"Cassirer and Steinthal on Expression and the Science of Language"

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> "If it is true that there are but two kinds of people in the world—the logical positivists and the god-damned English professors—then I suppose I am a logical positivist." – Clark Glymour, *Theory and Evidence* (Princeton, 1980).[1]

1. The expressive function

A divide in contemporary readings of Cassirer brings to mind the cultural differences in Wittgenstein reception. One group emphasizes *Substanzbegriff und Funktionsbegriff* and Cassirer's relationship to Hermann Cohen and Rudolf Carnap; this group resembles those Wittgensteinians who prefer the *Tractatus Logico-Philosophicus*. Another group emphasizes *The Philosophy of Symbolic Forms* and Cassirer's relationship to the hermeneutic tradition; this group resembles the Wittgensteinians who favor the *Philosophical Investigations*.

A key question that divides the two interpretive traditions is the role of what Cassirer calls the "expressive function" of consciousness, embodied in language and myth. The logical positivists eschew the expressive function; the English professors embrace it.[2]

The debates between Carnap, Cassirer, and Heidegger have trained our focus on whether sentences containing certain terms can be derived from others, and on the related – but distinct - question of whether knowledge claims ought to be reducible to physical statements.[3] Cassirer himself is responsible for situating his critique of culture in this way. As Ikonen (2011) remarks, "Cassirer's critique [of culture] can be seen as an effort to find a middle path between *Lebensphilosophie* and the positivism of the Vienna Circle" (p. 187).[4] Among the tacit assumptions, and explicit assertions, of discussion of Cassirer's place in philosophical history are that the *Lebensphilosophie* side is associated with Dilthey, Herder, and hermeneutics, and leads to Husserl and Heidegger, and that the "positivist" or

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[1] Glymour credits the first statement to Nelson Goodman.

[2] That division is too facile. The well known linguist Leonard Bloomfield published work in the *International Encyclopedia of Unified Science*, as did Charles Morris and Otto Neurath on signs and semiotics. Nonetheless, the division has stuck, and is used regularly to characterize these intellectual trends.

[3] Among the logical empiricist texts that explain this latter view: Carnap 1938/1991, Neurath 1931/1983, and Hempel 1949/1980.

[4] Luft (2015) is a sustained discussion of Cassirer's *Kulturkritik*. Matherne (2015) investigates the Marburg School's philosophy as a philosophy of culture. Capeillières (2007) is a treatment of the concepts of "function" and "energy" in the philosophy of symbolic forms.

empiricist side is associated with Carnap and Quine, and leads to logical empiricism. Cassirer's *Kulturkritik* thus can be seen as a step along the road to Davos.

Work by Damböck (forthcoming), Kalmar (1987), Köhnke (2001), and Patton (2004) emphasizes the connection between Hermann Cohen, Cassirer, and the Völkerpsychologie movement spearheaded by Heymann (Chajim) Steinthal and Moritz (Moses) Lazarus. The particular position Ernst Cassirer takes on the critique of culture builds on this earlier and less well known intellectual tradition.

Paying close attention to the influence of Völkerpsychologie, especially of Steinthal, leads away from a *primary* emphasis on questions of "validity" and "objectivity" in Cassirer's *Kulturkritik*, an emphasis that reflects the concern with later debates about logic as the "language of science" and about physicalism.[5] Instead, I will argue, Cassirer can be read as defending a position on the influence of language on the development of science that has at least two aspects:

1. Humans build the conceptual categories of science, including those employed in language itself and in myth. We can understand these categories because we constructed them (a hermeneutic moment in Cassirer that has an explicit source in Lazarus and Steinthal).

2. The development of conceptual and linguistic categories depends partly on an exercise of the expressive function of consciousness that is autonomous of logic and of a priori thought, and is itself a part of the science of language – which is distinct from the language of science. Here I will build on a reading of Steinthal's 1871 work *Outline of the Science of Language* (*Abriss der Sprachwissenschaft*).

[5] A leading narrative in Cassirer studies – on both sides of the narrative divide described above – evaluates the (limited) extent to which Cassirer can account for the validity of the cultural sciences or the objectivity of the claims of the human sciences (Friedman 2000 and 2008; Krois 2000 and 2010). The negative aspects of this reading for Cassirer reception should not be over-emphasized. As Richardson (2010) points out, in *A Parting of the Ways* "the real hero of the tale is not Carnap but Cassirer," and Cassirer's inability to account for the independent validity of the *Geisteswissenschaften* is seen as a noble failure of a promising program (p. 282, see also Krois 2010).

