

KARL POPPER'S DEBT TO LEONARD NELSON

Nikolay MILKOV
University of Paderborn

Summary

Karl Popper has often been cast as one of the most solitary figures of twentieth-century philosophy. The received image is of a thinker who developed his scientific philosophy virtually alone and in opposition to a crowd of brilliant members of the Vienna Circle. This paper challenges the received view and undertakes to correctly situate on the map of the history of philosophy Popper's contribution, in particular, his renowned fallibilist theory of knowledge. The motive for doing so is the conviction that the mainstream perspective on Popper's philosophy makes him more difficult to understand than might otherwise be the case.

The thinker who figures most significantly in the account of Popper developed in these pages is Leonard Nelson. Both a neo-Friesian and neo-Kantian, this philosopher deeply influenced Popper through his student Julius Kraft, who met with Popper on numerous occasions in the mid 1920s. It is in the light of this influence that we understand Popper's recollection that when he criticized the Vienna Circle in the early 1930s, he looked upon himself "as an unorthodox Kantian".

Introduction

Since Nelson's philosophy is little known today, the essay commences with a brief account (in § 1) of how he developed elements of what was later dubbed analytic philosophy. Following that we identify (in § 2) the main points of Nelson's impact on Popper, as well as some elements of divergence between them.

1. *Leonard Nelson and analytic philosophy*

1.1 *Variants of analytic philosophy*

Some scholars claim that analytic philosophy was introduced by G. E. Moore and Bertrand Russell. Others contend that it originated with Gottlob Frege. A third line of thought has it that in their “revolution in philosophy” Moore and Russell followed Franz Brentano. The present paper argues that analytic philosophy traces back at least in part to another thinker, namely the German philosopher Leonard Nelson (1882–1927). Analytic philosophy evidently had various *naissances*. At the beginning of the twentieth century, the “world spirit” spontaneously produced elements of analytic philosophy, albeit in different guises. Nelson’s analytic philosophy arose independently of Moore and Russell, yet evinces remarkable parallels with their work. As one might expect, there were considerable differences between the approaches to analysis, and there are purists who find these sufficient grounds for denying that we can classify Nelson’s thought as an originary ground of the same movement associated with the British thinkers (Glock 2011). The present section challenges this judgment by adducing a range of evidence that testifies to the fundamental relatedness of the analytic thinking that originated contemporaneously in Göttingen and Cambridge.

1.2 *Nelson as scientific philosopher*

Similarly to Russell, Nelson was a close student of science and mathematics. Also like Russell he made precise, closely argued cases for his views, employing a lucid and unadorned discursive style that alienated him from his German colleagues of the time.

Nelson was openly hostile toward what was later called “continental” philosophy. His review of the leading neo-Kantian, Hermann Cohen’s *System der Philosophie* (Nelson 1905) was so sharply critical that it made Nelson’s life in German academia difficult. Nelson had discredited Cohen’s discussions of mathematics for betraying fundamental deficits in his knowledge of the subject.¹ Nelson also wrote an article that attacked the philosophical coherence of Bergson’s thinking (Nelson 1910), something Russell

1. As we are going to see below, the main characteristic of Nelson’s philosophy was its radical openness towards mathematics and science.

later did as well. Further, Nelson authored a pamphlet against Oswald Spengler (Nelson 1921), a critique published the same year in which Otto Neurath's *Anti-Spengler* appeared (Neurath 1921).

Nelson's own philosophical doctrine closely followed the work of Jacob Friedrich Fries (1773–1843). In 1912 Nelson organized the Jacob Friedrich Fries Society, in many respects the forerunner of the Berlin Society for Empirical/Scientific Philosophy (Haller 1993, 79; Milkov 2008a, 2012). The aim of the Fries Society was to attract leading mathematicians, scientists and philosophers of the time by providing a forum whereby they could pursue interdisciplinary philosophical studies. On this count, the Society achieved its end brilliantly. Its sessions drew many of the top mathematicians and scientists of the day—Max Born, Ernst Zermelo, Richard Courant and Paul Bernays, to name only a few of them (Peckhaus 1990, 153).

