
Science and Experience/ Science of Experience: Gestalt Psychology and the Anti-Metaphysical Project of the *Aufbau*

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This paper investigates the way in which Rudolf Carnap drew on Gestalt psychological notions when defining the basic elements of his constitutional system. I argue that while Carnap's conceptualization of basic experience was compatible with ideas articulated by members of the Berlin/Frankfurt school of Gestalt psychology, his formal analysis of the relationship between two basic experiences ("recollection of similarity") was not. This is consistent, given that Carnap's aim was to provide a unified reconstruction of scientific knowledge, as opposed to the mental processes by which we gain knowledge about the world. It is this last point that put him in marked contrast to some of the older epistemological literature, which he cited when pointing to the complex character of basic experience. While this literature had the explicit goal of overcoming metaphysical presuppositions by means of an analysis of consciousness, Carnap viewed these attempts as still carrying metaphysical baggage. By choosing the autopsychological basis, he expressed his intellectual depth to their antimetaphysical impetus. By insisting on the metaphysical neutrality of his system, he emphasized that he was carrying out a project in which they had not succeeded.

1. Introduction

In his 1928 book, *Der Logische Aufbau der Welt*, Rudolf Carnap presented what he called a "constructional system" (Carnap 1967). The aim of this system was to demonstrate that all of our scientific concepts are logically derivable from more "basic" concepts in a hierarchical fashion. Carnap em-

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phasized that different bases for such a system were in principle conceivable (§§ 62, 63, 67). Indeed, he himself had previously made an unpublished attempt to construct a system on a *physical* basis (see Pincock 2005), and as is well known, he was later to return to a physicalist position (Carnap 1931b). However, in the *Aufbau*, Carnap chose what he termed an “autopsychological basis”, i.e., the “mental objects that belong to only one subject” (Carnap 1967 [1928], § 63). He further limited the domain of such objects by specifying that what he meant were elements of *consciousness*, taken from the *stream of experience*. He then settled on the term “the given”, which he deemed to be the most neutral of terms. (Carnap, op. cit., § 64)

Having stated his choice of the autopsychological basis for his constitutional system, Carnap identified a possible danger of his approach, i.e., that of being caught in subjectivism. This would have been contrary to his explicit aim to obtain “an intersubjective, objective world, which can be conceptually comprehended and which is identical for all observers” (Carnap 1967 [1928], § 2). In response to this problem he asserted that while no two experiences can be compared with respect to their *material* (the immediate quality of the given), all streams of experience share certain *structural* features (§66). He explained this claim by repeating an earlier assertion, i.e., that all science, by its very nature, aims at identifying *structures* (§§ 11–16). Based on this assertion, it seems that Carnap’s choice of individual subjective experience as the basis of his system relied on the assumption that it is in principle possible to have a science of experience in the sense specified by him, i.e., one that is capable of identifying a *structure of experience* that is shared by different experiencing subjects.

In this paper, I ask whether this assumption was backed up by psychological research of the time with which Carnap might have been familiar. In doing so, I will follow up the suggestion that Carnap’s conceptualization of the autopsychological basis was informed by Gestalt psychology (e.g., Richardson 1998, Majer 2003). I will show that we need to distinguish between particular schools of *scientific* Gestalt psychology on the one hand, and the more general *epistemological* discourse, in which references to the complex character of immediate experience could be found. Further, I will argue that it is helpful to distinguish between two senses in which Carnap might have taken an interest in a scientific Gestalt psychology i.e., (1) Gestalt psychology as exemplifying a science whose basic concepts Carnap wanted to fit into a unified picture of all *scientific knowledge*, and (2) Gestalt psychology as supplying basic facts about human perception, which allow us to provide a rational reconstruction of *human knowledge acquisition*, starting in its phenomenal basis. The two possibilities are not mutually exclusive, and Carnap indeed occasionally justified his choice of

the autopsychological basis by appeal to the *actual* “epistemic order”. However, I will argue that scientific Gestalt psychology only backed up Carnap’s assertion *that* basic experience was structured. When Carnap provided his own analysis of the structure of experience, however, he drew on a notion of *recollection of similarity*, which was entirely *formal* and which was in fundamental contradiction to the Gestalt psychological (*empirical*) analysis of that same notion. This will prompt me to inquire into the origins of Carnap’s “psychologistic” language, given that his aim was not a description of mental processes. In investigating this question, I will turn to some of the philosophical writers that Carnap cites in support of his notion of experience, all of which were proponents of philosophical movements that attempted to *overcome metaphysical assumptions by means of an analysis of consciousness*. I will argue that Carnap’s choice of an autopsychological basis and of terms like “recollection of similarity” should be placed into this context. It signifies a certain allegiance to their projects, even though he judged them as not having succeeded in overcoming metaphysics. It also suggests who might have been the real targets of his repeated insistence that his own constitutional system was metaphysically neutral.

2. Experience in Its Totality and Unity

When discussing the question of how to conceptualize the phenomenal basis of the system, Carnap briefly considers Mach’s elements of sensation, but argues that such elements are not actually *given in*, but rather *an abstraction from*, experience. They therefore cannot function as “elementary experiences”. Instead, Carnap opts for a notion of “experiences themselves in their totality and undivided unity” (§ 67), citing, among others, members of the Berlin/Frankfurt school of Gestalt psychology in support of this notion (Köhler 1925a, Wertheimer 1925).

