Analyticity and Epistemological Holism: Prague Alternatives[1]

Paolo Parrini[†]

Abstract: In the early 1930's Carnap and Quine met in Prague and discussed logic and philosophy. Carnap was working on the *Logische Syntax der Sprache*; when Quine went back to Harvard he published "Truth by Convention." The purpose of the present paper is to establish three main points: (1) in "Truth by Convention" some important aspects of the future position Quine will assume about the analytic/synthetic and the *a priori/a posteriori* dichotomies are already expressed; (2) in the *Logische Syntax der Sprache*, Carnap maintains the distinction between *L*-rules and *P*-rules, at the same time being aware of the holistic character of empirical control and of the possibility to revise the acceptance of every kind of sentences; (3) Quine's idea that the holistic conception requires completely abandoning the analytic/synthetic and *a priori/a posteriori* distinctions does not seem wholly correct. On the contrary, in the *Logische Syntax* Carnap takes a step forward in his conception of the "relativized *a priori*". Thus, we can say that in the Prague years two alternative accounts of the theory/experience relation began to emerge. These two alternatives are still pivotal in contemporary epistemological debate.

In 1934 Carnap and Quine met in Prague and held lengthy discussions on philosophy. Carnap had been in Prague since 1931. From 1926 until the Summer of 1931 he had lived in Vienna working as "instructor of philosophy" at the University with Schlick and taking active part in the Wiener Kreis meetings. In Vienna, Carnap had also met the physicist Philipp Frank, who, at the time, taught at the German University in Prague, succeeding Einstein. It was Frank who helped Carnap obtain the chair of Natural Philosophy that Frank himself had managed to create in his University (see Carnap 1963a: 3, 32).

Quine, instead, arrived in Prague at the end of 1933 to spend the first semester of 1934 there thanks to Harvard's Sheldon Travelling Fellowship which

[1] Essay presented at the international conference, *Philipp Frank: Wien-Prag-Boston* (Vienna, 27–28 Sept. and Prague 30 Sept., 1 Oct. 2004). Italian text, "Analiticità e olismo epistemologico: alternative praghesi", in *Le ragioni del conoscere e dell'agire. Scritti in onore di Rosaria Egidi*, ed. by R. M. Calcaterra (Franco Angeli, Milano 2006), 190-204. Eng. trans. by the author, copy-edited (with permission) by K.R. Westphal.

philinq IX, 1-2021, pp. 79-94
ISSN (print) 2281-8618-ETS doi: 10.4454/philinq.v9i1.XXX
Submitted: October 2018
Accepted: July 2019

enabled him to leave the United States and go to Europe in 1932. After having worked with Carnap, in the second semester of 1934 he moved to Warsaw. Here he came into contact with the Polish logicians and in particular Alfred Tarski, with whom in the meantime Carnap himself had had a positive exchange of ideas (see Quine 1986: 10-13; and Carnap, 1963a: 30). In the course of 1934, Carnap, Tarski and Quine had no opportunity to discuss their ideas all three together. I do think, however, that the contacts which they had separately with each other during that year must be ideally connected to the those they had a few years later, in the academic year 1940-41, when all three of them met at Harvard. In fact, what clearly emerges from their Harvard discussions (in which Bertrand Russell too participated actively) was the clear-cut disagreement between Carnap, on the one hand, and Tarski and Quine, on the other, about the possibility of maintaining a "sharp […] distinction between logical and factual truth" (Carnap 1963a: 35-36). However, if we consider the developments of Carnap's and Quine's thought more closely, we can see that the main ideas which characterize the theoretical gap between their positions had already emerged in the Prague period.

In the years immediately preceding Carnap's move to Prague, he had been working on *Der Logische Aufbau der Welt.* This book was published in 1928, but was the fruit of a long preparation begun in the early 1920s, when Russell's and Wittgenstein's influence had not yet fully shown its effect. As we can see from Frank's own words, the very ideas Carnap was working on in these years provide one of the main reasons why Schlick wanted him in Vienna. In these ideas the Vienna philosophers saw the attempt to realize that empiristic synthesis between Kantism, Mach's sensism, Poincarè's conventionalism and the new mathematical logic which was to underwrite a renewed defense of scientific rationality, capable of opposing the well-known thesis of the bankruptcy of science.[2]

The positions contained in the *Aufbau*, though, were not immune from criticism, also from within the Vienna Circle itself, in particular from the physicalist Otto Neurath. The debate about protocols led Carnap to abandon