1.3 *Jacob Friedrich Fries*

Nelson's closest philosophical predecessor, Fries, was Hegel's contemporary and also his adversary and rival. Fries was sharply critical, as well, of Kant's "rationalistic prejudice" by means of which we may deduce all a priori concepts from a single principle belonging to one system. To this Fries opposed his own program for analyzing a priori forms of knowledge, a program that took as its modus operandi "self-observation," which he saw as an empirical ("anthropological") task. This is also a task of deducing a priori knowledge from our immediate knowledge. Importantly enough, while the subject of this investigation is the a priori, the way we reach it is a posteriori.² Kant mistakenly assumed that the process of transcendental deduction is logical. Denying this, Fries insisted that the general axioms and principles of the transcendental deduction cannot be logically proved. This is so, Fries maintained, since they are the last court of appeal—one cannot prove them by reference to something else. We can only abstract them from immediate knowledge, or the given.

In nineteenth-century Germany, critics often attacked Fries for his alleged "Locke-like empiricism". In fact, however, his "anthropological psychology was not empirical psychology" (Lehmann 1931, 119). Fries openly opposed experimental psychology, urging the development of philosophical psychology instead. Motivating Fries in this connection was his view that "immediate knowledge" also includes scientific and math-

2. Kuno Fischer claimed that this task cannot be fulfilled in principle (Fischer 1862, 99).

ematical knowledge. Hence we are to look for a priori truths also in these disciplines. This explains the strong interdisciplinary thrust of his philosophy, which inspired some scientists in Germany at the time to undertake philosophical investigations. By the same token, Fries persuaded a number of philosophers to correlate their research with the latest discoveries in science and mathematics.

A related point that Fries argued for is that metaphysical knowledge, which consists of synthetic a priori judgments, grows, in particular, in the epistemological form of the advances in scientific and mathematical axiomatics. Nelson held that the philosophy of mathematics (a subdiscipline that originated with Fries³) concerns itself with ongoing developments in mathematical axiomatics. The potentially pivotal significance of this new subdiscipline was historically borne out when, after Fries' death, the non-Euclidean geometry appeared, bringing with it novel mathematical axioms. Philosophy of mathematics set itself the task of reducing to a minimum the number of the new mathematical axioms that came with each new innovation in the field, retaining only those necessary for the logical construction of geometry (Nelson 1928, 110).

1.4 *Nelson's method of regress*

One of the difficulties in seeing Nelson as analytic philosopher is that he employed terminology incomprehensible to contemporary philosophers. A paradigmatic example is his identifying as “regressive method” what most philosophers of the present day think of as analysis. It is worth noting in this connection, however, that Bertrand Russell himself, prior to 1911 (when he adopted the concepts “analytic philosophy” and “analytic method”), also made regular use of the term “regressive method,” and in virtually the same sense as Nelson (Russell 1907; Peckhaus 2002).

What exactly was Nelson's regressive method? He claimed that the transition from factual consequences to factual premises occurs in accord with the laws of *induction*; the transition from consequence to “epistemological premises”, however, involves the deductive method of *abstraction*. What we abstract is the structure of “our mind”—in search of “fundamentals” of mathematics and science—from the vague matter of knowledge, including scientific knowledge. This is the “method” that Nelson understood as

3. This was Nelson's conception. Michael Dummett, in contrast, claimed that philosophy of mathematics was introduced by Frege.

“regressive.” It does not supply new knowledge but simply clears up points in our reasoning which were already available in it, although in a vague form (Nelson 1922, 33).

Russell’s argument in support of the regressive method was that in philosophy, “a comparatively obscure and difficult proposition can be a premise for a comparatively obvious proposition” (Russell 1907, 272). From vague premises we can deduce simpler propositions. In *Our Knowledge* Russell expressed this idea thus: While in mathematics we move from simpler to more complex knowledge, in philosophy we move from complex (and vague) to more simple (Russell 1914, 189f.); while mathematics is synthetic, philosophy is analytic—“regressive,” both as he used the word in his older terminology and as Nelson utilized it.

In the same wake, Wittgenstein would later define philosophy as a synthetic a priori discipline. It is synthetic since it investigates items well-known to us all, simply casting them in a new perspective; and it is a priori since its truths are generally valid. Regarded from this standpoint, the task of philosophy could be construed as rearranging common knowledge (Milkov 1997, i. 387). Nelson understood this as a way that we study our mind. Wittgenstein, on his side, investigated the concepts of philosophical psychology in a kind of conceptual analyses (or “reflections”, in Nelson’s idiom).

1.5 *Vagueness*

We can read these points of relatedness between Nelson, on the one hand, and Russell and Wittgenstein, on the other, as the first signs that these three thinkers explored elements of a single philosophical method, later called “analytic”. But Nelson’s discussions of human knowledge also thematize particular ideas that substantiate this observation: for example, the concept of “vagueness”.

