

Commentary

Die Quasizerlegung. Ein Verfahren zur Ordnung
nichthomogener Mengen mit den Mitteln der
Beziehungslehre

by Rudolf Carnap

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The typescript *Die Quasizerlegung. Ein Verfahren zur Ordnung nichthomogener Mengen mit den Mitteln der Beziehungslehre* (RC-081-04-01, henceforth *Quasizerlegung*) is preserved in the University of Pittsburgh Archive of Scientific Philosophy¹. Supposedly, Rudolf Carnap wrote it between 27 December 1922 and 25 January 1923, and it can be ranked among those works that he later considered preliminary to *Der logische Aufbau der Welt*² (Carnap 1928, henceforth *Aufbau*).

The starting date of the typescript corresponds, with a difference of only one day, to the date of the letter to Hans Reichenbach (HR-015-50-05)³ containing the invitation to what later has been called the Erlangen Conference, from 6 to 13 March 1923. According to the longer and unpublished version of Carnap's *Intellectual Autobiography*, the conference was divided into two parts. The first part (6-8 March) was dedicated to «new modern logic with special emphasis on the logic of relations», and the second part (9-13 March) to the «construction of reality out of the given» (Carnap, 1957, p. D19-D20). As is clear in the general invitation to Reichenbach, Carnap had previously conceived a unified

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¹ The typescript is available online: <http://digital.library.pitt.edu/cgi-bin/f/findaid/findaid-idx?type=simple;c=ascead;view=text;subview=outline;didno=US-PPiU-asp197401>. Goodman (1951), Proust (1989), Leitgeb (2007), and Mormann (1994, 2009) have addressed the typescript.

² Carnap, 1963, p. 15.

³ The letter has been published in Italian: see Parrini (2002).

conference dedicated to the «construction of reality (theory of knowledge structure)», where the two forthcoming parts appeared as the main themes of discussion: «There will be discussions on: the methodological principles for the constitution of “natural reality” from “datum” and the structure of the domain of reality». Indeed, it is not a coincidence that the main topic of Carnap’s lectures in the first part of the conference was ultimately the concept of *mathematical structure* and its «significance [...] for philosophy» (Carnap, 1957, p. D19).⁴

Carnap did not quote *Quasizerlegung* directly, either in the aforementioned letter or in his autobiography. Nevertheless, at least for three reasons one may conjecture that the topics of the manuscript were discussed at the Erlangen Conference. Firstly, *Quasizerlegung*’s topics were surely present in the second part of the conference, during the scheduled discussion on Carnap’s manuscript *Vom Chaos zur Wirklichkeit* (RC-081–05-0, henceforth *Chaos*). The drafting of *Chaos* seems to precede that of *Quasizerlegung* by a few months, and as newer studies have recently emphasized, the basic idea of the latter was already present in the former (Mormann, 2016, p.126-127 *passim*). Secondly, according to Carnap’s unpublished autobiography, it seems that he referred to the latter work during the second part of the conference when he intervened in the «heated dispute between Lewin and Hertz on the question of whether a momentary experience could contain sense-data as actual parts or not». Carnap proposed a method, then called quasi-analysis and already developed in *Quasizerlegung*, as a means of reconciliation of the «justified demands of both sides» (Carnap, 1957, pp. D21-D22).⁵ Thirdly, the specific contribution of

⁴ Carnap reports on the first section of lectures of the Erlangen conference in the unpublished portion of *Intellectual Autobiography*: «I gave talks on Russell’s logic of relations, the problem of a characteristic for relational structures (together with Merten), a generalized concept of structure, and the significance of the concept of structure for philosophy» (Carnap, 1957, p. D19).

⁵ It is worth citing the entire lengthy passage: «Hertz declared actual components indispensable, while Lewin rejected them emphatically from the point of view of Gestalt psychology. Reichenbach tried to reconcile the two sides by the conception that the controversy was chiefly a question of terminology. I tried to show that a certain method of logical analysis, which I called “quasi-analysis”, did justice to the justified demands of both sides, by preserving on the one hand the experience as indivisible units, on the other hand constructing certain complexes of experiences, which correspond to the traditional components» (Carnap, 1957, pp. D21-D22).

Quasizerlegung to constitution theory could serve as a theoretical point of balance between the two main themes of the conference.

Although the application of mathematical structures in constitution theory explicitly begins with *Aufbau*, they were already present in *Chaos* and *Quasizerlegung*. The following case study on «differentiating properties» (*Quasizerlegung* p. 3) aims to identify the specific position of *Quasizerlegung* through a comparison with *Chaos*.

The concept of “differentiating properties” arises in both manuscripts, and it is tricky to address this concept in both cases. *Chaos* assumes the existence of differentiating properties to order and classify⁶ elementary experiences from their original chaos. The following differentiating properties of elementary experiences are considered: ‘being alive’ and ‘being dead’, and ‘being finished’ and ‘being neutral’. These properties do not receive definitions in structural terms. Rather, an elementary experience can be classified as ‘living’ or ‘dead’, ‘finished’ or ‘neutral’, exclusively following the «separation of sensational and volitional components» (*Chaos* p. 2). Recent studies (Mormann 2016, Ziche 2016) have retraced some of the theoretical roots of *Chaos*, *Quasizerlegung* and *Aufbau* to the work of the German philosopher and psychologist Theodor Ziehen. Mormann 2016 showed that quasi-analysis can be considered a more rigorous formulation of the classification of elementary experiences theory developed by Ziehen in *Erkenntnistheorie auf psychophysiologischer und physikalischer Grundlage* (1913, henceforth *Erkenntnistheorie*). Moreover, the non-structural definition of differentiating properties within *Chaos* can be retraced to *Erkenntnistheorie*. Indeed, when Ziehen introduces the differentiation between *Empfindung* and *Vorstellung*, to which the Carnapian differentiation between *living* and *dead* elementary experiences can be traced back, he warns the reader as follows: «The difference between sensations and representations cannot be defined, but only experienced. This difference should be denoted by the term “sensational vividness”» (Ziehen, 1913, p.5).

