic. Therefore, though I would certainly prefer, like Chateaubriand, that our logic would capture exactly all the logical properties (or logical forms) there are, the prospects seem rather cloudy.

There is an additional point made by Chateaubriand in Chapter 18 that deserves some brief comment. On p. 270, Chateaubriand goes back to second-order logic, and mentions its two usual interpretations, namely, the absolute interpretation, in which in each model there are as many possible n-adic relations, for any natural number n, as there can be on the basis of the cardinality of the individual domain, and the so-called general interpretations, or Henkin interpretations, for which the above requirement is not necessarily fulfilled. Chateaubriand states that one should prefer the interpretation via general models and not the absolute one via full models, on the ground that the latter "…involve general metaphysical principles that strictly speaking go beyond the scope of logic". This sounds very strange, coming from the pen of a philosopher

who conceives logic as essentially ontological and gives more weight to the semantic than to the syntactic side of logic. But in any case, the requirement is more set-theoretical than metaphysical. However, the by far most important objection to Chateaubriand's choice of general models over full models represents Per Lindström's famous theorem, according to which an extension of first-order logic for which both the Löwenhein-Skolem theorem and the compactness theorem are valid, is essentially a first-order logic. As is well-known, the interpretation of second-order logic via general models makes possible a weak completeness theorem for second-order logic, from which the Löwenhein-Skolem and compactness theorems easily follow. Hence, second-order logic with general models is essentially a first-order logic. Moreover, originally Henkin proved the weak completeness theorem for simple type theory, that is, for the whole higher-order logic. Therefore, simple type theory with general models collapses to first-order logic. Thus, the features making second – and higher-order logic much more powerful than first-order logic are neutralized. In fact, Chateaubriand's remark on p. 270 is not easy to reconcile with his stance through the whole book on the pressing issue of first-order versus second – and higher order logic. I think that we should acknowledge second – and higher-order logic with full models and its semantic incompleteness as full citizens in the realm of logic with equal rights as first-order logic or propositional logic, and not be satisfied with first-order logic in second-order clothes – to paraphrase Quine –, which is to what second-order logic with general models amounts to.

Interestingly enough, in Chapter 19, p. 295, Chateaubriand, while arguing against the usual restrictions in logic textbooks of logical deduction, points out to the fact that in second-order logic we cannot syntactically characterize completeness. However, as already stressed, semantic incompleteness, to which Chateaubriand alludes, is – as he very

well knows – a feature of second-order logic with full models, not of second-order logic with so-called general models.

In Chapters 21 and 22, Chateaubriand underscores the intuitive relation between proof, truth and knowledge. Thus, he says in Chapter 21, p. 340, that proof is designed to reach truth and to reach it with understanding. In this sense, as Chateaubriand correctly observes, proof is essentially different from other possible ways to try to obtain truth, for example, by means of oracles or revelations. In Chapter 22, p. 355, Chateaubriand modifies the well-known characterization of knowledge as justified true belief, and defines it as "…truth justified beyond a reasonable doubt". As he points out: "If there is enough doubt or if there is no truth, then we may have theoretical belief but no knowledge".

In Chapter 23 there are some interesting remarks on the so-called Ockham's razor, which has been used widely, be it explicitly or implicitly, by analytic philosophers in the Angloamerican empiricist and pragmatist tradition from Russell to Quine, Benacerraf, Field and others. Thus, on p. 376, Chateaubriand in a memorable phrase states that as an absolute principle, "…Ockham's razor is the expression of a philosophical castration complex". Nonetheless, on p. 377, Chateaubriand acknowledges some value to Ockham's razor. Thus, given a theory with strong ontological commitments, it is interesting to examine what could still be obtained if we were to apply such a restricting criterion as Ockham's razor. I think that a similar role can be played by constructivist restrictions in mathematics. Constructivist mathematics is not going to replace classical Platonist mathematics. It would be a tragedy for mathematics and for science if such a replacement were to occur. Nonetheless, it is always interesting to see how much could still be obtained of classical mathematical results if we were to put some more stringent or less stringent constructivist restrictions.

Chapter 25 is one of the most interesting of the whole book. It is so rich in philosophical insights that any choice of some of the issues

treated would do some injustice to it. Nonetheless, a choice is unavoidable. A general theme present along the whole chapter is Aristotle's conception of the role of the axiomatic method and its difficulties. Chateaubriand correctly conceives – see p. 423 – the attempts made in the last century to make empirical science and philosophy more logical and mathematical as an example of this honest quest for justification and foundation of truths. However, Chateaubriand argues – see p. 426 – that Gödel's incompleteness theorems represent a blow not only to Russell's logicism and to Hilbert's program, but in a more general way, also to Aristotle's views.

As is well known, Hilbert's new axiomatics had already challenged Aristotle's conception of the axiomatic method, and tried to separate it from truth and foundation. Moreover, as Chateaubriand correctly states – p. 429 –, the logical positivists reinterpreted Hilbert's axiomatic method as the hypothetico-deductive method. In some sense, as Chateaubriand puts it on p. 429, what they did was to transpose Hilbert's conception of the axiomatization of the logico-mathematical to the natural world and bring it together with their empiricism. On this point, I think, the emphasis should be on the last component, namely, empiricism, since Hilbert had already tried to axiomatize parts of theoretical physics a decade before the advent of the second Vienna Circle, that is, that of Schlick and Carnap – since Hahn and Neurath had already had, together with Philip Frank, a sort of first Vienna Circle years before the arrival of Schlick in Vienna.