Both Fries and Nelson claimed that, similar to judgment, immediate knowledge, or the given, is initially vague, or “dark” (*dunkel*) and takes two different forms: perceptual and conceptual.⁴ As we have noted, the movement from data of sense (immediate knowledge) to their premises (from the singular to the general) is inductive; the movement from conceptual data (immediate knowledge) to their premises, on the other hand, is a movement of deductive abstraction. What about metaphysical judgments

4. The conceptually given was discussed in Milkov (2004).

which deduce the structure of experience from the immediately given conceptual data of our mind? They cannot be proven because they set up the first principles of human knowledge;⁵ nor can they be demonstrated by induction. They can only be abstracted; not through intuition, however, but through reflection.

Such a deduction reveals the a priori valid structure of our mind—despite the fact that we investigate it empirically. Since it brings to light the structure of human mind, this is a task of a philosophical anthropology. Fries and Nelson spoke about it more specifically as psychological knowledge. Of course, it is not psychological in the sense in which Lotze, Husserl, Frege, and Russell criticized the psychologism in philosophy. Indeed, the objects of this study are valid a priori. It is more like Wittgenstein's philosophical psychology, but with a clear scientific orientation.

In sum, both Fries and Nelson understood that the unique concerns of philosophy have to do with immediate non-intuitive knowledge and conceptual data. It approaches these matters by investigating facts—facts of our “inner sense” to which pertain also facts of science and mathematics. This kind of knowledge is synthetic a priori. It is a product of human reason (*Vernunft*) and is capable of progress and growth.

1.6 *Socratic method*

Nelson believed that truth in philosophy is singular, that it is wrong to regard philosophy as mosaic of standpoints. It was Leibniz who was the first to defend this view; he fought against a plurality of philosophical schools, claiming that in philosophy, just as in science and mathematics, the cliquishness of competing philosophical schools is inimical to the search for truth (Leibniz 1679, 223; A VI, 4. 265; GP VII, 186). In a similar manner, Nelson insisted that philosophy is not the search for ever-new standpoints that ought to guide philosophers in their work. Rather, like the other sciences, philosophy must orient itself to searching for truth in the context of other, previously established truths (Nelson 1908, 201).

In this sense, Nelson claimed that “the greatest philosophical discoveries are a common achievement of all distinguished philosophers” (Nelson

5. Cf. §2.5.

1922, 25). He especially praised two great figures in the history of philosophy: Plato and Kant. Between them there were long periods of philosophical regression. What is more, they also paved the way for reactionary ideas in politics.

Like the sciences and mathematics, philosophy, according to Nelson, develops successfully only when it follows an appropriate method—a method that guarantees continuity in philosophical studies, and so progress in the discipline. Nelson understood Socrates and the early Plato to be champions of such a method, namely peirastic dialectic, which is led by a “sense of truth” (*Wahrheitsgefühl*) (ibid., 27). It entails critically examining every posited argument, theory, or fact. Historically, Kant’s critical method was nothing but a revival of the method of Socrates and Plato.⁶

The principal advantage of this method is that it eliminates dogmatism in teaching; in fact, it eliminates any doctrinal (*belehrende*) judgment. Instead, by it, the mind learns to find the premise of the philosophical truths in itself: “The philosophical lesson fulfils its task if it gradually eliminates the influences in the student which handicap the illumination of the student’s philosophical knowledge.” (Nelson 1922, 45) The instructor works at teaching the lesson “from outside”. In other words, the objective of pedagogic philosophical dialogue is not, as Frege believed, to establish solid *results*; rather, it must help to disclose a *method* for achieving solid results.

Detailed investigation in the history of the early analytic philosophy (Milkov1997, 2003a) reveals that until at least 1960⁷ practically all of the movement’s leading representatives practiced the peirastic method. That this held for Nelson, as well, further establishes that he qualifies as an analytic philosopher. A fact that additionally bears out this historical contention is that Nelson seminally influenced one of the central figures of the Oxford Ordinary Language Philosophy—R. M. Hare (Franke 1991, 49). The latter’s works on ethics employ Nelson’s method of “weighing up of interests” (Hare 1963, 90 ff.; Alexy 1979). In contemporary ethical theory this notion has evolved into the concept of *reflexive equilibrium*, and in political theory we can detect it in the concept of *deliberative democracy*.