2.1 The Complexity of Immediate Experience

Proponents of the Berlin/Frankfurt school of Gestalt psychology had pointed to the fact that our sensory experiences (e.g., when perceiving a geometrical figure or a chord) can have the phenomenal quality of an undivided unity *even though* the experience has an internal structure or shape (“Gestalt”), due to the complex character of the stimulus (e.g., when the stimulus is a geometrical figure or a musical chord). Hence, any talk of *elements* of such an experience is the result of a retrospective abstraction from the actual experience. It needs to be emphasized, though, that there is *a certain sense* in which Gestalt perceptions exemplify a more general phenomenon. Even when the stimulus is *not* complex (say, when it is only one line, or one tone), we can distinguish between different aspects of our *experience* of the stimulus. For example, in describing our phenomenal experi-

ence of a simple line, we can distinguish between color, width, and orientation. Likewise, in describing our phenomenal experience of a tone, we can distinguish between pitch and intensity. Any one of these features is always going to be accompanied by the others. Hence, if we are talking about the pitch of a tone in isolation, we are necessarily abstracting away from the experience of the tone. This fact had been discussed in the philosophical and psychological literature in the decades prior to Carnap's *Aufbau* (e.g., Cornelius 1900a, Lipps 1900).¹

Be this as it may, *prima facie*, it seems clear why Gestalt psychology might have been attractive for Carnap's project: This psychological school was offering a scientific conception of subjective experience, according to which phenomenal experience is structured in accordance with laws, which describe the functional relationship between types of stimulus configurations and types of Gestalt experiences. These laws can be determined experimentally and hold across different individuals. Alan Richardson has suggested that "Carnap [. . .] looks to [. . .] Gestalt psychology [. . .] for an account of the structure of human experience in human agents and uses this as the basis from which to start his constitutional system" (Richardson 1998, 9). This assessment is plausible, but it is open to several possible interpretations. First, it might mean that Carnap looked to Gestalt psychology to back up his contention *that* basic experience was structured and that it was possible to form scientific concepts of this structure. Second, it might mean that Carnap looked to Gestalt psychology for an account of *how* experience was structured, hoping to reconstruct the process of knowledge acquisition from this basis. In the following, I will argue that there are good reasons to agree with the first interpretation, whereas the second interpretation is most certainly false. Let me explain the difference between the two readings by aligning them with two possible interpretations of the overall project of the *Aufbau*.

2.2 The Place of Immediate Experience in the *Aufbau*: Two Readings

According to the first reading, an important aim of the *Aufbau* was to reconstruct the body of our scientific knowledge in a unified fashion (Carnap 1967 [1928], § 2), thereby overcoming the perceived fragmentation of the sciences. In this vein, Christopher Pincock (2003) has argued that by focusing on the construction of *concepts*, Carnap wanted to overcome the fact

1. Cornelius proposed a *theory of abstraction* to account for the way in which we form concepts of such aspects of an experience (Cornelius 1900b). In this and other writings, Cornelius also addressed the question of Gestalt-experience. We will return to Cornelius below.

that Schlick and Reichenbach, with their focus on *axiomatic systems*, had not succeeded in giving an account of the *unity* of knowledge. Now, if Carnap's aim was to reconstruct *scientific knowledge*, it follows that "(w)hat our best scientific theories have as their objects determines what needs to be constructed" (Pincock 2005, 528). This suggests that for a construction system that uses basic experiences, our best psychological theories need to be consulted for an adequate notion of *experience*. It is *in this sense*, I believe, that Carnap's approach can be described as "naturalistic" (Pincock op. cit.). Given that members of the Berlin/Frankfurt school of Gestalt psychology had their prime time in the 1920s (Ash 1995), it seems only natural to assume that Carnap would have considered their ideas as "the best scientific theories" about human experience. Furthermore, Carnap was at least indirectly acquainted with members of the Berlin/Frankfurt school of Gestalt psychology.²

However, there is a different sense (and correspondingly, a different reading of the *Aufbau*), in which Carnap's approach might be characterized as naturalistic. According to this second reading, it was his aim to reconstruct the *actual processes of cognition* in accordance with the scientific psychology of the day. Carnap's remark that his choice of the phenomenal basis was motivated by the desire to capture the "epistemic primacy" of experiences might be read as pointing in that direction. However, he also makes it clear that this was merely intended as a rational reconstruction of the "real" cognitive processes (Carnap 1967 [1928]. § 54). As I will show in section 4 below, Carnap's account of *how* experience is structured was in fact *contrary* to that of Gestalt psychology. This incompatibility of naturalistic description and rational reconstruction speaks against an interpretation of the *Aufbau* as attempting to follow psychology in providing an account of the real cognitive processes of knowledge acquisition. Hence, I argue for the first of my two proposed readings of the role of psychology in the *Aufbau*. In sections 5–7 of this paper, I will offer an additional line of evidence for this reading, suggesting that Carnap's choice of the autopsychological basis was a respectful nod towards previous philoso-

2. He had met both Reichenbach and Reichenbach's friend, the philosopher and Gestalt psychologist Kurt Lewin, at a conference in Erlangen in 1923 (see Carnap 1963, 14). Around the same time, there were efforts to found a journal for scientific philosophy (which was eventually to appear under the name *Erkenntnis* in 1931, cf. Bernhard 2002). As documented by extensive correspondence between Reichenbach and Köhler, Reichenbach wanted to Köhler to participate (see Ash 1994). In turn, Reichenbach informed Carnap of his correspondence with Köhler, which was not entirely free of tensions (Reichenbach/Carnap correspondence, Archive for Scientific Psychology, Univ. of Pittsburgh). Köhler attended meetings of Reichenbach's "Gesellschaft für wissenschaftliche Philosophie", founded in 1927 (cf. Danneberg & Schernus 1994, Hoffmann 1994)

phers who had attempted to build their philosophical systems on descriptions of the *actual* processes of cognition, but whose project Carnap regarded as failed.

3. Fundamentals of Gestalt Psychology

Above I used the expression “Berlin/Frankfurt school of Gestalt psychology”. This name is usually used to refer to Max Wertheimer, Wolfgang Köhler, Kurt Koffka, and the slightly younger Kurt Lewin, all of which were students of the Berlin psychologist/philosopher Carl Stumpf in the first decade of the 20th century. In the early 1910s, the former three collaborated on a number of experiments in Frankfurt, and after WWI, both Köhler and Wertheimer had appointments in Berlin (Jäger 2003, King & Wertheimer 1995, Ash 1995).³ As already indicated, members of the Berlin/Frankfurt school were not alone in emphasizing that immediate experience cannot be analyzed into parts. Nor were they alone in investigating Gestalt phenomena.⁴ In this section, I will outline the basic tenets of the Berlin/Frankfurt’s school’s position by contrasting them with those of two philosophers who had previously written about Gestalt phenomena. While the story will be presented chronologically, it is not intended as an historical account, but is only supposed to bring out some basic analytical distinctions.