2. History and the human sciences

Ernst Cassirer's place in the history of the philosophy of science is increasingly assured. My chosen theme is Cassirer's narrative regarding the human sciences (*Geisteswissenschaften*) or critique of culture (*Kulturkritik*). Here, as Michael Friedman remarks, Cassirer can be seen as a mediating figure:

> His work pays equal attention to foundational and epistemological issues in the philosophy of mathematics and natural science and to aesthetics, the philosophy of history, and other issues in the "cultural sciences" broadly conceived. More than any other German philosopher since Kant, Cassirer thus aims to devote equal philosophical attention both to the (mathematical and) natural sciences (*Naturwissenschaften*) and to the more humanistic disciplines (*Geisteswissenschaften*). In this way, Cassirer, more than any other twentieth-century philosopher, plays a fundamental mediating role between C. P. Snow's famous "two cultures" (Friedman 2011, Introduction).

Cassirer even presents himself as taking a middle ground between Wilhelm Dilthey's *Lebensphilosophie* and Rudolf Carnap's logical empiricism. But Cassirer's purpose was not to take a middle ground; he did not take the positions he did in order to be a mediator. Moreover, a substantial portion of Cassirer's work in this vein predates the heyday of logical empiricism and *Lebensphilosophie*. What was the intellectual impetus for his conception of the relationship between the natural and the cultural sciences?[6]

In *The German Historicist Tradition*, Frederick Beiser reveals the source of Dilthey's distinction between explanation and understanding (erklären und verstehen), often seen as central to Dilthey's defense of the independence of the human from the natural sciences: the nineteenth century historian Johannes Droysen. While there were a number of German materialists who argued for reductive positions in physiology and even in history and politics (Moleschott, Czolbe, Büchner, Vogt), Droysen responds directly to the historian Henry Thomas Buckle (Beiser 2012, 298 and *passim*; Kluback 1956, 30). Buckle defended views similar to those of the German materialists, arguing that human behavior follows natural laws just as predictable, and just as materially grounded, as the laws of planetary motion. Droysen's *Outline of the Principles of History* (1867) is a response to Buckle, in which Droysen argues that historical phenomena cannot be dealt with in the same way as physical or material phenomena. As Droysen remarks in his lecture notes,

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[6] As Steven Lofts remarks, Cassirer uses the term Geisteswissenschaften in the preface to the 1923 edition of the *Philosophy of Symbolic Forms*, while his major 1942 work is called the *Logik der Kulturwissenschaften*. According to John Michael Krois, "Cassirer uses the terms *Geisteswissenschaften* and *Kulturwissenschaften* as interchangeable designations" (Krois 1987, 125; Lofts, p. 237 n6).

> To know is to derive from first principles; to explain [*erklären*] is to subsume under general mathematical laws; and to understand [*verstehen*] is to interpret or translate, to make someone's meaning comprehensible to me by putting it in my own terms (Beiser 2012, 298).

Dilthey extends Droysen's argument that the methods used to build historical understanding are distinct from methods used by the physical sciences to explain.[7]

As the unjustly neglected appreciation of Dilthey by William Kluback (1956) explains, Dilthey emerges from the hermeneutic tradition of Herder and Schleiermacher. That tradition is entangled with the neo-Kantian tradition, but comes to quite distinct conclusions, as Beiser (2012) describes. In particular, while the Southwest school of neo-Kantianism came to superficially similar conclusions about the independence of the human sciences from the natural sciences, the basis for the argument for independence was not only distinct, but in conflict – a conflict that would come to a head in the debates between Dilthey and Windelband at the end of the nineteenth century (Patton 2015). In 1894, Wilhelm Windelband gave a Rektoratsrede in Strasbourg, in which he defends Kant's principled separation of the foundations and methods of the a priori sciences of mathematics and philosophy from those of the empirical sciences:

> the empirical sciences either seek the general in the form of the law of nature or the particular in the form of the historically defined structure. On the one hand, they are concerned with the form which invariably remains constant. On the other hand, they are concerned with the unique, immanently defined content of the real event... scientific thought is *nomothetic* in the former case and *idiographic* in the latter case (Windelband p. 175).