Nelson’s influence was also pronounced in Hare’s philosophy of education. Indeed, the declared objective of the latter is “to teach his students to

6. That Kant’s *CPR* is above all a “Treatise on Method” is unmistakably declared in A 838/B 866.

7. Peter Hacker means “until 1970” (Hacker 1996, ch. 6, § 2).

think” (Hare 1959, 3). To this end, Hare embraced the Socratic dialogue as the central method of teaching (ibid., 5). And as we have just seen, the revival of the Socratic dialogue in philosophy was one of Nelson’s central objectives.

2. *Nelson’s influence on Popper*

2.1 *Opening*

It was M. H. Hacothen (2000) who first underscored the “formidable” impact that Nelson’s philosophy exerted upon Popper, who “probably borrowed from [Nelson] the ‘Socratic Method.’ Both Nelson and Popper,” asserts Hacothen, “identified the method with critical dialogue and awareness of the limits of cognition” (Hacothen 2000, 125f.). This assessment has become standard in the literature (Morgenstern & Zimmer 2002, 32f.).

Besides the critical method, Popper also adopted Nelson’s rational attitude to the problems of philosophy in general, something Nelson often referred to as “intellectual responsibility”. The theoretical orientation of both Nelson and Popper falls under the rubric of the “critical attitude [which] is the attitude of reasonableness, or rationality” (Popper 1963, 51).⁸ Popper identified his approach as “critical philosophy”—the same term that both Fries and Nelson applied to their own.

Hacothen has observed that Nelson’s philosophy “was a departure point to which he [Popper] continuously returned [in order] to check his own developing views” (Hacothen 2000, 126). In general, asserts Hacothen, one can say that “‘critical philosophy’ set the problem situation that enabled Popper to make his radical theoretical move, reformulate the question of the validity of knowledge, and achieve his great breakthrough in the philosophy of science” (ibid., 127).

If for the most part reliable, Hacothen’s book contains more than one mistaken assertion. To cite one example, Hacothen contends that “Nelson introduced [in his elementary school ‘*Walkemühle*’ by Melsungen] a modified Montessori method that he named the ‘Socratic Method’ ” (ibid., 121). As we saw in § 1.6, however, the Socratic method in Nelson’s philosophy had a much more complex origin.

8. “A ‘critical attitude’ as understood by Popper is synonymous with ‘rational attitude’. ... It means respect for the principle of rational argumentation and unlimited possibility for the review of all arguments.” (de Maliandi 1991, 27)

2.2 *Cryptic influence*

In a letter from 1992, Popper recalled that he “wrote, between 1925 or 26 and 1933, very intensively on a book, essentially about Kant-Fries-Nelson. ... I tried hard to understand them.” (Popper 1992) On the other hand, Popper also made statements that disguise Nelson’s influence on him. In his “Intellectual Autobiography”, for instance, he claimed that “from Tarski [he] learned more ... than from anybody else” (Popper 1973, 70). Popper further remembered that he changed his orientation from psychology to logic under the influence of Oswald Külpe’s logic.

It will become clear presently, however, that Tarski, Külpe, and others did not decisively influence Popper. Leonard Nelson was the prime influence, and behind him Fries. Nelson impelled Popper to adopt the Platonic method of peirastic dialectics, and to develop it into his famous method of conjectures and refutations, of trials and errors. At the time Popper himself called this method “dialectical” (Popper 1930/3, 316ff.). Ironically enough, today Popper is best known as the arch enemy of dialectic. In truth, however, his main work on this theme, the paper “What is Dialectic?” (Popper 1940) had a clear ideological (anti-Marxist) message and reduced dialectics to an impoverished Hegelian variant, making of it a caricature.

Nelson’s influence on Popper is well-documented. In the early 1930s, Popper took on the Vienna Circle’s idea of demarcation (*Abgrenzung*) between meaningful and meaningless propositions, with the aim of isolating the propositions of metaphysics from those of science. Popper defended this position at length in (1930/3, vol. 1, without § 11). But just as he began publishing his findings, Julius Kraft induced him to change his account (Gattei 2009, 18ff.). This change is clearly evident in the first volume’s subsequently published eleventh section and the work’s second volume. While retaining his notion of the demarcation of metaphysics, Popper now argued that falsification, rather than verification, is the means by which to distinguish meaningful propositions in science.

Nelson also influenced Popper with his radical scientific orientation. On this point he was close to Hans Reichenbach, who in the summer of 1914 became intensively involved with Nelson’s group in Göttingen.⁹

9. Having in mind the life-long rhetoric of Popper and Reichenbach against each other, the claim for relatedness between their philosophies of science is rather surprising. To a great extent, however, this animosity can be explained psychologically. Cf. Milkov 2012; cf. also n. 19, below.

