On Walter Dubislav

Summary

This paper outlines the intellectual biography of Walter Dubislav. Besides being a leading member of the Berlin Group headed by Hans Reichenbach, Dubislav played a defining role as well in the Society for Empirical / Scientific Philosophy in Berlin. A student of David Hilbert, Dubislav applied the method of axiomatic to produce original work in logic and formalist philosophy of mathematics. He also introduced the elements of a formalist philosophy of science and addressed more general problems concerning the substantiation of human knowledge. What set Dubislav apart from the other logical empiricists was his expertise in the history of logic and exact philosophy which enabled him to elucidate and advance the thinking in both disciplines. In the realm of logic proper, Dubislav is best known for his pioneering work in theory of definitions. What's more, he did original work on the so called 'quasi truth-tables' which aided Reichenbach in developing his logic of probability. Dubislav also elaborated an influential logic of moral statements.

1.   Introduction

Walter Dubislav (1895–1937) was a logician and formalist philosopher of mathematics and science, a core member of the Berlin Group headed by Hans Reichenbach (cf. *Milkov 2013*), and a leading figure of the Society for Empirical/Scientific Philosophy in Berlin (cf. § 8, below). When Reichenbach emigrated to Istanbul, in the summer of 1933, Dubislav took over the reigns from Reichenbach as head of the Berlin Society. Dubislav was a featured speaker at the landmark conference on Exact Theory of Knowledge in Prague (1929), where he spoke about Bolzano's conception of probability.[1] At the follow-up conference in Königsberg (1930), Dubislav read a paper on the philosophy of mathematics, later published as *Dubislav 1930a*. These major presentations had been preceded by an invitation at the Erlangen Conference on Exact Philosophy in March 1923, and they were followed by another at the

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[1] See 'Diskussion über Wahrscheinlichkeit', *Erkenntnis* 1 (1930), pp. 260–285; Dubislav's contribution is on pp. 263–266.

Paris Conference for Scientific Philosophy in 1935. During this later period the Universities of Warsaw and Lemberg also solicited Dubislav to present his work. Unfortunately, financial difficulties[2] compelled him to decline all these invitations.

Dubislav published works with the most prestigious German publishing houses and in the leading journals of the time—including the periodical *Erkenntnis*, which in 1934 Rudolf Carnap, one of the founding editors, invited Dubislav to co-edit with him (cf. § 12, below). When in 1930 Adolf Fraenkel edited an issue of the newly founded journal *Blätter für Deutsche Philosophie* on the 'Philosophical Foundation of Mathematics', he turned to Dubislav for a paper, which subsequently appeared as *Dubislav 1930b* together with essays by five other leading figures of the time in Germanophone philosophy of mathematics: Paul Bernays, Carnap, Karl Menger, Heinrich Scholz and Fraenkel himself. Nor was Dubislav forgotten after his death, at least through the years immediately following the Second World War. Wilhelm Britzelmayr,[3] for one, delivered lectures in Munich in 1948 on the theory of definition, following the lead of Dubislav's thought, and subsequently organized a colloquium on 'scientific terminology' in a Dubislavian key.

But notwithstanding his seminal contributions to the emergence of the philosophy of mathematics and science and his formative influence on some of the preeminent figures in the field, Dubislav has practically been forgotten over the last sixty years.[4] His name is never so much as mentioned in such prominent contemporary works as *Mancosu 2010*, in the philosophy of logic and mathematics of the first half of the twentieth century, and as *Uebel 2007*, on logical empiricism.[5] One reason for this otherwise inexplicable omission is the absence of an authoritative and comprehensive account of Dubislav's life and work, an intellectual biography based upon archival material. It is to help fill this gap that the present paper undertakes to shed some badly needed light on the life and the ideas of this important yet neglected logician and philosopher of mathematics and science. As we shall see, in many respects Dubislav's contribution constitutes a crucial though currently missing element in the history of

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[2] We shall say more about these in § 5, below.

[3] Later Wilhelm Britzelmayr introduced Hans Sluga to Gottlob Frege (see *Sluga 1980*, p. ix).

[4] Exceptions are well informed articles *Essler 1981* and *Gabriel 1972, 2005*.

[5] An exception is *Grattan-Guinness 2000*, pp. 519–520.

logic, logical empiricism, and of the philosophy of mathematics. Not the least value of even an abbreviated conspectus of Dubislav's life's work, such as the one undertaken in these pages, is that it clarifies some defining but till now little-understood points of Reichenbach's thought, even as it discloses previously unrecognized influences on pivotal aspects of Carnap's ideas, as well as on those of Carl Hempel, Dubislav's most influential student.

2. Early Years and the War

Walter Dubislav was born in Berlin on September 20, 1895 to the family of Georg and Olga Dubislav (née Buchholz). Georg Dubislav (1857–1931) was a professor of English and French, and sometime principal of the *Gymnasium* (secondary school) where the young Walter received his high-school diploma (*Abitur*).[6] The elder Dubislav, whose name remains familiar to this day among German librarians, authored nearly a dozen textbooks on the study of English and French, including *Dubislav 1909*, a highly regarded contribution to the history of English syntax. Among other things, these preoccupations of the father betray how the son acquired the ability to read English and French (and Italian) authors in the original.

In the spring of 1914 Walter Dubislav matriculated at the University of Göttingen[7] where he studied mathematics under David Hilbert and philosophy under Leonard Nelson (renting rooms in a house next door to Nelson's residence[8]). Both Hilbert and Nelson, as we shall see, were to prove pivotal in Dubislav's intellectual development.[9]

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[6] Cf. 'Lebenslauf des Professors Dr. phil. Walter Dubislav vom 28.5.1936'. Humboldt-Universität zu Berlin, Archiv, Bestand UK-Pers., 164, Dr. Walter Dubislav.

[7] Cf. 'Lebenslauf Walter Dubislav vom 14.9.1927 anlässlich seiner Habilitation', Geheimes Staatsarchiv Preußischer Kulturbesitz, I. HA Rep. 76 Kultusministerium, Vb Sekt. 5 Tit. III, Nr. 2c Bd. 1.

