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FREEDOM IN A SCIENTIFIC SOCIETY: READING THE CONTEXT OF REICHENBACH'S CONTEXTS

The distinction between the contexts of discovery and justification, this distinction dear to the projects of logical empiricism, was, as is well known, introduced in precisely those terms by Hans Reichenbach in his *Experience and Prediction* (Reichenbach 1938). Thus, while the idea behind the distinction has a long history before Reichenbach, this text from 1938 plays a salient role in how the distinction became canonical in the work of philosophers of science in the mid twentieth century. The new contextualist history of philosophy that has arisen in recent years invites us into an investigation of the nuances of philosophical distinctions and their roles in shaping the development of disciplines. Logical empiricism played a key role in the historical development of philosophy of science and this contextualist history has revealed a much richer set of projects in logical empiricism than the potted histories had allowed. Many stories have been told about the contexts of justification and discovery; few of those stories have paid more than passing attention to the larger projects in epistemology and meta-epistemology that Reichenbach was pursuing when he drew the distinction.

This brief essay will seek partially to rectify that lack in, I hope, a somewhat surprising way. I shall stress the connection between this canonical distinction and some other epistemological and social terms that loom large in Reichenbach's text, arguing that the social relevance of scientific philosophy for Reichenbach cannot be set aside in understanding his use of the DJ distinction. My point is, therefore, historical and reflexive. If we attend to the larger significance of the project in scientific philosophy that Reichenbach was advancing, we can see more clearly why the DJ distinction was introduced and rethink the significance of questioning the distinction. I do not mean to defend the distinction here, but I do hope that my discussion of Reichenbach's project reveals its attractiveness to him and, potentially, to us.

First, some familiar stage-setting: Reichenbach's distinction was meant, as is clear from the first few pages of *Experience and Prediction*, to solve the key meta-epistemological question of his time, clearly to demarcate epistemology from psychology.[1] In this project, Reichenbach found aid and comfort in Rudolf Carnap's claim in the *Aufbau* that epistemology provided rational reconstructions of the process of cognition, writing: "For this logical substitute the term *rational reconstruction* has been introduced; it seems an appropriate phrase to indicate the task of epistemology in its specific difference from the task of psychology" (Reichenbach 1938, pp. 5–6). This

J. Schickore and F. Steinle (eds.), Revisiting Discovery and Justification, 41–54.

demarcation between psychology and epistemology frames the terms within which Reichenbach then proceeds to introduce the distinction between the contexts of justification and discovery—discovery is a psychological process internal to an individual scientist and at least potentially touched by genius; justification is a communal and communicative process. The famous words with which Reichenbach introduces the distinction explicitly analogize the context of justification to the public presentation of scientific knowledge (Reichenbach 1938, pp. 6–7):

> If a more convenient determination of this concept of rational reconstruction is wanted, we might say that it corresponds to the form in which thinking processes are communicated to other persons instead of the form in which they are subjectively performed. The way, for instance, in which a mathematician publishes a new demonstration, or a physicist his logical reasoning in the foundation of a new theory, would almost correspond to our concept of rational reconstruction; and the well-known difference between the thinker's way of finding his theorem and his way of presenting it before a public may illustrate the difference in question. I shall introduce the terms *context of discovery* and *context of justification* to mark this distinction. Then we have to say that epistemology is only concerned with constructing the context of justification.

There are many places that one might with profit pause over in this passage, but one aspect of the passage that has received little attention is the last phrase of the last sentence: why does Reichenbach say not that epistemology is concerned only with the context of justification but, rather, that epistemology is "only concerned with *constructing* the context of justification"? The simplest answer, the one most clearly expressed in passages following this one in Reichenbach's text, is simply that even scientific language is inexact and imprecise and only philosophers hold the tools needed to eliminate such imprecision. Thus, in the actual practice of science, scientific publication is the closest analogue to a fully rationalized discourse of science, but even that requires a bit of rational reconstruction. This simple story is, for the overall significance of the context distinction, only the less interesting half of the story, however. The introduction of logically precise terms is, in the envisioned process of fully rationalizing science, itself a social process that first creates the conditions of rationality even within science itself. There must be a "public," a community of agents all speaking the same language, before the context of justification is even possible. By drawing attention to both the need for clear meanings and the role of social decision in making scientific knowledge possible, Reichenbach's account of epistemology gives scientific philosophy a social function and, ultimately, a political significance. Scientific philosophy is meant to help create the conditions for a rationalized society within which justification finally makes clear and explicit sense.[2]

