

Introduction

The Analytic–Synthetic Distinction and Its Many Fates

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1. The Many Unwritten Histories of the Analytic–Synthetic Distinction

To claim that it is impossible to write a history of the analytic–synthetic distinction in the introduction to a journal issue devoted precisely to this topic may seem either a joke for philosophers or a literary imitation of Magritte’s masterpiece. Yet we believe that neither description is accurate and not merely because there are accounts that prove incompatible, or at least untranslatable due to heterogeneity of the conceptual background and the consequent changes in the use of terms. Rather, it is impossible to write a unified history of the analytic–synthetic distinction because the same terminology has been used to frame entirely different problems—which are linked to that distinction but cannot be reduced to it.

If one only deals with the Kantian version of that distinction as a starting point, it is not difficult to identify distinct problems, sometimes independent of one another. If one considers even just a few of the key moments in this history—Carnap’s *Meaning and Necessity*, Quine’s *Truth by Convention* or Kripke’s *Naming and Necessity*—one realises just how disparate the themes and objectives were.

The realisation that it is impossible to write a history of the analytic–synthetic distinction is ultimately driven by the conviction that this difference stems from an elliptical expression, incomplete in relation to a range of issues, each of which might merit its own history.

When it was first presented, that distinction was set out as if it were the refined formulation of other pairs well known to modern philosophy:

- 1) That of truth of fact and truth of reason developed by Leibniz;
- 2) Those of essential and accidental propositions and of verbal and real propositions advocated by Locke; and

- 3) That consisting of relations between ideas and matters of fact put forward by Hume.

None of these pairs coincides with the others, nor does any of them coincide with the pair formed by ‘analytic’ and ‘synthetic’. For instance, let us take (3) under consideration. It has been pointed out (Wang 1955) that whilst Hume worked on relational statements, Kant reserved his distinction solely for categorical statements, that is, categorical assertive judgements (Marc-Wogau 1951). To this, it should be added that the Humean distinction most relevant in this context is between relations whose application and extension depend on actual experience and those whose application and extension do not. On closer inspection, however, this distinction has less to do with analysis and synthesis than with whether or not experience imposes a constraint, and hence with what, by a certain extension of the terms, might be described as the *a priori* and the *a posteriori*.

A similar confusion might arise from conflating analysis and synthesis in judgements, definitions and methods. One of the reinterpretations of the Kantian distinction, which draws on the pre-critical period, stems precisely from the overlap between judgements and method (Beth 1942). The point is that such overlaps and such retroactive analogies are themselves a means of reconstructing one of the many histories under the umbrella of the distinction between the analytic and the synthetic. The same applies to the attribution of analyticity and syntheticity to judgements or propositions, based on a distinction which, for Kant, does not exist—or which exists only insofar as a proposition is an asserted judgement—whereas its use in literature serves instead to distinguish between a logical or semantic valence and an epistemological one (Löhner 2002).

In sum, the stages in the history of the analytic–synthetic distinction are stages in other histories, built around other issues; namely:

- 1) The clarity of the distinction between the analytic and the synthetic (Bencke 1820; Trendelenburg 1840, 1862/1870);
- 2) The admissibility of an *a priori* synthesis (Dühring 1865; Beiser 2024);
 - a. The distinction between *a priori* synthesis and the existence of synthetic *a priori* judgements;
- 3) The definition of the analytical;
- 4) The *a priori*–*a posteriori* distinction.

But even such a list is incomplete, and further qualifications can lead to the emergence of more items. For example, under point (1), which would be the only history deserving the title of ‘history of the analytic–synthetic distinction’, two different trajectories can be illuminated: the structural reduction of every judgement to the analytic form (Beneke 1820) and the thesis of the relativity of such a distinction (Trendelenburg 1862), also typified by 2a). Thus, whilst the second path seems to go through the neo-Kantian relativisation of the synthetic a priori and lead to Quine (1951), the first appears to continue with Delius (1963) and with Carnap’s later work, which accepts, to capture phenomenological statements, an internal distinction within the analytic between formal analytic and material analytic. Eventually, this relates to (3).

2. The Rise of Analyticity. From Frege to Carnap

We are convinced that what contemporary philosophy recognises as the history of the analytic–synthetic distinction is, in essence, the history of the definition of ‘analytic’ alone, and in particular of the logical-linguistic definition, which dates back to Frege (1884/1960, 4) and rests on three pillars: a) the first is that this distinction concerns the justification and not the content of the judgement; b) the second is that it no longer refers to judgements, but rather to truths; c) the third is that analytic truths are those that can be demonstrated—or justified—by reducing them to general logical laws and definitions. This definition remained an implicit presupposition until the notion of analytic equivalence emerged, shortly after Carnap (1928), from the exchange between Kaila and Carnap (Carus 2007, 199).

