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Cassirer's Psychology of Relations

Samantha Matherne

In spite of Ernst Cassirer's criticisms of psychologism throughout *Substance and Function*, in the final chapter he issues a demand for a "psychology of relations" that can do justice to the subjective dimensions of mathematics and natural science. Although these remarks remain somewhat promissory, the fact that this is how Cassirer chooses to conclude *Substance and Function* recommends it as a topic worthy of serious consideration. In this paper, I argue that in order to work out the details of Cassirer's psychology of relations in *Substance and Function*, we need to situate it within two broader frameworks. First, I position Cassirer's view in relation to the view of psychology and logic endorsed by his Marburg Neo-Kantian predecessors, Hermann Cohen and Paul Natorp. Second, I augment Cassirer's early account of the psychology of relations in *Substance and Function* with the more mature view of psychology that he presents in *The Philosophy of Symbolic Forms*. By placing Cassirer's account within these contexts, I claim that we gain insight into his psychology of relations, not just as it pertains to mathematics and natural science, but to culture as a whole. Moreover, I maintain that pursuing this strategy helps shed light on one of the most controversial features of his philosophy of mathematics and natural science, viz., his theory of the *a priori*.

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Cassirer's Psychology of Relations

From the Psychology of Mathematics and Natural Science to the Psychology of Culture

Samantha Matherne

1. Introduction

Substance and Function (*Substanzbegriff und Funktionsbegriff*) (1910), Ernst Cassirer's first systematic work on mathematics and natural science, ends with something of a twist. Throughout this text, Cassirer consistently criticizes psychological approaches to mathematics and natural science, claiming, for example, that, "We are not concerned with the existence of psychic contents, but only with the validity of certain relations" and that, "psychologism must indeed be overcome in order to reach the concept of the physical object" (*SF*, 270, 300). This negative attitude towards psychology is in no way surprising for it is in keeping with the anti-psychologistic program defended by Cassirer's Marburg Neo-Kantian mentors, Hermann Cohen and Paul Natorp. What is unexpected, however, is that Cassirer then concludes *Substance and Function* with two chapters devoted to issues related to subjectivity and psychology: Chapter 7, "On Subjectivity and Objectivity of the Relational Concepts," and Chapter 8: "On The Psychology of Relations." And in the latter chapter, Cassirer, in fact, issues a demand for a new psychology, a psychology of relations, that would do justice to the psychological dimensions of mathematics and natural science.

However unanticipated this discussion of psychology might be, the fact that this is how Cassirer chooses to close *Substance and Function* recommends it as a topic worthy of serious considera-

tion. Yet this aspect of *Substance and Function* has received little attention.¹ Admittedly, Cassirer offers only a sketch of what his psychology of relations would look like; nevertheless, it seems that clarifying his position on psychology is necessary for understanding the overall picture of mathematics and natural science that he defends in *Substance and Function*.

In this paper, I argue that in order to work out the details of Cassirer's psychology of relations in *Substance and Function*, we need to augment what he says there with the more mature view of psychology that he presents in *The Philosophy of Symbolic Forms* (1923; 1925b; 1929). I take this to be the case because it is only once he situates his earlier psychology in the framework of his philosophy of culture that he fills out many of the important details concerning the psychology of relations not just as it pertains to mathematics and natural science, but to culture as a whole. Thus by adopting a broader cultural lens, I claim that we can make headway with regard to one of Cassirer's central, but underdeveloped, lines of thought in *Substance and Function*.

However, by my lights, this strategy, viz., of approaching Cassirer's account of mathematics and natural science through the perspective of his philosophy of culture, promises to be productive not just with respect to issues in psychology, but with regard to other features of his theoretical views as well. To this end, I conclude by applying this strategy to one of the most debated issues in Cassirer's philosophy of mathematics and natural science, viz., his theory of the *a priori*, and I argue that there is much headway to be gained here too if we approach the *a priori* from the broader cultural framework developed in this paper. In light of the gains that I hope to show can be made by adopting this wider cultural lens in order to elucidate Cassirer's account of the psychology and *a priori* features of mathematics and natural

¹Exceptions to this include Friedman (1992, 34–35) and Ferrari (2009, 305–06), who allude to Cassirer's emphasis on psychology in *Substance and Function*, and Edgar (2015), who explores two features of Cassirer's account of subjectivity in *Substance and Function*, viz., idiosyncrasy and point of view.

science, I wish to recommend this strategy as one to be further pursued.

In order to develop my interpretation of Cassirer's psychology of mathematics and natural science, I begin in §2 with a discussion of the Marburg Neo-Kantian approach to psychology that shapes both Cassirer's negative and positive views of psychology. In §3 I turn to Cassirer's account of the psychology of relations in *Substance and Function*. Then in §4 I analyze how Cassirer develops this early psychology into the more full-blown psychology of culture in *The Philosophy of Symbolic Forms*. I conclude in §5 with considerations about the value of approaching Cassirer's philosophy of mathematics and natural science from the perspective of his philosophy of culture more generally and I address the contentious issue of his theory of the *a priori* in mathematics and natural science in this spirit.

2. Marburg Perspectives on Psychology

Before turning to Cassirer's psychology, it will be helpful to situate it within the Marburg Neo-Kantian framework for psychology developed by Cohen and Natorp, which influences Cassirer's approach in significant ways.

To begin, the Marburg Neo-Kantians define psychology in general as the science of the acts, operations, and processes that occur in individual minds.² Cohen, for his part, aligns psychology with the study of consciousness as "*Bewußtheit*," which he takes to involve the "individual, immanent ways in which the unity of consciousness presents itself psychologically" (*KTE*, 207).³ Meanwhile Natorp claims that psychology is the science of

²Although they treat the individual minds at issue typically as the mind of a single person, Natorp acknowledges the possibility of also defining the relevant mind in terms of a "historical" group or "generation," not an "ahistorical" group or "ageneration" (*LF*, 205).

³Translations of *KTE* are my own. In this vein, Cohen contrasts "*Bewußtheit*" with "*Bewußtsein*," where the latter concerns the "unity of experience," where "experience" (as we shall see below) is defined in terms of mathematical natu-

the "lived" (*erlebt*), "concrete" (*konkret*) consciousness of individuals, where this consciousness involves the "activity" (*Tätigkeit*) by means of which phenomena appear to an I (*AP*, 39, 41).⁴ As we shall see, although Cohen and Natorp, on the one hand, object to attempts to treat psychology so defined as the foundation of logic, they, on the other hand, defend a critical form of psychology as a key component of their own philosophical projects.

2.1. Logic and the problem with psychologism

The negative remarks that Cohen and Natorp make about psychology often occur in the context of their criticism of psychologism, more specifically, of psychologistic attempts to ground logic in psychic acts, operations, or processes that occur in finite individuals.⁵ Given that the foundation of logic is the relevant point of contention, in order to appreciate this criticism, we need to first consider what conception of logic the Marburg Neo-Kantians employ.

ral science (*KTE*, 207–08; he uses this distinction again in his *System*, e.g., *LRE*, 422–24, 456; *ERW*, 148–51; *ARG*, 120–25). Although in *KTE*, Cohen then aligns the study of *Bewußtheit* with psychology and of *Bewußtsein* with the critique of cognition (*Erkenntniskritik*) (*KTE*, 208), in the *System* he seems to allow for a more general definition of psychology as the study of the "unity of consciousness" (*LRE*, 17; translations of *LRE* are my own). This more general definition of psychology, in turn, opens up space for two kinds of psychology on Cohen's view: an empirical psychology that focuses on the unity of *Bewußtheit* and an alternative "critical" psychology that focuses on the unity of *Bewußtsein*, more specifically on the "unity of cultural consciousness" (*Kulturbewußtsteins*) (*LRE*, 609). Though Cohen planned to devote the fourth volume of his *System* to developing this latter form of psychology, he did not complete this project. And it seems due to its incomplete nature that Cassirer draws more explicitly on the details of Natorp's psychology than Cohen's.

⁴Translations of *AP* are my own. For Cassirer's gloss of Natorp's conception of the subject matter of psychology, see *PSFv3*, 52.

⁵See Anderson (2005) for a discussion of the broad Neo-Kantian critique of psychologism and Edgar (2008) for a discussion of Natorp's specific critique of psychologism.

In general, Cohen and Natorp take their cue from Kant's conception of logic as "the science of the rules of understanding [*Verstandsregeln*] in general," where the understanding is defined as the faculty for "thinking" (*denken*) or "judging" (*urteilen*) (*KrV*, A52/B76, A51/B75, A69/B94).⁶ Kant furthermore claims that logic concerns understanding in a pure, rather than empirical sense and, as such, it is a science that "draws nothing from psychology" (A54/B78). Kant, in turn, distinguishes between two forms of logic. The first is "general" (*allgemeine*) logic, which concerns the "form of thinking in general" in abstraction from "all content of cognition, i.e., from any relation of it to the object" (A55/B79).⁷ On his view, general logic thus sets aside considerations about the relation of thinking to objects and focuses, instead, on the different forms that judgment can take, e.g., the universal form ("All As are Bs"), the hypothetical form ("If A, then B"), etc. (see A70/B95). The second kind of logic Kant discusses is what he calls "transcendental" logic and he claims it targets "the rules of the pure thinking of an object" and the "laws of the understanding and reason . . . insofar as they are related to objects *a priori*" (A55/B79–80). Given this target, Kant claims that transcendental logic focuses not on the formal structures of judgment, but instead on the pure concepts (the so-called "categories") by means of which our thought relates to, e.g., the category of "unity," "reality," "substance," "cause," etc. (see A80/B106). In light of these differences, Kant claims that whereas general logic is the "negative touchstone" of truth,

⁶As is standard practice, references to Immanuel Kant's *Critique of Pure Reason* are to the section number and A and B pagination of the first and second editions (A/B) in the Akademie edition. See, e.g., Cohen's claim that logic, in general, is oriented towards "judgment" (*Urteil*) and "thinking" (*Denkens*) (*LRE*, 52) and Natorp's claim that logic is, in general, concerned with "understanding" (*Verstehen*) and "thought in general" (*Denkens überhaupt*) (*LF*, 200, 211). See Heis (2010) and Tolley (2016, 192–95) for an analysis of the relationship between Kant's and the Marburg School's theories of logic.

⁷Throughout this paper, I shall translate "*Erkenntnis*" as "cognition" rather than as "knowledge," reserving "knowledge" as a translation of "*Wissen*."

i.e., it specifies the rules for consistent, contradiction-free thinking, transcendental logic is the logic of the "objective validity" of thinking, hence of "material (objective) truth" (A57/B81, A60/B84–85).

Although the Marburg Neo-Kantians are broadly sympathetic to this conception of logic, there are several distinctive features of how they interpret and so appropriate Kant's logic. The first set of interpretive moves concerns the nature of understanding in general. To begin, they claim that the forms of thinking at issue in general logic are those involved in analytic judgments, i.e., judgments in which we analyze "concepts we already have of objects," whereas those at issue in transcendental logic relate to synthetic judgments, i.e., judgments in which we bring "unity" (*Einheit*) or "combination" (*Verbindung*) to a manifold in such a way that allows for thinking to relate to objects (A5/B9, A105, B129).⁸ Moreover, they maintain that general logic is dependent on transcendental logic (see Cohen, *KTE*, 269; Natorp, *OS*, 164; *LF*, 201, 205). To this end, they cite Kant's claim that, "dissolution (**analysis**) . . . in fact always presupposes [combination]; where the understanding has not previously combined anything, neither can it dissolve anything" (B130). This being the case, they think that the study of the analytic forms of thinking in general logic must be grounded in the study of synthetic forms of objectively valid thinking and the categories in transcendental logic.⁹ However, it is not just general logic, but also Kant's doctrine of sensibility and his account of the pure intuition of space

⁸See Cohen (*KTE*, 242). For a comparison of the Marburg approach to general and transcendental logic with other approaches, see Tolley (2012).

⁹Natorp succinctly summarizes this point as follows: "There is therefore no formal logic which is not grounded in 'transcendental' logic. If both are related in the same way as the lawgiving found in the analytic and synthetic functions, and if all analysis presupposes synthesis (because the understanding cannot analyze anything which it has not first synthesized) then everything which formal logic can teach must be able to be grounded transcendentially" (*OS*, 164).

and time that they subsume under transcendental logic, arguing that intuition is, ultimately, a form of thinking.¹⁰ Taking all these points together, on the Marburg picture, the understanding most fundamentally involves the synthetic, category-guided activity of object-related thinking, which pervades even sensibility and intuition.¹¹

Furthermore since Cohen and Natorp deny that intuition and sensibility are independent from thinking, they revise Kant's conception of objects. Whereas on Kant's view (at least as he presents it in the *Transcendental Aesthetic*),¹² thought relates to objects that are first "given" to us through sensibility, on their view, objects are entirely the result of the "productive" and "constructive" "objectifying" activity of thought.¹³ This being the case, they take the objective validity of thinking to be part of a complicated process in which the objects thinking relates to and is valid of are constructed through the synthetic activity of thinking itself.

Though this may make the Marburg view sound like a highly subjective form of idealism, Cohen and Natorp regard their critical idealism as objective because they take the forms of syn-

¹⁰See Natorp's summary of the Marburg position on intuition at (*KMS*, 184–86).