Kant had argued in the *Metaphysical Foundations* that only nomothetic sciences were true sciences. Windelband concedes, implicitly in the above quotation, that idiographic inquiry can be scientific. But he maintains Kant's strict distinction between *kinds* of science, and between kinds of scientific methods. This distinction is maintained later in the Southwest School, when Heinrich Rickert defends the notion that natural science is concerned with laws, while human science is concerned with value. Windelband and Rickert agree that, even if the human sciences are to be conceded to be scientific, their methods and subject matter cannot be unified with the methods and analysanda of the natural sciences.

The university at Berlin was founded by Wilhelm von Humboldt on the principle that the sciences can be unified in practice, that the faculties should work together in the interest of a regimented pursuit of knowledge.[8] Nonetheless, by the time Cassirer writes *Logic of the Cultural Sciences*, he is aware that a "logical" gap has been defended between the natural and the human or cultural sciences. In an essay published in 1942, Cassirer writes,

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[7] Dilthey 1988/1883. For discussion of Dilthey's distinction see Feest (2009).

[8] See Patton (2015), including for further references.

> If we accept the theory of many modern logicians, mathematical and historical thought are separated from each other by an unbridgeable gulf. Science and history can never be brought under one and the same common denominator. The structure of history and the structure of the so-called "*Geisteswissenschaften*" are of quite different types from the structure of mathematics or natural science. [...] in this paper I do wish to indicate a way by which we may hope to bridge this logical gap (Cassirer 1942b, 310).

What did Cassirer mean by the word "logic"? The title of his 1942 book, *The Logic of the Cultural Sciences*, was deliberately provocative, as if he had called it *The Logic of Discovery*. In both cases, there is a substantive philosophical position according to which there is, and can be, no such logic. But that depends on what you mean by "logic". On one view, associated with the logical positivists, Frege's and Russell's logic was one source of the "universality" of logic for the sciences. Certain logical derivations are inescapable in all scientific reasoning, such as conditional (if-then) inferences.[9]

Cassirer would have had another source for the use of the word "logic", however: his mentor, Hermann Cohen. Cohen's three major works of philosophy were called the *Logic of Pure Knowledge* (*Logik der reinen Erkenntnis*), the *Ethics of Pure Will* (*Ethik des reinen Willens)*, and the *Aesthetics of Pure Feeling (Ästhetik des reinen Gefühls*). Cohen recasts Kant's three Critiques as a logic, an ethics, and an aesthetics, rather than as critiques of pure reason, of practical reason, and of judgment. Cohen sees the fundamental epistemological practice as that of solving problems revealed in experience – experience reveals, not the given, but the factual structure of problems. Discovering the *formal* structure of those problems is the task of pure thinking, and this, for Cohen, is the function of logic in justifying claims to knowledge.[10] Tracing the notion of "logic" even further backward, we find that Cohen's treatment owes a great deal to his engagement with a school that emerges in the 1860s and 1870s, called Völkerpsychologie.

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[9] See Richardson (1998) for a discussion of Carnap in this connection: "The new logic is, thus, not a tool to use in pursuit of a reductive epistemological-cum-ontological project bequeathed to us by the British empiricists, but rather a way of reformulating the whole question of what is at stake in philosophy. Carnap's antimetaphysics is surely the consequence of a much more fundamental understanding of 'logic as the essence of philosophy' than is Russell's empiricism of 1914" (pp. 27-8).

[10] See Edgar (2015), §5.

3. Völkerpsychologie

The founders of Völkerpsychologie, Moritz Lazarus and Heymann Steinthal, argued that "communities, like individuals, share in the common consciousness of a historical period, a *Zeitbewusstsein*" or consciousness of a time (Kalmar 1987, 674). This *Zeitbewusstsein* or *Volksgeist* has clear Hegelian echoes, but Lazarus and Steinthal saw the *Zeitbewusstsein* as determined by, and dependent on, the culture of a time.

> The "law-governed behavior and development of inner activity" of a *Volk* was the *Volksgeist*. Defined in this way, *Volksgeist* was thus something quite similar to, if not identical with, the modern concept of "culture." *Volksgeist* was an instance of "group spirit" in general[,] *Gesamtgeist* or *Gesamtheitsgeist*... *Gesamtgeist* was also referred to as *objectiver Geist* or "objective spirit." By "objective" Lazarus and Steinthal meant merely "supraindividual, given by the social or natural environment," as opposed to the "subjective," by which they meant the individual. *Volksgeist* thus corresponded to the usual modern use of culture as the social heritage of an ethnic group (Kalmar 1987, 675).