[2] Frank writes: "According to Mach the general principles of science are abbreviated economical descriptions of observed facts; according to Poincaré they are free creations of the human mind that do not tell anything about observed facts. The attempt to integrate the two conceptions into one coherent system was the origin of what was later called Logical Empiricism. […] Carnap gave the new philosophy its 'classical' shape. [… In] his book *The Logical Structure of the World* [(*Der logische Aufbau der Welt*) …] the integration of Mach and Poincaré was actually [achieved] in a coherent system of conspicuous logical simplicity. Our Viennese group saw in Carnap's work the synthesis that we had advocated for many years" (Frank 1949, 11-12, 33). On the importance of this evidence given by Frank in understanding Logical Empiricism, see the essays collected in Parrini (2002), in particular, Chapters 1 and 6.

the kind of phenomenalistic reductionism which is one main characteristic of the *Aufbau* and turn instead in a more strongly conventionalist and anti-foundationalist direction regarding both the nature of the empirical basis and the epistemological status of logic and mathematics. The clearest expression of such a position can be found in the *Logische Syntax der Sprache*, a book which Carnap had first conceived also under the influence of some suggestions offered to him by Tarski in Vienna in February 1930[3] and which he published a few years later with a *Vorwort* dated "Prag, im Mai 1934".

In the *Logische Syntax der Sprache* Carnap deals both with specific questions of philosophy of logic and mathematics and questions of a more general kind. I will now focus on three theses contained in this work.

The first thesis regards logical-mathematical conventionalism. It can be summarized in the famous *Toleranzprinzip*: "In logic, there are no morals (*In der Logik gibt es keine Moral*)" (Carnap 1934/1937: §17). Logical and mathematical *a priori* truths depend only on *L*-rules, in other words on the conventions (in effect: implicit definitions) that fix the meaning of logical-mathematical symbols. In this way, logical-analytical truths, called *L*-truths or *L*-valid propositions, are distinguished from *P*-truths, *i.e.* those truths that depend on postulates (known as *P*-rules) at the basis of the theories of empirical sciences, physics in particular. The so called "linguistic doctrine of the *a priori*" is here presented in a conventionalistic form, since referring to the method of implicit definitions allows us to eliminate any reference to forms of *a priori* intuition in characterizing either logical-mathematical truths or other scientific general principles, such as the causal principle.

The second thesis is linked to the distinction between formal and material language. According to Carnap, the "*material mode of speech*" is "*a transposed mode of speech*" and the "*translatability into the formal mode of speech constitutes the touchstone for all philosophical sentences* or, more generally, for all sentences which do not belong to the language of any one of the empirical sciences" (Carnap 1934/1937: §80). The task of philosophical analysis consists in eliminating philosophical problems by translating them into the formal language, or reinterpreting them as questions of a practical nature regarding the form of the language we intend to adopt.

Such an idea (which, in substance, can already be found in the *Aufbau*) will be fully expressed in his 1950 essay, "Empiricism, Semantics and Ontology". In this essay, the distinction between *L*-rules and *P*-rules – which he had improved

[3] See Carnap (1963a: 30). Here Carnap recalls that his disagreement with Tarski about the "difference between logical and factual statements" had already emerged in those years, because Tarski "maintained that the distinction was only a matter of degree."

in his works on semantics subsequent to the *Logische Syntax der Sprache* (from the *Introduction to Semantics* to the numerous Appendixes to the second, 1956 edition of *Meaning and Necessity*[4]) – is connected to the distinction between *internal* and *external* questions. Answers to internal questions are given within a linguistic framework already accepted in accord with the rules that characterize it. These answers depend on the particular nature of the internal questions involved and may be empirical answers or logical-analytical answers. External questions, instead, regard the problem of which linguistic frameworks we should accept. The answers given to them are of a substantially pragmatic nature, although decisions to accept or reject a framework also consider the empirical and theoretical factors we have at our disposal (see Carnap 1956, esp.: 206-209).

The third thesis of the *Logische Syntax der Sprache* on which I want to focus my attention provides the general philosophical background to all the others. This thesis consists in the linguistic-syntactic form that the anti-absolutistic component of the *wissenschaftliche Weltauffassung* takes in Carnap's views. Such a component has been accurately described by Frank in his brief reconstruction of the origins and development of Logical Empiricism,[5] where it is traced back to the anti-metaphysical spirit that animates Mach's treatment of physics, in particular mechanics:

> Mach analyzed the fundamental concepts of nineteenth-century physics, such as mass and force, and made clear that all statements containing these words can be interpreted as statements about sense observations. […] Nonetheless, Mach had no special bias against the mechanistic terminology that would imbue him with a particularly antimaterialistic tendency. He tried to debunk all types of auxiliary concept in so far as they pretended to describe ontological realities or metaphysical entities.[6]

Carnap links this idea to the verification principle and the linguistic conception of the *a priori* and supports the thesis that we can discuss questions relating