¹¹One finds this in Cohen's analysis of synthesis, understood in terms of the "continuity" (*Kontinuität*) of the "separation" (*Sonderung*) and "unification" (*Vereinigung*) that serves as the "origin" (*Ursprung*) of thinking (see, e.g., *LRE*, 90, 60–62) and in Natorp's related analysis of synthesis, understood in terms of the "connectedness" (*Zusammenhang*) as the "origin" (*Ursprung*) of thinking (*LF*, 206).

¹²See, e.g., Kant's claim that, "Objects are therefore given to us by means of sensibility, and it alone affords us intuitions; but they are **thought** through the understanding But all thought . . . must ultimately be related to intuitions, thus, in our case, to sensibility, since there is no other way in which objects can be given to us" (A19/B33).

¹³See, e.g., Cohen's analysis of "generation" (*Erzeugnis*) of thought (*LRE*, 28–29) and Natorp's analysis of the "constructive," "objectifying" activity of thought (*OS*, 176–77; *KMS*, 182; *AP*, 68–72). Natorp also tends to gloss this constructive activity in terms of the lawful "determination" (*Bestimmung*) of the manifold (see *OS*, 171, 177).

thetic, constructive thinking at issue to be those involved in the objective endeavors of mathematics and natural science (among other cultural regions).¹⁴ That is to say, they do not identify the starting point for transcendental logic as the subjective psychic processes in individuals, but rather as the "fact" of objective cognition in mathematical-natural science.¹⁵ As they understand it, then, transcendental logic has the aim of elucidating the conditions of the objective fact of mathematical-scientific cognition; hence Cohen's claim that, "the thinking of logic is the thinking of science," and Natorp's that, "'experience' as *science* is the fact whose 'possibility' is investigated in transcendental logic" (*LRE*, 19; *LF*, 203). By their lights, by orienting logic around the fact of science (among the other facts of culture), they secure its objectivity against the threat of subjectivism.

¹⁴Although in what follows we shall focus on the connection Cohen and Natorp draw between mathematics and natural science, they think that logic also pertains to the objectively valid activities involved in other cultural regions, like ethics, aesthetics and religion. Hence Natorp's overarching characterization of the logic of the Marburg school as follows:

"[L]ogic," in the original broad sense of the doctrine of reason, holds a high place with us. It comprises not only theory, in respect to the logic of "possible experience," but ethics, too, in respect to the logic of volition, and even aesthetics, in respect to the logic of pure artistic creation. It is the basis for vastly expanding scientific terrains: social science (as the study of economics, justice, and education, as well as history, art history, even the study of religion—, i.e., the so-called human sciences [*Geisteswissenschaften*]), and not just the natural science of mathematics. (*KMS*, 192)

Natorp's emphasis in the second sentence on the logic of possible experience, ethics, and aesthetics tracks Cohen's own project in the three volumes of his *System of Philosophy*. For a discussion of the commitment of the Marburg school to culture, see Renz (2002, 2005), Luft (2015a), and Matherne (2015).

¹⁵Though they introduce transcendental logic in the context of an analysis of the fact of experience in the mathematical-scientific sense, they acknowledge other no less objective cultural facts, like the fact of ethics and aesthetics, which transcendental logic also accounts for. Hence Natorp's claim in *KMS* that, for the Marburg School, logic is oriented around the "facts of science, morals, art, and religion" and the "total creative work of culture" (182).

What may obscure what Cohen and Natorp take to be the objectivity of their logic is that they typically describe the fact of mathematical-natural science as the fact of “experience,” as we see in the Natorp passage just quoted. However, it is important to recognize that, on their view, the relevant experience in this context is not the experience of an individual, but rather experience in the sense of what unfolds through mathematical-natural science; hence Cohen’s claim, “experience . . . is mathematical natural science” (Cohen, *KTE*, 501).¹⁶ By their lights, whereas experience in the individual case is something that is finite and contingent on the spatial, temporal, and causal circumstance of the experiencer, the experience in the mathematical-scientific case is infinite and necessary insofar as its order and progress is determined by ideal concepts, laws, and principles (see, e.g., Cohen, *LRE*, 62–65; Natorp, *LF*, 204–05). As Natorp describes this latter experience, it is like a numerical series in which one content follows the others in the same logically necessary way that the number one follows the number two (*LF*, 204). Thus, although Cohen and Natorp orient transcendental logic around the fact of experience, they regard this as consistent with the objectivity of logic insofar as this fact dovetails with the objective cognition of mathematical-natural science.

Stepping back, for Cohen and Natorp, logic is best understood as transcendental logic, i.e., the science of the forms of synthetic, constructive, objectively valid thinking that make the fact of experience qua mathematical-natural science (along with the fact of other cultural fields) possible. And it is from this perspective on logic that they, in turn, criticize psychologistic accounts of the foundations of logic.

At the core of the Marburg critique is the claim that psychologism cannot account for the *objectivity* of logic. As Natorp puts this objection:

¹⁶See Richardson (2003) for a discussion of this Marburg conception of experience.

One not only destroys logic, as the independent theory of the objective validity of cognition, one also cancels out objective validity itself and changes it into purely subjective validity, if one attempts to support it on subjective grounds and to deduce it from subjective factors. (*OS*, 168; translation modified)

On the Marburg assessment, insofar as psychologism grounds logic in the finite psychical processes that take place in individuals, it limits logic to the level of the “merely subjective.” Accordingly, the only kind of validity it can attempt to account for is a subjective one, which reflects the contingent ways in which the psychological processes of situated creatures like us proceed. However, on the Marburg assessment, this simply fails as an adequate account of the foundation of logic because it “cancels out” the objective validity that is central to the form of thinking that is at issue in the science of logic and that is expressed in mathematical-scientific cognition. It is this form of objectively valid thinking that the Marburg Neo-Kantians think the psychologistic view, in principle, cannot do justice to and it is for this reason that they reject it as an adequate account of the foundation of logic.¹⁷

2.2. Marburg psychology

Yet in spite of their critique of psychologistic approaches to logic, Cohen and Natorp do not rule out the value of psychology altogether. Indeed, both to varying degrees present psychology as a key component of their critical projects. Cohen, for his part, planned to dedicate the fourth and final volume of his *System of Philosophy* to the topic of psychology, but he was not able to finish this project before he died.¹⁸ Meanwhile Natorp defended

¹⁷Cohen attempts to meet this demand with his logic of the “source” (*Ursprung*) in *LRE*, and Natorp attempts to do so with the logic he presents in *LF*.

¹⁸Cohen had also lectured on this topic in 1899, 1905–06, 1908, and 1916. For a discussion of Cohen’s psychology, see Poma (1997, 147–53), Zeidler (2001), and Moynahan (2013, 16–21).

a more developed account of psychology in both his early *Introduction to Psychology According to Critical Method (Einleitung in die Psychologie nach kritischer Methode)* (1888) and his later *General Psychology According to Critical Method (Allgemeine Psychologie nach kritischer Methode)* (1912a).¹⁹ Though much could be said about this Marburg approach to psychology, in what follows, I want to focus on two features that were particularly influential for Cassirer: the general Marburg motivation for developing psychology and Natorp's conception of the proper method of psychology.

The general motivation behind Cohen and Natorp's conviction that critical philosophy should involve psychology is their commitment to there being a "correlation" between objectivity and subjectivity in the psychological sense (see, e.g., Cohen, *LRE*, 188; Natorp, *AP*, 71). Natorp glosses this correlation as follows:

Cognition [*Erkenntnis*] shows itself from the start as two-sided: as "content" [*Inhalt*] (as what is cognized or to be cognized [*Erkanntes oder zu Erkennendes*]) and as "activity" [*Thätigkeit*] or experience [*Erlebnis*] of the subject (as cognizing [*Erkennen*]). To be sure in every cognition both relations are present together and closely connected; there can no more be what is cognized without cognizing, than there can be a cognizing without what is cognized [*es gibt so wenig ein Erkanntes ohne Erkennen den, wie einen Erkennenden ohne Erkanntes*]. (*OS*, 165–66; translation modified)

As we see in this passage, whereas the objective correlate concerns the "objective content" of cognition—i.e., the ideal concepts, principles, and propositions of logic, mathematics, and natural science—the subjective correlate pertains to the psychic acts of a spatially-temporally situated individual by means of which this content becomes a "comprehensible possession of the psyche" (*OS*, 166, 168). Notice, also, that Natorp emphasizes

¹⁹For discussions of Natorp's psychology, see Dahlstrom (2015), Feyaerts and Vanheule (2015), Luft (2015a, 92–103), and Zahavi (2003).

the mutual relationship between the two correlates: they do not exist in isolation from one another, but rather as two reciprocally related moments within the whole of cognition. Given this correlation, on the Marburg view, in order to give a complete account of cognition, what is needed is both a logic of objective cognition and a psychology of subjective cognizing.

Taking up this demand in his own account of psychology, Natorp, furthermore, argues that in order to provide an adequate psychology, we must adopt the appropriate "critical" method. The reason he takes methodology to be a pressing concern is because he thinks that the typical method in psychology, viz., one that models itself on natural science and so endeavors to offer empirical-causal explanations of consciousness, is one that "kills" the very lived consciousness it is supposed to elucidate (*AP*, 103). He takes this to be the case because he thinks that the naturalistic method treats subjectivity as something that it is not, viz., an object: "To be an I does not mean to be an object, rather to be, opposite all objects, that for whom alone something is an object" (*AP*, 29). Given that the lived consciousness at issue in psychology is "not an object," Natorp thinks it is a mistake to employ the traditional naturalistic method that treats it as an object (*AP*, 29).

Natorp, accordingly, puts forth an alternative method for psychology that he labels the "reconstructive" method. As the label for this method suggests, on Natorp's view, consciousness is not something that we can study directly; rather he thinks we can only approach it indirectly by means of reconstruction. To this end, Natorp introduces the idea that cognition as a whole is something that involves a "plus" and a "minus" direction, where the "plus" direction corresponds to the objective content involved in mathematics, natural science, and the other region of culture,²⁰ and the "minus" direction corresponds to the psychic

²⁰For Natorp's emphasis on culture in this psychological context, see (*AP*, 22, 77, 93).

acts, processes, and operations that allow for the “appearing” (*Erscheinen*) of this objective content in lived consciousness (*AP*, 71, 41). With this picture in mind, Natorp claims that the reconstructive method takes as its starting point the “process of objectivization [*Objektivierung*]” involved in the plus direction and then attempts to reconstruct the correlative “process of subjectivization [*Subjektivierung*]” occurring in the minus direction (*AP*, 69).

By Natorp’s lights, adhering to this reconstructive method will put psychology on a proper “logical foundation [*Grundlagen*],” not only orienting it toward the right understanding of subjectivity qua lived consciousness, but also providing it with a secure starting point, viz., the objective fact of mathematical-scientific experience and other cultural endeavors (*AP*, III). In endorsing this method, Natorp does not mean to rule out the viability of empirical psychology altogether; rather, his point is that in order for empirical psychology to succeed in illuminating the subjective correlate of cognition, it must place itself on this foundation provided by the reconstructive method (see the Preface to *AP*). And it is only a psychology so grounded that Natorp thinks can serve as the needed counterpart to the objective analysis of cognition.

In the end, Cohen and Natorp’s attitude towards psychology is complex: though they are critical of attempts to treat psychology as the foundation of logic, they nevertheless champion a psychology, with the right conception of subjectivity and the right method, as part of a complete theory of cognition. And this, in turn, provides the framework for Cassirer’s account of psychology.

3. Psychology in *Substance and Function*

We are now in a position to consider the account of psychology that Cassirer develops in *Substance and Function*. Like Cohen and

Natorp, Cassirer defines psychology, in general, as a science oriented toward the acts, processes, and operations that occur in individual minds. To this end, he describes the target of psychology in terms of the “the representations and processes in the thinking individual,” “the subjective-psychological event of thinking,” consciousness insofar as it involves the “temporal sequence and order of contents” in the “I,” and the thinking that occurs “temporally, in actual empirical lived-experience [*Erlebnis*]” (*HC*, 223; *SF*, 310, 312; translation modified). Furthermore, for Cassirer, as for Cohen and Natorp, although psychology has a positive role to play in a full analysis of cognition, it can do so only if we, first, assign it to its proper place in relation to logic. For this reason, before proceeding to the details of Cassirer’s positive account of psychology, we need to situate it in relation to his account of logic and his reiteration of the Marburg criticism of psychologism.

3.1. Transcendental logic and anti-psychologism in *Substance and Function*

Though in *Substance and Function* Cassirer develops the Marburg account of logic in new directions, his logic nevertheless takes its cue from Cohen and Natorp’s conception of transcendental logic as the science of the synthetic, constructive activities of the understanding, which make possible the “fact” of mathematical-scientific experience.