Reichenbach's book was, I shall argue, an intervention in the social order in virtue of being an intervention in the epistemic order, given his account of the proper tasks of epistemology. I will argue for this through attention to some of the ways in which Reichenbach uses motivating terms in the book. Ultimately, Reichenbach is engaged in an effort common among the scientific philosophers we associate with logical empiricism—the effort to construct on scientific grounds the epistemic space in which beliefs can be freely adopted but rationally controlled. This is a delicate balancing act. On the one side are irrationalists and even unbridled conventionalists who threaten

to make all knowledge-making into free flights of imagination; on the other side are inductivists and epistemic determinists of various stripes who threaten to make our epistemic life a matter of machine-like rule-following or the iron laws of history. The problem of knowledge for the logical empiricists is the problem of how to allow for the freedom of thought and yet enforce proper concern for epistemic responsibility. This problem becomes almost identical with the problem of liberal democratic tolerance, of course—as well it might since the need for a rationalized international socialist democratic society was, the logical empiricists agreed, the only real option to fascism in Europe in the 1930s.[3]

TEXTUAL EVIDENCE IN EXPERIENCE AND PREDICTION

Some aspects of my thesis are fairly obvious in the text. Reichenbach's book is very much dedicated to stressing the uncertainty of all claims to knowledge while holding out the possibility of knowledge. Indeed, he suggests in the Preface that the term "logical empiricism" should give way to "probabilistic empiricism" (Reichenbach 1938, viii). The key to Reichenbach's probabilistic empiricism is the idea that knowledge is for the prediction of the future course of experience and for the possible control of the future course of experience. It is for this reason that the problems of the interpretation of probability and the justification of induction are central to the work. Moreover, the "pragmatic justification of induction" is quite explicitly to be contrasted with any "inductivism" that finds an algorithmic inductive logic as the key to the establishment of certain scientific truth. Indeed, the pragmatic justification of induction leaves open the possibility that inductive inference does not succeed in predicting the future course of experience—the world might turn out that way. The fragility of knowledge and the need for a creative freedom of the scientist that is consistent with epistemic responsibility in an uncertain world are main themes of the work.

While all of this may be clear, the claim that Reichenbach is trying to make a point at the interface of epistemology and social philosophy might still be seen as dubious. I admit that the textual evidence in the book is more suggestive than probative. Nevertheless, there are several aspects of Reichenbach's view that suggest lessons that he elsewhere takes to be social and political lessons. The key to the connection is the various ways Reichenbach invokes the freedom of the scientist while demanding rational control as a necessary condition of knowledge.

The first place in the text where this theme is rehearsed is right at the front, when Reichenbach stresses the ineliminable role of decision in science even as he limits the scope of it beyond what he finds in "extreme conventionalism" (Reichenbach 1938, p. 15). The first important distinction Reichenbach makes within epistemology is between free decisions within the knowledge system and true-or-false claims made once the appropriate decisions have been made. This is, of course, where Reichenbach imports his work regarding conventions in space-time theories and broadens it into an account of conventions throughout the structure of knowledge. But Reichenbach is at pains even in these early sections to both deepen and limit the significance of free decisions in knowledge. He performs both of these tasks by distinguishing between

conventions and "volitional bifurcations" in science. The latter are introduced with these words (Reichenbach 1938, p. 10):

> There are decisions of another character which do not lead to equivalent conceptions but to divergent systems; they may be called *volitional bifurcations*. Whereas a convention may be compared to a choice between different ways leading to the same place, the volitional bifurcation resembles a bifurcation of ways which will never meet again.