The debate centred on a possibility crucial to the success of Carnap’s quasi-analysis: that of identifying theoretical concepts extensionally equivalent to constructions based on observation, as in the case of the transition from the two-dimensional visual field to the three-dimensional physical world. Two definitions of analytical equivalence immediately stand out:

- A) two propositional functions are “analytically equivalent if they have the same meaning (even if the ‘content’ of the concepts concerned—which, of course, cannot then be stated—should be different)” (Kaila 1930, 7);
- B) two propositional functions φ and ψ are *analytically equivalent* if ψ is not only definable in terms of its equivalence with φ (this is sufficient, but not

necessary), but if “the equivalence rests solely on the definitions of ψ and ϕ , not on empirical sentences” (Carnap 1930)¹.

In a sense, from this point onwards and over the following two decades, analyticity took on an entirely different role: it no longer served to define a type of theory—whether mathematical or logical—but determined the very demarcation of a particular philosophy. One might perhaps say that, just as the possibility of synthetic a priori judgements is an existential issue for a philosophy that claims an epistemological status distinct from that of both the formal sciences and empirical inquiry (Stegmüller 1954), so too is the definability of the ‘analytic’ decisive for a philosophy that must decide whether to be a distinctive form of empirical knowledge, an enquiry into linguistic usage, a search for necessary truths, or even a therapeutic clarification of meanings (Pap 1958).

The fact that the contemporary history of the analytic–synthetic distinction is largely a history of analyticity is also indirectly confirmed by another development that parallels the rise and fall of logical empiricism, or perhaps, more accurately, of logicism, given the considerable theoretical price that logical empiricism paid for its logicist inheritance. Indeed, it should be recognised that the dogma of analyticity is more of a logicist dogma than a neo-empiricist one. Be that as it may, the protagonists of this alternative history of analyticity are not professional philosophers, but mathematicians with wide-ranging philosophical interests. Most of them belong, in different ways, to the Hilbertian school and pose a problem that is, in some respects, paradoxical: restoring mathematics’ epistemic value, given that the axioms on which it rests have lost it. This gives rise to the claim that the epistemology of mathematics is part of mathematics itself (the theory of proof) rather than of philosophy. And that, therefore, epistemologists of mathematics must be mathematicians and not philosophers². The person who formulated the problem in these terms was Bernays, but Hertz, Reidemeister and, before

¹ As cited in Carus 2007, 200–201. See also Carnap 1929, 7. Cf. Manninen 2012.

² It is striking that the same tendency can also be observed in the epistemology of physics, where it emerged in response to the increasing abstraction of theoretical physics. Interpretations of Einstein’s theory of relativity provide a revealing example: many of the most informed readings were produced either by physicists, such as von Laue, Eddington, and Weyl, or by philosophers of science with substantial mathematical training, such as Schlick and Reichenbach. Some of the more controversial interpretations, by contrast, originated among professional philosophers, notably Natorp and other neo-Kantians, as well as Bergson, although Cassirer and Meyerson constitute at least partial exceptions. See Hentschel (1990).

them, König also took the same stance. Dubislav, in contrast, represents a separate case, because, although he had no formal training in mathematics, he aligned himself ideally with the Hilbertian school.

3. A Minor History

We shall shortly examine the distinctive character and significance of this mathematical history of analyticity. First, however, we should consider a feature that may appear external to this history but is in fact closely connected with it. Mates (1951) is, as is well known, highly critical of the pragmatist slant taken by Quine's and White's criticisms of the comprehensibility and correctness of the definition of 'analytic'. However, the other history of the analytic also has a pragmatist aspect. Dubislav (1929/2015, 416) identifies Lewis's (1918) account of Hilbertian formalism as the best critical tool against the Kantian understanding of mathematics. In Dubislav (1933, 33), it is made clear that his critical empiricism developed "on the ground of formalism (= pure logic or pure mathematics are merely calculations)" and that it therefore differs from Wittgenstein's dogmatic apriorism, that is, from the reduction of the analytic to tautology³. Lewis (1918) had defined his understanding of mathematics as heterodox and external, in contrast to Russell's orthodox and internal conception⁴. In his definition,

a mathematical system is any set of recognisable strings of signs, in which some strings are taken as given at the outset, and the remainder are derived by means of operations carried out according to rules independent of any assignment of meaning to the signs. It is irrelevant that such a system consists of symbols rather than colours or sounds, but it is appropriate to discuss mathematics as something written down. The string-like arrangement is simply due to our notational habits⁵.