Cassirer endorses this conception of transcendental logic in his early essay, “Kant and Modern Mathematics” (*Kant und die moderne Mathematik*; 1907), where he argues that a proper analysis of the relationship between logic and modern mathematics requires a Kantian approach rather than the logicist approach of Russell and Couturat. By his lights, the logicist approach to mathematics defines logic solely in terms of general logic, i.e., in terms of analytic judgments that are independent of any relation to objects, and in so doing, he charges that they neglect a

crucial feature of mathematics, viz., its contribution to the synthetic, objective judgments of natural science (see *KMM*, §§5–6). For this reason, Cassirer claims that, “A new problem [*Aufgabe*] begins at the point where logicism leaves off. What critical philosophy seeks and what it must demand is a *logic of objective cognition* [*gegenständlichen Erkenntnis*]” (*KMM*, 44).²¹ He then explicitly glosses the logic of objective cognition in terms of Kant’s transcendental logic:

“The explanation of the possibility of synthetic judgments,” as Kant himself sharply emphasized, “is a problem with which general logic has nothing to do . . . But in a transcendental logic it is the most important business of all, and indeed the only business if the issue is the possibility of synthetic *a priori* judgments and likewise the conditions of the domain of their validity. For by completing this task transcendental logic can fully satisfy its goal of determining the domain and boundaries of pure understanding.” (*KMM*, 44–45; quoting *KrV*, A154/B193)²²

Thus, for Cassirer, transcendental logic is needed in order to address the problem that general logic neglects, viz., the problem of the objective validity of our synthetic thinking. Moreover, insofar as Cassirer regards this problem of objective validity as the most fundamental problem of logic, he, in Marburg fashion, treats transcendental logic as more primary than general logic.²³

²¹Translations of *KMM* are my own.

²²The translation of *KrV* is from the Guyer-Wood translation.

²³On this point, Cassirer takes himself to be following in Kant’s footsteps insofar as he attributes to Kant the view that transcendental logic is more primary than general logic:

An analysis that is nothing but analysis, that does not in any way relate indirectly to and rest on an underlying synthesis is impossible. . . . While general logic can similarly be employed as the “clue to the discovery of all the pure concepts of the understanding,” this is not done with the aim of basing the transcendental concepts on the formal ones, but, conversely, with the aim of basing the latter on the former, and in that way yielding a more profound understanding of the ultimate ground of their validity. (*KLT*, 172–73)

In *Substance and Function*, Cassirer attempts to enrich this basic picture of transcendental logic with a theory of the “functional” or “relational” nature of concepts. As the title of the book suggests, Cassirer opposes his functional analysis of concepts to a “substance” theory of concepts. On his view, whereas the substance-based view treats concepts as “copies” of mind independent substances that we form on the basis of “abstracting” out the common marks of those substances, the function-based view defines concepts as “functions” or “relations” by means of which a manifold is synthesized and unified.²⁴ For Cassirer, the relevant kind of function is a propositional function, $\phi(x, y, z, \dots)$, where ϕ is a functional relation on the basis of which the variables x , y , and z are unified together in a serially-ordered manifold: (x, y, z) .²⁵ And he argues that in order to account for the formation of concepts, as well as their use in judgment in ordinary life, mathematics, and natural science, we need a transcendental logic that embraces the function-based view of concepts rather than the substance-based one.²⁶

In defending this function-based approach to transcendental logic, however, Cassirer retains the basic Marburg commitment to analyzing the understanding at issue in synthetic and constructive terms. With regard to synthesis, for example, Cassirer continues to emphasize the idea that synthesis is central to the activity of the understanding, but he updates the view by highlighting the way in which functional concepts enable this synthesis. To this end, he argues that we should think of func-

²⁴See *SF*, chap. 1, “On the Theory of the Formation of Concepts,” for Cassirer’s analysis of these two competing models.

²⁵In *KMM*, Cassirer directs us toward Russell’s analysis of functions along proposition lines in “Sur la Relation des Mathématiques à la Logistique” (*KMM*, 7 n 3) and in *PSFv3*, towards his account in *The Principles of Mathematics* (*PSFv3*, 301).

²⁶He addresses the merits of the function-based view in relation to ordinary empirical concept acquisition in *SF*, chap. 1, mathematics in chaps. 2–3, and natural science in *SF*, chap. 4.

tional concepts as serial principles that allow the understanding to synthesize particulars into a serially ordered manifold. In this spirit, he describes a functional concept as a “generating [erzeugende] principle that makes the individual members connectable [verknüpfbar] into a functional whole” and as a “serial form $F(a, b, c \dots)$ which connects [verknüpft] the members of a manifold” (SF, 26; translation modified). And he maintains that it is by means of such functions and the serial ordering of manifolds that they enable that synthesis proceeds.

Cassirer, moreover, persists in the Marburg commitment to the constructive nature of this synthetic activity, arguing that the objects of experience are not given prior to, but determined through this synthesis. As he makes this point:

To cognize [erkennen] a content [Inhalt] means to make [umprägen] it an *object* by raising it out of the mere status of givenness and granting it a certain logical constancy and necessity. Thus we do not cognize “objects” as if they were already independently determined and given as *objects*,—but we cognize *objectively*, by producing certain limitations and by fixing certain permanent elements and connections within the uniform flow of experience. (SF, 303, translation modified)

Thus, on his view, in order to arrive at objects, the understanding must engage in constructive activities by means of which it produces limitations and fixes constancies by synthesizing the manifold in light of functional relations. In this way, Cassirer takes over the Kantian claim underwriting the constructive view, viz., that, “the object of our intuitions . . . is nothing more than the something for which the concept expresses such a necessity of synthesis,” and adds to it the idea that the concepts involved are functional ones that enable the understanding to generate serially ordered manifolds in which the needed limitations and constancies are produced (KrV, A106).²⁷

²⁷See Cassirer (KLT, 170–71; PSFv3, 315–16). Cassirer glosses Kant’s A106 passage in ETR thus: “The object is thus not gained and known by our going

It is on the basis of this functional account of the synthetic, constructive activities of the understanding that Cassirer, in turn, presents his theory of the categories.²⁸ He introduces this theory as part of what he calls the “universal invariant theory of experience” (SF, 268).²⁹ As becomes clear by how he proceeds, the “experience” Cassirer has in mind in this context is not the experience of an individual, but rather the one defined in Marburg terms as the experience of mathematical-natural science. And he claims that a universal invariant theory of mathematical-scientific experience aims to . . .

. . . discover those universal elements of form, that persist through all change in the particular material content of experience. . . . The goal would be reached, if we succeeded in isolating in this way the ultimate common element of all possible forms of scientific experience; i.e., if we succeeded in conceptually defining those moments, which persist in the advance from theory to theory because they are the conditions of any theory. (SF, 269)

So understood, Cassirer’s universal invariant theory of experience seeks to identify the “forms,” i.e., the functions and relations, of experience that are “universal” in the sense that they remain invariant across all possible scientific experience.³⁰ He then points to “the ‘categories’ of space and time, of magnitude [Größe] and the functional dependency of magnitudes” as examples of such invariant relations (SF, 269). And he labels these categories as “*a priori*” because they are the “ultimate logical invariants. . . , which lie at the basis of any determination of connection according to natural law” (SF, 269).

from empirical determinations to what is no longer empirical to the absolute and transcendent, but by our unifying the totality of observations and measurements given in experience into a single complete whole” (ETR, 381).

²⁸See Ferrari (2009, 301–04) for a discussion of Cassirer’s theory of categories in the context of the Marburg theory of categories.

²⁹For a thorough discussion of Cassirer’s invariant theory of experience, see Ihmig (1997).

³⁰For Cassirer’s description of these forms as universal “relations” and “functions,” see (SF, 309; ETR, 427).

There are two points I wish to bring out concerning how Cassirer characterizes the invariance of the categories. In the first place, Cassirer describes the categories as invariant, in part, because he takes them to be the *conditions* of the possibility of mathematical-natural scientific experience. I take Cassirer's idea to be that unless thinking organizes manifolds in accordance with the categorial functions of space, time, magnitude, and cause, then there can be no experience in the mathematical-natural scientific sense, let alone the objects that correspond to such experience.

Furthermore, on Cassirer's view, what allows for the categories to play an invariant role across all experience is that the functional relations they rest on are *flexible* enough to be specified in various ways by particular theories. As he makes this point, the categories involve a fixed "meaning" (*Sinn*) that can be cashed out in different ways in the "material content [*Inhalt*]" of a particular theory (*SF*, 269). For example, he claims that the meaning of the category "cause" involves a relation that establishes the "space-time dependency of the elements in a natural process," and that this meaning can be expressed through various "*particular* causal principles," which cash out these space-time dependencies in different ways (*SF*, 269). Or to take another example, the meaning of the category of "space" (which he calls a "category" because he, like the other Marburg Neo-Kantians, attributes it to thinking rather than sensibility), involves the basic relation of "coexistence," a relation that can then be specified in a more determinate way in particular theories, e.g., in a Euclidean or Minkowskian way (see *ETR*, 417–18; *PSFv1*, 94). For Cassirer, then, the categories can serve as an invariant feature of all mathematical-scientific experience because they involve a basic functional relation that is flexible enough to take on different content in various theories. Ultimately, then on his view of transcendental logic, it is these categories, these *a priori* invariant functional relations, which guide the synthetic,

constructive activity of understanding and that make the fact of experience, i.e., the objective cognition of mathematical-natural science, possible.

Moreover, it is in relation to this conception of logic that Cassirer, like his Marburg mentors, criticizes psychologistic accounts of the foundations of logic.³¹ Against psychologism, Cassirer argues that we need to draw a sharp distinction between the "standpoint of a psychological individual" and the "standpoint of logic," and he maintains that the "supreme principles" of the latter, "especially the universal principles of mathematical and scientific cognition" "transcend" the former (*SF*, 297; translation modified). Continuing in this vein, he claims . . .

. . . judgment transcends the mere content of present, sensuous perception. . . . It [is] dependence on [logical] principles, and not on any concrete psychic contents or acts, that [critical] idealism alone represent[s] and demand[s]. . . . To the psychological immanence of impressions is opposed . . . the logical universality of the supreme principles of cognition [*Erkenntnisprinzipien*]. (*SF*, 300; translation modified)

For Cassirer, then, in order to understand the objective validity of the judgments involved in cognition, we must look not to psychic contents or acts, but rather to the supreme logical principles of cognition that guarantees its objective validity and that transcend these psychic acts. This being the case, Cassirer, like his Marburg teachers, rejects psychology as the foundation of logic.

3.2. The psychology of relations in *Substance and Function*

Although Cassirer is thus critical of psychologistic attempts to ground logic in psychology, he nevertheless agrees with Cohen

³¹For Cassirer's critical remarks about psychologism outside of *Substance and Function*, see, e.g., "Erkenntnistheorie nebst den Grenzfragen" (1927); (*PSFv2*, xiv–xv, 11); (*PSFv3*, 373); (*PSFv4*, 55–56); (*DEPv4*, 56–57, 161).

and Natorp that a psychology is needed as part of a complete critical theory of cognition, and it is in this spirit that he presents his own psychology of relations. In order to clarify his account of the psychology of relations in *Substance and Function*, we will begin with an analysis of Cassirer's Marburg motivations for thinking such a psychology is needed, then turn to his more specific argument for why this psychology should be a psychology of relations, and finally consider the critical method he claims such a psychology requires.

Starting, first, with why Cassirer sees the need for psychology at all, his motivation echoes that of Cohen and Natorp insofar as it stems from the recognition of the correlation between the subjective and objective dimensions of cognition. In Cassirer's words . . .

. . . the laws of what is cognized [*Erkannten*] . . . [and] those of cognizing [*Erkennens*] . . . are related to each other, in so far as they represent two different aspects of a general problem. Thus there exists a deeper and more intimate mutual relation between the *object* and the *operation* of thinking than between—the wine and the drinking of the wine. The wine and the drinking are not exactly correlated;—but every pure act of cognition [*Erkenntnisakt*] is directed on an objective truth . . . , while on the other hand, the truth can only be brought to consciousness by these acts of cognition and through their mediation. (*SF*, 314; translation modified)

For Cassirer, the “objective truths” of cognition include the ideal truths of logic, mathematics, and natural science, which transcend psychic individuals. Meanwhile, the relevant “acts of cognition” are those “in which we can present to ourselves *temporally*, in actual empirical lived-experience [*Erlebnis*], the pure timeless validity of the ideal principles” (*SF*, 311–12; translation modified). And, as we see in the above passage, he claims that there is an “exact correlation” between the two insofar as the acts of cognition are “directed on” these objective truths and those objective truths are “brought to consciousness” by means of those acts. Continuing in this same vein, he says:

There is no act of knowledge [*Wissens*], which is not directed on some fixed content of relations as its real object; while, on the other hand, this content can only be verified [*belegen*] and brought to understanding [*zum Verständnis*] in acts of knowledge. (*SF*, 315–16)

The claim that we see in both of these passages, viz., that the objective truths of cognition serve as the “content” that acts of cognizing are “directed on” and that those acts are the means through which that content is brought “to consciousness,” should sound familiar from our analysis of Natorp above, for Cassirer here takes over Natorp's position.³²

Moreover, like Natorp, Cassirer insists that the relation between objective and subjective correlates of cognition is a mutual one: as much as our psychic acts need the objective truths for their content, so too do those objective truths need psychic acts in order to be brought to consciousness. Indeed, Cassirer, lays emphasis on this point, arguing against “one-sided” theories of cognition, which privilege one dimension over the other are misguided (*SF*, 317). While we have already considered Cassirer's criticism of the overly subjectivist approach of psychologism,³³ in the “Subjectivity and Objectivity” chapter, Cassirer also considers the problems with overly objectivist accounts that privilege the objective dimension of cognition over the subjective one. In particular, Cassirer targets Russell's view in *The Principles of Mathematics*, according to which the ideal truths of mathematics and logic exist “objectively” in the mind-independent way physical objects do, and that the mind's relation to these truths is a passive one in which it “discovers” them (*SF*, 316–17).³⁴ Cas-

³²Earlier in *Substance and Function* (24–25), Cassirer aligns this picture of the relationship between acts and objective contents with Husserl's in the *Logical Investigations* (1900–01), vol. II, part I, Investigation II: “The Ideal Unity of the Species and Modern Theories of Abstraction.”