3.1 Experience Has No Parts

With their emphasis on the *primary character of structured experience*, members of the Berlin/Frankfurt school of Gestalt psychologists entered into a thicket of debates that had been going on within the shifting fields of epistemology, philosophical psychology and experimental psychology and physiology since the middle of the 19th century. Two aspects can be separated here for our purposes. (1) One dealt with the question of the relationship between *immediate* and more *mediated* contents of consciousness, where the former were also often referred to as “sensations”, and were usually viewed as closely tied to physiological states. This gave rise to questions about the nature of complex sensations, and about the mechanisms or mental processes by which sensations are combined such as to result in perceptions or judgments.⁵ (2) The other aspect concerned the question of

3. The fact that Carnap does not cite Kurt Koffka is probably due to the fact that Koffka had held a chair in Giessen since 1912 and, hence, was not part of the intellectual circle in Berlin, of which Carnap was aware through Reichenbach.

4. Other prominent schools of Gestalt psychology were (1) the Graz School of Ehrenfels’s friend and teacher Alexius Meinong (see Fabian 1997) and the Leipzig school of Krüger (see Scheerer 1931).

5. Helmholtz’s writings on physiological optics may serve as a classical point of refer-

why two experiences (of hearing a melody, of seeing a geometrical figure) can be phenomenally quite similar even though few or none of the “parts” of the experience are the same. While my focus in this section will be on the second of these two aspects, it is important to recognize that both problems arose from the same underlying assumption, namely *that the content of a sensory experiences can be analyzed into elements*, where those elements have the character of immediacy and correspond in a one-to-one fashion to elements of the external stimulus.

The problem just identified, how to account for the similarity of experiences despite their lack of common parts, is of course the problem of *Gestalt perception*. Two milestones of this debate were Ernst Mach’s book *Analysis of Sensations* (1996 [1886, 1903]), and Ehrenfels’s paper: “Ueber ‘Gestaltqualitäten’” (1890).⁶ In the first (1886) edition of his book (which was constantly revised and had doubled in size by the fifth edition) Mach laid the foundation for his psycho-physical parallelism, which stated that every state of consciousness corresponded to a physiological state, and whenever it was possible to analyze a state of consciousness into elements, these elements, in turn, corresponded to elements of a physiological process (Mach 1886, 27/8). This led Mach to conclude that whenever we have two *similar* states of consciousness, they have to share in common at least *some* elements, and that for every such element there was also a corresponding physiological process.⁷ For example, the fact that I recognize two differently colored figures (“Gestalten”) as similar shows that the state of consciousness in question can be analyzed into a color and a spatial component, and that that the two sensations are similar, because they share in common the *spatial* element of sensation (Mach 1886, 28/9). According to Mach, this also explained why the same geometrical figure causes in us a

ence here (e.g., 1910 [1867]). In that work, he singles out the material delivered by our senses as providing the basis for the formation of representations. His discussion makes it clear that the issue of sensations brought to the fore not only issues about the relationship between body and mind, but also between the scientific fields of physiology and psychology. In this context, it is interesting to note that Carnap, throughout the *Aufbau*, does not use the term *sensation* (“Empfindung”) to refer to his basic objects, but rather the term, *experience* (“Erleben”), even though he is referring to an aspect of experience (immediacy, the given) that others, including writers like Wertheimer usually associated with sensations.

6. For a discussion about the historical relationship between the ideas of Mach, Ehrenfels, and Wertheimer (who was briefly a student of Ehrenfels’s in Prague), see Ley 1994.

7. This thought was expressed most clearly in the third edition of 1902 (55/6), which in the English translation reads that it is “almost a self-evident supposition, that similarity must be founded on a partial likeness or identity, and that consequently, were sensations were similar, we had to look for their common identical constituents and for the corresponding physiological processes” (Mach 1996, 69)

different Gestalt experience, depending on how the figure is rotated (op. cit., 44 ff.).

Four years later, Christian von Ehrenfels (1890) challenged the very idea that it is possible to analyze a Gestalt sensation into elements, since this notion (for Ehrenfels) rested on the assumption that the Gestalt sensation is the sum of these elements. This assumption, if it were true, would imply that the more elements two sensations share in common, the more similar they will be. Ehrenfels tried to refute this assumption by showing (a) that two stimulus complexes (e.g., two melodies) can prompt very similar sensations even if they don't share a single element of sensation, and (b) two sensations can be very different even though they share many elements. For Ehrenfels, this showed that a Gestalt sensation is more than the sum of its elements; it exists *in addition to* the elements.

Notice that while Ehrenfels challenged the idea that a complex sensation is the sum of its parts, he did not challenge the idea that a complex sensation *consists of* parts. Rather, the Gestalt character of such sensations is a quality *of* those parts (hence, "Gestalt qualities"), though not reducible to them. This assumption was to be questioned by members of the Berlin-Frankfurt school. For example, as Wertheimer demonstrated in his famous experiments of 1910, when we see two stationary lights—flashing in short succession—as one moving light, we do not first have a sensation of one stationary light, then of another, and finally of a moving light. Rather, *we simply have a sensation of a moving light* (see Wertheimer 1912). Likewise, while it may be possible to detect individual tones when paying attention to our sensation of a chord, the sensation of the chord is not built up out of the sensation of its tones.