[8] Cf. Staats- und Universitätsbibliothek Göttingen, Cod. Walter Dubislav, Matrikelnummer 65/1914.

[9] Hans-Joachim Dahms writes: 'Dubislav was strongly influenced by in 1927 deceased Göttingen philosopher Leonard Nelson, both in his academic development as well as in his political attitude' (*Dahms 1994*, p. 66).

The years from January 1915 through March 1919 saw Dubislav torn from university life and hurled as a private into the German Eastern Front in World War I. By the end of the Great War he was a lieutenant and the officer in charge of the signal corps in the Kerch fortress, East Crimea, where as a consequence of the Russian Revolution the War lasted beyond the Armistice of November 1918. Between April and July 1919, Dubislav was interned as a prisoner of war in Thessaloniki, Greece.[10]

3.   Renewing Studies

In August 1919 Dubislav resumed his studies at the Friedrich Wilhelm University (today the Humboldt University) of Berlin. Only two years and some months later, in December of 1921, Dubislav submitted a doctoral thesis titled 'On the Axiomatic Method' ('*Über die axiomatische Methode*') at the University in Hamburg. Unfortunately this initial bid for the PhD failed. The following summer (July 1922) Dubislav submitted a different though related treatise, this time at the University of Berlin and under the supervision of Heinrich Maier and Wolfgang Köhler.[11] The fifty-three-page monograph bore the title 'Contributions to the Theory of Definition and Proof from the Point of View of Mathematical Logic' ('*Beiträge zur Lehre von der Definition und vom Beweise vom Standpunkt der mathematischen Logik aus*'). This dissertation was favorably received and on August 24, 1922 Dubislav was awarded a PhD with the grade of 'laudabile'.[12]

As the titles of his two dissertations suggest, Dubislav's scholarly interest in the early 1920s centered on Hilbert's axiomatic method and its relevance for philosophy. Dubislav was to remain under Hilbert's spell, as did two distinguished future colleagues of his in the Berlin Group, Reichenbach and Kurt Grelling as well as his future student Carl Hempel. To Dubislav, however, belongs the distinction of having been perhaps the only philosopher of the

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[10] Cf. 'Lebenslauf des Professors Dr. phil. Walter Dubislav vom 28.5.1936'.

[11] Wolfgang Köhler, a Student of Carl Stumpf, was one of the fathers of the Gestalt psychology and subsequently close associate of the Berlin Group. In 1934 Köhler also served as a supervisor of the doctoral thesis of Carl Hempel.

[12] Cf. Humboldt-Universität zu Berlin, Archiv, Transkription aus dem Doktorandenbuch der Friedrich-Wilhelm-Universität zu Berlin 1922, Nr. 129.

period to systematically and consistently defend formalism in the philosophy of mathematics.[13]

4. Dictionary of Philosophical Concepts

During his four years of study in Berlin, between 1919 and 1922, Dubislav not only wrote two dissertations but also worked on a *Systematic Dictionary of Philosophy* (*Systematisches Wörterbuch der Philosophie*), with the help of his friend, the physician Karl Clauberg. Dubislav and his collaborator produced a remarkably original dictionary of current philosophical concepts explained in non-technical German (*Clauberg and Dubislav 1923*). What makes this reference work genuinely unique is that it employs Hilbert's axiomatic method to connect the philosophical *termini technici* in logical chains of definitions (in *Kettendefinitionen*) that do not produce a *vicious circle* (*diallele*). Another of the book's salient features is the prominent place that it accords to concepts of the philosophies of logic, mathematics, and science.

The dictionary was wholly Dubislav's brainchild (p. v). That he chose, however, a medical doctor for a co-editor reflects Dubislav's interest in connecting philosophy with scientifically exact disciplines, as well as his penchant for interdisciplinary dialogue as a means of addressing philosophical problems, something that would later typify the activity of the Berlin Group.

Notwithstanding Dubislav and Clauberg's insistence that their text is not a philological-historical dictionary but a lexicon organized on systematic lines (fixing logical connections between concepts), the concepts it defines derive from and reflect the history of German philosophical thought. Witnessing to that fact, the most commonly cited sources of the definitions are Leibniz, Kant, Bolzano, Wilhelm Wundt, and Leonard Nelson.

The dictionary quickly brought the young Dubislav to the attention of all those philosophers in Germany who had an interest in furthering exact (logical) methodologies. It is not surprising then that in March 1923 Dubislav was invited, as previously noted, to the Erlangen Workshop on Exact Philosophy. Almost ten years later, the dictionary drew public notice in America. A review which appeared in the *International Journal of Ethics* finds that 'though

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[13] An exception was Paul Bernays, another associate of Leonard Nelson.

this useful book is not recently published, it is not as widely known and used in America as its value suggests. In a single volume of easily manageable proportion, and at a modest price the student may get here what is not really available in English, a dictionary of philosophical terms' (*Smith 1932*, p. 124).

The dictionary's reception motivated Dubislav to commence work on a second edition in 1928 and 1929: many corrections from that period appear in the margins of his author's copy. Apparently he recognized the historical importance of his uniquely edited reference work and that it was worth taking pains to emend it. Others thought so too. The *Systematic Dictionary of Philosophy* was widely consulted in Germany for decades and in 1948 the 'Office of Logistical Research' (*Büro für Logistische Forschung*) in Munich headed by the aforementioned Wilhelm Britzelmayr initiated work on a new edition. The project was soon abandoned, however, due to 'insurmountable difficulties' (*Schischkoff 1949*, p. 549). A decade further on, Albert Menne, a former student of Britzelmayr, could nonetheless write of the original edition that, '[f]rom a formal perspective, the excellence [of the book] remains unsurpassed till today' (*Menne 1959*).

