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CHATEAUBRIAND ON LOGICAL FORM AND SEMANTICS

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Abstract: In this paper on Oswaldo Chateaubriand's book *Logical Forms I*, I am mostly concerned with the critical task of indicating some shortcomings and stressing my disagreements with the distinguished scholar. The most important shortcoming of the book is Chateaubriand's unfamiliarity with Husserl's views on logic and semantics, some of which anticipate views propounded by the former – e.g., the distinction between logical law and logical necessity-, whereas others are more subtle than Chateaubriand's views – e.g., Husserl's views on the referent of statements. One of the most important contributions of Chateaubriand's book is his analysis and rejection of all forms of the so-called "slingshot argument". On the other hand, I disagree with Chateaubriand's rendering of some of Frege's views, though some of these are very common among Fregean scholars. Finally, I assess Chateaubriand's criticism of Kripke's views as well as those of Tarski. I tend to agree with his criticism of Kripke, but disagree with his assessment of Tarskian semantics.

Key-words: Chateaubriand. Logic. Semantics. Husserl. Frege. Tarski.

Oswaldo Chateaubriand's book *Logical Forms I* is an exceptionally important book, which deserves the attention of all philosophers working on philosophy of logic and semantics. The book combines in a little more than 400pp. a very wide range of topics, most of them treated

with an unusual depth, in the philosophy of logic and semantics. In this sense, it can be said that the book by this distinguished Brazilian philosopher is a philosophical *tour de force*, which will clearly enhance philosophical analysis in Latin America. From the long introduction to the last page of this important book, the reader will find a variety of topics, all treated with an exceptional balance of very critical philosophical acumen and originality. From the critique of Quine's delimitation of logic to first-order logic and the usual syntactic approach to proof and, in general, linguistic approach to logic, and a view of logic nearer to the metaphysical tradition of a study of the necessary features of our real world, to an attempt to propound a sense-referent semantics different from Frege's, a new theory of descriptions intermediate between those of Frege and Russell, a radical critique of Tarskian semantics, an anti-Kripkean understanding of some of Kripke's views, and last but not least, the deepest discussion that I know of the different variants of the so-called slingshot argument, Chateaubriand's book is full with paradigmatic philosophical analysis and brilliant insights.

However, my task in these brief comments about Chateaubriand's book is not so much to underscore its importance as to discover some weak points and stress my disagreements with this distinguished philosopher. Thus, I will say a few things about the following six topics treated by or related to Chateaubriand's book: (i) syntax, semantics and metaphysics in logic, (ii) states of affairs as the referents of statements: Chateaubriand and Husserl, (iii) the variants of the slingshot argument, (iv) the interpretation of Frege: coincidences and differences, (v) Kripke on proper names and rigid designators, and (vi) Tarskian semantics.

I

Already in the Introduction – see, e.g., p.16 – and throughout the whole book Chateaubriand, who is particularly well acquainted with contemporary logic, emphasizes a somewhat more traditional view of the

nature of logic. For Chateaubriand, logic is first of all "a theory of the most universal features of reality; of being qua being, as Aristotle said" (p.16), thus, an ontology. Moreover, it is also "an epistemological theory that is part of a general theory of knowledge" (p.16), and is, thus, at least in part, a study of the laws of truth. Chateaubriand follows the guidance for his general views, not only of Aristotle but of Plato, Frege and Russell. Hence, Chateaubriand rejects the linguistic, specially, syntactic understanding of logic as a theory of formal languages and, in general, shows no enthusiasm for the views predominant in logic since the 1930s, due to the work of Tarski, Gödel and their followers.