³³In this chapter, Cassirer also criticizes as overly subjective the pragmatist position that would ground logic in the notion of “utility” (*SF*, 317–18).

³⁴Cassirer also appears to attribute the overly objectivist view to Bolzano (*SF*, 312).

sirer's criticism of Russell is two-fold. To begin, he objects to Russell's characterization of objective truths as seemingly isolated entities that could be discovered, arguing, instead, in a Marburg vein, that objective truths are part of an infinitely unfolding, dynamic series (see, e.g., *SF*, 254–55, 266–68). This being the case, Cassirer furthermore argues that Russell is wrong to think a subject can passively recognize truths because what she must, in fact, do is actively reconstruct the objective series in thought; hence his statement, "from the activity itself flows the recognition of a fixed body of truths" (*SF*, 317).³⁵ According to Cassirer, this reveals that far from the notion of the mind being a "totally irrelevant" one, as Russell's overly objectivist view would have it, insofar as it is only through these psychic acts that objective truths can come to consciousness, Cassirer thinks we need to give it far more weight than Russell does (*SF*, 316; quoting *PoM*, 4).

Against one-sided views of cognition, then, Cassirer maintains that a complete theory of cognition requires an analysis of both the objective and subjective correlates of cognition. And it is his recognition of the importance of the latter that leads Cassirer to emphasize the topics of subjectivity and psychology at the end of *Substance and Function* and to issue his concluding "demand" for a psychology of relations, to which we shall now turn (*SF*, 326).

In order to clarify Cassirer's psychology of relations, let's begin with an analysis of what Cassirer has in mind by a psychology of relations. In general, Cassirer conceives of the psychology of relations as an alternative to the psychology of "sensations" or

³⁵Cassirer here uses the example of number to illustrate his position, "In order to comprehend [*aufzufassen*] the number series as a series and thus to penetrate into its systematic nature, there is needed not merely a single apperceptive act (such as is considered sufficient for the perception of a particular thing), but always a manifold of such acts . . . , a movement of thought [*Bewegung des Denkens*] . . . in which what is first gained is retained and made the starting-point of new developments" (*SF*, 317).

"elements." As he draws the contrast, whereas the psychology of sensations or elements, à la Hume, treats consciousness as something that is entirely grounded in and built on the basis of atomistic sensations and elements, the psychology of relations, à la Tetens or Meinong, recognizes the irreducible and foundational role that relations play in consciousness (*SF*, 337; *PSFv3*, 426).³⁶ Cassirer, in turn, favors the psychology of relations over the psychology of sensations for two reasons. The first reason stems from Cassirer's analysis of consciousness. On his view, consciousness does not have an atomistic structure in which the elements of consciousness exist in isolation from one another; rather it has a holistic structure in which those elements are, at the most fundamental level, determined by relations:

What is truly cognized [*bekannt*] and given empirically in the field of consciousness, is not the particular elements, which then compound themselves into various observable effects, but it is rather always a manifold variously divided and ordered by relations of all sorts,—such a manifold as can be separated into particular elements merely by abstraction. (*SF*, 335; translation modified)

In virtue of having this holistic structure, Cassirer claims that elements of consciousness "never 'subsist' outside of every form of connection [*Verknüpfung*]," instead they exist as part of a relationally ordered whole (*SF*, 335). Far from consciousness being atomistic, then, Cassirer thinks that consciousness has a holistic, relationally ordered structure. And insofar as the psychology of relations is motivated by a sensitivity to the foundational role played by relations in consciousness, he thinks it is more promising than the psychology of sensations.

³⁶Cassirer cites Meinong's psychology and his theory of "founded contents," i.e., contents in consciousness that cannot be reduced to sensation and that represent ideal relations, as the more recent example of the psychology of relations; he, however, is ultimately critical of Meinong for still allowing a level of sensations and elements underneath the founded contents that express the meaning of ideal relations (*SF*, 337–40; *PSFv3*, 426). Cassirer also attributes a relations-based view of psychology to Tetens (*SF*, 330; *PE*, 125–31).

There is, however, a second reason Cassirer endorses a psychology of relations, viz., the relational account of cognition he defends throughout *Substance and Function*. As we saw above, according to Cassirer's transcendental logic, the categories are the basic *a priori* relations that make objective cognition in mathematical-natural science possible; however, on Cassirer's view, these basic relations also ground the psychic acts, processes, and operations in the consciousness of individuals. Hence he opens the "Psychology of Relations" chapter as follows:

The problem of cognition [*Erkenntnis*]... has led us to a totality of relations, that contains the presupposition of the intellectual opposition of the "subject" and the "object"... This totality is objective, in so far as all the constancy of empirical cognition [*Erfahrungserkenntnis*] rests upon it as well as the whole possibility of objective *judgment*, while, on the other hand, it can only be comprehended *in judgment* and thus in the activity of thought. (*SF*, 326; translation modified)

For Cassirer, then, as much as the basic relations, i.e., the categories of space, time, and cause, etc., make possible the objective cognition of mathematical-natural science, so too do they make possible the relational ordering that is fundamental for consciousness. The psychology of relations thus furthermore appeals to Cassirer insofar as he wants to highlight the way in which the basic *a priori* relations of transcendental logic serve as the foundation of both the objective and subjective correlates of cognition.

Having established why a psychology of relations is to be preferred over a psychology of elements, Cassirer then turns to considerations about the appropriate method for such a psychology. To this end, Cassirer draws on Natorp's general idea that psychology should be conducted in accordance with a "critical" method, which takes as its starting point the objective cognition we have in mathematical-natural science and then tries to de-

termine the psychic acts, processes, and operations that are the correlate of this objective cognition. More specifically, Cassirer claims that psychology should begin with a "cognitive-critical consideration" (*Erkenntniskritische Betrachtung*) about how cognition, on the objective level, "creates and constructs a meaningful system of propositions" (*SF*, 346). Proceeding on this basis, Cassirer claims psychology should then analyze the "concrete totality of... *productive functions*" in the consciousness of individuals that serve as the subjective correlate of this objective system of cognition (*SF*, 346). For Cassirer, then, the critical method of psychology is one that orients it toward identifying the concrete totality of productive functions in consciousness that serve as the subjective correlate of cognition.

Though he describes this method in critical terms, he by no means thinks that psychology should just be a form of transcendental philosophy; rather he indicates that the analysis of this concrete totality of productive functions is something that can be carried out in an experimental setting. Indeed, he praises recent experimentation being done on the psychic process of thought, which aims to clarify how "conceptual connections" are "represented for consciousness in peculiar categorial acts" (*SF*, 345). So his point about the critical method is not that all psychology should be transcendental, but rather that the experimentation and research involved in empirical psychology should be guided by the critical method to the extent that it takes its starting point from a critical conception of cognition and thus sets as its task the elucidation of the concrete totality of productive functions that allow the individual to grasp the objective truths of cognition.

At this point, however, the "Psychology of Relations" chapter comes to an end. Although Cassirer has clarified why a complete theory of cognition requires a psychology and why this psychology should be a psychology of relations conducted in accordance with the critical method, he still leaves unanswered

important questions like, what exactly these concrete productive functions are, what connection they have to the basic relations of transcendental logic, and how these functions and relations bear on the holistic structure of consciousness. By my lights, in order to answer these questions, we need to shift our attention away from *Substance and Function* and toward *The Philosophy of Symbolic Forms* for it is only in the latter context that he fills out this sketch of a psychology of relations by developing it into a full-blown psychology of culture.

4. Psychology in *The Philosophy of Symbolic Forms*

As is familiar to many, Cassirer presents the transition from *Substance and Function* to *The Philosophy of Symbolic Forms* as an effort to “broaden” his “theory of cognition” (*Erkenntnistheorie*): instead of focusing solely on the “general premises of scientific cognition [*Erkenntnis*] of the world,” Cassirer claims his new theory will also examine “the various fundamental forms of ‘understanding’ [*Verstehens*] of the world” that are involved in other cultural endeavors, i.e., in the other so-called “symbolic forms,” like myth, religion, language, and art (*PSFv1*, 69; translation modified). What shall be of particular interest to us about this project in what follows is how Cassirer modifies the framework in which he set up his psychology of relations in *Substance and Function*, viz., his account of transcendental logic and its relation to the objective and subjective dimensions of cognition, in order to establish a more mature version of the psychology of relations that can do justice to the lived consciousness of individuals embedded in a cultural world. To this end, we will begin with a discussion of Cassirer’s revised account of transcendental logic and its relation to the objective formations, i.e., the symbolic forms, of culture, before turning to an analysis of his psychology of culture.

4.1. Cassirer’s transcendental logic of culture

That Cassirer continues to endorse the Kantian conception of transcendental logic is indicated by his praise of it in the third volume of *The Philosophy of Symbolic Forms*:

One of the most important achievements of the *Critique of Pure Reason* is to have given the problem of the relation between concept and object an entirely new formulation . . . What made this development possible was that at just this point Kant took the decisive step from general logic to transcendental logic . . . The achievement [*Leistung*] of the concept now no longer appears as merely formal and analytical; it is a productive [*produktive*] and constructive [*aufbauende*] achievement . . . a presupposition of experience and hence a condition of the possibility of its objects. (*PSFv3*, 315; translation modified)

While Cassirer remains sympathetic to this conception of transcendental logic, he nevertheless also thinks we need to embrace a more encompassing conception of experience as something that reflects cultural experience more broadly, as it unfolds in myth, religion, art, and language, no less than in mathematics and natural science. When approached from the latter perspective, Cassirer’s transcendental logic ceases to be the logic of objective cognition and becomes, instead, the logic of *objective understanding*. And in order to mark this shift, Cassirer no longer refers to the understanding at issue in logic in terms of “pure thinking,” as Cohen and Natorp do, but rather in terms of “spirit” (*Geist*), as Hegel does.³⁷ We see this, for example, in

³⁷To this end, Cassirer praises Hegel’s conception of spirit in the Introduction to *PSFv1*: “More sharply than any thinker before him, Hegel presented the demand to think of the whole of spirit as a *concrete whole*,” a demand Cassirer clearly himself takes up in *The Philosophy of Symbolic Forms* (*PSFv1*, 83; translation modified). And Cassirer makes clear that his own “phenomenology” of the symbolic forms takes its cue from Hegel’s idea of the “phenomenology of spirit” (*PSFv2*, xv–xvi; *PSFv3*, xiv–xv). This being said, Cassirer is nevertheless critical of Hegel’s notion of spirit because he argues that Hegel offers a “reductive” analysis of spirit that “reduces [spirit’s] whole content and ca-

Cassirer's gloss of the different forms of understanding in terms of the "'morphology' [Formenlehre] of the spirit"; his claim that *The Philosophy of Symbolic Forms* is oriented towards myth, religion, mathematics, etc., as "fundamental configurations [Grundgestalten] of the 'objective spirit,'" and his stated goal as offering a "concrete view of the full objectivity of the spirit on the one hand and of its full subjectivity on the other" (PSFv1, 69; PSFv3, 49, translation modified; PSFv3, 57; in PSFv2, see, e.g., xiv–xv, 3, 11, 14, 25–26). Accordingly, in *The Philosophy of Symbolic Forms*, Cassirer transforms transcendental logic into the science of the understanding of spirit, which makes objective experience across all the symbolic forms of culture possible.

In spite of this reorientation, however, Cassirer continues to emphasize the synthetic and constructive aspects of the understanding familiar from his earlier account of transcendental logic. Beginning with synthesis, Cassirer claims:

There is no true understanding of the world [Weltverständnis] which is not thus based on certain fundamental lines . . . of spiritual formation [geistigen Formung]. . . Certain concepts—such as those of number, time, and space—represent, as it were original forms [Urformen] of synthesis, which are indispensable wherever a "multiplicity" is to be taken together in a "unity;" wherever a manifold is to be broken down [abgeteilt] and articulated [gegliedert] according to determinate configurations [Gestalten]. (PSFv3, 13; translation modified)

In this passage, not only do we find Cassirer emphasizing the synthetic nature of the understanding of spirit, but also we see

capacity to a single dimension," viz., to logic/absolute knowledge (PSFv1, 84). By Cassirer's lights, such a view fails to respect the "autonomy" of the other symbolic forms, like myth and art, from mathematical-natural science (PSFv1, 83). Elsewhere, Cassirer criticizes Hegel for defending a deterministic picture of absolute spirit, according to which we could "deduce" the progress of culture as a "necessary sequence" that follows from the metaphysical nature of absolute mind (CIPC, 89–90). Cassirer rejects this view of spirit because he thinks there is no guarantee of progress in culture, as evidenced, he suggests, by the regression involved in the rise of fascism and totalitarianism in the 20th century (see Cassirer 1946, esp. 297–98).

a reprisal of his theory of the categories from *Substance and Function* qua the basic relations, like "space," "time," "number," "thing," and "cause," that make synthesis possible.³⁸ To be sure, he modifies the list of categories from *Substance and Function*, replacing the more specific mathematical-scientific formulation of the categories with a more generic one here, e.g., the specific category of "magnitude" becomes the more generic category of "thing" and the specific category of the "functional dependency of magnitudes" becomes the more generic category of "cause." However, he remains committed to his earlier conception of the categories as basic invariant relations of the understanding that make synthesis possible.