5.   Dubislav as a Historian of Logic and Philosophy

Late in 1922 Dubislav married Gertrud Troitzsch. These were times of severe economic hardship in Germany and this negatively impacted Dubislav's plans and projects. During the years 1922 through 1925 he was forced to earn his living as a merchant (*Kaufmann*).[14] Still, he refused to give up or even postpone his pursuit of a career in philosophy. Starting with the Winter Term 1922/23, Dubislav was an unpaid assistant of the mathematician Georg Hamel (a student of Hilbert and philosophically close to Leonard Nelson's Group of neo-Frisians) at the Berlin Institute of Technology (*Technische Hochschule in Berlin*).[15] By taking this unsalaried position Dubislav aimed at, among other things, to deepening his knowledge of mathematics.[16]

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[14] Cf. 'Lebenslauf des Professors Dr. phil. Walter Dubislav vom 28.5.1936'.

[15] Among the former students of the Berlin Institute of Technology was Ludwig Wittgenstein.

[16] Cf. 'Lebenslauf Walter Dubislav vom 14.9.1927 anlässlich seiner Habilitation'.

In 1924 Dubislav made the acquaintance of the historian of logic and exact philosopher Heinrich Scholz, then an unsalaried reader (*Privatdozent*) at the University of Kiel. Following Scholz's advice, Dubislav wrote a dissertation on Fries's theory of substantiation (*Begründung*) which was to serve as his habilitation thesis.[17] Being by that time well versed in the philosophy of the neo-Friesian Leonard Nelson, Dubislav enjoyed working on Fries. In the summer of 1924 he submitted the monograph in hopes of winning his habilitation at the University of Kiel. The Kiel professor Johannes Wittmann, however, was highly critical of the thesis and the candidate presently withdrew from Kiel.[18] As for the dissertation, it appeared in print two years later with a dedication to Heinrich Scholz as *Dubislav 1926a*.

There was, however, an upside to what Dubislav must have experienced in this setback. Thanks to the pains he took in researching and writing the monograph, Dubislav acquired a high degree of expertise in Fries's philosophy. Three years later, Dubislav also published a short exposition of Fries's method as *Dubislav 1929a*. Dubislav thus explicated and assessed both of the two principal themes on Fries's critical philosophy: epistemological substantiation and method.

Especially prominent in Dubislav's historical–philosophical investigations was the criticism of Kant's concept of analyticity. Dubislav identified seven 'inconsistencies [in it], both in Kant's explicit as well as in his implicit claims' (*Dubislav 1926c*, p. 6). The most telling objections that Dubislav raised against Kant include the following: (i) Kant's division of propositions into analytic and synthetic was valid only for subject–predicate propositions. Yet he maintained that existential and hypothetical-conditional propositions are not subject–predicate in character. Consequently, his division of propositions into analytic and synthetic was not comprehensive. (ii) Kant claimed that definitions are *analytic* judgments, and that mathematics involves definitions. At the same time, however, he asserted that mathematics is a *synthetic* discipline, not an analytic one.

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[17] Habilitation is second dissertation in German speaking universities that secures license for teaching at full professor level.

[18] Cf. Dubislav's letter to Rudolf Carnap of 21.4.1926. Pittsburgh Archives of Scientific Philosophy, RC 028-13-09.

Dubislav went on to consider two successful moves to improve Kant's concept of analyticity: those of Bolzano and Frege. (i) Bolzano claimed that analytic judgments are *sensu stricto* those 'judgments that have a variable' and to which we can ascribe the values 'true' or 'false'. All other judgments he held to be synthetic. In other words, Bolzano defined as analytic the concept of 'propositional function' only. He contended, moreover, that this conception of analyticity has the advantage of being objective, which cannot be said of Kant's classification of a priori and a posteriori judgments, a division that is epistemological and hence 'subjective' (*Dubislav 1926c*, pp. 6, 19). As Dubislav pointed out, though, Bolzano's definition of analyticity had its own problems. Most troublingly, it didn't confine the range of values but putatively held for 'all objects'. As a result it opened the door for the paradoxes of classes. (ii) Frege's cardinal position on analyticity is that analytic propositions are derivable (*ableitbar*) uniquely from the axioms of *logic*. The formalist Dubislav detected what he believed is a serious flaw in Frege on this head, arguing that we may derive logic itself from many alternative systems of axioms.

Importantly enough, Dubislav introduced his own, formalist doctrine of analyticity as an improvement upon and completion of the positions of Bolzano and Frege (not necessary as their refutation). According to it, only those propositions are analytic the truth or falsehood of which we may derive from some particular system of premises, with the aid of specific valid forms of justification (ibid., pp. 23 f.).

Dubislav merits recognition as a historian of logic and philosophy on at least three significant counts:

   (i) His approach to the history of logic and philosophy is anything but merely antiquarian or annalistic. Rather, Dubislav thought it indispensable to investigate the historical context of the problems of the disciplines in which he took an interest, namely philosophy of logic, philosophy of mathematics, and philosophy of science. His analysis, for example, of theory of definition in *Dubislav 1931* starts with Aristotle, who set its task as defining the essence of objects; by contrast, moderns such as Kant and Fries were concerned with the definitions of concepts. Dubislav goes on to explain how the first logician who approached definitions as setting the meaning of a newly introduced sign was Blaise Pascal. Then he calls attention to another French logician, Joseph Gergonne, who

introduced the concept of 'implicit definition'. Finally, he explains how at the core of their logic Frege and Peano turn to the construction of concepts (*Begriffsbildung*), observing that they left unclear the criteria necessary for coordinating signs and objects.