Lazarus and Steinthal explained that one way to engage in the study of culture was to examine cultural products and artefacts, principal among which are history and language. In 1863, Lazarus gave a talk, "On Ideas in History," in which he explains how we can give an account of ideas as productive and effective in history without succumbing to Hegelian dialectic or to Humboldtian[11] empiricism[12]:

> It should arrest the critic's attention compellingly that the great force of ideas is equally strongly emphasized in two such fundamentally different points of view as Hegel's and Humboldt's. Certainly one of the most important ways that ideas are determined is in relationship to acting and productive people, to the individuals that appear to have them. However, whereas in Hegel conscious or unconscious generality comes into the foreground, with Humboldt [*it is*] personal individuality. For the former [*Hegel*], the individual is only a medium... for the latter [*Humboldt*] the individual is the higher expression, the true life of the idea; for the former the expression: "we do not have ideas, but they have us" is common; for the latter the doctrine is that only in the productive personality do ideas attain a productive existence.[13]

Lazarus conceived of the effectiveness of reasoning as coming neither directly from the process of thought in the individual, nor from the analysis of concepts. Rather, the impact of reasoning (of ideas) is found in their influence on the relation between individual and

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[11] Wilhelm von Humboldt (1767-1835).

[12] *Uber die Ideen in der Geschichte*, cited as Lazarus 1865.

[13] Lazarus 1865, 41n.

cultural structures. Lazarus locates the contribution of reason to history in the influence of ideas on individual thought and action:

> Ideas in history are the ideas that are *effective* in the lives and activities of men, that is, of individuals and peoples, and thus in the life of humanity. They are not transcendental powers found outside the human mind [*Geist*], which somehow affect it from outside, but are actual ideas, that is, ideas that appear within people as acts of their mental agency. They are produced, shaped, and developed within the human mind [*Geist*], and are partly realized in action and productivity.[14]

The only materials available to the psychologist for analysis are the empirical data of experience and of recorded history. Though he insists on the productive (*schöpferisch*) aspect of reason, Lazarus continued to argue that this aspect could be analyzed only in its empirical manifestation. In particular, ideas in *history* are the ideal forms[15] of the phenomena:

> The content of these ideas consists in all the norms of the will, in the criteria for action that keep the natural impulses of human life within certain bounds, describe goals and ends for it, and give form to individual and common human life... Thus structuring ideas [*Ideen der Gestaltung*] are the true ideas in history.[16]

Individual psychology constrains conceptual analysis to a description of psychological processes, which Cohen derisively called the "Vorgang und Apparat" or "process and faculty" picture of cognition. Locating intellectual history in an analysis of collective cultural structures such as history and language allowed for evaluating the impact of ideas in a broader context than individual psychological processes. It also allows for the historical examination of the development of ideas.

4. Steinthal: Language and Thought, Grammar and Logic.

Chajim (Heymann) Steinthal's major work was the 1871 *Outline of the Science of Language*, hereafter *Abriss*.[17] The main thesis of Chapter IV, "Language and Thought, Grammar and Logic",[18] is that language, "independently of logic, establishes its forms in complete autonomy" (p. 62). That thesis is supported by means of a detailed analysis of what is meant by "language" and by "logic."

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[14] Lazarus 1865, 73.

[15] Here meaning just *Gestaltungen*, not the Eternal Forms.

[16] Lazarus 1865, 73-5.

[17] *Abriss der Sprachwissenschaft*. Background on Steinthal, including further references, can be found in Damböck 2014, §4.1, Patton 2004, §2.2. Translations from the *Abriss* are for this essay.

[18] "Sprechen und Denken, Grammatik und Logik."

At the outset, Steinthal defends a claim central to *Völkerpsychologie*: thinking and observing are psychological processes, they develop in the thinking and observing person, and they are not based on innate ideas (p. 45). The categories of thought found in Aristotle, Plato, and Kant are not inborn, but developed. As Steinthal asks, how do we develop the categories of thing, of substance, or of cause? How do we come to use these categories without consciously doing so, in experience and in observation? Steinthal links the categories that Kant and Aristotle had called "logical" (in Kant's case part of transcendental logic) to the process of developing a language in which to express spatiotemporal relationships, including relations between substances and causes.

Steinthal argues against the thesis that language is just the external, sensible counterpart of thinking, conceived as an internal process. According to the view Steinthal opposes, "Language... is thought itself, a word is a concept itself, a proposition is a judgment itself, just expressed in language at the same time, phonetically perceptible, made corporeal" (p. 46). More pithily, "Language is thinking aloud, as thought is silent speech." Steinthal argues for a thesis that language and grammar are independent of prior thought.