Gödel reacted very differently, and on pp. 429-431 Chateaubriand discusses Gödel's reactions both as a logician and as a philosopher to the consequences of his own celebrated incompleteness results. I have only one objection to Chateaubriand's exposition, namely, that he does not even mention Husserl, though it is already usually acknowledged – one can consult the writings on Gödel of Wang, Føllesdal, Tieszen, van Atten and Kennedy, and most recently and foremost of Hauser – that Husserl's

philosophy had a non-negligible impact on Gödel's philosophical views – even though some of those scholars may have failed to adequately assess the core of that impact.[10] (I have used the word 'impact' and not 'influence', since it seems that Gödel arrived at his views before he ever read Husserl. However, after learning from Husserl's congenial but more developed views, he reached a clearer and deeper insight into the philosophical issues of mathematical intuition and our knowledge of abstract entities. Indeed, Chateaubriand, who also has arrived to similar views about abstract entities, semantics and other related issues, could also profit from a systematic study of Husserl's writings.)

Another very important issue discussed in Chapter 25 – and already in previous chapters – is the inadequacy of the official syntactic notion of proof found in logic textbooks. Chateaubriand has a much wider conception of proof. Thus, on p. 433, he rejects the current view of proof as being linear and finite. Moreover, he correctly observes that proofs of infinite length are current in mathematics, though due to our own limitations, they are coded in a finite way. Chateaubriand offers two decisive examples, firstly, proofs involving the Axiom of Choice and, secondly, the many Induction Principles used in mathematics, including the induction schema of first-order arithmetic and the induction principle of second-order arithmetic. Hence, Chateaubriand concludes – see p. 433 – that "…there is no reason not to introduce explicitly into logic infinitary principles of proof, as long as we can describe them effectively (or in some reasonable way)." Furthermore, Chateaubriand propounds an additional liberalization of the notion of proof in another direction. He considers that in some proofs analogies and insights can play a decisive role, and even states – see p. 434 – that we cannot even exclude the possibility of a new revolutionary proof, which would not fit the current standards but would have to be accepted as correct. Moreover,

[10] See the corresponding writings in the references.

Chateaubriand makes the point – see pp. 434-435 – that the attempts to analyze philosophical (and other non-logico-mathematical) arguments in terms of propositional and first-order logic have been very unsuccessful, having served to support the view (so dear to all sorts of irrationalism) of the irrelevance of logic to philosophy and to life. On p. 439, Chateaubriand suggests that we have not only to broaden the concept of proof and the relation between premises and conclusion, but also try to better understand the structuring of the reality about which speak our propositions and their connections. I suspect that on this last point we are already transcending the limits even of a non-syntactic logic.

On the same p. 439, Chateaubriand brings to the fore a very interesting issue. He vehemently rejects the usually accepted thesis of Hume about the non-existence of necessary connections in the realm of facts – contrary to what occurs in the realm of the relations of ideas. Chateaubriand had already argued that there are logical connections between matters of fact – for example, in the statement: Frege=Frege –, and such a connection is, of course, a necessary one. But Chateaubriand is not concerned here so much with such statements as the above, but with statements like: "All humans are mortal". On p. 440, Chateaubriand states that the truth of such statements is not a matter of probabilities but of evidence. Moreover, he underscores – see p. 440 – the futility of trying to argue on behalf of such a statement by taking particular cases of humans that have died. As Chateaubriand puts it on the same page 440: "The character of the properties (or predicates) is quite essential for the proof". Moreover, he adds also on the same page: "In the case of the mortality of humans, what we suppose is that there is a necessary connection between the fact of being human and the fact of being mortal". Once more, without knowing it, Chateaubriand comes close to Husserl, this time, however, not exclusively to the Husserl of *Logische Untersuchungen* and related writings, but to Husserl's better-known intuition of essences. For Chateaubriand, the relation between humanity

and mortality is clearly neither purely logical nor a matter of fact, but is a necessary relation concerned with the nature or character (or as Husserl would say: essence) of the properties involved. Hence, as I already said, Chateaubriand would profit immensely by looking into Husserl's writings, where, as happened with Gödel, he could find congenial particular views and a general stance certainly much nearer to his than the naturalism of Quine, and on many issues even much nearer than Frege's corresponding views.

I want, finally, to reiterate part of what I said at the beginning of this critical review. I consider *Logical Forms* an outstanding book, a book that deserves to have a much wider audience than it has had up to now. Chateaubriand's knowledge both of logic and of analytic philosophy is impressive. However, much more valuable are his excellent capability to see the weak points in the views of many of the most important analytic philosophers, as well as his independence of thought, which contrasts with blind acceptance by most Angloamerican analytic philosophers of the post-positivistic new dogmas of empiricism and naturalism. I have little doubt that if *Logical Forms* reaches a much wider audience, Oswaldo Chateaubriand would have to be considered as one of the most important living analytic philosophers. That does not mean that one should agree with everything that he says or that he cannot still polish more his philosophical views, and my criticism of some of his views, as well as my frequent comparison of some of his views with Husserl's have had the objective of opening new paths of fruitful philosophical discussion.

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