(ii) Dubislav also originated a kind of 'analytic' history of logic and philosophy, an approach later articulated with exemplary clarity in *Strawson 1966*. Its objective is to explicate the sound ('analytic') elements of the logical or philosophical masters of the past, rejecting at the same time those elements that are vague ('non-analytic'). We see this methodology paradigmatically exemplified in Dubislav's analysis of Bolzano's criticism of Kant. On Dubislav's reading, Bolzano did not simply reject the Kantian philosophy wholesale, but rather exercised a kind of 'creative criticism' of Kant (*Dubislav 1929e*, p. 368), accepting and further developing some points of Kant, and rejecting others. Following Bolzano's lead, Dubislav went on to contend that the task of the historian of philosophy and logic is to render fully explicit and clear the 'solid results' that Kant either only adumbrated or else expressed but merely in rudimentary form. By so doing, the historian of philosophy would thereby show their otherwise overlooked fruitfulness.[19] This is consistent with the spirit of Bolzano himself, who held that 'the more precise the perspective of the criticized philosopher is presented, the more useful will be the criticism of his teaching' (p. 358).

(iii) Dubislav identified Fries and Bolzano as the two originators of exact logic and philosophy. He called attention to the fact that their ideas 'partly agree' (p. 362) but that pivotal differences nonetheless distinguish them. In short, while Fries's thinking largely set the stage for the ascendancy of what would become the philosophy of science, Bolzano, who introduced the concept of 'proposition as such', was more a predecessor of the analytic philosophy of language.[20] Yet by contrast with Bolzano, Fries is today practically forgotten as one of the founding fathers of analytic philosophy.

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[19] In fact, this method was developed already before Dubislav by some neo-Kantians, for example, Wilhelm Windelband, who used to say: 'Kant verstehen heißt über ihn hinausgehen' (*Windelband 1924*, i, p. iv).

[20] Following *Tugendhat 1976*, in German, one uses to speak about '*Sprachanalytische Philosophie*'. On the two types of exact, or analytic, philosophy see *Milkov 2012*, *2013*.

6. Theses on Definition

From 1926, the year he abandoned work as a merchant, Dubislav dedicated himself completely to his philosophical studies and related academic pursuits. First came several reviews for *Jahrbuch über die Fortschritte in der Mathematik*,[21] while he undertook to see his dissertation into print and to further develop its ideas. Dubislav published it under the title *On Definition* (*Über die Definition*) in 1926; a second edition following in 1927 (*Dubislav 1926b*, *1927a*).

In September 1927 Dubislav submitted the essay 'On the Theory of the So-Called Creative Definitions' ('*Zur Lehre von den sogenannten schöpferischen Definitionen*') as a habilitation thesis at the Berlin Institute of Technology.[22] Joseph Petzoldt, Götz Briefs, Georg Hamel, Heinrich Scholz and Erich Becher were Dubislav's faculty readers. This treatise was published over the next two years (*Dubislav 1928/29*), during which period Dubislav continued to work out his approach to definition, a process that generated two additional papers: 'On Calculational Characterizing of Definitions' ('*Zur kalkülmäßigen Charakterisierung der Definitionen*') (*Dubislav 1928*), and 'On Definitions through Abstraction' ('*Über Definitionen durch Abstraktion*') (*Dubislav 1929b*). In January 1928 Dubislav habilitated at Berlin with the lecture 'On Bolzano as a Critic of Kant' ('*Über Bolzano als Kritiker Kants*') (*Dubislav 1929a*).

The book of Dubislav's best known today, *The Definition* (*Die Definition*) (*Dubislav 1931*), had its origin in this period of intensive and sustained work on the topic. He wrote the volume following an offer by Reichenbach and Carnap, who invited him to submit a manuscript for publication in a new book series that was to supplement the periodical *Erkenntnis*. As it turned out, *The Definition* was the only monograph to be published in the series. Technically, it was a third edition of *On Definition*, but the text had been extensively rewritten and had grown to more than twice its original length, now including material based on the papers Dubislav published on the subject between 1927 and 1930. By contrast with the first two edi-

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[21] See, for example, *Dubislav 1925*, *1926d*, and *1926e*.

[22] Geheimes Staatsarchiv Preußischer Kulturbesitz, I. HA Rep. 76 Kultusministerium, Vb Sekt. 5 Tit. III, Nr. 2c Bd. 1, p. 235.

tions, the third devotes more space to problems of philosophy of science, a development that reflects Dubislav's collaboration with Reichenbach and Grelling between 1928 and 1931. As one of its reviewers noted at the time, besides its merit as a contribution to the philosophical logic, *On Definition* 'is quite as important a contribution to science—and is, naturally, broader in scope, as the definition of definition is not an affair of mathematics exclusively'[23] (*Allen 1933*, p. 331).

By the way that he made definitions his central concern Dubislav was able to foreground his original methodological standpoint as a radical formalist in philosophy of logic, mathematics and science. According to it, also the truth of scientific theories is part of the theory of definitions. Indeed, instead of replacing signs with signs, his formalistic theory of science devises means of replacing (defining) 'objects', or events, of the external world with a system of signs, or theories (*Dubislav 1931*, p. 97).

Dubislav's original contribution to the theory of definitions was to introduce the so-called 'calculation criterion of definitions' which made pure 'combination games' the *modus operandi* of definition (p. 81). The aim of such games of defining is to produce a new constellation of game pieces from the initial one, proceeding strictly according to the rules of the game.

7. Dubislav's Philosophical Collaboration with Reichenbach

From the time of his habilitation in 1928 until 1931 Dubislav was an unsalaried reader (*Privatdozent*) in philosophy at the Berlin Institute of Technology. He managed, however, to secure financial support from the Emergency Association of German Science (*Notgemeinschaft der deutschen Wissenschaft*), a predecessor of the German Research Foundation (*Deusche Forschungsgemeinschaft*).[24] In 1930 Dubislav sought a teaching appointment, as well, at the College of Education (*Berufspädagogisches Institut*) in Frankfurt am Main (*Tilitzki 2002*, p. 232). But for reasons that remain obscure that venture failed.

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[23] All the three editions were dedicated to Karl Dörge (1899–1975), a promising mathematician and Dubislav's friend who discussed with Dubislav problems of philosophy of mathematics. Dörge himself expressed indebtedness to Dubislav for the ideas developed in § 6 of *Dörge 1926*.

[24] An institution analogous to the National Endowment of Humanities in the USA.