Although we are not going to dwell much on this issue, two points, one positive and one negative, are worth mentioning. As a consequence of his rejection of the syntactic view of logic, Chateaubriand most vehemently rejects the idea – see p.19 – that proofs and definitions are purely syntactic. A necessary condition for a proof to be valid is that it preserves truth. Thus, a syntactic treatment of proof would seem at least superficial, if not perverse. Hence – and here is the positive point worth mentioning –, Chateaubriand is very critical of the restriction of logic to first order logic beginning with Skolem in the 1920s and especially emphasized by Quine some decades later. In particular, he rejects (p.24) Quine's disqualification of second order logic on the basis of the metamathematical fact that its syntactic procedures are insufficient to apprehend its semantics, i.e., in view of the incompleteness of second order logic. We totally agree with the distinguished Brazilian philosopher. Second order logic is the most natural – i.e., by far the less artificial-extension of first order logic. By the way, even simple type theory, in general, is a more natural extension of first order logic than other extensions of the most popular part of logic –like logics with quantitative infinitary quantifiers or infinitely long formulas. By the way, on p. 25, Chateaubriand expounds Quine's definition of logical truth without any mention of the fact that such a definition is essentially the same as Bolzano's and coincides with Husserl's definition of analyticity. Another

passage of the Introduction, in which a reference to Husserl would have been appropriate occurs on p.29, when Chateaubriand distinguishes logical laws from logical necessities. Thus, the reflexivity of identity is a logical law, but that Quine is self-identical is a logical necessity, not a logical law. In the same way, the statement "Chateaubriand is Brazilian or Chateaubriand is not Brazilian" is a logical necessity but not a logical law. The same distinction made by Chateaubriand and with essentially the same terminology was made by Husserl more than a century before in the Third Logical Investigation – where Husserl's definitions of analyticity and syntheticity were also made[1]. The unfamiliarity with Husserl's masterpiece will haunt Chateaubriand in part of what follows.

II

Beginning in Chapter I and throughout most of the book, Chateaubriand will stress – see, e.g., pp.53, 56-57 and the whole Chapter III – that he coincides with Frege's distinction between sense and reference, but differs from Frege on one especially important point, namely, that for him statements do not refer to truth values but to states of affairs. Once more Chateaubriand ignores Husserl on this extremely important point, even though he refers to some letters of Frege to Husserl of 1891 and 1906, in which Frege discusses the distinction. Moreover, in the letter of 1891 he acknowledges that Husserl had also obtained the distinction between sense and reference in his review of the same year of Ernst Schröder's *Vorlesungen über die Algebra der Logik I* [2], and is interested in explaining his particular views – e.g., with respect to the referent of statements and conceptual words. As has happened with the so-called Russell Paradox, which was first discovered by Zermelo,

[1] *Logische Untersuchungen II*, U. *III*, §12 both for Husserl's definition of analyticity and for the distinction between logical law and logical necessity.

[2] 1891, reprinted in Husserl 1979, pp. 3-43.

but analytical philosophers have unjustly ignored this fact, the distinction between sense and reference was obtained by Husserl and Frege independently from one another and almost simultaneously around 1890, and briefly expounded in publications of both authors in 1891. Interestingly, since Husserl first sent Frege his review of Schröder's book, together with his *Philosophie der Arithmetik*[3], and then Frege sent him a copy of his paper "Funktion und Begriff ", published also at the beginning of that year, Frege was the first of the two to acknowledge the similarity of their views and expressed such recognition in the above mentioned letter of 1891. It took Husserl a while to fill the blanks of his theory of sense and reference, and even in the First Logical Investigation, which dates from more or less 1896, the distinction had not reached its complete clarity in all details – the distinction between state of affairs and situation of affairs was still in progress –, although already in the Fourth Logical Investigation full clarity is attained and in the Sixth Logical Investigation also its completeness is attained. Husserl's particular views differed, firstly, from Frege's with respect to what Frege called "conceptual words", which for Husserl – who was free from the prejudice that our grammatical distinctions adequately reflect the ontology of the world – had concepts as senses and extensions as referents. More importantly for Chateaubriand and for analytic philosophy in general, in Husserl's semantics of sense and reference the referent of statements are states of affairs, which for Husserl – as for Chateaubriand (see, e.g., pp.59-60) – are categorial objects, and together with sets are the two paradigmatic higher level objectualities in his hierarchy of mathematical entities[4]. Thus, for Husserl the common referent of "The morning star is a planet" and "The evening star is a planet" is not a truth-value, but the state of affairs that Venus is a planet. In the same fashion, for Husserl the state of affairs that the number 8 is

[3] 1891, Husserliana XII, 1970.