3.2 The Scientific Study of the Structure of Experience

The previous paragraph shows that the results of the Berlin/Frankfurt school have to be located in a particular theoretical debate. I would like to emphasize that their empirical work was vital to their arguments. They saw themselves not only as (1) making their contribution to the above questions on empirical grounds, but (2) in doing so challenged some fundamental assumptions about the nature of scientific method. They conducted rigorous empirical studies in which they varied stimulus conditions, thereby trying to determine objective conditions under which certain Gestalt phenomena were experienced. As a result, they showed that *the ways in which stimuli were related to each other* have an impact on what is experienced. For example, the way we experience a particular chord is determined not by the physical properties of the individual tones, but by the way in which the physical stimuli are related to each other, i.e., by the intervals between the tones. Moreover, and this was central, they

questioned the assumption that for every element of a stimulus there is a corresponding element of sensation, which remains the same, regardless of the other stimuli that it is presented with (Köhler, 1913, referred to this as the “constancy assumption”). For example, they argued that the way we experience an individual tone that is part of a chord is determined by, *and secondary to*, the experience of the chord.

By providing empirical evidence for these claims, members of the Berlin/Frankfurt school took themselves to show not only that it is unnecessary to assume the existence of elements of sensation, but that such an assumption, which was the expression of a particular, atomistic, conception of science, had been positively detrimental to the empirical study of sensation.⁸ According to Wertheimer and his colleagues, previous generations of empirical psychologists had attempted to account for a pseudo-problem (how we come to have complex experiences, when the basic material is atomistic). This pseudoproblem had been generated by a failure to pay adequate attention to our own phenomenal experience, i.e., a failure to notice *that the basic material is not atomistic*.

4. Structured Experience and Recollection of Similarity

In § 7 of the *Aufbau*, Carnap introduces his “Grundgegenstände”, which are comprised of basic *elements* (experiences) and basic *relations*. The basic relation is the more important of the two (§ 10, § 61), allowing Carnap to give descriptions of the elements in purely structural terms (structure descriptions being a special case of relation descriptions, § 11). Carnap refers to this basic relation as “recollection of similarity”.

4.1 Carnap’s Basic Experiences

In support of his claim that Mach’s elements of sensations are not *really* given in experience (§ 67), Carnap cited a broad spectrum of epistemological writings (including, Moritz Schlick, Wilhelm Schuppe, Hans Cornelius, Heinrich Gomperz, Friedrich Nietzsche), before mentioning that related views had been developed by Gestalttheory (Köhler, Wertheimer), and had proven to be methodologically fruitful within psychology. I will argue below that a full understanding of Carnap’s choice and conceptualization of the autopsychological basis requires that we take seriously the philosophers he cites. Moreover, the Berlin/Frankfurt school, itself, has to be historically situated before the background of this older epistemological context. This does not mean that Carnap’s reference to Köhler and Wertheimer is not significant in its own right. For example, a remark Car-

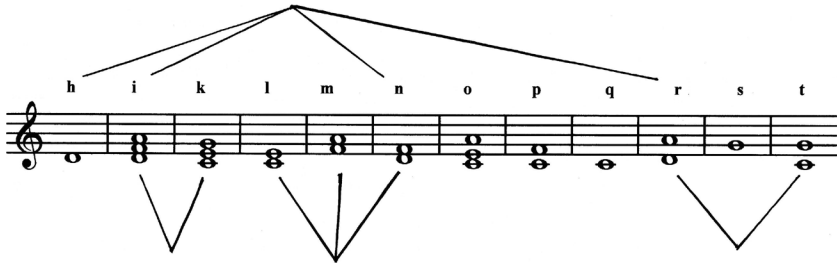
8. See Mayer 2004 for an overview of atomistic and associationist tendencies in philosophy around 1900.

nap makes in § 71 make it quite clear that his notion of “basic experience” is that of the Berlin/Frankfurt school (more specifically: their rejection of Ehrenfels’s version of Gestalt quality). There, he writes that even though we think that we hear the *c* in the *c-e-g* chord, this apparent sensation of the *c* is a quasi-element, not a real element. “Otherwise, one would come to the conclusion (which has indeed sometimes been maintained) that the chord *c-e-g* consists of the individual tones *c*, *e*, *g*, and, in addition to them, of something which comprises the actual character of the chord” (Carnap 1967 [1928]).

Clearly, if basic experience has no parts, it cannot be analyzed into its parts. However, *prima facie* the notion of “structure” suggests the existence of parts, as was also recognized by Wolfgang Köhler who pointed to the issue of “how such a formation as a whole can have a peculiar phenomenal structure . . . which cannot be derived from its so-called parts” (Köhler 1925b, 381, my translation). As we saw, Köhler and his colleagues answered this by conceptualizing basic experience in a way that allowed them to describe experience as structured, without thereby conceding that it is comprised of elements. Contrary to that, Carnap proposed to capture the structure of experience by means of what he called a “quasi-analysis”, which proceeds *as if* experience had parts (“quasi-parts”). In the following, I will briefly contrast the quasi-analytical and the Gestalt-psychological account of the structure of experience, in order to highlight the senses in which Carnap was—and was not—expressing Gestalt psychological ideas.

4.2 The Basic Relation

Carnap’s tool of analysis is relational logic, as developed by Russell and Whitehead in their *Principia Mathematica* (Whitehead & Russell 1925 [1910–1913]). In order to apply this analysis, Carnap required a basic relation. He called the basic relation of his choice “recollection of similarity”. For Carnap this expression referred to a relation between two experiences, a relation that was presupposed as a primitive component of Carnap’s constitutional system. While the expression “recollection of similarity”—as the basic relation of the constitutional system—was a purely *formal* notion, Carnap made certain assumptions as to the question by virtue of what two experiences may be said to be related in such a way. These assumptions appear to be *psychological* assumptions, which are surprisingly similar to the above-mentioned Machian framework, according to which when we have two similar sensations, it is reasonable to assume that they can each be analyzed into similar parts (Mach 1996). However, as we saw, this was precisely the assumption that had been questioned by members of the Berlin/Frankfurt school of Gestalt psychology. According to Gestalt psychology, two experiences are similar, *because they have the*



Recollection of similarity according to Carnap and the Berlin/Frankfurt school of Gestalt Psychology (based on the example provided in Carnap’s manuscript, “Quasizerlegung”). The lines above the chart group together those musical units that are similar according to Carnap’s analysis. The lines below the chart group together those musical units that are similar according to Gestalt psychology. I am not distinguishing between major and minor chords here.

same Gestalt. And to have the same Gestalt *is not the same as* having the same elements—or quasi-elements, for that matter.