Despite the fact that Dubislav attended Reichenbach's lecture at the Society for Empirical Philosophy on November 15, 1927, he had not been on close terms with Reichenbach who, like Dubislav, resided in Berlin albeit in a different part of the city.[25] In January 1928 he began a correspondence with Reichenbach: Dubislav enclosed with this first letter a copy of the paper later published as 'An Elementary Demonstration that the Logical Calculus is Free of Contradiction' ('*Elementarer Nachweis der Widerspruchslosigkeit des Logik-Kalküls*') (*Dubislav 1929c*).[26] Reichenbach, on his side, instructed his publisher to make a copy of *Philosophie der Raum-Zeit-Lehre* (*Reichenbach 1928*) available to Dubislav at the reduced, author's price.

What was an initially distanced relationship soon changed dramatically. Appearing in the *Crelles Journal für die reine und angewandte Mathematik*, the essay featured Dubislav's 'quasi truth-tables', which Reichenbach found very helpful in his effort to develop an original logic of probability according to which propositions have three value-predicates: true, false, and prediction-value or weight (cf. *Reichenbach 1935*, p. 407; *1947*, pp. 127, 131, 170). Shortly afterwards, with Dubislav's help,[27] Reichenbach rediscovered how probability implication could be conceived as a generalization of conventional implication, an idea that originated with Bolzano. Reichenbach employed this conception in all of his subsequent writings on the logic of probability, including in his *Elements of Symbolic Logic* (1947). Dubislav, for his part, adopted Reichenbach's argument that the theory of relativity falsifies Kant's philosophy of geometry (*Dubislav 1930a*, p. 31).

On a more general level, Dubislav, together with Kurt Grelling, convinced Reichenbach as to the importance of logic in the latter's areas of research. Indeed, prior to encountering Dubislav, Reichenbach evinced scarcely any interest in logic proper. To be sure, Reichenbach had discussed the 'logical analysis of science' as early as 1920. But what he had in mind at

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[25] But they may have met together already in the summer of 1914 in Göttingen (cf. *Milkov 2013*, pp. 13 ff.).

[26] Cf. Dubislav's letter to Reichenbach of 5.1.1928. Pittsburgh Archives of Scientific Philosophy, HR 015-28-43.

[27] Cf. Dubislav's contribution to the 'Diskussion über Wahrscheinlichkeit'; cf. n. 1.

that time was the axiomatization of science, in particular of the theory of relativity, not *logic* of science.

Moreover, Dubislav's innovative thinking on definitions aided Reichenbach in clarifying his views on 'coordinate definitions' (*Zuordnungsdefinitionen*). To me more explicit, after 1922, Reichenbach spoke about the coordinate definitions as operations that make the objects of science available: they constitute the objects of every particular scientific theory. The importance of Dubsilav's formalist philosophy of science for Reichenbach was that it showed him how to unequivocally attach and thereby to coordinate objects and concepts of science with calculi, complementing this procedure with instructions for interpretation (p. 47).

In addition to the philosophy of logic Dubislav and Reichenbach defended the same ethical philosophy, one that opposed Vienna Circle thinking on ethics. Although both groups took an anti-cognitivist stand, the Vienna exact philosophers championed a form of emotivism, contending that value judgments are expressions of emotions. Circumscribing the Vienna Circle doctrine, Dubislav maintained that propositions of ethics are implicit commands (*Forderungen*) and are so related to the principles of logic that are norms (*Forderungen*) as well (*Dubislav 1937*). Reichenbach followed his younger colleague in this score.[28]

8. Dubislav's membership in the Berlin Group and in the Society for Empirical / Scientific Philosophy

The collaborative work of Dubislav and Reichenbach discussed in the preceding section reflects the lines along which Reichenbach and Dubislav together came to shape the activities of the Berlin Group and consequently its very identity. The Berlin Group was the kernel and organizing power of the much better known Society for Empirical / Scientific Philosophy. The Group developed around Reichenbach's seminars at the University of Berlin after 1926 and later around joint colloquium conducted by Reichenbach and Dubislav. Its core members were Reichenbach, Dubislav, Kurt Grelling and Alexander Herzberg (*Reichenbach 1936*, p. 143).

The Berlin Society for Empirical Philosophy was established on February 27, 1927, by Josef Petzoldt as a branch of the Society of Empirical Philosophy, which had been founded

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[28] Cf. *Reichenbach 1947*, p. 344; *1951*, pp. 280 ff.

two years earlier in Leipzig (*Milkov 2013*, pp. 9 f.). Dubislav joined Petzoldt's offshoot of the parent organization early on—in May of 1927.[29] The first paper he presented before the Society was titled, 'On Conventional and Modern Logic', which he read on the 12th of that December. The underlying impetus for petitioning to read the paper was his looming habilitation: Dubislav's habilitation advisor, Georg Hamel, recommended that he seek out a distinguished academic forum that would permit him to expose his ideas to a professional audience.[30]

Within one and a half year the Society began to undergo significant changes, beginning with the presence of Reichenbach who joined in October 1928. Some months later Petzoldt fell ill and Reichenbach, Dubislav and Alexander Herzberg were elected to the governing board. After Petzoldt's death in August 1929, Reichenbach and Dubislav exercised a transformative influence over the organization, going so far as to reconstitute it under a new name: 'Society for Scientific Philosophy'. The newly reformed group attracted members of Berlin's scientific elite and, indeed, leaders in Germanophone science from everywhere. Meetings were now organized around topics that were interdisciplinary yet clearly distinguished by their philosophical tenor. Through all of these developments Dubislav proved to be the Society's most active member, delivering no less than nine lecture presentations—Reichenbach himself read six papers.