Initially, Steinthal gives a rather weak, Humean argument against this view: that someone who does not know what sweetness, or red, or music is will not learn it by being told in language. Shortly, though, he gives a better one. All those whom he's mentioned, including Aristotle and Plato, begin from a *fact*: that "people convey, and thus represent, their consciousness through sounds" (p. 55). Steinthal agrees with this fact. He disagrees with the conclusion they draw from it: that "the *forms of thought* are also the forms of language" (p. 56). The inference they draw has the following structure, as found in Steinthal:

> Since language = representation of thought,
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> thus the forms of language = forms of representation of thought (p. 56).

Steinthal opposes this inference. The premise can be true – language can be a representation of thought – and the conclusion be false. The forms of language may be distinct from, and develop independently of, the forms of representation of thought: "Thus, the expression certainly is not quite like what is expressed."[19]

Steinthal defends a notion of "expression" in language that has a "form" that develops, and is independent of, the thought of which it is a representation. It is a very short step from this account to a notion of the "expressive function" akin to the one defended by Cassirer in the third volume of the *Philosophy of Symbolic Forms*.

Steinthal concedes that language and grammar can be represented as an interconnected, logical system. In particular, as Steinthal summarizes Wilhelm von Humboldt's position,

[19] "Also ist der Ausdruck doch nicht ganz wie das Ausgedrückte", p. 56.

> The categories of language are for the most part logical entities, general forms of thought and observation, which form a closed system. However, this system of grammatical or grammatical-logical forms, because it is a logical one, does not belong to linguistics [*Sprachwissenschaft*], at least not actually and strictly speaking; rather, it forms its general background. It contains results [*Lehnsätze*] from logic that are indispensable to linguistics. Now, that is what one calls philosophical or general grammar, which is still not grammar at all, but only a compilation of logical categories that come into consideration in grammar. On the other hand, this category-system certainly is no longer purely logical either, because it doesn't just contain pure results from logic; rather, the categories are brought already into a determinate relationship to each other not given by logic, and are modified in ways not anticipated by logic (p. 63).

Steinthal responds critically to this view. Logic does not govern grammar as a background or foundation. Grammar is not the corporeal form of thought. However, Steinthal does support the concluding view that, in grammar, the categories are modified in a way that cannot be anticipated by logic.

Here, Steinthal appeals to Hermann Lotze (p. 66) and to Karl Becker's *Organism der Sprache* (1841) – but, again, critically. Becker argues that "if one wants to deny that the general formal laws of thought are found again in language, then one not only denies the organic nature of speech, but also the organic nature of thought" (p. XV). Steinthal responds, "Neither: one just separates the two, the organic nature of language from that of thought" (p. 68).

There is a key distinction that Steinthal thinks is missing from this discussion, a distinction that has been implicit in his own discussion up to this point. The word "logical" has two meanings: "that which belongs to logic, for example, a logical question, a logical law", or "what is generally rationally established in conformity with the laws of logic" (pp. 68-9). In the first sense, organic language is not logical; in the second sense, it is. If we treat language as an organic phenomenon, not as a direct embodiment of Platonic thought, then the science of language comes to resemble other sciences, in not being logical in Steinthal's first sense.

> Physics, chemistry, mathematics, and so on are not logical, nature is not logical, that is, no logical facts, categories, and laws are given in them; but they certainly are very logical, because their developments are carried out according to the laws of logic... The object of the special sciences is specific to them, not only their matter [*Stoff*], but also the general relationships that appear in them, which one even calls categories, like the knowledge of chemical substances [*Stoffe*] and the relationships according to which they are connected to each other, like sphere, circumference, diameter... Insofar as our capacity for rational thought stretches to these objects and their relationships, then here it proceeds in a way in which the forms of logic are

> visible; for logic is the analysis of thought, that is, of the capacity of thought, in abstraction from the objects to which it is applied. Even more: nature produces objects, and carries this out through media and methods that the special sciences have as their particular object to represent. Insofar as we represent this methodology [*Verfahrungsweise*] in thought and represent the real path of the becoming [*des Werdens*] of the thing by a subjective, conceptual copy [*Abbilde*], we perceive in thought not bare logical relationships, but [logical relationships] in actual nature itself that live within it, logical laws that it follows faithfully (pp. 69-70).
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> Just as with nature and the natural sciences, language and linguistics are also logical and not logical: namely, their object with its relationships is specific to them; but insofar as one thinks this object and these relationships, the logician perceives both that the linguistic researcher acts according to logical laws, and that logical considerations and laws have unconsciously governed the process of language, in forming its elements and combining them according to their specific laws. These logical laws, which language and linguistic researchers, chemists and physicists and nature follow, are the common logical laws, whose demonstration the researcher into language and nature presupposes, that he does not investigate, that are not his particular object [*Gegenstand*] (p. 70).