One of the reasons why Nelson's influence on Popper is difficult to recognize was articulated by Popper himself, who explained that one cannot identify any genuine students of Nelson.¹⁰ Indeed, his teaching does not consist of theses, but is rather merely an "attitude which put stress on the use of reason and intellectual responsibility" (Popper 1962, 4).

Another reason why Popper was not explicit about the decisive impact Nelson's philosophy had on his development is that Popper neither connected Nelson with his (Popper's) method of conjectures and refutations, nor with his philosophy of science. He mainly related Nelson's philosophy to his epistemology. Important as it was for Popper, however, Nelson's views on epistemology did not play the formative role in his philosophical development that Nelson's periphrastic and philosophy of science did.

2.3 *How this influence came about: the role of Julius Kraft*

It was Julius Kraft (1898–1960) who introduced Popper to Nelson's philosophy.¹¹ Kraft was a distant relative of Popper's from Hanover and wrote his PhD dissertation under Nelson. In 1924 he came to Vienna to write his *Habilitation* (a post-doctoral dissertation) under Hans Kelsen, who, by the way, stood opposed to Nelson's thinking. Kraft remained in Vienna until 1926, after which—having failed to win his *Habilitation*—he moved to Frankfurt to become an assistant of Nelson's friend Franz Oppenheimer.¹²

Popper and Kraft carried on a lively correspondence till the beginning of the World War Two. Their in-person discussions from 1924 to 1926 "were endless", "often lasting into the small hours of the morning" (Popper 1974, 59). This was of great importance for Popper's philosophical ego—Kraft was the first person with a doctorate in philosophy who showed a genuine interest in engaging in sustained philosophical dialogue with the young undergraduate student. Popper later recalled that about half of his discussions with Julius Kraft "were centered on criticism of Marx. The

10. On this point Nelson was similar to Wittgenstein. On the relatedness between Nelson and Wittgenstein see Birnbacher (2002).

Nelson, surely, has pupils in the conventional sense which, by the way, were strongly loyal to their master. Among them were Gerhard Hessenberg, Otto Meyerhof, Heinrich Goesch, Alexander Rüstow and Kurt Grelling (Peckhaus 1990, 132).

11. On Julius Kraft see Popper (1962). Besides Kraft, Popper also knew three other "excellent pupils" of Nelson's (*ibid.*, 3).

12. Among Oppenheimer's students in Frankfurt there were the young Theodor Adorno and the father of the West-Germany's *Wirtschaftswunder* Ludwig Erhard, Minister of Finance in the 1950s and Federal Chancellor of that country in the 1960s.

other half were about the theory of knowledge: mainly Kant's so-called 'transcendental deduction' (which I regarded as question-begging), his solution of the antinomies, and Nelson's 'Impossibility of the Theory of Knowledge'" (ibid.). This reminiscence of Popper's substantiates the contention at the end of the last section that Popper himself did not connect Nelson's influence on himself with the method of peirastic dialectic.

Interestingly, Popper was to work with Kraft three decades later, in the 1950s, a collaboration interrupted only by Kraft's death in 1960. The most important product of this cooperation was the founding of the journal *Ratio* in 1957, a successor of *Abhandlungen der Fries'schen Schule*, second series, which Nelson had inaugurated over half a century earlier, in 1904.¹³

2.4 Political views

As we have noted, Nelson's influence on Popper was especially pronounced in the field of political theory, where both philosophers, critical of Marx, regarded themselves as social reformers and unorthodox socialists. Nelson criticized Marxism for its anti-liberal stance, claiming that liberty is at least as important as equality. One finds traces of this position in Popper's enthusiasm, seen in *The Open Society and Its Enemies*, for Swedish Social Democracy, which is oriented to consumption and liberty, and hence antithetical to the orthodox Marxist type of socialism predicated as it is upon production and radical equality (Popper 1945, ch. 18, n. 10). Furthermore, Nelson influenced Popper's claim, also found in *Open Society*, that philosophical progress and regression are tied to political progress and reaction. In the literature, it had been remarked that Kraft's works critical of Heidegger's philosophy, in Kraft (1932) and (1934), "read almost as sequels to *The Open Society*" (Hacohen 2000, 124). In fact, Kraft's books appeared prior to *Open Society*, something that clearly betokens the direction of influence on this subject, which ran from Nelson to Popper, via Kraft.