It follows that, for Lewis, the extreme economy of assertions in pure mathematics has an essentially pragmatic value, which has also been found in Hilbert's theory of proof and, earlier, in Schröder's algebra⁶. Moreover, Lewis had, as early as 1923, defined and accepted a pragmatic notion of the *a priori*.

³ "Critical empiricism" is also the term used by Grelling (1930/2015, 89) to define Reichenbach's position in 1928.

⁴ Lewis 1918, 354–362.

⁵ Lewis 1918, 355.

⁶ Lewis 1918, 360. See Peckhaus 2003.

The re-examination of the concept of the analytic thus leans towards pragmatism in two evidently different ways, depending on whether one starts from a logicist or a formalist interpretation of the analytic. In the latter case, even if one were to admit only a gradual difference between the analytic and the synthetic—and to oppose the overlap between the pairs ‘analytic–synthetic’ and ‘a priori–a posteriori’ (as is the case with Bernays)—one would almost always arrive at a relativised a priori. More generally, it should be said that this relativisation may take two different forms. Within deductive systems and axiomatic theories, it concerns the epistemic status of propositions relative to a given system; in the philosophy of physics, it results from the rejection of the synthetic a priori⁷. In the formalist history of analyticity, the abandonment of principles endowed with an intrinsically untestable validity therefore challenged the identification of analyticity with tautology, informational emptiness, and triviality, thereby giving rise to an epistemic and non-logicist conception of the analytic (Boghossian 1997; Russell 2008).

The formalist history of the analytic thus seems useful for understanding another way in which analyticity and pragmatism can intertwine, but also for grasping which form of formalism is at play. Bernays made it clear how far his idea of mathematical formalism differed from Carnap’s 1934 syntacticisation, thus finding himself in a peculiar, though not unexpected, agreement with Gödel. Carnap’s was a formalist variant of logicism, just as Behmann’s was a logicist variant of formalism. Moreover, the presence of logicist elements in Hilbert’s programme at the turn of the century has been documented, with particular reference to the description of the situation from which axiomatisation begins and in which the assumption of a multiplicity of intuitive and discrete objects is decisive (Mancosu 2010).

Another characteristic feature of this history is the role of Bolzano, something that is less evident in Bernays but almost clear in Hertz and Dubislav. The substitutionist version of the analytic was particularly useful to the epistemic—and sometimes even cognitive—understanding of the formalists, and to the relativisation of the analytic, parallel to that mentioned as regards the synthetic. A similar strategy is adopted by London in 1923: he too, building on Bolzano’s work—this time mediated by Husserl—arrives at a conception of the analytic that is relative to each deductive theory. This analogy in approach should not be underestimated. Nevertheless, the aim here is certainly neither to count London among the formalists nor to force his work into a formalist history of analyticity. Hertz’s acknowl-

⁷ But these two trends can be related. See Laino’s paper on London in this issue.

edged debt to London is not, in fact, sufficient to support either claim. The significance of the London case lies elsewhere. It resides in the opening of another front alongside that of pragmatism, namely the front of Austro-German philosophy and Husserlian phenomenology, in which the extension of the ‘analytic’ played a decisive role. As Delius once again acknowledged, it was a mistake of perspective on the part of the neo-empiricists to see in Husserl’s (1901, 255–256) ‘material laws’ or ‘material necessities’—that is, in what would later be defined as ‘material a priori’—a re-edition, even more metaphysically compromised, of the synthetic a priori. What was under consideration, then, was the admission of an extension of the analytic, rather than the absolute and necessary validation of certain syntheses. A different interpretation can be instead found in Pap 1944, in which the distinction between the formal a priori, the material a priori and the functional a priori maintains a strong link with Dewey’s operational a priori.