Let me briefly illustrate this by way of an example of quasi analysis, which Carnap offers in an unpublished manuscript from 1922/3 (“Quasizerlegung”), one of two prior versions of the *Aufbau*. There, he introduces 12 musical “elements” (individual tones and chords)⁹, which he calls h-t, to distinguish them clearly from the names of the notes (c, d, e, f, g, a) that occur in them: d[h], d/f/a[i], c/e/g[k], c/e[l], f/a[m], d/f[n], c/e/a[o], c/f[p], c[q], d/a[r], g[s], c/g[t].

In the process of quasi-analysis, (i) pairs of elements are formed on the basis of similarity, where by “similarity”, Carnap means “identity of at least one partial tone” (p. 8), (ii) similarity classes are formed, i.e., for every element, the class of elements to which it stands in a relation of similarity, and (iii) and classes of elements that share a particular attribute, thereby defining the quasi-part. Now, if we compare the experiences that are—on Carnap’s analysis—grouped together as similar, with those that are similar according to the Gestalt psychological analysis, it is quite clear that the two diverge profoundly. Carnap conceptualized similarity of experience as “matching with respect to parts of experience”, whereas for Gestalt psychologists two experiences are similar if the two stimulus configurations are similar in relevant respects: Two major triads would be recognized as similar even if they share no common note; a major and a minor

9. Of course, the term, “element”, is a little misleading. Presumably, Carnap chooses it to indicate that they are the smallest units of experience, as opposed to the quasi-elements that are the result of the analysis.

triad would be experienced as very dissimilar, even if only one note differs slightly.

5. The Analysis of Consciousness as Weapon Against Metaphysics

I would like to emphasize that the point of the above analysis is *not* to suggest that Carnap's usage of Gestalt ideas is inconsistent. Quite on the contrary, if we recognize that his aim was to provide reconstruction of the *unity of scientific concepts*, it is clear why he might have been interested in the Berlin/Frankfurt conception of basic experience, without thereby being committed to following their empirical account of the way in which such experiences come about, or what makes two experiences similar. He merely needed Gestalt psychology in support of his contention that concepts of immediate experience can be *scientific* (i.e., *structure*) concepts. Carnap was now free to subject the basic experiences to a relational analysis. In addition, his methodological solipsism immunized him against the criticism that he didn't take into account the way in which structured experience is functionally dependent on the structure of the stimulus complex, as members of the Berlin/Frankfurt school had shown. He confidentially stated that, in close analogy to Husserl's bracketing of the external world, he was starting with a phenomenal analysis of the content of consciousness, neglecting, *for methodological purposes* not only the existence of an external world, but also the fact that the very concept of a subject of experience had not yet been constructed within his system.¹⁰

Having pointed out that there is no internal inconsistency in Carnap's project, we might nonetheless wonder why Carnap used such a psychological expression ("recollection") to describe a relationship that was, for his purposes, purely formal, i.e., not intended to capture any real mental processes. That this was not accidental becomes clear when we look at an earlier manuscript of Carnap's *Aufbau*, in which the psychological language is much more pronounced (Carnap 1922). This manuscript, which is entitled "Vom Chaos zur Wirklichkeit" ("From Chaos to Reality"), has an added handwritten remark (by Carnap himself), which states that this is the core of the *Aufbau*. Carnap starts out by remarking on a certain fiction that prevails in many epistemological writings at the time. According to this fiction, we face a world of chaos, and it is the task of epistemology to show how we arrive at an orderly world. In fact, he claims, we always experience the world as already ordered and meaningful. While Carnap doesn't cite any references here, I would like to argue that this insight is

10. For an analysis of the ways in which Carnap's project is similar to Husserl's, see Mayer 1991. Unfortunately, a more in-depth *historical* analysis of the two projects cannot be provided in this article.

informed by a wide array of literature that was already available to him. Specifically, it was informed by some of the philosophers that he later cited in § 67 of the *Aufbau*. While it would be historically incorrect to say that these are *Gestalt-psychological* writings, I hope to have indicated above that the phenomena of complex immediate experience and Gestalt perception were widely known and discussed both amongst empirical psychologists and epistemologists around the turn of the 19th/20th century. By the time the Berlin/Frankfurt school appeared on the scene, there were (as we have seen) not only several individuals and groups of empirical psychologists, who offered competing accounts of the phenomenon in question, but the issue was also discussed by more traditional philosophers. I would like to suggest that we can gain additional insight into Carnap's project by inquiring (1) what motivated these philosophers to take an interest in phenomena of immediate complex experience, and (2) which aspects of this motivation was shared by Carnap.

With respect to the first question, these different philosophers may generally be said to have shared a certain *antimetaphysical sentiment*, combined with the assumption that grand metaphysical projects should be replaced by detailed accounts of *how the world actually presents itself to us in our consciousness*. The contrast was sometimes expressed as one between a *dogmatic* vs. an *empirical* philosophy (e.g., Cornelius 1903), where the former were the “big systems” of traditional philosophy (e.g., Hegel, Fichte, Schelling), whereas the latter was meant to be less speculative and more true to a detailed description of “the facts”. Of course, the bigger issue looming in the background of these 19th century debates was what were aims and methods of philosophy. A particularly provocative answer had been provided by Franz Brentano in his 1866 habilitation thesis, where he stated that the true method of philosophy is that of the sciences (see Münch 1997).¹¹

It is important to note, though, that those philosophers who proposed a scientific analysis of the mind were by no means all in favor of *experimental methods* in psychology. Two philosophers who exemplified the different approaches (empirical and non-empirical) to the analysis of consciousness were Carl Stumpf and Edmund Husserl (both of whom, like Meinong, were students of Brentano's; see Stumpf, 1891; Münch 2003/4). For example, the philosopher Hans Cornelius, to whose 1903 work, *Einleitung in die Philosophie*, Carnap refers in § 67 of the *Aufbau*, had previously published a book, entitled, *Psychologie als Erfahrungswissenschaft*, which had the explicit