I have cited Steinthal at such length to emphasize his own account of the two-sided relationship between logic and natural science. Steinthal explicitly draws an analogy between natural science and linguistics, an analogy motivated by the "organic" conception of language and of thought. On the one hand, logic governs natural science and linguistics, and the laws and concepts of logic unconsciously influence the methods of the sciences. On the other hand, not only the objects, but also the relationships found in the natural sciences and in linguistics develop independently of logic, because they are influenced by the objects in nature, and by their relationships. Here the natural "objects" include humans and their behavior, including their linguistic behavior.

Do the views in the *Abriss* make Steinthal an "English professor"? To know that, we would have to have a set of criteria for being an English professor. It's instructive in this context to cite another scholar who expresses views partly consistent with those above.

> Let us take "physics" as a common name for the nonbiological field of science, comprehending both systematic and historical investigations within this field, thus including chemistry, mineralogy, astronomy, geology (which is historical), meteorology, etc. How, then, are we to draw the boundary line between physics and biology? It is obvious that the distinction between these two branches has to be based on the distinction between two kinds of things which we find in nature: organisms and nonorganisms. Let us take this latter distinction as granted; it is the task of biologists to lay down a suitable definition for the term "organism": in other words, to tell us the features of a thing which we take as characteristic for its being

> an organism. How, then, are we to define "biology" on the basis of "organism"? We could perhaps think of trying to do it in this way: biology is the branch of science which investigates organisms and the processes occurring in organisms, and physics is the study of nonorganisms. But these definitions would not draw the distinction as it is usually intended.[20]

In natural science, at least, this person[21] sees the distinctions between fields of study as being given at least partly by the progress of research, and the distinctions between concepts ("organisms" versus "non-organisms") as being given by analysis of phenomena found in nature.

Carnap does not allow for an expressive function of the "language of science" that develops autonomously of logic. As he puts it,

> the term "language of science" is meant here to refer to the language which contains all statements (i.e., theoretical sentences as distinguished from emotional expressions, commands, lyrics, etc.) used for scientific purposes or in everyday life. What usually is called science is merely a more systematic continuation of those activities which we carry out in everyday life in order to know something (Carnap 1938/1991, 395).

If we flatten Steinthal's "language" to include the "language of science" only, then Steinthal's project cannot get off the ground. But it is not clear at all that Carnap would have wanted to do that, even in 1938. After all, Carnap explicitly aims to argue against the "old magical and later metaphysical mind-body dualism" (Carnap 1938/1991, 396). Would he, then, have opposed the idea of a science *of language itself* as a natural, organic phenomenon?

Steinthal's "Sprachwissenschaft" is a science of language, not an explanation of the language of science. One of the main theses defended in the *Abriss* is that, if we consider logic the language of science, the language of science is independent of language as a natural phenomenon. Even a quick look at the titles and descriptions of the chapters of the *Abriss* shows that Steinthal thought linguistics was a natural science, and that language is an organic phenomenon: "Comparison of Human and Animal Minds", "Representations are not independent entities in the mind, but only the mind's reactions". One can be a thoroughgoing physicalist or naturalist, and yet think that language develops independently of logic, in the sense that human linguistic categories developed in actual epistemic engagement with nature engenders, and relies on, distinctions, relationships, natural divisions, and variables that are not anticipated by logic, considered as a purely formal system of laws of thought. If one thinks of humans as natural beings, and of language and

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[20] Carnap 1938/1991, 395. For a discussion of the objections Carnap had to Cassirer's positions, see Mormann 2012 and Friedman 2000.

[21] In 1938.

thought as organic phenomena, then empirical, scientific research into language itself is natural science.

I am not arguing that Steinthal was a thoroughgoing physicalist, only that his position is not inconsistent with at least some logical empiricist positions on language and logic. In fact, Steinthal would be on the more naturalist side of many of the twentieth century debates about whether, for instance, beliefs and desires can be explained as natural human mechanisms.