After the intensifying Nazi terror prompted Reichenbach to flee Germany in the summer of 1933, Dubislav, who was not Jewish, assumed the presidency of the Society, which after only seven more meetings ceased to sponsor formal gatherings. A hint of the deteriorating situation is apparent in a remark of Carl Hempel's to Reichenbach in a letter of December 1933: 'The [Society's] meeting … was less attended than on earlier occasions, but the level of the discussion was still good' (*Hempel 1991*, p. 9). As for the Berlin Group, it was now organized around the aforementioned colloquium that continued to hold regular meetings, now led by Dubislav alone. Hempel reported the following to Reichenbach about one of them: 'Dubislav's colloquium was very exciting again. Helmer thought over something about the paradoxes and presented it there; Dubislav himself spoke about the thesis of extensionali-

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[29] Cf. Universitätsarchiv Technische Universität Berlin, Nachlaß Petzoldt Pe87-1, Dubislav.

[30] Cf. ibid., Nachlaß Petzoldt Pe87-2, Dubislav.

ty, and now, at the end of the term, we had a last session in his apartment at which Miss Dr. [Grete] Herrmann, the [former] student of [Leonard] Nelson, discussed apriorism'.[31]

The fortunes of what remained of the Society for Scientific Philosophy eroded still further when, early in 1935, Dubislav dropped out when he got himself into serious legal trouble (cf. § 11). From that time on, not only the Society but the Berlin Group as well virtually ceased functioning, testifying to the leading role Dubislav played in both organizations, particularly after Reichenbach's emigration. Grelling tried to revive the Berlin Group in 1936 (*Peckhaus 1994*, pp. 63 f.), but soon he, too, was forced to flee Berlin.

9.   Exchange with Carnap

The first philosopher to recognize the originality and the power of Dubislav's thinking was not, as one might expect, Reichenbach, but rather Rudolf Carnap. In his *Aufbau* Carnap referred to Dubislav's *Systematic Dictionary* of Philosophy as the only form of a 'constitution system' ever published (*Carnap 1928*, p. 4). Dubislav's insistence that the philosophical termini are to be strictly connected in logical chains of definitions (in *Kettendefinitionen*) that do not produce a vicious circle proved to be closely related to Carnap's own work.

It was Carnap again, not Reichenbach, who invited Dubislav to take part in the 1923 Erlangen Conference on exact philosophy (cf. § 1). Three years later it was Carnap, not Reichenbach, to whom Dubislav sent a copy of the first edition of *On Definition*.[32] Carnap found the monograph of 'great interest' and in return sent Dubislav excerpts from his *Aufbau* and invited him to critique its treatment of definition and concept formation. Following that, Dubislav sent Carnap his paper 'On the Relation between Logic and Mathematics' ('*Über das Verhältnis der Logik zur Mathematik*') (*Dubislav 1925/26*) and the essay *On the So-called Analytic and Synthetic Judgments* (*Über die sogenannten analytischen und synthetischen Urteile*) (*Dubislav 1926c*).[33] Carnap's response to these works was enthusiastic and on June

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[31] Cf. Hempel's letter to Reichenbach from 19.03.1934. Pittsburgh Archives of Scientific Philosophy, HR 013-46-30.

[32] Cf. Carnap's letter to Dubislav of 17.4.1926. Pittsburgh Archives of Scientific Philosophy, RC 028-13-10.

[33] We shortly discussed it in § 5.

20, 1926 he wrote Dubislav a lengthy letter in which he expressed his 'extraordinary interest [especially] in' the pamphlet on analytic and synthetic judgment:[34] a problem that would pre-occupy Carnap till the end of his career late in the 1960s. Carnap also found 'very interesting' Dubislav's idea of mirroring logical axioms in arithmetical axioms. A little remarked histori-cal consequence of this correspondence is that a few years later the young Kurt Gödel, who at that point in time was closely associated with Carnap, took up similar idea but developed it more extensively and with much greater precision than had the originator.

As one might expect, two such creative thinkers as Carnap and Dubislav did not agree on everything. Their most fundamental divergence was that whereas Carnap (in 1926) followed Russell in the assumption that mathematics is reducible to logic, Dubislav held that mathe-matics is more fundamental than logic and hence not reducible to it. Typically, however, Carnap tried to play down this difference, stating that 'in principle, this is nothing but a ter-minological question' (ibid.).

Carnap closed his extended letter to Dubislav with the words: 'despite all my critical remarks, you see that I agree on many points with you and that *I learned much from your presentations*' (ibid., emphasis added). These lines clearly suggest that Dubislav exerted some influence on Carnap. That this was in fact the case is notably borne out not only in *Carnap 1927*—a paper that treated 'Dubislav's' problem of definition—but also in the very orientation that Carnap assumes, approximately, after 1928, when he started to be more inter-ested in the axiomatic method than in the program of reducing mathematics to logic (cf. *Car-nap 1930*) and the shift in the thrust of his thinking to formalism.

The two logical philosophers remained in contact up until the premature end of Du-bislav's life in 1937 (cf. § 13). In February 1931, at the request of the Prussian ministry of education, Carnap wrote a letter recommending Dubislav for the post of Extraordinary Pro-fessor at the Berlin Institute of Technology. The recommendation proved helpful and in May of 1931 Dubislav won the appointment to the professorship. In that same year Carnap also recommended Dubislav to the editors of the French journal *Recherches philosophiques* as a scholar qualified to write an authoritative review essay of the latest developments in German

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[34] Carnap's letter to Dubislav of 20.6.1926. Pittsburgh Archives of Scientific Philosophy, RC 028-13-08.

philosophy of mathematics. Dubislav was subsequently awarded the commission for the article, which was translated into French by the young Emmanuel Lévinas as *Dubislav 1931/32*. In addition to his other efforts on Dubislav's behalf, Carnap wrote laudatory reviews of Dubislav's *The Philosophy of Mathematics Today* (*1932*) and *Philosophy of Nature* (*1933*) (*Carnap 1934a*, *1935*). It deserves notice that Carnap never reviewed two books by any other author.

Dubislav, for his part, was enthusiastic about Carnap's *Logical Syntax of Language* (*Carnap 1934b*). This is evident in his review essay of the book, where he reports that 'the author understands under logical syntax of language the formal theory constructed by him, partly absolutely anew, and with thorough success. … This is an epoch-making work' (*Dubislav 1934*).