[4] See Carnap (1956, 1st ed.: 1947). Among the numerous essays reprinted in the appendix to the second edition of *Meaning and Necessity*, the one published in 1955 ("On Some Concepts of Pragmatics") is particularly significant (Carnap 1956: 248-250). While answering R. Chisholm's objections, Carnap acknowledges the link between intentional notions (such as belief) and intensional notions (such as meaning). Moreover, continuing the discourse begun in the 1952 essay "Meaning Postulates" (Carnap 1956: 222-229), he states the theoretical nature of semantic and pragmatic concepts; see Parrini (1976, esp.: 97-116), and Creath (1990: 1-43). Creath's analysis, though, gets only so far as Carnap's essay, "Meaning and Synonymy in Natural Languages" (Carnap 1956: 233-247), which was written between "Meaning Postulates" and "On Some Concepts of Pragmatics"; see Creath (1990, esp.: 34-38).

[5] See Frank (1949: 1-53), "Introduction – Historical Background".

[6] Frank (1949: 17-18). See Parrini (1998: 13-16). In the paper presented in Prague, Thomas Uebel underlined the importance of this Machian aspect of Frank's thought by speaking of the tendency to the metaphysical hypostatization or absolutization of scientific concepts as a form of "petrification".

to existence and truth in a meaningful way only relative to a linguistic framework previously specified: asking questions of truth and existence has only an internal empirical-cognitive meaning. In the Prague years, the framework is conceived as a structure of a purely syntactic nature. According to Carnap,

> the use of the material mode of speech gives rise to obscurity by employing absolute concepts in place of the syntactical concepts which are relative to language […]. The use of the *material mode of speech* leads […] to a *disregard of the relativity to language of philosophical sentences*; it is responsible for an *erroneous conception of philosophical sentences as absolute.* (Carnap 1934/1937, §80)

Just when discussing analyticity in the characterization given to it by Frege, Carnap quotes Walter Dubislav in order to state the relative nature of this notion. We can speak of analytical propositions only relatively "to a particular system of assumptions and methods of reasoning (primitive sentences and rules of inference), that is to say, in our terminology, to a particular language."[7] Such a thesis is connected to the conventionalism explicated in the *Logische Syntax* and the criticism developed in this same book opposing "Wittgenstein's absolutist conception of language, which leaves out the conventional factor in language-construction."[8] It is important to notice that Carnap does not simply say he is interested in elaborating a relativized conception of analyticity, or more precisely, *L*-validity. He states a stronger thesis: to the notion of analyticity, as well as to other similar notions, we should only ascribe a relative validity.

All these ideas had a profound influence on Quine, who more than once has acknowledged his intellectual debt.[9] His thought, though, will culminate in a theory that – as Richard Creath (1991) rightly pointed out – comprises an epistemological project which is alternative to Carnap's. Unlike Carnap, Quine was not mainly interested in developing a model of epistemic justification of our assertions in which, side by side to experience, an essential role is played by conventions and meanings and not by forms of *a priori* intuition and *a priori* concepts or principles. Quine's epistemological project regards primarily the transformation of the complex of our beliefs and convictions and is mainly linked (though not exclusively) to the idea of naturalization. Quine takes Neurath's well-known metaphor of the sailors very seriously and tries to describe the process by which we try to improve the system of

[7] Carnap (1934/1937: §14). Here Carnap refers, as well as to Kant, Frege and Wittgenstein, to Walter Dubislav's essay, *Über die sogenannten analytischen und synthetischen Urteile* (Berlin, 1926).

[8] Carnap (1934/1937: §52); see also §67, where Carnap accuses Wittgenstein of overlooking "the fact that there is a multiplicity of possible languages" and talking "continually of 'the' language".

[9] See, for example, Carnap & Quine (1990: 463-466).

beliefs in which from the very beginning we have been immersed by calling into question considerations of a global nature governed by the principles of empirical adequacy, simplicity and conservation. In this way, in Quine's epistemology (or at least, in Quine's *desiderata*), no role is played by forms of *a priori* intuition (as also in Carnap's conception too), but also none is played by conventions, meanings or distinctions between the *a priori* and the *a posteriori* and the analytic and the synthetic, of whatever nature they may be (relativized or non-relativized).

Quine presented such a conception – a very problematic one, especially in its naturalized version – in "Two Dogmas of Empiricism" and in the other essays published with it in *From a Logical Point of View* (1953). I think, though, that he had already set the essential premises both of his criticism of Carnap and of his own alternative epistemological project in "Truth by Convention," an essay published in 1936 but which he completed in 1935, one year after his Prague period. In "Truth by Convention", Quine critically analyses the idea that logical-mathematical truths depend upon conventions concerning the meaning or linguistic use of logical constants. Yet he does not go so far as refuting the analytic/synthetic and the *a priori/a posteriori* distinctions. Despite this, in his analysis of logical conventionalism we can already see three fundamental aspects of his future position.