Other evidence attesting to the influence that Nelson exerted on Popper's political theory includes (i) an early paper of Popper's defending cosmopolitanism that explicitly refers to Nelson (Popper 1927, 23); (ii) Popper's

13. The latter journal ceased being issued in 1937, ten years after Nelson's death and four years after Hitler came to power. In it Paul Bernays published four papers and Kurt Grelling his famous paradox. The first series of the journal was published in 1847–49, edited by E. F. Apelt, Oscar Schmidt and Oskar Schlömilch.

Nelsonian rejection of the German historical approach in philosophy,¹⁴ something that set the stage for his *Poverty of Historicism*; and (iii) Popper's praise for Nelson as an "outstanding personality" who led "one of the small band of Kantians in Germany who had opposed the First World War" (Popper 1974, 164).

Naturally enough the two philosophers did not see eye to eye on every political issue. First of all, Nelson came in for Popper's severest criticism for an elitism that led Nelson to oppose democracy (Popper 1945, 265, 269). Indeed, Nelson urged that democracy is an ultimately self-defeating choice in politics since it establishes conditions whereby demagogic ideas may prevail. The best policy, as Nelson saw it, is for society to be governed by an enlightened, rationally judging ("deliberating", as we say today) elite. Secondly, if Nelson and Popper both viewed socialism as the "means to a liberal end" (Hacohen 2000, 124), Nelson identified liberalism with *Bildung* (enlightening acculturation) while Popper, by contrast, linked it with radical democracy.

2.5 Popper and Nelson's epistemology and the philosophy of science

Today Nelson's most widely known thesis is that the theory of knowledge, which has held a central place in philosophy since Descartes, is impossible. Such is the case, according to Nelson, because there is no valid criterion for the truth of knowledge. Indeed, if every kind of knowledge needs to be justified, it follows that there is a kind of knowledge (that of knowledge itself) which is not justified, which is a contradiction. Nelson concluded that we cannot posit a theory of knowledge without making presuppositions. Like his own philosophical predecessor Fries, Nelson fought the demand to justify scientifically everything that is to be accepted as knowledge, rejecting what he called this "predilection for proofs" (Popper 1930/3, 106). Both Fries and Nelson held the possibility of knowledge to be not a problem but simply a fact. They argued that the criterion for the truth lies in the immediate knowledge (perceptual and conceptual) which is solid and secure: human understanding proceeds from the conviction that immediate knowledge harmonizes with reality.¹⁵

We earlier remarked (in §§ 1.2–4) that while it accepted that knowledge brings with it unproven presuppositions, critical philosophy also

14. In fact, it was characteristic of the German Idealism, not of the scientifically oriented German philosophers of the nineteenth century like Fechner or Herbart.

15. This claim of Fries-Nelson is clearly related to G. E. Moore's defence of common sense.

called for their examination. What Nelson argued was that instead of trying to deduce the a priori principles from “pure reason”, we must bring to light the “anthropological facts” that justify us in taking these principles as true. Nelson in this way abandoned the theory of knowledge for a “psychology of knowledge”. Particularly worthy of note in this connection are two distinguishing aspects of this doctrine of “fact” as it figures in Nelson’s psychology of knowledge. (i) “Facts,” in Nelson’s view, include the data of science and the truths of mathematics, and here Nelson proved himself to be an accomplished philosopher of mathematics and science. Further, (ii) Nelson regarded facts as neither intuitive nor self-evident but, instead, “vague” (*dunkel*). In order to deduce the a priori truths from such data, we must discern their multiplicity in an act of Socratic *reflection*.¹⁶

Until the end, Popper remained critical of Fries and Nelson’s views on ultimate immediate knowledge (the given) (Popper 1992). He followed the British pragmatist Ferdinand Schiller, who argued that this position overlooks the option of commencing the effort to acquire knowledge by postulating insecure presuppositions that we can confirm over the course of an investigation (Nelson 1911b, 492). At the same time, however, Popper concurred with Fries’ and Nelson’s call for closely linking philosophical research with science and mathematics.

As it turns out, Popper’s interpretation of Fries and Nelson’s epistemology on this point was inaccurate. According to Popper, Fries claimed that since the requirement for logical justification of scientific hypotheses leads to regress *ad infinitum*, we must justify scientific theories through “perceptual experience” (Popper 1934, 60). Actually, however, Fries and Nelson never referred in this connection to perceptual experience but rather to immediate knowledge in general, which also includes immediate conceptual, or scientific, knowledge—above all, knowledge of axioms.