5. Cassirer and the Science of Language

That is Steinthal. What about Cassirer? In Cassirer (1942b), he remarks:

> we do not feel inclined to think of language and mathematics as kindred branches of knowledge. They seem to be very far from each other and to belong to entirely different spheres. They are, so to speak, the opposite hemispheres of our "*globus intellectualis*." Mathematics belongs to science and is the very foundation of science. Language is an historical phenomenon that can be studied and explained only by historical methods. If we accept the theory of many modern logicians, mathematical and historical thought are separated from each other by an unbridgeable gulf. Science and history can never be brought under one and the same common denominator. The structure of history and the structure of the so-called "*Geisteswissenschaften*" are of quite different types from the structure of mathematics or natural science. I do not wish to enter into the details of this vigorously debated question, but in this paper I do wish to indicate a way by which we may hope to bridge this logical gap (pp. 309-310).

In building a "constructive theory of nature," Cassirer argues, Aristotle was among the first to achieve a critical perspective on the use of language in scientific thought.

> Language has made the first fundamental distinctions. It has classified the phenomena of nature according to certain points of view. We need only to follow its example in order to find out the true elements of things. But, like Socrates in his ethical investigations, Aristotle is perfectly aware of the fact that every philosophical use of language at the same time demands a criticism of language. We have to examine, to complete, and to correct its discriminations and classifications. It is not until such a critical examination has been made that we are entitled to trust them (p. 314).

In the chapter of the *Abriss* discussed above, Steinthal also begins with a discussion of how Aristotle's conceptual categories influenced his account of substance, motion, and the like.

Cassirer goes on to say that the medieval thinkers attempted to supersede Aristotle's constructive system of nature, but were unable to do so. Instead, Cassirer argues, the first step past Aristotle was made by Galileo, in *The Assayer* (*Il Saggiatore*).

> Language – declared Galileo – may be a very satisfactory and very useful instrument of thought if we pursue no other aim than to survey and classify the objects of our common experience, the world of sense-data. But... [f]or discovering the fundamental laws of nature, the principles of motion, we need other and more reliable modes of expression. The symbols of language have to be superseded by the symbols of mathematics. Geometry and arithmetic are the only true language of nature. Nature, says Galileo, is no secret to the human mind. It is an open book legible to everyone. But in order to read this book we first have to learn the letters in which it is written. These letters are not the ordinary sense-data: the perceptions of heat or cold, of red or blue and so on. The book of nature is written in mathematical characters, in points, lines, surfaces, numbers. By this postulate Galileo removed the keystone of Aristotelian physics (p. 316).

Cassirer's argument here, though abbreviated, is a clear precursor of Kuhn's position, that shifts in conceptual categories – and even in ontological categories – accompany paradigm shifts in physics. Galileo cannot remove a "keystone of Aristotelian physics" without postulating that "The symbols of language have to be superseded by the symbols of mathematics" in the construction of a science of nature. Cassirer even concludes: "the new principles introduced by the dynamics of Galileo could not be found and could not be firmly established without a general logical and epistemological revolution" (p. 317). Here, again, Cassirer seems to be defending a view closer to Kuhn's, or perhaps to the perspective Carnap comes to adopt around 1950, when his essay "Empiricism, Semantics, and Ontology" appeared.[22]

But the concluding sections of Cassirer (1942b) are very revealing. Here, Cassirer stops speaking of the language in which science is expressed, and turns his attention to – *grammar*, and even to a *philosophy* of grammar (p. 323). Like Steinthal, Cassirer rejects the traditional, Humboldtian view, that the structure of Latin, inflected grammar reflects the structure of rational thought (p. 323).

> The enlargement of linguistic knowledge, especially the study of the so-called primitive languages, has taught us that there are many languages of a fundamentally different type from our own Indo-European languages and that it would be a hopeless attempt to stretch all of them into the procrustean bed of our Latin grammar and our part-of-speech system (p. 323-4).

[22] Note that this does not mean, for any of these authors, that ontological categories can be overturned *merely* by postulation of novel conceptual or linguistic categories, in isolation from the construction of a novel theory.

The failure to find a universal linguistic or symbolic structure inspires empiricist, materialist, and intuitionist (Bergsonian) responses. Cassirer argues that these fail, in turn, because they "try to convince us that there is an ultimate reality that is beyond the power and the reach of all symbolic thought – a reality in itself and by itself", but we find that "Intuition can not be separated from expression - and expression always involves the function of language" (p. 326).