Quasizerlegung almost totally⁷ abandons the phenomenalist perspective of *Chaos*. Nevertheless, the case study of differentiating properties shows that

⁶ Both in *Chaos* and *Quasizerlegung* (following *Erkenntnistheorie* cf. *infra*), the problem of classification and that of order tend to coincide.

⁷ The phenomenalist perspective remains in the manuscript as an exemplification tool. However, Carnap acknowledges that «The treatment of [the phenomenology of sense perceptions] [...] has given rise, during other researches, to the elaboration of Quasizerlegung procedure» (*Quasizerlegung* p.7).

the *Quasizerlegung* assumptions do not amount merely to structural ones. The new manuscript addresses the classification problem in a more *neutral* manner. Indeed, the basic constitution level is no longer the chaos of elementary experiences but rather a similarity structure, namely, any set of elements, A , endowed with a binary, reflexive and symmetrical relation $\sim \subseteq A \times A$. Every element of A is identical to a bundle of properties. The manuscript assumes two different cognitive conditions: that of a *Zerleger* and that of a *Quasizerleger*. The *Zerleger* has a cognition of properties and is directly able to analyse elements in bundles of properties. In contrast, the *Quasizerleger* has no property cognition, only structural cognition, and must exploit his structural knowledge to find the distribution of properties. The manuscript aims to supply the *Quasizerleger* with a procedure that renders his knowledge isomorphic to that of the *Zerleger*. The *Quasizerlegung* procedure that Carnap develops in the manuscript is able to order and classify the elements of A only when A is non-homogeneous, namely, when it contains at least two elements that are dissimilar to each other. Conversely, when the set is homogeneous, «all items [...] are mutually similar; [...] there are no *differentiating properties* and therefore no possibility of ordering» (*Quasizerlegung*, p.3). As with *Chaos*, *Quasizerlegung* assumes the existence of differentiating properties as a prerequisite of ordering. Both manuscripts seem to assume a structure-independent distribution of properties. Nevertheless, whereas *Chaos* provides a phenomenalist account of them, *Quasizerlegung* maintains a neutral position, without giving either a phenomenalist description or a structural definition. The specific position of *Quasizerlegung* in constitution theory may consist of combining the application of mathematical structures and neutral, structure-independent property distributions.

The aforementioned letter to Reichenbach reveals a tension within the two main themes of the Erlangen Conference plan. On one hand, the discussion of the theme on the «constitution of “natural reality” from the given» involved a *neutral ontology* that amounted to some form of monism *à la* Mach or *à la* Ziehen⁸. On the other hand, the conference theme of «the structure of the domain of reality» involved an *epistemic neutrality* about metaphysical

⁸ Carnap himself refers explicitly to Mach and Ziehen. Concerning the discussion theme on the «constitution of “natural reality” from the “given”», he clarifies the point that «“reality”» has to be understood in the sense of «material or physical world, “external world”; the “given” in the sense of uninterpreted sense impressions (Mach’s “elements”, Ziehen’s “gignomena”)» (HR-015-50-05).

questions⁹. The two neutrality claims were difficult to reconcile: indeed, while the former was tied to some form of phenomenalism, the latter implied a position of ontological indifference. The *Quasizerlegung* assumption of a neutral, structure-independent distribution of properties may balance both claims. On this basis, the application of mathematical structures in constitution theory would be, on the one hand, anchored to a minimum of extra-structural assumptions and, on the other hand, liberated from metaphysically charged concept¹⁰, such as phenomenon and *Erlebnisse*. Therefore, the *Quasizerlegung* position supports epistemic neutrality and simultaneously weakens the implications of ontological indifference. A neutral ontology is supported without a preselected phenomenalistic or physicalistic interpretation. Accordingly, the friction between ontological indifference and phenomenalism tends to decrease, and the tension between the two Erlangen claims of neutrality tends to be balanced.

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⁹ In the general invitation letter to Reichenbach, Carnap addresses this claim as follows: «[The expressions “given”, “external world”, “natural reality”] have to be understood without their secondary metaphysical connotation [*metaphysische Nebenbedeutung*]; expressed in a neutral way: constitution of the secondary scope from the primary one. [...] To non-metaphysical questions correspond the presentation tools: not the mere reference to categorical concepts and principles but mathematical concepts (coordination, topological connection) and for the structure theory in particular the tools of the theory of relations given by logistic» (HR-015-50-05).

¹⁰ The notion that terminological choices have often compromised the results of epistemological research seems again to be an idea taken from *Erkenntnistheorie* (*Erkenntnistheorie* pp.1-2, *passim*).

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