[4] *Logische Untersuchungen II*, U. VI. See also my 1987.

greater than the number 7 is the common referent of the inequalities "6+2>4+3" and "9-1>6+1". But in Husserl's semantics, the relation to truth-values is still more mediated than in Chateaubriand's views. Husserl distinguished states of affairs from their reference base, which he called "situations of affairs" [in German: *Sachlage*]. A relation, e.g., and its converse relation have a common substratum, which is, in some sense an abstract, being non-categorial. Such a substratum of states of affairs is a situation of affairs. Thus, "9-1>6+1" and 6+1<9-1" are inequalities referring to different states of affairs, but having the same substratum, the same situation of affairs as reference base. Chateaubriand is right when he says (Chapter II, pp.77-78) that Frege's argument on behalf of his thesis that truth-values are the referents of statements is not compelling. In the notes to Chapter II, he points out that such a view against Frege's argument was offered by Barwise and Perry, but completely ignores that at the same time, and independently of Barwise and Perry and of each other, Herman Weidemann and the present author had also argued that Frege's argument was not compelling[5]. In particular, the present author showed in his "Remarks on Sense and Reference in Frege and Husserl" of 1982 that both states of affairs and situations of affairs remain invariant under substitutions of expressions with different sense and the same referent. Moreover, I showed that the invariance of each of the three candidates for the referent of statements, namely, truth values, situations of affairs and states of affairs, as well as the thought – or proposition, in Husserl's and others' terminology – expressed by the statement, give rise to transformation groups of statements, forming a hierarchy of groups related by the relation of being a proper subgroup. Thus, the transformation group determined by truth-value invariance properly contains as subgroup the transformation group determined by invariance of the situation of affairs, which properly

[5] For Weidemann's paper, see references. The present author's paper is Rosado Haddock, 1982 .

contains as a subgroup the transformation group determined by invariance of the state of affairs, which properly includes the transformation group determined by the invariance of thought. Moreover, I now consider that this distinction can be very fruitful in an aspect not envisaged by Husserl or by the present author in any of his published writings, namely, to replace the rather rigid distinction between extensional and intensional contexts by a more subtle distinction of degrees of extensionality. As is well known, invariance of thought is considered a necessary and sufficient condition for intensional contexts. But the other three invariances determine three different degrees of extensionality. In other papers I have shown that for mathematics – contrary to a common but mistaken view – invariance of situation of affairs is by far the most important invariance notion. Two interderivable but seemingly unrelated mathematical statements have in common not only their truth-value – which they have in common with infinitely many mathematical and non-mathematical statements not interderivable with them –, but the situation of affairs. Situations of affairs are also related to logical equivalence, on which I will say something later. Finally, I used the above distinction between different transformation groups of statements in a paper with which Chateaubriand should have been acquainted, to show that Church's argument in the Introduction to his classical logic book is fallacious[6].

III

The above discussion brings us to the issue of the so-called slingshot argument in Chapter IV. As I already mentioned, the discussion is exemplarily detailed and I fully agree with its conclusion, namely, that none of those arguments is conclusive, although not necessarily with all its details. We are going to raise briefly only a few

[6] See my 1999.

points. As already mentioned, Husserl's distinction between states of affairs and situations of affairs, as well as the consideration of the transformation groups mentioned above, can be used to throw some light on the arguments, especially on Church's classical one. In Church's argument there are transformations that preserve state of affairs, transformations that preserve situation of affairs but not state of affairs, and a transformation that only preserves truth-value. Hence, the product of all such transformations only preserves truth-value. But only the transformations that preserve state of affairs are of the sort considered by Frege. By the way, none of the transformations considered by Church preserve thought, i.e., preserve sense. Concerning Church's second argument, I just want to point out that logical equivalence does not imply sameness of sense, as Frege had thought and Church repeated. Contrary to Frege's assertion in his letters to Husserl of 1906 mentioned by Chateaubriand, sameness of meaning, i.e., invariance of thought is too strong a relation. Thus, $p \rightarrow q$ and $\neg p \vee q$ are logically equivalent but do not express the same thought according to Frege's official notion of sense in "Über Sinn und Bedeutung". In the same fashion, $(\forall x)\, F(x)$ and $\neg(\exists x)\neg F(x)$ do not express the same sense. As I have argued elsewhere, in such letters Frege conflates his official notion of sense with his old notion of conceptual content, on which more will be said later.