Indeed, in *The Philosophy of Symbolic Forms* Cassirer glosses the invariance of the basic relations of spirit along the same two lines he glossed the invariance of the categories in *Substance and Function*. To begin, as before, Cassirer treats these basic relations of spirit as invariant in the sense that they serve as the *conditions of cultural* experience. As he puts it, these relations of the spirit serve as the "conditions of connectedness [Verknüpfbarkeit], of spiritual combination [Zusammenfassung], and of spiritual presentation [Darstellung] in general," which make possible the activities involved in any symbolic form (PSFv1, 97, translation modified).

Moreover, just as in *Substance and Function*, Cassirer claims that what allows these basic relations of spirit to play a ubiquitous role across the symbolic forms is their *flexibility*. To this end, he claims that each basic relation of spirit has both a "quality" that remains fixed and a "modality" that varies (PSFv1, 95). By the "quality" of a relation, Cassirer has in mind the "particular type of combination by means of which it creates series," e.g., the quality of space is juxtaposition, time is succession, thing involves being a bearer of properties, cause involves "origin," etc. (PSFv1, 95–96). So understood, the quality of the relations maps

³⁸He adds "thing," "attribute" and "cause" to this list at PSFv1, 94.

onto what Cassirer earlier called the “meaning” of the categories in *Substance and Function*. And he maintains that the quality of the relation is something that remains the same regardless of the specific “modality” that it takes on in each of the symbolic forms:

If we designate the various kinds of relation—such as relation of space, time, causality, etc.—as R_1, R_2, R_3 , we must assign to each one a special “index of modality,” μ_1, μ_2, μ_3 , denoting the context of function and meaning in which it is to be taken. For each of these contexts language as well as scientific cognition, art as well as myth, possesses its own constitutive principle which sets its stamp, as it were, on all the particular forms within it. (*PSFv3*, 97)³⁹

In his analysis of the basic relations of spirit, then, Cassirer, on the one hand, maintains that the quality of the basic relations will remain constant across all symbolic forms, providing the basic pattern in accordance with which myth, language, art, natural science, etc., organize and order phenomena in meaningful ways, while, on the other hand, claiming that each of these symbolic forms will put their own “stamp” on these relations in accordance with their unique principles. For example, Cassirer suggests that although the relation of space will retain the same quality of juxtaposition through all symbolic forms, in mathematics and natural science, juxtaposition is cashed out through “geometrical theorems and axioms,” whereas in art the juxtaposition is characterized in terms of a “perceptual, emotional unity” (*PSFv1*, 96).⁴⁰ In this way, he updates his earlier account

³⁹Cassirer also discusses the “modality” or “tonality” of the relations at (*PSFv2*, 60–61; *PSFv3*, 13).

⁴⁰For further discussion of this point about space, see (*PSFv3*, 422–24) and “Mythic, Aesthetic, and Theoretic Space” (1931). Meanwhile for a broader discussion of this point, see (*PSFv1*, chap. 3, secs. 1–3) for an analysis of the modality of space, time, and number in language; (*PSFv2*, part 3, chaps. 1 and 3) for an analysis of cause, space, time, and number; and (*PSFv3*, part 3, chaps. 3–5) for an analysis of the modality of these relations in mathematics and natural science.

of the flexibility of the categories in *Substance and Function* in order to reflect the flexibility of the basic relations of spirit.

In *The Philosophy of Symbolic Forms*, then, Cassirer’s transcendental logic retains the commitment to the Marburg account of the synthetic nature of the understanding and the centrality of the categories to its synthetic activities; however, he revises this view in order to reflect the ways in which this understanding shapes the broader cultural unfolding of spirit. And this updated analysis of synthesis, in turn, shapes Cassirer’s account of the constructive nature of the synthetic activity of understanding.

To this end, Cassirer again affirms his commitment to Kant’s constructive conception of objects as what correspond to the “synthetic unity of understanding,” but he now extends this analysis to cover the understanding of spirit (*PSFv1*, 78). He, indeed, analyzes the constructive dimensions of the synthetic activity of spirit in two veins. To begin, he claims that the spirit, in general, makes possible the “determinate configuration [*Gestaltung*]” of the cultural world as “an objective context of meaning [*Sinnszusammenhang*] and an objective intuitive-whole [*Anschauungsganzen*]” (*PSFv1*, 80; translation modified). However, in addition to making the cultural world possible, he maintains that the activity of the spirit also gives rise to the “determinate domain of objects [*Gegenstandsbereich*]” that belong to each symbolic form, e.g., the domain of religious, aesthetic, or mathematical-scientific objects (*PSFv1*, 80; translation modified). In this way, Cassirer continues to analyze the understanding at issue in transcendental logic in constructive terms.

In the end, then, in *The Philosophy of Symbolic Forms* Cassirer defends an enriched account of transcendental logic as the science of the understanding of the spirit, an understanding that involves synthetic, constructive activities grounded in basic relations or categories and that makes possible the objective activities of the symbolic forms.

4.2. The reconstructive method

Like in *Substance and Function*, it is in relation to this more encompassing picture of transcendental logic and the objective activities of the spirit that Cassirer then presents his account of the psychology of culture. In order to explore his view, I want to look first at his method for psychology and then analyze the new version of the psychology of relations he develops with this method.

By my lights, as important as adopting the wider cultural lens is for Cassirer's development of his psychology of culture, no less important for this project is his appropriation of Natorp's reconstructive method. For whereas in *Substance and Function* Cassirer orients his psychology around a very general conception of Natorp's critical method, in *The Philosophy of Symbolic Forms* Cassirer explicitly embraces Natorp's specific formulation of the reconstructive method and this, I submit, enables Cassirer to offer a more thoroughgoing account of the psychology of relations.

Cassirer makes his commitment to Natorp's reconstructive method clear in the chapter titled "Subjective and Objective Analysis" in the third volume (*PSFv3*, 45–57).⁴¹ There, Cassirer begins with an extended presentation of Natorp's views. To this end, he highlights Natorp's description of the target of psychology as the "immediate being and life of consciousness as such," i.e., consciousness in which phenomena appear to the "perceptive, intuitive, or thinking I" (*PSFv3*, 52–53; translation modified). He moreover reminds us of Natorp's argument that in order to access consciousness in this sense, psychology cannot rely on a method that "imitates" the "method of empirical observation and exact measurement" in natural science because consciousness is not an object, but rather the correlate of objectivity (*PSFv3*, 51–52; translation modified). Cassirer then re-

⁴¹Cassirer also discusses Natorp's theory of psychology explicitly in (*PSFv4*, 56–56, 149–50) and "Paul Natorp" (*1925a*, 280–86).

hearses Natorp's claim that we must accordingly develop two different methods for studying these objective and subjective correlates: a "constructive" method for the objective ("plus") direction, which studies the "constructive effort of mathematics and natural science, and of ethics and aesthetics," and a "reconstructive" method for the subjective ("minus") direction, which attempts to "indirectly" study consciousness by "unraveling" these forms of objectivization into their "concentration" in lived consciousness (*PSFv3*, 53–54).

After presenting Natorp's view, Cassirer then endorses it:

If we [i.e., in the *Philosophy of Symbolic Forms*] are to gain a concrete view of the full objectivity of the spirit on the one and of its full subjectivity on the other, we must seek to carry out the methodological correlation, which Natorp sets forth in principle, in every field of spiritual endeavor. (*PSFv3*, 57)

As we see here, Cassirer thus agrees with Natorp that there is a correlation between the objective manifestations of spirit in the symbolic forms and the subjective manifestation of it in the psychic act, processes, and operations in individuals, and that a double-method is needed to analyze each correlate. Admittedly, Cassirer is critical of what he takes to be an overly scientific approach to these matters in Natorp; nevertheless, he takes over Natorp's methodology as his preferred means for studying spirit as a whole.⁴²

Furthermore, it is in within this framework that Cassirer lays out his program for a psychology of culture:

Our inquiry . . . aspires to find its way back to the primary subjective sources, the original attitudes and modes of configuration

⁴²Cassirer charges Natorp with having an overly scientific view because he thinks Natorp reduces the conditions of the possibility of all symbolic forms to the scientific concept of "law," when, in fact, it is the more encompassing notion of "form" that should be employed (*PSFv3*, 56). He also criticizes Natorp for neglecting other important cultural regions, like myth and language, alongside the Kantian trio of mathematical-natural science, ethics, and art (*PSFv3*, 56–57).

[*Gestaltungsweisen*] of consciousness. It is from this perspective that we now approach our question of the structure of the perceptive, intuitive, and cognitive consciousness. We shall attempt to elucidate it without surrendering to the method . . . of scientific, causal-explicative psychology . . . We start rather from the problems of the objective spirit, from the formation in which it consists and exists; however, we shall not stop with them as a mere fact; we shall attempt by means of reconstructive analysis to find our way back to their . . . “conditions of possibility.” (*PSFv3*, 57; translation modified)

By employing the reconstructive method, Cassirer indicates that his psychology of culture will take as its starting point the objective formations of spirit, i.e., the symbolic forms, and then seek to clarify their subjective correlates, i.e., the original “attitudes,” “modes,” and “structures” in “perceptive, intuitive, and cognitive consciousness.” This being said, Cassirer does not intend his own analysis of these attitudes, modes, and structures of consciousness to exhaust the psychology of culture. Indeed, like Natorp, Cassirer thinks much more needs to be done in empirical psychology in order to clarify consciousness along these lines. In fact, to this end, in the third volume of *The Philosophy of Symbolic Forms*, he includes a lengthy chapter, “Toward a Pathology of the Symbolic Consciousness,” in which he considers how research on pathological disorders like aphasia, apraxia, and agnosia, conducted by psychologist like Henry Head, Adhémar Gelb, and Kurt Goldstein can affect the individual’s perceptual, intuitive, and cognitive experience (*PSFv3*, 205–77).⁴³ So for Cassirer although psychology should be oriented by the reconstructive method in general, this is not to the exclusion of empirical research; rather he thinks that this empirical research needs to be grounded in the reconstructive method.

As for his own contribution to the psychology of culture, how-

⁴³Goldstein was, in fact, Cassirer’s cousin and Cassirer spent time with patients at Goldstein’s Institute for Brain Injured Patients in the 1920s; see Andersch (2015).

ever, as we shall see, Cassirer ultimately traces the attitudes, modes, and structures of perceptual, intuitive, and cognitive consciousness back to a set of underlying “functions” of consciousness; thus setting up his psychology of culture as an analysis of the functions of consciousness. Now, this move should sound familiar insofar as it echoes his earlier claim in *Substance and Function* that psychology should study the concrete totality of the productive functions of consciousness (*SF*, 346). Yet, unlike in *Substance and Function*, I hope to show that using the reconstructive method puts Cassirer in a position to offer not only a more detailed analysis of this concrete totality of functions, but also an account of their connection to the basic relations of spirit. It is on this basis that Cassirer is able to better fulfill the demand for the psychology of relations that he issued in 1910; however, in so doing, Cassirer defends a broader psychology of relations than he originally envisioned, one that assigns the psychology of mathematics and natural science a place within the system of the psychology of culture as a whole. It is to this more encompassing psychology of relations that we shall now turn.

4.3. Consciousness in general and the function of representation

In his psychology of culture, Cassirer approaches the subjective dimension of spirit from two perspectives: a *general* perspective that considers consciousness in general as the correlate of the symbolic forms in general, which we shall consider in this section, and a *specific* perspective that considers the specific modes of consciousness that are the correlate of the specific symbolic forms, which we shall discuss in the following section.

Beginning with the general perspective, following the reconstructive method, Cassirer takes his cue from the nature of the symbolic forms in general. In this vein, he argues that what all the symbolic forms share in common is that they involve objec-

tive, constructive activities of spirit by means of which an “appearance [Erscheinung] receives a determinate ‘meaning’ [Bedeutung], a particular ideal content [ideellen Gehalt]” (PSFv1, 78).⁴⁴ For example, in myth, a lightning bolt becomes the appearance of the god’s anger; in art, brushstrokes on a canvas becomes the appearance of haystacks; in mathematics, a three-sided enclosed figure becomes the appearance of an equilateral triangle. However, as we saw above, for Cassirer, these meaning-giving activities are ultimately made possible by the synthetic activity of the understanding of spirit, which synthesizes manifolds in light of the basic relations, like space, time, number, cause, thing, etc. For Cassirer, then, the first task of his psychology of culture consciousness is to reconstruct consciousness in general as the subjective correlate of this objective, relation-guided activity of spirit in general that enables appearances to take on meaning in the symbolic forms as such.