Popper rightly noted that whereas to Fries and Nelson the basic statements (axioms) of science have the character of dogmas, “this kind of dogmatism [is ...] innocuous since, should the need arise [through new scientific discoveries], these statements can easily be [revised]” (*ibid.*, 70). A typical example in this respect (one cited above in § 1.3) is the new set of axioms that proved necessary for the non-Euclidean geometry which Lobachevski and Riemann discovered after Fries’ death. This, in fact, was the *critical* stance of Fries and Nelson’s epistemology that Popper adopted. Our knowledge, Popper famously declared, proceeds by way of conjec-

16. Cf. § 1.5.

tures, followed by their refutations, which in their turn are followed by new conjectures, and so on.

But Popper went beyond Fries and Nelson when he claimed that scientific progress consists in moving toward theories that manifest ever greater deductive power. From this standpoint “scientific progress turned out not to consist in the accumulation of observations but in the overthrow of less good theories and their replacement by better ones, in particular by theories of greater content” (Popper 1974, 62f.).¹⁷

Popper felt that most philosophers of science were misguided in believing that their work makes use of induction in an operation of *justifying* theories by making observations or experiments. Especially zealous in this respect were the logical positivists of the Vienna Circle who used induction in the form of the principle of verification. Similarly to Nelson, Popper claimed that induction is a myth “which had been [already] exploded by Hume” (Popper 1974, 63). Popper championed, instead, a doctrine of deduction based on falsifiability or testability. He maintained that “the falsification or refutation of theories through the falsification or refutation of their deductive consequences [is], clearly, a deductive inference (*modus tollens*)” (ibid., 62).

Popper regarded himself as indebted to Fries and Nelson for this conception, but only for the sharp distinction that both Fries and Nelson had drawn between induction and deduction (Popper 1934, 70 n. 3). In fact, however, the influence was much more profound. The two philosophers contended that deduction must be applied in metaphysics, i.e. in the foundations of mathematics and science, and in ethics as well. This is metaphysics of changeable a priori truths that are deductively discovered through Socratic examination. Despite the fact that Popper rejected metaphysics, he adopted Nelson’s thesis of changeability of scientific truths in the form of falsificationism, which defended the “deductive method of testing” scientific theories (ibid., 30, 32, 47).

2.6 *Critique of positivism and empiricism*

Nelson’s critique of induction informed the challenge he mounted against two other positivist positions. It was evident in the doubts he raised about the positivists’ insistence that science has no properly speculative charge; that its task is merely to lay down the “bare facts.” It was evident, as well,

17. This conception is often criticised as irrational.

in Nelson's questioning the existence of such things as sense-data, 'simple' ideas or impressions, which he took to be inventions based on mistaken attempts to adapt the atomism of physics to psychology.

Popper followed Nelson on both of these points.¹⁸ He also concurred with Nelson's criticism of the verification principle, which invoked the authority of David Hume. This positivist principle sponsored a naïve, pre-Humean form of empiricism.¹⁹ Its revival, by philosophers like Hans Kelsen, is unwarranted and constitutes a clear case of regression in philosophy.²⁰ Hume himself had unequivocally shown that empiricism fails to explain not only science but also ordinary human experience. Starting from this point, Nelson concluded that science without metaphysics is impossible. Popper closely followed him in this too, although Popper's form of "metaphysics" differed from that of Nelson.

To Nelson, metaphysics has its own signature task, namely deducing the presuppositions of our ethical, mathematical and scientific knowledge. Popper accepted a related but manifestly different position: instead exploring metaphysics, he pursued philosophy of science that investigates the methods of special sciences—which is to say, it investigates scientific problems and their tentative solutions, as well as the issue of scientific progress. From a strict Nelsonian point of view, Popper's position itself was positivistic. Indeed, Nelson was convinced that philosophy has nothing to do with the *methods* of special science and must instead simply lay out their first principles.

2.7 Epilogue: Popper and early analytic philosophy

In addition to the other influences, Nelson's thought aided Popper formulating his criticism of one of the Vienna Circle's lead doctrines, namely that we philosophize over language²¹ and concepts. Members of the Circle derived this position from the *Tractatus* of Wittgenstein, who himself was drawing upon Frege (Milkov 2003b). Early on, Popper categorically

18. In his criticism of sense-data and simple impression Popper was also influenced by Karl Bühler and Otto Selz.

19. Interestingly enough, a similar position was also taken by Hans Reichenbach—and this is a second similarity between him and Popper (cf. n. 9). Reichenbach repeatedly referred to Hume's demonstration of the inconsistency of empiricism—he replaced it with a kind of probabilistic empiricism. Furthermore, similarly to Popper, Reichenbach was critical of the principle of verification of his Vienna friends, accusing them of neglecting the problems of real (actual) science.