I will say very little about Davidson's and Gödel's arguments, since I want to leave space for other issues. However, I want to point out that I do not accept the "innocent" inclusion of self-identity as a constituent of the sense of a statement – in the same way that I do not consider existence as part of any sense identifying an object. Thus, e.g., neither self-identity nor existence should be parts of a sense identifying Kurt Gödel, Oswaldo Chateaubriand, or anyone else. In any case, self-identity and existence are presuppositions of any such identifying properties. On this point, I agree with Frege's discussion in the second part of "Über Sinn und Bedeutung". Since both Davidson's and Gödel's arguments seem to depend essentially on the admission of self-identity as

part of the sense of a statement, their apparent plausibility disappears. In the case of Gödel's argument, the use of self-identity statements seems almost perverse. Thus, using Chateaubriand's numbering, in (26I) the self-identity of Nixon appears as a constituent of the sense of Quine, and in (28I) it is Quine's self-identity that occurs as part of the sense of Nixon.

IV

Now, let us consider briefly some of Chateaubriand's renderings of Frege. First of all, I want to emphasize that Chateaubriand shows a deep knowledge both of Frege's views and of the views of the other authors discussed. However, I do not always agree with his assertions on Frege's views. Although there are other questionable renderings, e.g., Chateaubriand's at least partial leaning to interpret Frege as an epistemologist – see pp.29-30 –, and his attribution to Frege of a sort of holistic view of reference – see p.53 –, namely, that statements do not refer to isolated parts of reality, but that their connection to reality was as a whole -an attribution probably based both on Frege's rejection of the correspondence theory of truth in "Der Gedanke" and on his choice of truth values as referents of statements, but, nonetheless not explicitly warranted by Frege's writings-, I will only consider two points. The first point concerns Frege's view of senses. According to Chateaubriand (pp.54-55) Frege conceived senses as part of reality. Moreover, he says (p.57) that Frege conceived senses as objects, whereas the correct rendering of senses would be to consider them as properties. With regard to the first assertion, it should be mentioned that for Frege senses belong to a third realm of entities different from the actual real world and from the realm of our consciousness. Thus, they are "real", if at all, in a very different aspect from the reality of things in the world. Senses do not have spatio-temporal coordinates. With respect to the second assertion of Chateaubriand, it should be mentioned that due to Frege's

parallelism between grammar and ontology, at the intermediate level of senses there are both never explained unsaturated senses, which refer to concepts and presumably do not coincide with them, and saturated senses of saturated expressions that refer to saturated entities, i.e., to objects. Furthermore, contrary to Chateaubriand's views, for Frege not all senses are identifying properties. Precisely, the senses of conceptual words are not only unsaturated but are usually non-identifying.

Another even more crucial misunderstanding of Frege is not exclusive of Chateaubriand among Fregean scholars, but seems to be at least tacitly made by some of the most renowned of them, and even by Frege himself. Thus, in Chapter 8, pp.261-262, Chateaubriand conflates Frege's notion of conceptual content, introduced in §3 of *Begriffsschrift* and characterized there essentially by means of interderivability, and his notion of judgeable content, introduced in §2 of the same early work and characterized as a content capable of being judged. As Frege stresses in the Preface to *Grundgesetze der Arithmetik*, this notion was later divided in the notions of the sense of a statement, i.e., the thought, and its referent, i.e., the truth-value. Nonetheless, the notion of judgeable content is much nearer to Frege's later official notion of thought than to that of truth-value. The two characterizations are clearly different, and there is no mention of the notions being identical. Moreover, two statements S and S*, with possibly different judgeable contents, can very well have the same conceptual content. For this, it is necessary and sufficient that for any other statement S' and any fixed set Σ of statements, $S \cup \Sigma \vdash S'$ if and only if $S^* \cup \Sigma \vdash S'$. Since any statement can be derived from itself, Frege's characterization of sameness of conceptual content amounts to interderivability. Furthermore, it is extremely improbable that a so rigorous thinker as Frege would introduce in two successive sections of a logical treatise two different names for the same notion and, moreover, without expressly asserting such an identity. Hence, one can safely conclude that Chateaubriand's conflation of the two notions is incorrect.