In short, the mathematical history of the analytic could be summarised through a sort of graduated scale with three main marks, corresponding to three authors: Hertz, Bernays and Dubislav. It is worth noting that the different degrees of reworking of the ‘analytic’ correspond to three distinct interpretations of structuralism: from Hertz’s objectivist reading to Bernays’s quasi-objectivist conception, and to Dubislav’s entirely anti-objectivist and deflationist understanding. In summary, therefore:

- 1) For Hertz, ‘analytical’ does not mean something trivial, but rather a combinatorial calculation carried out according to rules. Having distinguished between syllogism and direct inference (which, from Gentzen 1933 onwards, would be referred to in terms of ‘cut’ and ‘thinning’), Hertz points out that the productivity of the syllogistic principle is by no means synthetic in nature, just as the search for the middle term through direct inferences is not. These remain formally analytical: they produce epistemic effects on the justification of the procedure. In other words, the introduction of an arbitrary premise into the inference, on the one hand, leaves the validity of the conclusion unchanged; on the other, it expresses the acquired knowledge of an *interpositum*, that is, of the link left implicit between the premisses that had been used. The *interpositum* thus reveals the objective and unitary connection, to wit, the structure which the consequence between propositions breaks down and reassembles. This structure ultimately constitutes the content, and not the object, of the propositions. In Hertz, we thus witness an unprecedented attempt to reconcile Bolzano with Helmholtz—that is, to find a reciprocity between the chain of

representations in itself and the consequentality between propositions in itself. Finally, Hertz's commentary on the Bolzanian notion of 'in itself' is significant: the idea is to move from a proposition viewed from no one's perspective to a proposition viewed from everyone's perspective. Hertz makes no concessions whatsoever to conventionalism or to the syntactic reduction of logic.

- 2) Drawing on Hertz (1931) and (1935) and initially seeking to account for Hilbert's finitistic method, Bernays is convinced of the combinatorial nature of the analytical and the analytical nature of mathematical proof. Once the axioms and their choice have been stripped of epistemic value, however, Bernays reiterates in various ways the need to recognise the epistemic status—and, from a certain point in his reflection, even the cognitive status—of the proof. In Bernays (1957/1976), he finally proposes the idea of mathematics as a phenomenology of ideal structures and conceives of these structures as quasi-objects, that is, as objects *sui generis*. Such objects depend on the chosen conceptual framework for a theory and do not entail any ontological commitment. Bernays thus draws not so much on conventionalism as on fictionalism⁸, and proposes a complex interpretation of Carnap's syntax and of his distinction between theoretical and observational language, favouring the version put forward by Curry.
- 3) Finally, Dubislav, who, like Hertz but unlike Bernays, has a long-standing familiarity with Bolzano, challenges the equation of the analytic with the tautological and, consequently, the sharp distinction between the analytic and the synthetic. This distinction is, rather, gradual and relative to the theoretical context in which it appears. In this manner, Dubislav generalises the 'analytic' in conventionalist and stipulative terms and understands structures as the establishment or articulation of relations.

This early twentieth-century history of analyticity, shaped largely by mathematicians, is now attracting renewed interest for at least two reasons. Situated both historically and conceptually prior to the divide between proof theory and model theory, it deserves a place within the broader framework of universal logic (Béziau 2005). Furthermore, its sustained engagement with intuition allows it to contribute to the development of a critical perspective on logic (Hartimo, Kjosavik, and

⁸ This also seems to be London's choice.

Linnebo 2024). We have chosen to discuss this *minor history* neither out of an encyclopaedic desire for completeness nor because the articles collected in this issue fail to address broader questions. On the contrary, these relatively minor episodes in intellectual history provide a point of convergence for the diverse discussions and perspectives developed throughout the issue.

4. Overview of the Contributions

Moritz Bodner examines why the Marburg neo-Kantians gradually abandoned Kant's distinction between analytic and synthetic judgements. Herder and Cohen maintain that, because concepts evolve through education and scientific change, the same judgement may be classified differently at different historical stages. For Cohen, knowledge is therefore an open-ended process of critical revision in which concepts never acquire completely fixed meanings. This approach, shared by Natorp and Cassirer, contrasts with that of the South-Western School, whose commitment to intuition is also reflected in Lask's critique of Marburg rationalism. Bodner concludes that the analytic–synthetic distinction loses much of its philosophical significance once its dependence on historical conceptual change is acknowledged.

Luigi Laino reconstructs Fritz London's early philosophy of science and his original reformulation of the analytic–synthetic distinction. Drawing primarily on Husserl, while also engaging with Cassirer, Hilbert, and neo-Kantianism, London defends the autonomy of deductive theory. In physics, he distinguishes analytic dimensional relations from synthetic ones, the latter requiring a contribution from experience or intuition. His concept of the “total judgement” conversely clarifies how synthetic content can be incorporated into the analytic structure of an axiomatic system. Laino introduces the term “infraconceptuality” to describe this intermediate mode, whereby theory generates genuinely new knowledge through its own internal resources while remaining answerable to experience in disciplines, such as physics, that claim empirical applicability.

The following three articles examine constructive and proof-theoretical approaches to the analytic–synthetic distinction.