11. For background regarding the 19th century development of positivist and idealist versions of neo-Kantian schools of philosophy within the German-language philosophical landscape, see Köhnke (1985).

aim of laying the epistemological foundation for “a purely empirical theory of mental facts, free of any metaphysical presuppositions” (Cornelius 1897, IIV, my translation). But in this book he draws on assumptions about experience that do not appear to be the results of experimental analyses. In other words, the call for an empirical psychology that was guided by an anti-metaphysical sentiment did not necessarily imply the use of experimental methods.¹²

The tension between proponents of an experimental vs. non-experimental analysis of consciousness led to increasing calls for an institutional separation of empirical psychology from philosophy (Kusch 1995). By the time Carnap completed his first major philosophical work, *Der logische Aufbau der Welt*, the institutional separation of psychology from philosophy had largely taken place. Carl Stumpf perhaps has to be seen as a transitional figure, as he was still firmly rooted in a philosophical tradition, yet was instrumental in instituting an experimental psychology in Berlin between the 1890s and his retirement in 1920 (Sprung & Sprung 1995, 2003). The same can be said, though to a lesser extent, of his students, Wertheimer and Köhler. Nonetheless, I believe that if we want to do full justice to what Carnap was doing with his phenomenal basis, we need to take seriously his references to the older philosophical literature, i.e., a literature that viewed the (largely introspective, non-experimental) analysis of consciousness *as a weapon against metaphysics*. In arguing this, I do not mean to imply that Carnap was agreeing with every aspect of that earlier agenda. Quite on the contrary, his ideas about alternative construction systems make it quite clear that he did *not* view the phenomenal basis as integral to a critique of metaphysics. Furthermore, he believed that these older attempts had not succeeded in overcoming metaphysics. However, he shared their conviction that metaphysics had to be combated by means of a more *scientific* philosophy, and by basing his system in the *Aufbau* on an autopsychological basis, he demonstrated that his own version of a scientific philosophy was at least compatible with their focus on immediate experience, while not running into some of their problems.

6. Formal and Psychological Notions of “Recollection of Similarity”

As we saw above, Carnap’s reconstruction of what makes two experiences similar bears some resemblance to Mach’s 1886 analysis. Before returning to Carnap’s relationship to phenomenalism (in section 7 below), I will now turn to his choice of the *term*, “recollection of similarity”. I will argue that that was taken from the work of Hans Cornelius. While the term, for Cor-

12. This was also very clearly expressed by Dilthey’s views about psychology (Dilthey 1894, Feest 2007).

nelius, still denoted a *psychological* (as opposed to Carnap's *formal*) concept, I will show that nonetheless the two philosophers shared some philosophical intuitions.

6.1 Cornelius and the Relationship Between Similarity and Perceptual Judgment

The German philosopher Hans Cornelius (1863–1947) is classified in various ways by different sources, most commonly however as a neo-Kantianism with certain positivist and pragmatist ingredients.¹³ Cornelius, who was a professor in Munich from 1903 and in Frankfurt from 1910 (where, incidentally, he was the dissertation advisor of both Horkheimer and Adorno) emphasized the analysis and description of immediately given facts of consciousness as a basic task of epistemology, believing that general judgments about an object can be grounded in *the recollection of an experience of the object*, and *that any recollection of an experience of an object involves a recollection of similarity between this experience and other experiences*. A judgment about an object is thereby justified in terms of a relational judgement, which in turn is based in an analysis of consciousness. He took it to be the task of philosophy to clarify the meanings of concepts, believing that they were derivable from the immediately given. However, he rejected the classification as a phenomenalist, since he believed in the existence of things in themselves, which are governed by laws that can be grasped by the human mind (Cornelius 1921, Ziegenfuß & Jung 1950).¹⁴

In developing his ideas, Cornelius (1903) starts with a basic taxonomy of what he calls “elements of experience”, very much along empiricist lines, but then proceeds to argue that the British empiricists have been unable to account for the ways in which more complex phenomena of our mental life are constructed out of simple ones (Cornelius, 1903, 192). He continues by arguing that this inability is a home-made problem, resulting from the atomistic presuppositions of associationism: If one starts out by artificially conceiving of experience as atomistic, then its not surprising if one runs into problems when trying to regain the internal unity of complex experience by putting the parts back together again in an additive manner.

The immediately given [. . .] is the complex in which the parts appear in their *unity*. We can distinguish between building blocks [. . .] by abstraction from the context in which we find them. But if

13. As pointed out by Köhnke (1984), neo-Kantian was hardly a unified position.

14. Indeed, he rejected any kind of philosophical labeling, confidently declaring that his work could not be subsumed under any of the usual schools, “because it is not a repetition of other theories”. (1921, footnote, p. 96)

we want to [. . .] understand [. . .] the structure of our mental life in terms of its elements, we may not engage in this abstraction, but have to pay attention to the relations in which the unity is founded. [. . .] We have to inquire about the features, which create the *unity of the elements of our stream of consciousness* at any moment. (Cornelius 1903, 206, my translation)

Cornelius argued that the reason why we always perceive a unity of parts was that the contents of our experiences *are never entirely new*, but are always based on a recognition of a previous experience (op. cit., 213) and in order to have such an experience of a *recollection of similarity*, there have to be two experiences, such that a similarity can be recognized. Being able to have such an experience is due to some activity of the mind. Cornelius attributes this basic idea (i.e., the notion that individual experiences are brought into the unity of consciousness by virtue of some cognitive faculty) to Kant (op. cit., 217 ff.). Our ability to recognize two experiences as similar is a precondition for two experiences being associable, and therefore associationism in itself is insufficient to account for the connection of ideas. Furthermore, two experiences are recognized as similar by virtue of their complex character:

The identification of the contents of our consciousness presupposes their recognition . . . Hence, every element is a specific element for our consciousness only insofar as we recognize it. Since those contents are never experienced in isolation . . . recollections and recognitions are not directed towards individual contents, but to complexes. (Cornelius, 1903, 226)

6.2 Carnap's Critique of the Metaphysics of "Antimetaphysical" Epistemology

Canap cites Cornelius several times in his *Aufbau*, in particular in § 67, when mentioning previous critics of an atomistic psychology and epistemology and in § 74, where he mentions that not individual elements of experience, but the law-like relationship between them is of interest. Interestingly, he does not give any reference with respect to the origin of the notion of "recollection of similarity", Nonetheless, I would like to make the case that he borrows the term from Cornelius. Notice, however, that while Cornelius uses the expression to refer to a *mental act* whereby two experiences are related to each other, Carnap uses it to refer to the relation between two experiences *as such*. This shift is significant, because it points to the fact that Carnap's is indeed an entirely different project. This is quite clear from the fact that Carnap, in his 1922 manuscript, "From

Chaos to Reality” essentially presents us with the core ideas of the *Aufbau*, where ultimately the relationships in question are formal, yet develops this from a little taxonomy of types of experience. This taxonomy (which is somewhat reminiscent of one presented by Cornelius) contains “living” and “dead” parts of experience (sensations and representations). In the realm of “dead” experiences, he further distinguishes between “finished” ones (memory representations) and “neutral” ones (representations that are not memories). Carnap furthermore tells us that experiences can be related to each other in terms of being the same (G), similar (A), or marginally identical (Nebengleichheit: G_2), where identical experiences form quality classes (Q). Having laid out his three basic relations (G, A, G_2) Carnap now states that even though the experiences in question are unanalyzable building blocks, we can now use the three relations to construct a new realm of elements that do not have individual attributes, but are mere relation terms.

While Carnap clearly moved beyond Cornelius’s project—insofar as he did not treat recollection of similarity as the psychological precondition for a judgment—I would like to argue that Cornelius’ work stood for a type of philosophy that was formative for Carnap, because he shared the antimetaphysical attitude that motivated it. However, it is noteworthy that Cornelius—while ostensibly appealing to empirical facts about experience—was still very much engaged in philosophical speculations about the nature of the human mind and its relation to the physical world. These were precisely the kinds of speculations that Carnap wanted to get away from. He contrasted his own approach with others which, he told his readers, *seemed* to be epistemological, but were in fact *metaphysical*, e.g., realistic, idealistic, or solipsistic (*Aufbau*, § 52). A few years later, in his article about the logical analysis of language as a means for overcoming metaphysics, Carnap again mentioned certain schools that were incorrectly referred to as epistemological schools, even though they in fact make metaphysical assumptions (realism, idealism, solipsism, phenomenism, positivism) (Carnap 1931a, 237). These remarks are significant, because they suggest that initially the target of Carnap’s antimetaphysical analysis was a lot closer to home than Heidegger (who is his explicit target). While Carnap and Heidegger clearly had incompatible philosophical projects (see Friedman 2000), I argue that in his *Aufbau*, Carnap took as his point of his departure philosophers whose philosophical projects (anti-metaphysical, pro science, pro clarifying basic terminology) he saw as *compatible* with his, while believing their efforts to have been hindered by metaphysical residues. Some of the philosophers he had in mind here were Schlick and Cornelius (as carrying realistic residues), and proponents of

various forms of phenomenism (Mach, Avenarius, Schuppe, Schubert-Soldern, Gomperz).

7. The Analysis of Consciousness in Immanence Positivism

In his autobiography, Carnap writes that “The choice of a phenomenistic basis was influenced by some radical empiricist or positivist German philosophers at the end of the last century whom I had studied with interest, in the first place Ernst Mach, and further Richard Avenarius, Richard von Schubert-Soldern, and Wilhelm Schuppe” (Carnap 1963, 18). With all due caution regarding retrospective statements like this, we should not disregard this one. I want to argue that, as did Cornelius, these writers intended their analyses of consciousness to be in the service of an antimetaphysical project, with which Carnap was sympathetic. He saw himself as proposing a method of analysis that didn’t have the metaphysical residues that he saw in theirs, while being compatible with (though not inherently tied to) the phenomenist language used by them. Hence, while Carnap’s choice of “units of experience” was similar to those of his phenomenist and positivist predecessors, this was not where their *systematic* impact lay. In the following, I want to demonstrate this by following his references (again, in § 67 of the *Aufbau*) to members of immanence philosophical movement and to Heinrich Gomperz.

Immanence philosophy was a philosophical school that aimed to restrict itself to an analysis of the immediately given (Schuppe and Schubert-Soldern).¹⁵ In a similar vein, Avenarius’s “empiriocriticism” attempted a “critique of pure experience”, by which he meant an analysis of experience which not only purged it from all metaphysical ingredients (Avenarius 1888; Eisler 1910, Ritter 1974), but also thereby reconciled a scientifically minded philosophy with the prescientific, experiential basis of our ordinary conception of the world. For a brief while (1895–1899), there was even a *Zeitschrift für immanente Philosophie*, edited by Schubert-Soldern and Schuppe. This school, while largely forgotten today, was clearly a force that proponents of a scientific philosophy engaged with, as indicated by contemporary responses to it (e.g., Wundt 1896; Schlick 1997 [1918]). Essentially, Schlick’s critique reads like a standard refutation of phenomenism. We can assume that Carnap was familiar with this critique. Given his repeated assertion that his constitutional system was

15. One proponent of immanence philosophy, goes even further and posits that if we take the term, “immanent philosophy” to refer to all attempts to free epistemology of its metaphysical presuppositions, then a great number of thinkers need to be included, including neo-Kantians like Rickert (Schubert-Soldern 1896, 305).