The first aspect is his naturalistic behaviorism. Quine points out that, if one wished to, it would be possible to apply the method of implicit definition not only to logic and mathematics, but also to the "so called empirical sciences" (Quine 1936: 100) extending the conventionalistic thesis to them too. If we do not do this, it is because by asserting the conventionality of logical-mathematical truths, but not the conventionality of the empirical truths, we want to account for the fact that "the former are *a priori*, the latter are *a posteriori*; the former have 'the character of an inward necessity', in Kant's phrase, the latter do not" (Quine 1936: 102). In discussing this point Quine states that it is possible to look at the contrast between the two types of truth from a strictly behavioristic point of view, "and without reference to a metaphysical system," "as a contrast between more and less firmly accepted statements" which "obtain antecedently to any *post facto* fashioning of conventions":

> there are statements which we choose to surrender last, if at all, in the course of revamping our sciences in the face of new discoveries, and among these there are some which we will not surrender at all, so basic are they to our whole conceptual scheme. Among the latter are to be counted the so-called truths of logic and mathematics, regardless of what further we might have to say of their status in the course of a subsequent sophisticated philosophy. (Quine 1936: 102)

The second aspect of "Truth by Convention" I want to underline proves that logical-mathematical conventionalism is invalidated by an infinite regress. Logical truths are infinite in number; so they cannot be singled out individually. In order to indicate them, it is necessary to advert to general conventions; but to apply general conventions to individual cases, we already need logic at a meta-theoretical level: if logic "is to proceed *mediately* from conventions, logic is needed for inferring logic from the conventions" (Quine 1936: 104). Quine's argument – which I do not need to expound here in full detail – is substantially the argument identified by Lewis Carroll in his 1895 essay "What the Tortoise Said to Achilles." Such an argument was mentioned again in Quine's (1954/1963) essay, "Carnap and Logical Truth",[10] and his allied attempts to defend the thesis of the conventionality of logic up to today. For example, it constitutes one of the major obstacles that must be met by the epistemic conception recently taken again into consideration by Paul Boghossian.[11]

The third aspect characterizing Quine's criticism of logical conventionalism is particularly relevant, since it anticipates the thesis according to which no genuine *explicandum* corresponds to the analytic/synthetic dichotomy. While commenting on the question of the infinite regress, Quine is willing to concede that we can deal with it by maintaining that the conventions necessary to produce logical and mathematical truths "are *observed* from the start, and that logic and mathematics thereby become conventional":

> It may be held that we can adopt conventions through behavior, without first announcing them in words; and that we can return and formulate our conventions verbally afterwards, if we choose, when a full language is at our disposal. (Quine 1936: 105-106)

Straight afterward, though, Quine adds that this kind of defense risks depriving the notion of convention of any recognizable content. In such a case – Quine says – "it is not clear wherein an adoption of the conventions, antecedently to their formulation, consists; such behavior is difficult to distinguish from that in which conventions are disregarded":

> In dropping the attributes of deliberateness and explicitness from the notion of linguistic convention we risk depriving the latter of any explanatory force and reducing it to an idle label. We may wonder what one adds to the bare statement that the truths of logic and mathematics are *a priori*, or to the still barer behavioristic statement that they are firmly accepted, when he characterizes them as true by convention in such a sense. (Quine 1936: 105-106)

[10] See Quine (1954: 115); on "Carnap and Logical Truth", see Creath (2003).

[11] See, for example, Boghossian (2003).

So – Quine concludes – "as to […] the thesis that mathematics and logic proceed wholly from linguistic conventions, only further clarification can assure us that this asserts anything at all" (Quine 1936: 105-106).

With this third point Quine not only posited one of the building blocks for his future criticism of the two dogmas of empiricism and of Carnap's conception of "semantic ascent"; he also posited one of the major problems which worried Carnap in his defense of the notion of analyticity: the problem of the *explicandum* that such a notion should account for. This problem presents two aspects: a semantic-pragmatic aspect which pertains to the philosophy of language,[12] and an epistemological aspect that pertains to the general theory of knowledge and to philosophy of science. Taken in its epistemological meaning, it is just this problem that will lead Carl Gustav Hempel to side with Quine regarding the possibility of maintaining the analytic/synthetic distinction.

The reason why Hempel's path crossed Quine's is linked to a technical question concerning the formulation of the Standard Conception of Scientific Theories. In the course of the liberalization of empiricism, Hempel had shown that the method of the "so-called bilateral reduction sentence" used by Carnap to provide an empirical interpretation of dispositional and theoretical terms made it difficult to keep separate "the specification of meanings and the description of facts" (Hempel 1963: 686, 691). Under the stimulus of such critical observations, Carnap managed to devise a very ingenious and complex solution based on the use of the "Ramsey sentence" which allowed a reconstruction of theories in which the analytical components were distinguished from those which are synthetic.