Cassirer offers a reconstruction of consciousness in general along these lines in Section Three of the Introduction of the first volume, “The Problem of ‘Representation’ [Repräsentation] and the Structure of Consciousness” (PSFv1, 93–105).⁴⁵ In order to clarify the view of consciousness he defends there, I want to start with an account of the continuity of this view with his earlier analysis of consciousness in *Substance and Function* and then examine how he augments his earlier position by means of an analysis of the “function of representation,”⁴⁶

⁴⁴As he makes this point a few pages later, they all involve a process by means of which “a finite and particular sensory content [Einzelinhalt] is made into the vehicle [Träger] of a general spiritual ‘meaning’ [Bedeutung]” (PSFv1, 93).

⁴⁵Cassirer reprises some of the basic themes concerning the connection between consciousness and representation at (PSFv3, 202–04).

⁴⁶It is worth nothing that this original function of representation is not to be confused with the more specific *Darstellungsfunktion* that we will discuss below, a confusion that is tempting given that Manheim translates the latter as the “function of representation” as well. To avoid this confusion, I shall translate *Darstellungsfunktion* as “presentation function.”

In *The Philosophy of Symbolic Forms*, as in *Substance and Function*, Cassirer rejects atomistic views of consciousness in favor of a holistic, relation-based view. Emphasizing the holistic nature of consciousness, Cassirer claims:

[T]he unity of the matter and form of consciousness, of the “particular” and the “universal,” of sensory “data” and pure “principles of order,” constitutes precisely that originally certain and originally cognized [ursprüngliche-gewisse und ursprüngliche-bekannt] phenomenon which every analysis of consciousness must take as its point of departure. (PSFv1, 104; translation modified)

In this same vein, he says, “from the very start, ‘content’ [Inhalt] and ‘form,’ ‘element’ and ‘relation’ are conceived not as terms independent of one another, but as concurrent and mutually determining one another” (PSFv1, 98). As in *Substance and Function*, then, Cassirer maintains that consciousness is not something that involves separable contents and relations (matter and form), but rather is holistic in the sense that it, at the most fundamental level, involves contents and relations that are reciprocally related. Indeed, in order to emphasize this reciprocity, Cassirer draws on his earlier account of series from *Substance and Function*. To this end, he claims that the forms and contents of consciousness stand in a serial relation to one another, with the forms of consciousness serving as the serial principles, the purpose of which is to order and organize the contents of consciousness, and the contents of consciousness as serial members that are able to exist as they do only by being so-ordered (see PSFv1, 95, 98, 99).⁴⁷

⁴⁷As Cassirer describes this reciprocity in *Substance and Function*:

Here no insuperable gap can arise between the “universal” and the “particular,” for the universal itself has no other meaning and purpose than to represent and to render possible the connection and order of the particular itself. If we regard the particular as a serial member and the universal as a serial principle, it is at once clear that the two moments, without going over into each other and in any way being confused, still refer throughout in

In addition to defending a holistic view of consciousness, as was the case in *Substance and Function*, Cassirer continues to emphasize the foundational role that relations play in consciousness. Indeed, in the same spirit as he opened the “Psychology of Relations” chapter, he orients his discussion of consciousness in *The Philosophy of Symbolic Forms* around the claim that consciousness is grounded in the totality of the basic *a priori* relations of spirit:

If we attempt a broad initial survey of the basic relations which constitute the unity of consciousness, our attention is first drawn to certain mutually independent “modes” [Weisen] of combination [Verknüpfung]. The factor of “juxtaposition” as it appears in the form of *space*, the factor of succession as in the form of *time*—the combination of existing determinations [Seinsbestimmungen] in such a way that one is apprehended as a “thing,” the other as an “attribute,” or of successive events in such a way that one appears as a *cause* of the other: all these are examples of such original types of relation. (PSFv1, 94; translation modified)⁴⁸

Similarly to *Substance and Function*, then, Cassirer here claims that the basic relations of the spirit, which are analyzed in transcendental logic, are what orient consciousness in unifying contents together into holistic manifolds. Indeed, he describes these relations as . . .

. . . the formal moments [Formmomente] which can never be reduced to mere contents but which form the constitutive presuppositions [Voraussetzungen] through which alone content, as determinate

their capacity [Leistung] to each other. (SF, 224; translation modified; see also SF, 26)

⁴⁸Cassirer does not intend this list of basic relations to be exhaustive; indeed, noticeably absent from it is the relation of “number,” which he mentions elsewhere as a basic relation (e.g., PSFv3, 13; PSFv2, 79; SF, 309; ETR, 420, 445), and which is also one of the relations that Cassirer traces throughout myth and religion (PSFv2, 140–01), language (PSFv1, 226–49), and mathematics and natural science (PSFv3, 341–45).

content [bestimmter Inhalt], can be “given” to us. (PSFv3, 426; translation modified)⁴⁹

As we see here, on his view, it is only if consciousness synthesizes and unifies the psychic manifold in light of the basic relations of spirit that there can be any content for consciousness at all.

Given that Cassirer thus remains committed to his earlier holistic, relation-based account of consciousness, I think we have reason to describe his psychology of culture as a psychology of relations. Admittedly, in *The Philosophy of Symbolic Forms*, Cassirer does not apply this label (or any label for that matter) to his psychology. However, he defines the psychology of relations as one that embraces not an atomistic view of consciousness, but rather a holistic, relation-based view; that grounds consciousness in the basic *a priori* relations analyzed in transcendental logic; and that adheres to the critical method. And, as we have seen, his psychology of culture meets these criteria. This being the case, I submit that we should conceive of his psychology of culture as a more mature version of his psychology of relations.

While this analysis of consciousness and psychology so far dovetails in large part with his account in *Substance and Function*, what he adds in *The Philosophy of Symbolic Forms* is an analysis of consciousness in terms of the “original function of representation” (*Repräsentation*) (PSFv1, 99).⁵⁰ Indeed, he maintains that this function is responsible for the “structure” (*Aufbau*) and “formal unity” (*Formeinheit*) of consciousness in general (PSFv1, 105; translation modified). Representation, thus, appears to hold the key to clarifying many of the details lacking in Cassirer’s account of consciousness in *Substance and Function*, specifically those pertaining to the holistic structure of consciousness and the role basic relations play in it.

⁴⁹See also (PSFv1, 102–03) for his criticism of the psychology of sensations.

⁵⁰Cassirer does discuss representation at some length in *Substance and Function*; however, he does so not in the context of analyzing individual consciousness, but rather in the context of discussing how one “phase of experience” in the mathematical-scientific sense can represent another phase (SF, 282–85).

Cassirer's account of representation, however, is complex. Often, when we discuss the representational nature of consciousness what we have in mind is the way in which consciousness refers to something else, e.g., the way in which my current mental state represents the palm tree outside my window. Although Cassirer eventually connects his account of representation to this more familiar view, he starts by analyzing representation in terms of a relation that obtains between the different moments of consciousness. Here, for example, he claims that the representation relation is one that holds between the contents of consciousness:

[R]epresentation of one content [*eines Inhalts*] in and through another, should be recognized as an essential presupposition [*Voraussetzung*] for the structure [*Aufbau*] of consciousness itself and as a condition of its own formal unity [*Formeinheit*]. (*PSFv1*, 105; translation modified)

Similarly, he describes representation as "every instance where one element of consciousness [*Bewußtseinselementes*] is represented in and through another" (*PSFv1*, 102). Meanwhile, elsewhere, he suggests representation is a relation that holds between the contents and whole of consciousness:

[W]hat defines each particular being [*Sein*] of consciousness is that in it the whole of consciousness is in some form co-positd [*mit-gesetzt*] and represented. Only in and through this *representation* does what we call the "presence" of the content become possible. (*PSFv1*, 99; translation modified)

What then is Cassirer's view of the function of representation insofar as it makes possible not only representation internal to the structure of consciousness, but also between consciousness and what it represents beyond itself?

Let's begin with how the function of representation makes possible the representational connections internal to consciousness. On his view, the function of representation structures and

unifies the contents of consciousness in such a way that allows them to represent not only one another, but also consciousness in a more holistic way, and he claims that it is able to do so insofar as it is guided by the basic relations of spirit. Turning, first, to how this works in the case of the representational connection between contents of consciousness, Cassirer claims, "every particular content of consciousness is situated in a network of diverse relations, by virtue of which [it] . . . contain[s] *reference* [*Hinweis*] to other and still other contents" (*PSFv1*, 106). On Cassirer's view, then, the basic relations of spirit guide consciousness in the synthesis of its contents and this enables consciousness to form "networks" (or series) in which those contents refer to, hence represent one another. In the case of time, for example, Cassirer claims that consciousness, oriented by the basic relation of time, synthesizes together the "now" content of consciousness together with all the other temporal contents into a temporal network (a time series) in such a way that enables that "now" content to refer to or represent the other temporal contents (*PSFv1*, 98). In this case, then, the function of representation orients consciousness toward synthesizing manifolds in light of the basic relations in such a way that allows the contents of those manifolds to represent one another.

However, as was mentioned above, on Cassirer's account of the representation internal to consciousness, the contents refer not just to one another, but also to the whole of consciousness. He maintains that this takes place at two levels. On the first level, Cassirer takes the contents of consciousness to refer to the whole relationally ordered network or series in consciousness that reflects each basic relation of spirit. The "now" content, e.g., refers to the whole time series in consciousness, the "here" content refers to the whole spatial order in consciousness, etc. On the second level, Cassirer maintains that the contents of consciousness refer to consciousness as a whole. His argument for this point stems from his conception of the unity of consciousness. For, on his view, consciousness as a whole is something that

unifies together all the basic relations and the series that they generate. To make this point, he describes consciousness as a whole as an “integral” that combines together the “differential” relations and their accompanying series:

The “integral” of consciousness is constructed not from the sum of its sensuous elements ($a, b, c, d \dots$), but from the totality [*Gesamtheit*], as it were, of its differentials of relations and form ($dr_1, dr_2, dr_3 \dots$). (*PSFv1*, 105)⁵¹

Given that the contents of consciousness refer to the relations and series in which they are situated, then they will also refer to the whole of consciousness insofar as it integrates those differential relations and accompanying series. In both of these ways, the function of representation orients consciousness toward synthesizing its contents together with whole relationally ordered series and the whole of consciousness, in such a way that allows those contents to represent those wholes.

Cassirer’s account of the function of representation as it bears on the structure and unity internal to consciousness thus sheds light on his earlier account of consciousness from *Substance and Function* in two ways. To begin, he now clarifies that it is the function of representation that is responsible for the holistic structure of consciousness in general insofar as it orients consciousness, at the most fundamental level, toward combining together contents and relations into wholes that are unified by means of representational connections. Moreover, he indicates that the basic relations of spirit play a role in this process by guiding consciousness in how it synthesizes together what is internal to consciousness along representational lines.

⁵¹As we might render this point, for Cassirer, consciousness as a whole is a “system” (S) that integrates all the individual series determined through particular relations ($R_1, R_2, R_3 \dots$) together with the contents they order (a, b, c, d) (*PSFv1*, 103). Thus we could think of Cassirer’s conception of the unity of consciousness along the following lines: $S(R_1(a, b, c, d \dots), R_2(a, b, c, d \dots), R_3(a, b, c, d \dots) \dots)$.

However, in addition to these clarifications, Cassirer further adds to his analysis of consciousness from *Substance and Function* an account of how the function of representation enables consciousness to represent what stands over and against it. To this end, Cassirer draws once again on the notions of synthesis and relations, arguing that within the unified structure of consciousness, it is possible to synthesize and relate different contents together in such a way that corresponds to the “objective unity of the object” (*PSFv1*, 99). Recall that, on the Kantian view, in order for thinking to relate to objects, it must bring about the requisite unity in the manifold, and this is something that Cassirer thinks applies at the level of the objective formations of spirit, no less than at the level of individual psyches. Thus, on Cassirer’s view, in order for consciousness to form a representation of an object, it must synthesize together the contents that belong together and separate off the ones that do not belong. For example, in order for me to represent a palm tree, my consciousness must synthesize together the tree-contents, e.g., those relating to the spindly shape of its trunk, the green color of its leaves, the sound of its fronds as they rustle in the breeze, and distinguish them from the non-tree-contents, e.g., those relating to the grass, sky, or birds outside my window. Although Cassirer thinks that this process is something that must ultimately involve empirical concepts, he identifies as a necessary (if not sufficient) condition of this process that consciousness be guided by the basic relations of spirit. For, on his view, it is these relations, these categories, that make object-related thinking even in the individual possible because they enable consciousness to bring about the synthesis, organization, and order of the manifold required in order for it to amount to a representation of an object.

For Cassirer, then, the original function of representation is something that not only accounts for the holistic, relation-based structure of consciousness, but also allows consciousness to represent things which stand over and against it. In this way, Cas-

sirer fills out his earlier analysis of consciousness from *Substance and Function* insofar as he now makes it clear that the holistic, relation-based structure of consciousness is something that is ultimately oriented around and grounded in the function of representation. Cassirer's analysis of the function of representation as it bears on consciousness in general is thus an important first step toward filling out the psychology of relations meant to clarify the subjective dimensions of culture.

4.4. The specific functions of consciousness

Yet though Cassirer thinks that consciousness in general is grounded in the function of representation, his psychology of culture in *The Philosophy of Symbolic Forms* does not stop there; he thinks that the reconstructive method leads us to recognize that there are more specific modes and functions of representation in consciousness that must also be accounted for. Thus with this second phase of his cultural psychology of relations, Cassirer seeks to reconstruct the more specific subjective correlates of the specific symbolic forms.