10. Philosophy of Natural Science: Influences on Carl Hempel

Under the influence of ongoing discussions with Reichenbach, Dubislav's theoretical interests gradually turned to the relation between logic, mathematics and science. His first publications on this topic were *Dubislav 1929d* and *1930c*. As we've noted (in § 6), Reichenbach's influence proved significant in *The Definition*. Most importantly, it was in that monograph that Dubislav first took up themes in the philosophy of science. His thinking in this field soon found expression in the form of another book, *Philosophy of Nature* (*Dubislav 1933*). Dubislav's student Carl Hempel wrote two reviews of *Philosophy of Nature*, reporting the work to be 'extremely stimulating, concise and clearly written' (*Hempel 1933*, p. 56). He further noted that what distinguished Dubislav's volume from studies in the philosophy of nature by the likes of Moritz Schlick and Edgar Zilsel[35] was that it didn't primarily concern itself with specific problems of science. Instead, it systematically explores the logical and methodological problems of scientific knowledge (*Hempel 1934*, column 760). As it turned out, this was a program that Hempel himself would follow in his *Philosophy of Natural Science* (*Hempel 1966*), regarded today as a standard work in the field.[36]

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[35] Cf. *Schlick 1925*, *Zilsel 1928*.

[36] Philip Kitcher called *Hempel 1966* 'one of the great introductions to any field of philosophy' (*Kitcher 2001*, p. 158).

Consistent with this assessment are pieces of evidence that Hempel drew on Dubislav's work for many key concepts and formulations. For example, while it was Hempel who gave currency to the term 'logical behaviorism' (and received the credit for originating it), it was Dubislav who coined it (*Dubislav 1933*, pp. 69–74). To be more exact, Hempel first used it in his 1935 paper, 'The Logical Analysis of Psychology', employing 'logical behaviorism' in exactly the same sense that Dubislav himself had two years earlier, namely as the 'physicalistic interpretation of psychology' (*Hempel 1935*, p. 381).

Main problems of Dubislav's philosophy of science were that of concept formation, theory formation, and, as it can be expected, substantiation (*Begründung*) of science. He defended a form of 'critical empiricism'[37] that grew on the soil of formalism in philosophy of mathematics and logic (*Dubislav 1933*, p. 33). From this standpoint Dubislav criticized the 'old empiricism and positivism', according to which the propositions of science are to be verified by 'pure observatory statements'. The process of verification is actually considerably more complex than the positivists suggests (cf. *Milkov 2014*).

It should be noted that while Dubislav's stated target in exposing the failings of positivist philosophies were earlier thinkers such as J. S. Mill, his critique also proved valid against the logical positivism of the Vienna Circle. Yet Dubislav refrained from ever directly criticizing Vienna Circle neo-positivism in the manner of Hans Reichenbach (cf., for example, *Reichenbach 1936*, *1938*).

11. Escape to Prague and a Tragic End

Following Hitler's rise to power, which soon caused Reichenbach to flee Berlin, the situation for philosophers and free-thinking intellectuals at large steadily deteriorated. We have the following record of a family visit to the Dubislav home on Christmas of 1933: 'At my brother-in-law [Walter Dubislav], where we spent the Christmas night, there was nothing Christmassy beside the meals and punch. We, i.e. the men, drank till 3 a.m., there was a Gramophone music (*Dreigroschenoper*). … We were in markedly gallows-humor spirit' (*Stresau 1948*, p. 78).

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[37] This, and not 'logical empiricism', was also the concept preferred by Kurt Grelling by describing the philosophical method followed in the Berlin Group (*Grelling 1928*, p. 108).

In December 1934 Dubislav's wife, Gertrud, died.[38] This blow precipitated a series of misfortunes that were to end in Dubislav's suicide. In the spring of 1935 Dubislav, increasingly emotionally volatile, assaulted a woman friend and severely injured one of her eyes. As a result he was taken into custody and lost his right to teach (his *Lehrauftrag*) at the Berlin Institute of Technology. Between August 1935 and May 1936 Dubislav was held at Moabit Prison, in Berlin,[39] where for some months he was under psychiatric observation.[40] In May of 1936, Dubislav was freed when the woman dropped her lawsuit and the public prosecutor closed the case.

Dubislav's next move was to try for a teaching position at the University of Berlin, in which venture he enlisted the support, in particular, of Heinrich Scholz. With a cloud of scandal over his reputation, Dubislav went to the extreme of soliciting the additional support of Ludwig Bieberbach, one of the leaders of the Nazi supported 'German Mathematics' movement that fought the 'Jewish influence' in the discipline.[41] Not surprisingly, this initiative failed.[42]

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[38] Cf. 'Lebenslauf des Professors Dr. phil. Walter Dubislav vom 28.5.1936'.

[39] Cf. Registern der Untersuchungshaftanstalt Moabit, Nr. 2184/1936.

[40] On January 16, 1936, Kurt Grelling wrote in a letter to Reichenbach: 'Our friend D[ubislav] is still in custody, but apparently this does not impress him much'. Pittsburgh Archives of Scientific Philosophy, HR 013-14-06.

[41] Cf. Dubislav's letter to Bieberbach of 28.05.1936. Humboldt-Universität zu Berlin, Archiv, Bestand UK-Pers. 164, Dr. W. Dubislav.