In the essay published in Schilpp's volume on Carnap, Hempel acknowledged the success of Carnap's solution from a strictly technical point of view, but objects to its epistemological relevance. He maintains that the "new procedure" devised by Carnap "gives rise […] to the question as to the meaning and the rationale of the distinction that is made here between meaning postulates and empirical postulates" (Hempel 1963: 705). Referring to Quine's criticism of reductionism, Hempel states again that in science there are no assertions totally devoid of empirical content, the truth value of which cannot be revised in the light of future experiences. Thus, he deems

> questionable […] whether there is any aspect of scientific method or of scientific knowledge that would constitute an explicandum for the analytic-synthetic dichotomy in regard to the statements of empirical science. (Hempel 1963: 705)

[12] For the semantic-pragmatic aspect, see above, note 4 and the references given there.

It seems to me significant that in his comment on Hempel's contribution, Carnap (1963c) does not answer this problem. Actually, he could rightly have thought that he had already explicitly dealt with it in his comment on Quine's essay, "Carnap and Logical Truth". In fact, there he had specified the following three points: (*i*) "the concept of analytic statement" he had adopted "as an explicandum is not adequately characterized as 'held true come what may'" (Carnap 1963b: 921); (*ii*) in scientific developments it is opportune to distinguish between readjustments in the attribution and/or change of truth values assigned to statements within a given language and readjustments of a "revolutionary" kind which render the change of the language (linguistic form) of reference necessary; (*iii*) his "concept of analyticity as an explicandum has nothing to do with such a transition"; it refers "in each case to just one language":

> That a certain sentence *S* is analytic in [a particular language *L*] means only something about the status of *S* within the language [*L*]; as has often been said, it means that the truth of *S* in [*L*] is based on the meanings in [*L*] of the terms occurring in *S*. (Carnap 1963b: 921)

Only in the last few decades – thanks to studies which have considerably deepened our knowledge of both the historical development of Logical Empiricism and the relations between neo-empiricistic conceptions (Carnap's in particular) and the ideas of the so-called New Philosophy of Science (Kuhn's in particular) – has it become possible to fully understand the sense of the position taken by Carnap in the controversy on analyticity. In contrast to what was initially believed, between Carnap's and Kuhn's conceptions there is not only a contraposition. On the one hand, it is certainly true that Kuhn's ideas led to the crisis of a 'vertical conception' of science, characterized by the dualism between theoretical language and observational language. On the other hand, it is equally true that such ideas added extra value to the thesis – characteristic also of Carnap's epistemology with its distinction between internal and external questions – according to which we cannot understand the structure of and changes within science without taking into consideration the presuppositions that provide the framework for scientific activity. While considering the holistic conception of the theory/experience relation still to be valid, we cannot consider adequate a vision of science which puts all the expressive components of scientific discourse on the same level, without setting any distinction between those components which depend upon experience directly and those which depend on it only indirectly and play a presuppositional role.

In Carnap's epistemology the rules, or meaning postulates, and the analytic statements depending upon them, play a role analogous to the role played by the so called "paradigmatic propositions" in Kuhn's contraposition between

normal and revolutionary science. Together with manuals and exemplars (or paradigms in the central sense of the term), such propositions are an essential component of the disciplinary matrix and are statements that can be considered neither as necessarily valid,

> nor empirical in the usual sense exactly because they are protected from straightforward empirical refutation [...]. They constitute an epistemically distinct class in that they do not fit the traditional division of all propositions into *a priori* and empirical. Rather they are propositions which are accepted as a result of scientific experience but which come to have a constitutive role in the structure of scientific thought.[13]

Recently it has been pointed out that an analogous problem had already been posited (though only with reference to logical principles) in a letter Goodman wrote to Quine in the early 1950s (see Creath 1991: 380-381). It should be noticed, though, that in the *Logische Syntax* Carnap had already set the premises of the answer he later gave Hempel and Quine in the 1960s. In §82 ("Physical Language") of that book, he says that "either *L*-rules alone, or *L*-rules and *P*-rules, can be laid down as transformation rules of the physical language" (Carnap 1934/1937: §82). Furthermore – well before Quine's revival of Duhem's thesis in "Two Dogmas of Empiricism" – on the basis of the results of the polemic about protocols, he states the holistic character of the experimental control and the revisability in principle of any statement, in other words not only of protocol statements and *P*-rules, but also of *L*-rules. In fact, Carnap declares that the empirical test of hypotheses and theories is relative to other hypotheses and theories:

> *the test applies, at bottom, not to a single hypothesis but to the whole system of physics as a system of hypotheses* (Duhem, Poincaré). No rule of the physical language is definitive; all rules are laid down with the reservation that theory may be altered as soon as it seems expedient to do so. This applies not only to the *P*-rules but also to the *L*-rules, including those of mathematics. In this respect there are only differences in degree; certain rules are more difficult to renounce than others. (Carnap 1934/1937: §82)