supposed to be neutral with respect to metaphysical positions like postivism or phenomenalism, we can assume that it was not *this* part of immanence positivism that he was sympathetic with. Given furthermore his discussion of other possible constitution systems, we can assume that his choice of the phenomenal basis had nothing to do with the immanence positivist tenet that the only way to achieve an anti-metaphysical epistemology was by means of an analysis of human experience. Hence, as in the case of Cornelius, I believe that it was *the anti-metaphysical impetus itself* that drew him to their work. This, of course, does not rule out that their conceptualization of simple experience had an impact on (or fit in well with) his own, as is clear from his references in § 67, for example to Schuppe, who wrote, “simple sensations usually do not come to consciousness in an isolated fashion; an individual’s thinking begins with total impressions, which are only analyzed into its simple elements by means of reflection”. (Schuppe 1894, 49)

The anti-metaphysical impetus that I have been pointing to was also shared by another philosopher cited by Carnap in relation with the complex character of basic experience, i.e., the Austrian philosopher Heinrich Gomperz (1873–1942). Gomperz, who came from a distinguished family of Jewish Viennese intellectuals (Haller 1994), was strongly impressed by both Mach and Mill and interested in empiriocriticism, but critical of Avenarius’s version of. As early as 1891, he had initiated an interdisciplinary philosophical discussion group (“Circle of Socratics”), in which many of the members of what was later going to become the Vienna Circle participated (Stadler 1994).¹⁶ In 1905, he published the first (of what were projected to become three) volume of his work, *Weltanschauungslehre*, which he characterized as a science that attempts to reconstruct scientific knowledge into a conceptual system that is free of contradictions (Gomperz 1905, p. 17).¹⁷ Gomperz also states that such an explication of scientific knowledge can avoid all metaphysical speculation, as the idealist and the realist usually do not disagree about the scientific facts (Gomperz 1905, 15). However, he cautioned philosophers to keep in mind that they could only analyze concepts, not things. The aim of his *Weltanschauungslehre* was to reconstruct traditional concepts in a way that freed them of contradictions, such that they could be used to describe the facts (Gomperz, op. cit., 31). Like Cornelius, he believed that in order for real experience to occur,

16. In turn, he was later going to participate in some of their meetings, though he kept a critical distance.

17. The concept of *Weltanschauung* may be said to have enjoyed a great popularity in a great range of philosophical and popular at the time.

form had to be supplemented by some kind of intellectual unifying function, i.e., an “emotive” type of cognition. Based on the nature of this type of Gestalt perception, where the unifying factor in conscious experience is its emotional “flavor”, Gomperz referred to his position as “pathempiricism”. Traces of this latter conceptualization of experience can be found in the following quote from Carnap’s *Aufbau*:

We do not frequently assign qualities of emotions or volitions as properties to things in the outside world. [. . .]. We must assume, however, that to decline this assignment is only the result of a process of abstraction and does not hold from the outset. In the uncritical conception of a child, the apple does not only taste ‘sourish’ but ‘delicious’. (Carnap 1967, § 133)

Summing up, apart from shared ideas about characteristics of basic experience, we find in Gomperz’s writings not only the antimetaphysical sentiment of the *Aufbau*, but also the idea that an antimetaphysical philosophy proceeds by reconstructing the concepts of scientific knowledge. It is this sentiment, rather than the mentalistic way in which it was carried through, that Carnap sympathized with.

8. Conclusion

In this paper, I have investigated the background of Carnap’s references to Gestalt perception. Given Carnap’s personal acquaintance with members of the Berlin/Frankfurt school of Gestalt perception, and given further his aim of (a) basing his constitutional system in phenomenal experience, and (b) providing an intersubjective, structural account of such experience, I followed up the issue of whether Gestalt psychologists might have provided Carnap with a scientific account of the structure of experience. I distinguished between two aspects of this question. First, the question of whether Gestalt psychologists might have provided Carnap with evidence for the claim *that* basic experience is structured. Second, the question of whether Gestalt psychologists might have provided him with a scientific account of *how* such structuring takes place. I presented an argument in favor of the first reading. This argument was based on the fact (a) that Carnap rejects the existence of elements of Gestalt experience in a way that is similar to the Berlin/Frankfurt critique of Ehrenfels’s conceptualization of Gestalt experience, but (b) Carnap does not follow the Berlin/Frankfurt explanation of what makes two experiences structurally similar. I then linked this analysis to a particular reading of the place of basic experience in the *Aufbau*. According to this reading, Carnap’s aim was to provide a unified system of the concepts that constitute our scientific knowledge, where the choice of *psychological* concepts as the basic concepts

was only one of several possible options. With this reading of Carnap's project in mind—I argued—it is clear why it would have been in his interest to turn to Gestalt psychology, as representatives of the best current psychology. However, I argued that this motivation is to be distinguished from the motivation to capture the “real” cognitive processes, as psychologists might describe them. Hence, it is neither surprising nor inconsistent that his formal notion of “recollection of similarity” (and the way he uses it to provide a *quasi-analysis* of the units of basic experience) does not accord with the empirically based account Gestalt psychologists would have given of this basic cognitive phenomenon.

In the second part of the paper, I raised the question why Carnap uses terms like “recollection”, which make it seem as if he were analyzing the mind (as opposed to merely reconstructing a system of scientific knowledge). In investigating this question, I took a closer look at some of the other writers that he cites in relation to his description of “experience in its totality and unity”. I identified the German philosopher, Hans Cornelius, as a likely source of the term, “recollection of similarity”. However, while Cornelius used this term in a quasi-psychological (though not experimentally based) fashion, basing his epistemological theory of concepts and judgments on it, for Carnap the term did not carry this psychological connotation. This led me to speculate that we should read Cornelius (and others, like Schuppe, Schubert-Soldern, or Gomperz) both as a source of inspiration, but also as a *point of departure*. While Carnap shared with these philosophers a very profound anti-metaphysical sentiment, I argued that he viewed their attempts at overcoming metaphysics by analyzing the basic facts of consciousness as ultimately being responsible for why they were still stuck with metaphysical baggage. I argued that it was philosophers like Cornelius, Gomperz, Schuppe, Schubert-Soldern, and Mach (rather than Heidegger) that he had in mind when suggesting that he was capable of presenting an epistemological system that was genuinely free of metaphysics.

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