> Empiricism and sensationalism... argue from... a theory of imitation or reproduction. It is clear that even from such a point of view language must appear as a very poor and defective instrument. For how can we hope to reproduce by a small number of words, of general names, the totality and the inexhaustive richness of our individual perceptions? But knowledge depends neither on identification nor on reproduction. It means objectification – and in this process of objectification language is the first step. Without its help we could not come to an objective view, to a representation of the world; we would be bound and restricted to a dull feeling, an obscure impression of reality. It is by language that we pass from the passive acceptance of single sense-data to a new constructive and spontaneous view of the universe. Language proves to be indispensable not only for the construction of our world of thought but also for the construction of our world of perception (pp. 326-7).

The notion that the construction of concepts is fundamental to the historical and theoretical development of scientific systems was well established by 1942, and possibly even old news. Very early in the twentieth century, Cohen's *Logic of Pure Knowledge* (*Logik der reinen Erkenntnis*) and Heinrich Rickert's *The Limits of Concept Formation in Natural Science* (*Die Grenzen der naturwissenschaftlichen Begriffsbildung*), focus on the role of concept formation in the development of science and of epistemology.

Cassirer argues that the evidence for his claim that language is indispensable "for the construction of our world of perception" comes from more recent empirical science, from research into aphasia, for instance. In his work on myth, moreover, Cassirer builds on Vico and others to argue that we *develop* the categories at work in mythical and mystical theories – a view clearly influenced by Steinthal.

Moreover, Cassirer echoes Steinthal's method of differentiating logic from the science of language:

> we are always exposed to the danger of confounding some special properties of our own language with universal semantic properties when approaching the problem from a merely logical side. Our logical analysis must be completed and corrected by those observations gained by empirical methods, by a comparative study of linguistic facts (pp. 322-3).

The well-worn philosophical technique of generalizing from certain observed features of human language among Western speakers, to a universal, rational grammar, is subjected to searching critique by Steinthal and by Cassirer. In its place, we find a defense of language as a distinctly human action, as an instrument that develops, and makes possible, the engagement between humans and nature.

> Language is the distinctive mark of man – and even in its development, in its growing perfection it remains human – perhaps too human. It is anthropocentric in its very essence and nature. But at the same time it possesses an inherent power by which, in its ultimate result, it seems to transcend itself. From those forms of speech that are meant as means of communication and that are necessary for every social life and intercourse it develops into new forms; it sets itself different and higher tasks. And by this it becomes able to clear itself of those fallacies and illusions to which the common usage of language is necessarily subject. Man can proceed from ordinary language to scientific language, to the language of logic, of mathematics, of physics. But he never can avoid or reject the power of symbolism and symbolic thought (p. 327).

Cassirer develops a thesis of the autonomy of the "power of symbolism", an "inherent power" of language. A mere defense of this thesis, as I have sketched above, does not require rejection of any particular logical empiricist position (nor need it require a rejection of *Lebensphilosophie*). In fact, if we see this thesis in its proper context as a defense of, essentially, Steinthal's position in the *Abriss*, we can recognize that the true opponent Cassirer had in mind, in this discussion, was Humboldt's, and Mill's, position that the structural grammar of actual languages expresses universal a priori truths about rational thought.[23] If this is a correct reading, Cassirer's aim was to show that actual languages develop independently of a priori rational presuppositions about fixed structures of thought, and instead are expressions of a capacity for symbolic expression and engagement with nature.

[23] And these are, in fact, the opponents Cassirer cites in 1942b.

Conclusion

Cassirer's focus on the expressive function of language should be read, not in the context of Carnap's debate with Heidegger, but in the context of the earlier work of Steinthal. Steinthal distinguishes the expressive form of language, when language is studied as a natural phenomenon, from language as a logical, inferential system. Steinthal argues that language always can be expressed in terms of logical inference. Thus, he would disagree with Heidegger, just as Carnap does. But, Steinthal insists, that is not to say that language, as a natural phenomenon, is exhausted by logic or by the place of terms or relations in inferential structures. Steinthal's "form" of linguistic "expression" is an early version of Cassirer's "expressive function" for language. The expressive function, then, should not be seen to place a barrier between Carnap and Cassirer. Rather, Steinthal and Cassirer deal with a question that, as far as I know, Carnap does not address directly: how should philosophers analyze human language as a natural phenomenon, as a part of our expression as animals? And how does that expression determine the semantic categories, kind terms, and other structures that develop within, and characterize, human language itself?

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