It is important to notice that in the *Logische Syntax* Carnap maintains this point drawing indifferently from both Poincaré and Duhem. As in Frank's Introduction to *Modern Science and Its Philosophy* (1941), Carnap too does not seem to be aware of the relevant differences between Poincaré's position and Duhem's, differences that Duhem himself had strongly underlined in some (for too long neglected) pages of his *Thèorie physique*.[14] Here I must set aside this aspect of

[13] Brown (1979: 105); see also Kuhn's concise elucidations in Kuhn (1983: 566-567).

[14] See Frank (1949); Frank's pages 15-16 on Duhem are particularly relevant. Frank underlines Duhem's holistic conception of experimental control, but does not take into consideration his criticism

the question and focus instead on the most relevant traits of the conception of the theory/experience relation proposed in the passage mentioned above of the *Logische Syntax*.

There is no doubt that in supporting the global dependence upon experience of the system of our assertions and the revisability in principle of each of its components, Carnap was proposing a thesis that later played a fundamental role both in Quine's conception of an empiricism without dogmas and in the criticism directed by Quine to Carnap himself about the possibility of maintaining the analytic/synthetic, *a priori/a posteriori* and internal/external distinctions. It is also unquestionable, though, that Carnap supported these ideas in the context of a very precise thesis: the above mentioned relativistic thesis, according to which the questions regarding truth and existence can be raised only within a linguistic framework previously established. As I have tried to show elsewhere, this thesis was not undermined either by Quine's subsequent criticisms of the two dogmas of empiricism nor by the abandonment of the verification principle[15]; on the contrary, it was even reinforced by what Kuhn stated about scientific revolutions. In this way, Carnap stepped forward towards formulating that conception of the relativized *a priori* that some recent interpreters (including myself and Michael Friedman[16]) have considered as one of the most characteristic points of the Neo-empiristic conception of the theory/experience relation.

In fact, with his defense of analyticity Carnap aligned himself with the work in which the idea of the relativized *a priori* had been outlined for the first time. I refer to the 1920 book *Relativitätstheorie und Erkenntis a priori* in which Reichenbach stated the necessity to maintain the idea of a constitutive *a priori* endowed with a double nature (as later Kuhn's so-called "paradigmatic propositions" will be): such an *a priori* is subject to historical changes (in other words, it is not eternally valid) and it is not absolutely independent of experience. In fact, the main characteristic of Reichenbach's coördinative or constitutive principles is that

of Poincaré on the language/theory relationship. On the importance of this topic for the interpretation of Logical Empiricism, see Parrini (2002), esp. Chapters 1, 6. Duhem's holism is also not discussed in the collection of essays edited by P. Frank (1961), *The Validation of Scientific Theories* (Collier Books, New York). (The papers published in this book were first presented at the annual meeting of the American Association for the Advancement of Science, Boston, Massachusetts, December 1953.)

[15] Parrini (1994, esp. 267-274), and Parrini (2002: chapter 10).

[16] See: Parrini (1976, esp.: 264-290); Parrini (2002: chapters 6, 7, 10); Friedman (1999), (2001), esp. Part Two, "Fruits of Discussion", "The Relativized *A Priori*", 79, *n.* 9. As a scrupulous and intellectually fair scholar once said: "dates are clear."

their validity does not depend only upon the judgment of particular experiences, but also upon the possibility of the whole system of knowledge: this is the sense of the *a priori*. The fact that we can describe reality by means of metric relations among four coördinates is as valid as the totality of physics; only the special form of these rules has become a problem of empirical physics. This principle is the basis for the conceptual construction of physical reality. *Every* physical experience ever made has confirmed this principle. This result does not exclude the possibility that some day experiences will occur that will necessitate another successive approximation – then physics again will have to change its concept of object and presuppose new principles for knowledge. '*A priori*' means '*before* knowledge', but not 'for all time' and not 'independent of experience'. (Reichenbach 1920: 104-105)

In passing from Reichenbach's to Carnap's conception, the relativized *a priori* undergoes a significant change that has often been overlooked: The coördinative assumptions mentioned by Reichenbach loose their theoretical-synthetic nature to become linguistic conventions in Poincaré's sense (as Schlick had already stated). Such assumptions cease being constitutive of objects and become constitutive of meanings. Just on this point we can appreciate how failing to see the differences between Poincaré's position and Duhem's has been relevant within the history of Logical Empiricism. In fact, one of the main criticisms addressed to Poincaré by Duhem aimed precisely at establishing that those aspects of subjectivity present in scientific discourse cannot be reduced (as Poincaré claimed) to the linguistic component of such discourse. Putting aside this question which I have discussed elsewhere (Parrini 2002: Chapters 1, 6, 10), here I wish to draw the attention to the fact that the position expounded by Carnap in the *Logische Syntax* implied a way of looking at analyticity and the *a priori* radically different from, and alternative to, the position Quine maintained until the end of his career in the 1990s.