On the other hand, even Frege himself became later somewhat confused with respect to these two notions. Firstly, it should be mentioned that in the second attempt to define the notion of number in *Die Grundlagen der Arithmetik* the two sides of the purported contextual definition are by no means synonymous, but have in common the same conceptual content. This notion is also tacitly present in the discussion of the third and final attempt to define the notion of number in that work. Moreover, this notion haunts Frege like a ghost, making him assert in "Funktion und Begriff" that the two sides of the famous Principle V of the later *Grundgesetze der Arithmetik* have the same sense, whereas in the latter work he says that what they have in common is the same reference, which for Frege should mean the same truth-value. However, if by "sense" we understand what Frege understood in "Über Sinn und Bedeutung" and in *Grundgesetze der Arithmetik*, the first assertion is false. On the other hand, the second assertion, if it were true, would leave courses of values completely undetermined. What the two sides of Principle V were supposed to have in common, in case it was true, is once more the conceptual content. Finally, when in the letters to Husserl of 1906, Frege links sameness of sense with logical equivalence – and also in a passage in "Der Gedanke" – Frege purports to talk about thoughts, whereas he really talks about conceptual concepts. Thus, Frege himself conflates the two different notions. Moreover, his notion of conceptual content was essentially Husserl's notion of a situation of affairs, whereas Frege's notion of thought is essentially Husserl's notion of proposition. As I have argued elsewhere[7], the lack of recognition of the intermediary notion of a state of affairs was responsible for Frege's conflation of the two notions clearly separated in *Begriffsschrift*.

[7] See my 1986, and that referred to in the preceding footnote.

V

Another important issue treated in Chateaubriand's book – see Chapter 11 – is Kripke's conception of rigid designators. Chateaubriand argues against Kripke that in an initial baptism it is the sense of the proper name – see p.385 – or of the natural kind term – see p.388 – that gets fixed. I tend to agree with Chateaubriand on this issue. I would like to add, however, that if there are rigid designators at all, they are not proper names in Kripke's usage, but definite descriptions of logico-mathematical entities. Thus, e.g., the sense of the definite description "the smallest prime number" – as well as those of "the smallest even number" and "the only even prime number" – fixes the reference of the definite description in all possible worlds, whereas the proper name "2", which is an arbitrary designation, does not.

VI

Finally, I will just say a few words on Chateaubriand's rendering of Tarskian semantics, especially in Chapter 7 of his extremely interesting book. Chateaubriand considers – see pp.214, 229-230 – that Tarskian semantics is really syntax not semantics, and his famous definition of truth a syntactic definition of truth (p.230). As becomes clear in a passage from p.240, it is Chateaubriand's view of logic as a science about the world, about reality, which is at the basis of his criticism of Tarski. The latter's definition of truth does not fulfil, according to Chateaubriand, what is expected of a definition of truth in the Platonic-Aristotelian tradition. Although Tarski's work is intuitively guided by the traditional Aristotelian notion of truth, and he even considers it as a contribution to the theory of knowledge, it is in Chateaubriand's eyes not up to the task. I think that Chateaubriand's conception of logic does not allow him to do justice to Tarski's work. Firstly, we should not forget that Tarski's results mostly concern formalized languages, since his result for natural languages is basically negative. Tarski's extraordinary

monograph, among other important achievements, lays the foundation for the later development of model theory and, thus, is concerned with a multiplicity of interpretations none of which is distinguished as our world. Nonetheless, on other grounds as Chateaubriand, I also consider that it is an insufficient semantics for mathematical statements, and needs to be complemented with Husserl's insights, especially with the distinction between states of affairs and situations of affairs. A first step in this direction was made in a paper that I published in this same journal almost a decade ago. On the other hand, for more positive results about natural languages, one has to consider Kripke's theory of truth, the revision theory of truth of Gupta, Herzberger, Belnap, Yaqûb and others, or Yablo's theory of truth. I suppose that they will be discussed in *Logical Forms II*.

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