Cesare Cozzo reconsiders the distinction through a non-holistic and fallibilist form of inferentialism. He rejects strong analyticity because an understanding of meaning alone cannot guarantee truth, validity, or context-independent justification. In contrast, he defends modest analyticity, which applies to meaning-

constitutive assertions and inferences within epistemic contexts in which the relevant language is accepted. By carefully distinguishing between understanding, accepting, and following rules, Cozzo responds to objections raised by Boghossian and Williamson. His reading shows how reflective meaning can support analytic assertions and deductions without making them immune to criticism or revision.

Göran Sundholm deals with the question historically by presenting Wittgenstein's *Tractatus* as a point of intersection between the containment and variational traditions in logic. According to Sundholm, Wittgenstein replaced the traditional epistemic notions of judgement and inference with propositions and relations of logical consequence. Logical validity consequently came to be understood in terms of tautology and truth preservation across all possible variations, following a broadly Bolzanian approach. This transformation profoundly influenced Quine, Tarski, model theory, and contemporary logic, even though the results of Church and Turing later undermined the Tractarian claim that logical properties are decidable. Sundholm's analysis is historically illuminating, but also critical: the Tractarian revolution, in his view, neglected the epistemic acts through which agents actually reason and acquire knowledge.

Antonio Piccolomini d'Aragona develops this critical perspective by reconstructing Sundholm's "logical atavism," an approach that treats formal languages as intrinsically meaningful rather than as uninterpreted objects subsequently endowed with meaning by a metalanguage. The article criticises the Bolzanian reduction of judgements to truths and of inferences to relations of logical consequence because it obscures their epistemic character. Drawing on Martin-Löf, Piccolomini d'Aragona distinguishes among proof-objects, proof-acts, and proof-traces as different yet interconnected dimensions of proof. On this account, Gentzen's 1935 derivations point towards proof-objects, whereas his 1936 sequent-style derivations represent traces or blueprints of acts of demonstration. This framework persuasively restores meaning, assertion, and knowledge to logic, although its conceptual richness also makes its systematic formalisation particularly demanding.

From a different perspective, Xianrui Liu revisits the question of whether model-theoretic logical consequence is analytic or synthetic and asks how it can explain logical necessity. Liu assumes that Etchemendy's distinction between interpretational and representational semantics is a modern reformulation of the traditional analytic–synthetic divide. Etchemendy's critique reveals two conditions that an adequate interpretation of logical necessity must satisfy: formulae must be

evaluable across domains of different cardinalities, and the semantic values assigned within each model must be systematically coordinated through cross-term reference. While Gila Sher grounds these conditions synthetically in the formal structure of reality, Liu proposes that they may instead be grounded analytically in the intensional meanings of the logical constants. This is a promising view, although its ultimate success depends on the development of a substantive theory that connects the meanings of logical constants to the apparatus of model-theoretic semantics.

The issue concludes with two articles that, in different manners, reframe Quine's critique of analyticity. James Werner Scow reinterprets it through Peirce's pragmatic maxim and his three levels of conceptual clarity. Rather than understanding analytic truths as unamendable propositions grounded exclusively in meaning, Scow defines them in terms of their practical effects. Within Quine's web of beliefs, their principal function is to provide stability, systematic organisation, and resistance to revision. Analyticity thus becomes a matter of degree, with logic and mathematics occupying central positions while remaining, at least in principle, revisable. This pragmatic reconstruction is compelling because it preserves the philosophical value of analyticity without reinstating the rigid distinction that Quine rejected.

Gianluca Michelli defends the analytic–synthetic distinction against Quine's critique by using Kripkean modal semantics. He argues that necessity can be defined independently of analyticity and that analytic truths can be understood as propositions true in all possible worlds. The author compares this approach with Carnap's notion of L-truth and points out how both can be embedded within a modal framework. As a result, analyticity is no longer regarded as absolute, but as relative to a chosen logical framework. Accordingly, the paper suggests that this framework-dependent notion of analyticity supports forms of logical pluralism. Taken together, the contributions of this issue show that the analytic–synthetic distinction has not simply disappeared from contemporary philosophy. Rather, it has been historicised, relativised, reconstructed, and redistributed across different philosophical domains and trends. The diversity of these approaches confirms that the distinction remains philosophically productive, not as a fixed opposition inherited unchanged from Kant, but as a flexible tool for investigating the relations among meaning, inference, experience, necessity, and the growth of knowledge. In conclusion, the analytic–synthetic distinction has as many unwritten histories as it has possible fates.

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