20. Cf. §1.6.

21. Cf. with Carnap's explorations in the "language of science".

rejected it and never back-pedaled on his initial judgment. He also criticized the claim of Frege and Wittgenstein that concepts must have explicit boundaries (Popper 1974, 21).

This stance brought Popper close to Susan Stebbing in the mid-1930's.²² As early as 1932, Stebbing had criticized both Wittgenstein and the Vienna Circle along the same lines (Milkov 2003b, § 3)²³ pairing their views and opposing to them the “good philosophy” of Moore and Russell which proceeds not from language but from reality. Of special interest here is the fact that between 1903 and 1918 Russell himself was considerably influenced by Frege's and Wittgenstein's linguistic orientation. He completely freed himself from it only in the last years of his philosophical development.²⁴

Besides the shared aversion to the conception that philosophy is primarily philosophy of language, Stebbing was sympathetic to Popper because of the latter's conviction that discussions in theoretical philosophy can help to orient us in practical matters; that “our often unconscious views on the theory of knowledge and its central problems are decisive for our attitude towards ourselves and towards politics” (Popper 1974, 91). In this sense, *The Poverty of Historicism* and *The Open Society* might be said to have grown out of the theory of knowledge of *The Logic of Scientific Discovery*.²⁵ The following declaration of Stebbing's reveals an orientation that parallels Popper's: “Anyone who has been able to learn something of Moore's way of thinking, ... could not, I think, succumb to the muddle-headed creed of Fascism or National Socialism. For, to be imbued with his critical yet positive spirit is to be forearmed against the forces of irrationalism.” (Stebbing 1942, 532)

But Popper consequently opposed not only the linguistic analysis of Frege and Wittgenstein: he also rejected elements of the analytic philosophy of Moore and Russell who were widely esteemed “philosopher's philosophers”. Popper's judgment that the latter produced doctrines that

22. Susan Stebbing was instrumental in Popper's starting a career in the English-speaking world. In 1935 she invited him to England for nine months, after which Popper, supported by other friends of his (above all by Karl Polanyi), received an appointment at the University of Canterbury, New Zealand.

23. This fact disproves Popper's claim, made in 1933 in *The Two Fundamental Problems* that this work is “the first harsh criticism of Wittgenstein's *Tractatus*” (Popper 1930/3, xxxv).

24. This is especially clear to see in his *Human Knowledge: Its Scope and Limits* (1948), as well as in his support of Popper's opposition to Wittgenstein that found expression in the famous “poker anecdote” at the Moral Science Club in Cambridge in October 1946.

25. Cf. § 2.4.

are unacceptably “minute” in character coincides with the charges that many Bergsonian and Heideggerians leveled against it. However, whereas Bergson advanced grand theories in philosophy of mind, Popper developed grand methodological theories in philosophy of science.

Hence, it is no accident that the epigraph of *The Logic of Scientific Discovery*, “Hypotheses are nets: only he who casts will catch”, comes from the arch romanticist Novalis; nor that *Two Fundamental Problems of Theory of Knowledge*, the title Popper gave his first work, was a paraphrase of Arthur Schopenhauer’s *Two Fundamental Problems of Ethics*. Indeed, Schopenhauer, together with Eduard von Hartmann, was among the writers who considerably influenced Popper in his youth. Moreover, Popper did not hesitate to borrow ideas from Henry Bergson—a philosopher whom both Russell and Nelson unconditionally repudiated. For example, Popper states that his “view can be expressed by saying that every discovery contains an ‘irrational element’, or ‘a creative intuition’, in Bergson’s sense” (Popper 1934, 7).

This last fact about Popper’s thought makes it patent that he was no mere epigone of Nelson’s. That said, however, a close review of Popper’s work reveals that in his most successful thinking he followed Nelson. And conversely, on those issues that found him opposed to Nelson, Popper typically produced his least distinguished ideas. A paradigmatic example of the latter is Popper’s attack on Nelson’s concept of the given under the banner of anti-Foundationalism, a position that opened Popper to severe and warranted criticism for relativism (Stove 1982).

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