In one of the Replies contained in the Schilpp volume, Quine says:

I now perceive that the philosophically important question about analyticity and the linguistic doctrine of logical truth is *not* how to explicate them; it is the question rather of their relevance to epistemology. The second dogma of empiricism, to the effect that each empirically meaningful sentence has an empirical content of its own, was cited in "Two Dogmas" merely as encouraging false confidence in the notion of analyticity; but now I would say further that the second dogma creates a need for analyticity as a key notion of epistemology, and that the need lapses when we heed Duhem and set the second dogma aside. (Quine 1986a: 207)

This passage is important for a number of reasons, not least because it testifies to one of Quine's many oscillations when trying to state the reasons of his re-

jection of analyticity.[17] In this case, the quotation helps us understand that one of the essential points to consider when discussing the *a priori/a posteriori* and analytic/synthetic distinctions is their relevance to epistemology. This remains true also after reductionism has been rejected in favor of epistemological holism and (still more significant) rightly so, due to reasons strictly linked to a holistic conception of the theory/experience relation.

It may be that the negation of analyticity must be considered necessary to the development of holism according to Quine's model (although I do not agree with this consideration, at least if we remain on a strictly epistemological level[18]); but if we look at the question from the point of view of epistemic justification, it does seem that the holistic conception of the theory/experience relation as such requires re-evaluation of the relativized *a priori*. Unlike what Quine maintained, we can renounce reductionism in favor of Duhem's holism (as Carnap had done since the time of the *Logische Syntax*) without depriving analyticity of its key role in epistemology.

The most recent discussions of analyticity and the *a priori* have brought to light merits and demerits of both Quine's and Carnap's conceptions. Just these discussions have allowed us to understand that distinctions such as the analytic/synthetic and *a priori/a posteriori* distinctions cannot be denied or accepted when considered individually in isolation, *i.e.* without taking into consideration the answers we give to other philosophical questions. Such distinctions must be accepted or rejected as integral parts of distinctive general epistemological theories, similar to those alternative conceptions which began to emerge in Prague in the first half of the 1930s and which still are pivotal points in contemporary epistemological debate.

References

Boghossian, Paul, 2003, "Epistemic Analyticity: A Defense," in Glock, H.-J., Glüer, K., & Keil, G., eds., *Fifty Years of Quine's "Two Dogmas*," in *Grazer Philosophische Studien*, 66: 15-35.

Brown, Harold, 1979, *Perception, Theory and Commitment. The New Philosophy of Science*, The University of Chicago Press, Phoenix edition, Chicago; 1st ed. 1977.

[17] For more detailed analysis of this issue see Parrini (2018: esp. §§2-4). [This companion piece follows in this issue. – *Ed. note*.]

[18] I think that we cannot justify the statement that the dogma of analyticity and the dogma of reductionism "are, indeed, at root identical," affirmed in "Two Dogmas" (Quine 1951: 41). For this reason I think it is possible to reject the second dogma while maintaining the first. We can preserve analyticity even when accepting the revision argument: it is enough to say – as Carnap said – that the revision of the truth value of certain sentences involves a change in language. Deprived of its semantic-pragmatic objections, Quine's position on analyticity loses much of its appeal and strength.

Carnap, Rudolf, 1934, *Logische Syntax der Sprache*, Springer Verlag, Wien; cited by § number.

Carnap, Rudolf, 1937, *The Logical Syntax of Language*, Routledge & Kegan Paul, London, 3rd ed. 1951; cited by § number.

Carnap, Rudolf, 1950, "Empiricism, Semantics, and Ontology", in *Revue Internationale de Philosophie*, 4: 20-40; rev. ed. in: *idem* (1956): 205-221.

Carnap, Rudolf, 1956, *Meaning and Necessity. A Study in Semantics and Modal Logic*, 2nd rev. ed., University of Chicago Press, Chicago; 1st ed. 1947.

Carnap, Rudolf, 1963a, "Carnap's Intellectual Autobiography", in Schilpp, P.A., ed., *The Philosophy of Rudolf Carnap*, The Library of Living Philosophers, La Salle ILL: 1-84.

Carnap, Rudolf, 1963b, "W.V. Quine on Logical Truth", in Schilpp, P.A., ed., *The Philosophy of Rudolf Carnap*, The Library of Living Philosophers, La Salle ILL: 915-922.