In particular, Cassirer claims that if we take as our starting point an analysis of the different objective activities involved in the symbolic forms, then we will find that there are specific patterns of understanding of spirit that shapes each of them and that reflects the unique "modality" that the basic relations take on in the context of each form. In myth and religion, for example, he claims that the relevant mode of spiritual understanding is one that is dominated by the feeling of "sacred" and "profane," a feeling that gives the basic relations of space, time, number, cause, etc., a distinctive affective stamp (see *PSFv2*, chaps. 1–2, §§1–5). Meanwhile language and art, on his view, employ a more objective mode of spiritual understanding and objective modality for the relations that allow them to construct objects, e.g., words, sentences, or works of art, that present the spatiotem-

poral world to us as something that is stable and constant.⁵² Finally, he maintains that the understanding at issue in mathematics and natural science is a more abstract one that is oriented away from the accidents of subjectivity and the spatiotemporal world in general and towards the construction of ideal universal and necessary relations, and that in this framework, the basic relations take on a more ideal modality, as reflective of ideal functions, principles, and law.⁵³

Guided by the reconstructive method, Cassirer then seeks to clarify the specific kinds of consciousness that are the correlate of these specific objective modes of spiritual understanding. To this end, he argues there are three more specific modes and functions of lived consciousness: perceptive (*wahrnehmend*) consciousness that is shaped by the expressive function (*Ausdrucksfunktion*), intuitive (*anschauend*) consciousness that is shaped by the presentation function (*Darstellungsfunktion*), and cognitive (*erkennend*) consciousness that is shaped by the significative function (*Bedeutungsfunktion*).⁵⁴ On his view, each of these functions and modes involve a more specific way in which the individual is able to represent phenomena in meaningful ways in consciousness.

⁵²For Cassirer's alignment of art with the kind of presentation involved in language, see (*PSFv4*, 78) and (*EM*, 142).

⁵³Indeed, he claims that the "most essential difference" about mathematics and science from the other symbolic forms is that "even in [their] earliest stage, [they have] surpassed the world of expression" (*PSFv3*, 451). Cassirer takes the relationship mathematics and natural science have to intuition presentation to be more complicated, arguing that in its initial phases (in its "mimetic" and "analogical" phases), natural science "clings to representation"; however, in its most advanced ("symbolic") phase, e.g., in relativity and quantum mechanics, it leaves behind the need for intuitive presentation altogether (*PSFv3*, 451).

⁵⁴Cassirer organizes the third volume of *The Philosophy of Symbolic Forms* around these three modes and functions: dedicating Part One to "The Expressive Function and the World of Expression"; Part Two to "The Problem of Representation [*Repräsentation*] and the Construction [*Aufbau*] of the Intuitive World" (where by "representation" he has in mind *Darstellung*); and Part Three to "The Function of Signification and the Construction [*Aufbau*] of Scientific Cognition [*Erkenntnis*]" (translation modified).

In more detail, Cassirer claims that the expressive function makes it possible for individuals to represent phenomena in psychic consciousness in “affective” and “subjective” terms, i.e., as possessing some sort of emotional or “physiognomic” meaning (PSFv3, 68). For example, it is through the expressive function that I see a horse’s face as wise or a friend’s face as outraged. Indeed, Cassirer thinks that it is by means of the expressive function that we come to see others as persons at all (see PSFv3, 79). Cassirer labels this way of representing phenomena in lived consciousness “expressive-perception” (*Ausdruckswahrnehmung*) or “thou-perception” (*Du-Wahrnehmung*) (see PSFv3, 74, 78–80, 123).

Meanwhile he maintains that the presentation function allows individuals to represent phenomena in “objective” terms, i.e., as belonging to an objective spatiotemporal world that stands over and against subjects. He often illustrates the presentation function with the example of perceptual constancy: even though when I look at the palm tree outside my window, my subjective perspective conditions how the tree appears, I nevertheless see the tree as a constant object with constant properties that is independent from me.⁵⁵ He labels this psychological mode of representing phenomena “intuition” (*Anschauung*) (see PSFv3, 79, 117).

Finally, for Cassirer, the significative function paves the way for the individual to represent pure meanings, like ideal concepts, laws, or principles, in consciousness. This function enables me, for example, to look at a wavy line as signifying the sine function or the behavior of gas in an experiment as signifying Boyle’s law. He claims that it is this way of representing things that is responsible for “cognition” (*Erkenntnis*) qua what can be had on the individual level.

⁵⁵Though this is a guiding theme of his treatment of the presentation function in PSFv3, he makes this point about perceptual constancy in “Language and the Construction of the World of Objects” (1932a).

Cassirer’s application of the reconstructive method to consciousness as the correlate of the objective formations of culture thus leads him not only to an analysis of the original function of representation as the ground of consciousness in general, but also to these three more specific functions as the ground of perceptive, intuitive, and cognitive consciousness. And in this way he fills out and qualifies many of the details of his psychology of relations from *Substance and Function*. To begin, whereas his psychology in *Substance and Function* was only able to gesture towards the “concrete totality of productive functions” of consciousness, in *The Philosophy of Symbolic Forms* his broader cultural perspective, along with his adoption of Natorp’s reconstructive method, enable him to offer a psychology that involves a complete account of what those functions are. This, in turn, allows him to shed more specific light not only on his view of the holistic structure of consciousness, but also on the connection between the basic *a priori* relations or categories of understanding at issue in transcendental logic and the psychic activity of consciousness.

However, I suggested that he also qualifies his view in *Substance and Function* insofar as he revises his earlier analysis of the psychology of relations as something that is exhausted by the psychology of mathematics and natural science and defends, instead, a more encompassing view of the psychology of relations as reflective of culture. Indeed, when seen from the perspective of the psychology of culture, the psychology of relations that he defends in *Substance and Function* appears to capture just one sphere within consciousness, viz., the sphere that pertains to the cognitive activities grounded in the significative function. Accordingly, the account of consciousness he gives in *Substance and Function*, according to which it involves acts that are directed on and bring to consciousness objective truths or objective content, is valuable for elucidating one specific activity in consciousness. However, I take one of Cassirer’s advances in *The Philosophy of*

Symbolic Forms to be the recognition that the psychology of relations needs to also account for the perceptual activities grounded in the expressive function and the intuitive activities grounded in the presentation function. Thus in order to meet his own demand for a psychology of relations that will do justice to the subjective correlate of understanding, Cassirer comes to treat the psychology of mathematics and natural science as but one moment in the psychology of culture as a whole.

5. Conclusion: Toward a Theory of the *A Priori*

In this paper, we have followed the development of Cassirer's psychology of relations from his initial formulation of it in *Substance and Function* into his more mature account of psychology in *The Philosophy of Symbolic Forms*. In so doing, we found that Cassirer follows in the footsteps of his Marburg mentors, on the one hand, criticizing psychologistic attempts to ground logic in psychology, while, on the other hand, recognizing the value, indeed, need for psychology as part of critical philosophy. However, we saw Cassirer pursue this project from his own perspective, ultimately defending a transcendental logic and psychology that can account for the unfolding of the understanding of spirit as it shapes the cultural world and our cultural lives.

As much as this analysis of the psychology of culture sheds light on Cassirer's account of the symbolic forms, it also informs our understanding of his account of mathematics and natural science in significant ways. Indeed, when approached solely through the lens of the first two-thirds of *Substance and Function*, our grasp of Cassirer's view of mathematics and natural science will remain incomplete: not only will we fail to appreciate the fact that he thinks that we owe a psychology of mathematics and natural science alongside an objective analysis of them, but also we will remain inattentive to the systematic place this fuller account of mathematics and natural science has within his broader

theory of culture. By way of conclusion, I wish to suggest that the gains made in this direction are not isolated, but rather point toward others that can be made in our analysis of his philosophy of mathematics and natural science if pursued through the lens of his theory of culture.

In order to begin trying to make good on this suggestion, in what remains, I want to explore the way in which the broad cultural considerations explored in this paper shed light on one of the most contentious issues that arises in the interpretation of Cassirer's view of mathematics and natural science, viz., his theory of the *a priori*. At issue in this debate is which kind or kinds of *a priori* Cassirer allows into his account of mathematics and natural science. To this end, commentators debate, in one vein, whether Cassirer conceives of the *a priori* in *constitutive* or *regulative* terms, i.e., whether it constitutes the objects of or merely regulates the procedures in mathematics and natural science. As Cassirer himself articulates this contrast, whereas constitutive concepts are ones that "determine and anticipate what is given in the *object*," regulative concepts "contain only a prescription as to what *we* are to do" in our investigation of objects (KLT, 206; my emphasis). While commentators like Ryckman and Heis attribute to Cassirer a view that includes both regulative and constitutive elements, others like Friedman and Ferrari argue that he defends only a regulative picture (Ryckman 2005, 46; Heis 2014, §2; Friedman 2000, 117, 123; Ferrari 2012). In a second vein, disagreement arises with respect to whether Cassirer thinks of the *a priori* in *absolute* or *relativized* terms, where this contrast is understood in terms of the difference between an *a priori* that is absolute in the sense that it is fixed for all time and one that is relative in the sense that it changes from theory to theory. While some commentators, like Richardson, Ryckman, and Ferrari suggest that Cassirer anticipates Reichenbach's conception of the relativized *a priori*, others, like Heis, claim that his view contains both relativized and absolute elements (Richard-

son 1998, chap. 5; Ryckman 2005, chap. 2; Ferrari 2012, 2015, 272–77; Heis 2014, §2).

Though I do not here hope to settle all of these debates, in what follows, I argue that if we situate Cassirer's account of mathematics and natural science within the framework of the logic and psychology of culture we have explored in this paper, then we will find that he acknowledges at least one set of constitutive, absolute *a priori* relations, viz., the categories qua the basic *a priori* relations of the understanding clarified by transcendental logic. More specifically, since I take his considered view of transcendental logic to be the one he offers in *The Philosophy of Symbolic Forms*, the categories I have in mind are the basic *a priori* relations of spirit, like space, time, number, cause, and thing, which ground the objective and subjective dimensions of not just mathematics and natural science, but culture as a whole.

On my reading, the absolute status of these categories follows from Cassirer's analysis of them as *invariants*. For, as we saw in both *Substance and Function* and *The Philosophy of Symbolic Forms*, Cassirer emphasizes these relations because he takes them to be the invariant relations that make experience at multiple levels possible. Indeed, we have seen him argue that these categories are the invariant relations that condition not only experience in an objective sense, i.e., in mathematical-natural science and in the symbolic forms, but also experience in a subjective sense, i.e., in the lived consciousness of individuals. Moreover, by my lights, one of the primary features of his account of the categories, viz., his account of their flexibility, is meant to explain just how they could play this invariant role: they have a flexible "meaning" or "quality" that allows them to serve as an absolute, yet dynamic fixture of all cultural experience.⁵⁶

⁵⁶Against this suggestion, one could point toward the following passage from *Substance and Function* where Cassirer seems to indicate that the *a priori* categories are relative: "At no given stage of knowledge [*Wissens*] can this goal [of identifying the ultimate invariants] be perfectly achieved; nevertheless

I, furthermore, think we should regard these categories as constitutive because they fulfill Cassirer's requirements for constitutive concepts, viz., that they "determine" and "anticipate" objects. Indeed, as we saw in both *Substance and Function* and *The Philosophy of Symbolic Forms*, on Cassirer's Kantian view, it is by means of these categories that the understanding is able to bring about the synthetic unity in the manifold required for thought to represent objects. This is why Cassirer claims in *Substance and Function* that the categories are what make "every physical construction" possible, i.e., the construction of the physical objects in mathematical-natural science (*SF*, 270). And it is also his reason for arguing in *The Philosophy of Symbolic Forms* that the basic relations of spirit make possible not only the cultural world, but also the determinate domains of objects that belong to each symbolic form. That he defends this sort of constitutive view, however, should not surprise us for, as we saw throughout, like Cohen and Natorp, Cassirer endorses a conception of the understanding as at once synthetic and constructive.

it remains as a demand, and prescribes a fixed direction to the constitutes unfolding and evolution of the systems of experience" (*SF*, 269). As I read this passage, however, Cassirer is not making a point about the relative status of the categories, i.e., as things that might come and go with different theories, but rather about the open-endedness of the list of invariants. My reasons for reading him in this way stem from his assessment of Kant's theory of the categories, according to which although Kant got wrong the idea that the categories have a "finished... number and content," he does not get wrong the idea that there are "forms of judgment" that serve as the "unitary and living motives [*Motive*] of thought [*Denkens*]" (*DEP* 18; my translation). I take Cassirer's idea then to be that Kant was right to recognize that there are invariant forms of judgment that the categories reflect, but he was wrong, first, because the content of those forms can vary over time, e.g., in different scientific paradigms, and, second, because the number of those forms can change when we can add new categories to the list. He does not indicate here whether categories could be subtracted from this list and his consistent commitment to the basic categories of space, time, number, thing, and cause, even in the face of revolutionary paradigms like quantum mechanics (see *Cassirer 1936b*), seems to suggest that he thinks we only add to the list.