[42] In order to understand the context in which Dubislav undertook this step, it is instructive to read Hempel's records about how did it feel to be a philosopher in Berlin in that dark time: 'I recall having worked at writing reviews for the *Deutsche Literaturzeitung*, which was a review published by the Prussian Academy of Sciences. One day there was change in directors and the new young director called me into his office and suggested that it would be a good idea for me to join the party. He pointed to *Unter den Linden* [street] where his office was. There were as a matter of fact a group of Brown Shirts walking around outside; those of course were boors, but we must reform the party from the inside and therefore it would be good if I joined. Well, I re-

As if this were not enough, Dubislav's situation presently took an ominous turn when the public prosecutor suddenly reinstituted legal action against Dubislav, clearly with the intention of eventually interning him. Dubislav and his attorneys strongly suspected that the case against him was politically motivated.[43] This potentially life-threatening development impelled Dubislav to leave the country, and by September 1936 he was in Prague. Dubislav's reasons for emigrating were summarized a year later by a Prague newspaper: 'Dubislav left Germany at the end of 1936, partly for political reasons, partly because of a case in which this passionate, indomitable man was mixed up.'[44]

Once settled in Prague, Dubislav sought a teaching post at the German University there, submitting to university officials, among others, a positive report from Professor Karl Bonhoeffer, who headed the psychiatric clinic at the Berlin University. Dubislav nurtured the hope that he might be offered the chair that Carnap had recently vacated upon receiving a call to the University of Chicago.[45]

Then the unexpected occurred: the Berlin Institute of Technology notified Dubislav in September 1937 that he had been granted permission to resume teaching there. Dubislav decided to return, but not without his new girlfriend, Gertrude Landsberger, a twenty-three-years-old student of graphic design from Breslau who already had something of a reputation as an independent artist. The young woman apparently refused to go back to Germany, and this ignited a fit of rage in her emotionally unstable partner. On September 17, three days before his forty-second birthday, Dubislav stabbed Gertrude Landsberger to death and then took his own life. In the brief note that he left behind, Dubislav pleads that he killed his girl-

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sisted the suggestion. I sometimes ask myself if I could have been able to resist all such suggestions if I had stayed in Germany' (*Hempel 2000*, p. 8).

[43] Cf. Dubislav's letter to Max Horkheimer of 9.09.1936 (*Adorno und Horkheimer 2003*, p. 88).

[44] Cf. 'Tragödie in Prag: Hochschulprofessor ersticht Malerin', *Prager Tagblatt*, September 18, 1937, no. 220.

[45] Cf. Philipp Frank's letter to Reichenbach, October/November 1936. Pittsburgh Archives of Scientific Philosophy, HR 013-12-16.

friend at her own request.[46] He was buried in a mass grave the next day.[47] Predictably enough, the sensational story made headlines in Prague's German-language newspapers.

As fate would have it, a letter dated two days after the tragedy arrived at Dubislav's apartment. It was from Otto Neurath who invited Dubislav to contribute to the *Encyclopedia of Unified Sciences* on *Problems of Empiricism*, a contribution never to be written.

12. Concluding Remarks on Dubislav's Life and Work

From the time he was forced to depart Hilbert's classroom for the Eastern Front in January 1915, Dubislav led a life punctuated by overwhelming stress, clearly beyond anything experienced by the other leading exact philosophers of the time. By contrast with Reichenbach and Carnap, who were four years older, and Carl Hempel, ten years younger, Dubislav could not finish his training in the exact sciences during his youth. He studied with Hilbert for just one semester before being shipped off, at age nineteen, to the Russian Front in the Great War. Unfortunately, his efforts to make up for lost time after the War never fully succeeded. This partly explains why his work in logic, for all its originality and influence on his contemporaries, falls short of the precision that distinguishes the scholarship of logicians like Kurt Gödel.

Another point of difference between Dubislav and the other exact philosophers of the period is his experiences in the Great War. He spent over four years—from early 1915 through April 1919—stationed, as was earlier stated, at the Eastern Front, rising through the ranks from private to lieutenant. This was followed by three months as a prisoner of war. Dubislav returned home a highly decorated veteran whose many medals included the 'Knight's Cross of the Albert Order with Swords', which attests to his having repeatedly faced the trauma of combat.

Decades later, Olaf Helmer remembered Dubislav as 'a brilliant logician and teacher [who, unfortunately …] began to exhibit what were then considered to be paranoid tendencies, abetted no doubt by the political circumstances of the time' (quoted in *Luchins 2000*, p.

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[46] Cf. 'Tragödie in Prag: Hochschulprofessor ersticht Malerin'.

[47] Statni ustredni archiv v Praze, fond Policejni reditelstvi v Praze, 1931–1940, Police file Dubislav, sign. D 1356/40.

238). The turn coincided, we have seen, with the rise of National Socialism in Germany after January 1933. It found expression in the fact that when Reichenbach, having removed to Istanbul, formally invited Dubislav to co-edit *Erkenntnis* with Carnap, Dubislav asked for veto rights. Apparently, he feared that certain submissions could, if published, dangerously discredit him with the Nazi authorities in Berlin; still, both Reichenbach and Felix Meiner (owner of the publishing house) refused to grant his request.[48] They evidently assumed that what motivated the unusual demand was that Dubislav 'believed that his connection [with the journal *Erkenntnis*] would be harmful for his career' in Germany.[49] As it turned out, Dubislav's fears proved to be all too justified.

But there were earlier signs of Dubislav's psychic instability. Carl Hempel recalled Dubislav as a high-strung person who at meetings of the Society for Scientific Philosophy 'could be quite brusque, scurrying about and urging the persons sitting on the steps between the aisles to leave voluntary in conformance with fire-safety regulations: or would they rather have him call in the police?' (*Hempel 1991*, p. 7) Unsurprisingly, Dubislav's mental state deteriorated markedly when Hitler came to power and with the death of his wife soon thereafter, culminating as they did in an explosively violent and self-destructive act. It is not unlikely though that these symptoms were fostered through his prolonged exposure to the realities in the First World War.

Acknowledgements

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[48] Cf. Reichenbach's letter to Dubislav of 29.11.1933. Pittsburgh Archives of Scientific Philosophy, HR 013-04-04. Cf. also Dubislav's letter to Reichenbach of 2.12.1933. Pittsburgh Archives of Scientific Philosophy, HR 13-09-03.

[49] Felix Meiner's letter to Reichenbach of 5.12.1933. Pittsburgh Archives of Scientific Philosophy, HR 013-24-33.

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