Carnap, Rudolf, 1963c, "Carl G. Hempel on Scientific Theories", in Schilpp, P.A., ed., *The Philosophy of Rudolf Carnap*, The Library of Living Philosophers, La Salle ILL: 958-966.

Carnap, Rudolf, & Quine, W.V.O., 1990, Creath, Richard, ed., *Dear Carnap, Dear Van. The Quine-Carnap Correspondence and Related Work*, University of California Press, Berkeley & Los Angeles.

Carroll, Lewis, 1895, "What the Tortoise Said to Achilles", in *Mind* 4, 14: 278-280.

Creath, Richard, 1990, "Introduction", in Carnap & Quine (1990): 1-43.

Creath, Richard, 1991, "Every Dogma Has Its Day", in *Erkenntnis*, 35: 347-389.

Creath, Richard, 2003, "The Linguistic Doctrine and Conventionality: The Main Argument in 'Carnap and Logical Truth'", in Hardcastle, G.L., & Richardson, A.W., eds., *Logical Empiricism in North America*; *Minnesota Studies in the Philosophy of Science* XVIII, University of Minnesota Press, Minneapolis: 234-256.

Frank, Paul, 1949, *Modern Science and its Philosophy*, Harvard University Press, Cambridge MA; 1st ed. 1941.

Friedman, Michael, 1999, *Reconsidering Logical Positivism*, Cambridge University Press, Cambridge.

Friedman, Michael, 2001, *Dynamics of Reason*, CSLI Publications, Stanford, CAL.

Hempel, Carl, 1963, "Implications of Carnap's Work for the Philosophy of Science", in Schilpp, P.A., ed., *The Philosophy of Rudolf Carnap*, The Library of Living Philosophers, La Salle ILL: 685-709.

Kuhn, Thomas, 1983, "Rationality and Theory Choice", in *The Journal of Philosophy*, 80, 10: 563-570.

Parrini, Paolo, 1976, *Linguaggio e teoria. Due saggi di analisi filosofica*, La Nuova Italia, Firenze.

Parrini, Paolo, 1994, "With Carnap Beyond Carnap. Metaphysics, Science, and the Realism/Instrumentalism Controversy", in Salmon, Wesley, & Wolters, Gereon, eds., *Logic, Language, and the Structure of Scientific Theories*, Proceedings of the Carnap-

Reichenbach Centennial, University of Konstanz, 21-24 May 1991; University of Pittsburgh Press/Universitätsverlag Konstanz, Pittsburgh/Konstanz: 255-277.

Parrini, Paolo, 1998, *Knowledge and Reality. An Essay in Positive Philosophy*, Kluwer, Dordrecht; Eng. ed. of *Conoscenza e realtà. Saggio di filosofia positiva*, Laterza, Roma-Bari 1995.

Parrini, Paolo, 2002, *L'empirismo logico. Aspetti storici e prospettive teoriche*, Carocci, Roma.

Parrini, Paolo, 2018, "Quine su analiticità e olismo. Una valutazione critica in dialogo con Sandro Nannini", in Lumer, C., & Romano, G., eds., *Dalla filosofia dell'azione alla filosofia della mente. Riflessioni in onore di Sandro Nannini*, Corisco Edizioni, Roma-Messina: 95-116. [Eng. trans. follows below – *Ed. note*.]

Quine, W.V.O., 1936, "Truth by Convention", in Lee, O.H., ed., *Philosophical Essays for A.N. Whitehead*, Longmans, New York; rpt. in: W.V.O. Quine, *The Ways of Paradox and Other Essays*, rev. & enlarged edition, Harvard University Press, Cambridge MA: 77-106.

Quine, W.V.O., 1951, "Two Dogmas of Empiricism", in *Philosophical Review*, 60: 20-43; rpt. in: *idem*, *From a Logical Point of View. Logico-philosophical Essays*, 2nd rev. ed., Harper & Row, New York 1961: 20-46.

Quine, W.V.O., 1954, "Carnap and Logical Truth", rpt. in: *idem*, *The Ways of Paradox and Other Essays*, rev. & enlarged ed., Harvard University Press, Cambridge MA: 107-132.

Quine, W.V.O., 1986, "Autobiography of W. V. Quine", in Hahn, L.E., & Schilpp, P.A., eds., *The Philosophy of W.V. Quine*, Open Court, La Salle ILL: 1-46.

Quine, W.V.O., 1986a, "Reply to Geoffrey Hellman", in Hahn, L.E., & Schilpp, P.A., eds., *The Philosophy of W. V. Quine*, Open Court, La Salle ILL: 206-208.

Reichenbach, Hans, 1920, *Relativitätstheorie und Erkenntnis apriori*, Springer, Berlin; Eng. ed.: Reichenbach, Maria, ed., *The Theory of Relativity and A Priori Knowledge*, University of California Press, Berkeley & Los Angeles 1965.