For these reasons, I take the trajectory of Cassirer's analysis of the categories qua the basic set of *a priori* relations of the spirit from *Substance and Function* to *The Philosophy of Symbolic Forms*, to indicate that he conceives of them as absolute and constitutive. This is not to deny that there may be other sets of relations that fall under the umbrella of the relative or regulative *a priori*;⁵⁷ rather the point I wish to make is that the categories that he places at the foundation of the objective and subjective dimensions of both his philosophy of mathematics and natural science and his philosophy of culture are *a priori* in the constitutive and absolute sense.

As was the case with his psychology of relations, then, it seems there is much to be gained by situating the account of the *a priori* that he presents in his philosophy of mathematics and natural science in the broader framework of his philosophy of culture. Perhaps, however, the fruitfulness of this strategy should come as no surprise for it treats mathematics and natural science as Cassirer does, not as isolated domains, but rather as parts of our cultural world.

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⁵⁷See Heis (2014, §2) for an argument as to why we should acknowledge other kinds of the *a priori* in Cassirer.

References

- Andersch, Norbert, 2015. "Symbolic Form and Mental Illness: Ernst Cassirer's Contribution to a New Concept of Psychopathology." In Friedman and Luft (2015), pp. 163–98.
- Anderson, R. Lanier, 2005. "Neo-Kantianism and the Roots of Anti-Psychologism." *British Journal for the History of Philosophy* 13: 287–323.
- Cassirer, Ernst, 1906. *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit*, vol. 1. Berlin: Bruno Cassirer. [DEP01]
- , 1907. "Kant und die moderne Mathematik." *Kant-Studien* 12: 1–40. [KMM]
- , 1910. *Substanzbegriff und Funktionsbegriff*. Berlin: Bruno Cassirer. Translated into English in *Substance and Function and Einstein's Theory of Relativity*, by W. C. Swabey and M. C. Swabey. Chicago: Open Court, 1923. [SF]
- , 1912. "Hermann Cohen und die Erneuerung der Kantischen Philosophie." *Kant-Studien* 17: 252–73. Translated into English as "Hermann Cohen and the Renewal of Kantian Philosophy," by L. Patton, in Luft (2015b), pp. 221–35. [HC]
- , 1918. *Kants Leben und Lehre*. Berlin: Bruno Cassirer. Translated into English as *Kant's Life and Thought*, by J. Haden. New Haven: Yale University Press. [KLT]
- , 1921. *Zur Einsteinschen Relativitätstheorie*. Berlin: Bruno Cassirer. Translated into English in *Substance and Function and Einstein's Theory of Relativity*, by W. C. Swabey and M. C. Swabey. Chicago: Open Court, 1923. [ETR]
- , 1923. *Philosophie der symbolischen Formen*, vol. 1, *Die Sprache*. Berlin: Bruno Cassirer. Translated into English as *The*

- Philosophy of Symbolic Forms*, vol. 1, *Language*, by R. Manheim. New Haven: Yale University Press, 1955. [PSFv1]
- , 1925a. “Paul Natorp. 24 January 1854–17 August 1924.” *Kant-Studien* 30: 273–98.
- , 1925a. *Philosophie der symbolischen Formen*, vol. 2, *Das mythische Denken*. Berlin: Bruno Cassirer. Translated into English as *The Philosophy of Symbolic Forms*, vol. 2, *Mythical Thought*, by R. Manheim. New Haven: Yale University Press, 1955. [PSFv2]
- , 1927. “Erkenntnistheorie nebst den Grenzfragen der Logik und Denkpsychologie.” In *Gesammelte Werke*, vol. 17, pp. 13–81. Hamburg: Felix Meiner Verlag.
- , 1929. *Philosophie der symbolischen Formen*, vol. 3, *Phänomenologie der Erkenntnis*. Berlin: Bruno Cassirer. Translated into English as *The Philosophy of Symbolic Forms*, vol. 3, *The Phenomenology of Knowledge*, by R. Manheim. New Haven: Yale University Press, 1957. [PSFv3]
- , 1931. “Mythic, Aesthetic, and Theoretical Space.” In *Cassirer (1923)*, pp. 317–33.
- , 1932a. “Language and the Construction of Objects.” In *Cassirer (1923)*, pp. 334–62.
- , 1932b. *Die Philosophie der Aufklärung*. Tübingen: Morh. Translated into English as *The Philosophy of the Enlightenment*, by F. Koelln and J. Pettegrove. Princeton: Princeton University Press, 1951. [PE]
- , 1936a. “Critical Idealism as a Philosophy of Culture.” MS #21. In *Symbol, Myth, and Culture: Essays and Lectures of Ernst Cassirer: 1935–1945*, edited by D. P. Verene, pp. 64–91. New Haven: Yale University Press, 1979. [CIPC]
- , 1936b. *Determinismus und Indeterminismus in der modernen Physik*. Göteborg: Göteborgs Högskolas Årsskrift. Translated into English as *Determinism and Indeterminism in Modern Physics*, by T. Benfey. New Haven: Yale University Press, 1955.
- , 1944. *An Essay on Man*. New Haven: Yale University Press. [EM]
- , 1946. *The Myth of the State*. New Haven: Yale University Press.
- , 1957. *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit*, vol. 4, *von Hegels Tod bis zur Gegenwart (1832–1932)*. Stuttgart: W. Kohlhammer. Translated into English as *The Problem of Knowledge: Philosophy, Science, and History Since Hegel*, by W. Woglom. New Haven: Yale University Press, 1957. [DEPv4]
- , 1995. *Nachgelassene Manuskripte und Texte*, vol. 1, *Metaphysik der symbolischen Formen*, edited by J. M. Krois and O. Schwemmer. Hamburg: Felix Meiner Verlag. Translated into English as *Philosophy of Symbolic Forms*, vol. 4, *The Metaphysics of Symbolic Forms*, by J. M. Krois. New Haven: Yale University Press, 1996. [PSFv4]
- , 2013. *The Warburg Years (1919–1933): Essays on Language, Art, Myth, and Technology*, translated by S. G. Lofts and A. Calcagno. New Haven: Yale University Press.
- Cohen, Hermann, 1871/1885. *Kants Theorie der Erfahrung*. Berlin: Dümmler. [KTE]
- , 1902/1922: *System der Philosophie*, part 1, *Logik der reinen Erkenntnis*. Berlin: Bruno Cassirer. [LRE]
- , 1904/1907. *System der Philosophie*, part 2, *Ethik der reinen Willens*. Berlin: Bruno Cassirer. [ERW]

- , 1912. *System der Philosophie*, part 3, *Ästhetik des reinen Gefühls*, 2 vols. Berlin: Bruno Cassirer. [ARG]
- Dahlstrom, Daniel, 2015. "Natorp's Psychology." In [de Warren \(2015\)](#), pp. 240–60.
- De Warren, Nicolas, ed., 2015. *New Approaches to Neo-Kantianism*. Cambridge: Cambridge University Press.
- Edgar, Scott, 2008. "Paul Natorp and the Emergence of Anti-Psychologism in the Nineteenth Century." *Studies in History and Philosophy of Science* 39: 54–65.
- , 2015. "Intersubjectivity and Physical Laws in Post-Kantian Theory of Knowledge: Natorp and Cassirer." In [Friedman and Luft \(2015\)](#), pp. 141–61.
- Ferrari, Massimo, 2009. "Is Cassirer a Neo-Kantian Methodologically Speaking?" In *Neo-Kantianism in Contemporary Philosophy*, edited by R. A. Makkreel and S. Luft, pp. 293–314. Bloomington: Indiana University Press.
- , 2012. "Between Cassirer and Kuhn: Some Remarks on Friedman's Relativized A Priori." *Studies in History and Philosophy of Science* 42: 18–26.
- , 2015. "Cassirer and the Philosophy of Science." In [de Warren \(2015\)](#), pp. 261–84.
- Feyaerts, Jasper and Stijn Vanheule, 2015. "How to Return to Subjectivity: Natorp, Husserl, and Lacan on the Limits of Reflection." *Theory & Psychology* 25: 753–74.
- Friedman, J. Tyler and Sebastian Luft, eds., 2015. *The Philosophy of Ernst Cassirer: A Novel Assessment*. Berlin: De Gruyter.
- Friedman, Michael, 1992. "Epistemology in the 'Aufbau'." *Synthese* 93: 15–57.
- , 2000. *A Parting of the Ways: Carnap, Cassirer and Heidegger*. Chicago: Open Court.
- Heis, Jeremy, 2010. "'Critical Philosophy Begins At the Very Point Where Logistic Leaves Off': Cassirer's Response to Frege and Russell." *Perspectives on Science* 18: 383–408.
- , 2014. "Realism, Functions, and the A Priori: Ernst Cassirer's Philosophy of Science." *Studies in History and Philosophy of Science* 48: 10–19.
- Husserl, Edmund, 1900–1901. *Logische Untersuchungen*, 2 vols. Halle: M. Niemeyer. Translated into English as *Logical Investigations*, by J. N. Findlay. Abingdon, Routledge, 1970.
- Ihmig, Karl-Norbert, 1997. *Cassirers Invariantentheorie der Erfahrung und seine Rezeption des Erlanger Programms*. Hamburg: Felix Meiner Verlag.
- Kant, Immanuel, 1902. *Kants Gesammelte Schriften*, Königlich Preussische Akademie der Wissenschaften edition, vol. 3, *Kritik der reinen Vernunft*. Berlin: de Gruyter. Translated into English as *Critique of Pure Reason*, by P. Guyer and A. Wood. Cambridge: Cambridge University Press, 1998. [KrV]
- Luft, Sebastian, 2015a. *The Space of Culture: Towards a Neo-Kantian Philosophy of Culture (Cohen, Natorp, and Cassirer)*. Oxford: Oxford University Press.
- , ed., 2015b. *The Neo-Kantian Reader*. London: Routledge.
- Matherne, Samantha, 2015. "Marburg Neo-Kantianism as Philosophy of Culture." In [Friedman and Luft \(2015\)](#), pp. 201–31.
- Moynahan, Gregory, 2013. *Ernst Cassirer and the Critical Science of Germany, 1899–1919*. London: Anthem Press.

- Natorp, Paul, 1887. "Über objektive und subjektive Begründung der Erkenntnis (Erster Aufsatz)." *Philosophische Monatshefte* 23: 257–86. Translated into English as "On the Objective and Subjective Grounding of Knowledge," by L. Phillips and D. Kolb, in [Luft \(2015b\)](#), pp. 164–79. [OS]
- , 1888. *Einleitung in die Psychologie nach kritischer Methode*. Freiburg: Mohr.
- , 1910/1921. *Die logischen Grundlagen der exakten Wissenschaften*, Leipzig: Teubner. Translated in part into English as "The Problem of a Logic of the Exact Sciences," from *The Logical Foundations of the Exact Sciences*, by F. Bottenberg, in [Luft \(2015b\)](#), pp. 198–213. [LF]
- , 1912a. *Allgemeine Psychologie nach kritischer Methode*. Tübingen: Mohr. [AP]
- , 1912b. "Kant und die Marburger Schule." *Kant-Studien* 17: 193–221. Translated into English as "Kant and the Marburg School," by F. Bottenberg, in [Luft \(2015b\)](#), pp. 180–95. [KMS]
- Poma, Andrea, 1997. *The Critical Philosophy of Hermann Cohen*, translated by J. Denton. Albany: SUNY Press.
- Renz, Ursula, 2002. *Die Rationalität der Kultur: zur Kulturphilosophie und ihrer transzendentalen Begründung bei Cohen, Natorp und Cassirer*. Hamburg: Felix Meiner.
- , 2005. "Critical Idealism and the Concept of Culture: Philosophy of Culture in Hermann Cohen and Ernst Cassirer." In *Hermann Cohen's Critical Idealism*, edited by R. Munk, pp. 327–56. Dordrecht: Springer.
- Richardson, Alan, 1998. *Carnap's Construction of the World*. Cambridge: Cambridge University Press.
- , 2003. "Conceiving, Experiencing, and Conceiving Experiencing: Neo-Kantianism and the History of the Concept of Experience." *Topoi* 22: 55–67.
- Russell, Bertrand, 1903. *The Principles of Mathematics*. Cambridge: Cambridge University Press. [PoM]
- , 1905. "Sur la Relation des Mathématiques à la Logistique." *Revue de Métaphysique et de Morale* 13: 906–17.
- Ryckman, Tom, 2005. *The Reign of Relativity: Philosophy in Physics: 1915–25*. New York: Oxford University Press.
- Tolley, Clinton, 2012. "The Generality of Kant's Logic." *Journal of the History of Philosophy* 50: 417–46.
- , 2016. "The Context of the Development of Carnap's Views on Logic up to the *Aufbau*." In *Influences on the Aufbau*, edited by C. Damböck, pp. 187–212. Cham: Springer.
- Zahavi, Dan, 2003. "How to Investigate Subjectivity: Natorp and Heidegger on Reflection." *Continental Philosophy Review* 36: 155–76.
- Zeidler, Kurt, 2001. "Das Problem der Psychologie im System Cohens (mit Blick auf P. Natorp)." In *Hermann Cohen und die Erkenntnistheorie*, edited by W. Marx and E. W. Orth, pp. 135–46. Würzburg: Königshausen & Neumann.