A volitional bifurcation marks a place where the decisions of scientists or the societies in which they live have permanent consequences for what can be known. Significantly, Reichenbach's first example of such a volitional decision in science is one regarding the very aim of science itself. Moreover, he defends a non-standard decision as to a goal of science with a claim about practical rights (Reichenbach 1938, p. 10):

> What is the purpose of scientific inquiry? This is, logically speaking, a question not of truth-character but of volitional decision, and the decision determined by the answer to this question belongs to the bifurcation type. If anyone tells us that he studies science for his pleasure and to fill his hours of leisure, we cannot raise the objection that this is "a false statement"—it is no statement at all but a decision, and everyone has the right to do what he wants.

The very goal of the pursuit of knowledge can only be grounded in epistemic freedom, guaranteed by personal rights.

Volitional bifurcations, on the other hand, according to Reichenbach, limit the freedom within science through the notion of "entailed decisions" (Reichenbach 1939, p. 13):

> The system of knowledge is interconnected in such a way that some decisions are bound together; one decision, then, involves another, and, though we are free in choosing the first one, we are no longer free with respect to those following. We shall call the group of decisions involved by one decision its *entailed decisions*.

It is this notion of entailed decisions—the way decisions ramify and interact within the system of scientific knowledge—that leads Reichenbach away from the dangers of unbridled conventionalism (Reichenbach 1938, p. 15):

> The concept of entailed decisions, therefore, may be regarded as a dam erected against extreme conventionalism; it allows us to separate the arbitrary part of the system of knowledge from its substantial part, to distinguish the subjective and the objective part of science.

It is important to note that the notions of the "arbitrary" and the "subjective" here do not signal that these elements are harmful to or eliminable from science. Reichenbach introduces "entailed decisions" in an effort to locate and to minimize the arbitrary and subjective, but the role of subjective volition, as we have already seen, cannot be reduced to zero within science. Science is based on decisions. Unbridled conventionalism, according to Reichenbach, misunderstands the way decisions ramify, but there is a necessary element of the volitional within science.

This understanding of the interconnection of the volitional is the first step not in eliminating, but in disciplining the arbitrary and subjective. Science, as a given social enterprise[4], could not proceed on the basis of each individual making his or

her own choices, unconstrained by the need for co-ordination and control. It is of interest that this sort of intersubjective control is, in fact, the language within which Reichenbach demarcates his scientific philosophy from the concerns of traditional metaphysics. For example, in section 26 and following, Reichenbach discusses the scientifically acceptable (by his lights) understanding of the problem of other minds. He argues that there is no introspective access to the operations of "psychical" phenomena. He notes that this claim is disputed in metaphysics, which claims each of us has privileged access to his or her own psychical phenomena (Reichenbach 1938, pp. 227–228):

> It is a current opinion among philosophers that what we have said is valid only for our observations of other persons, as we cannot share their psychical life, but that for our own person there is another means of observation, a direct view into our internal life. This distinction is one of the profound misunderstandings on which the traditional metaphysics is based. To clarify this question, let us enter into an analysis of the difference between our own personality and other personalities. There is, of course, a specific difference; but it is not of the type assumed by traditional philosophy.

What is notable for our purposes in this discussion is how he goes on to speak of behavioristic psychology as involving the "control" of behaviors. Thus, he considers the warrant for the claim that someone else sees (properly, i.e., as three-dimensional) a stereoscopic image. The pertinent question, according to Reichenbach is (1938, pp. 229–230):

> Now let us see how we control the statement that another person has the stereoscopic image. That the person is looking through the stereoscope is not a sufficient reason to believe that he has the impression. We control it by his reactions . . . . When the stereoscopic effect occurs, almost every person, especially if untrained, shows a sudden expression of joy and surprise, by an exclamation or a smile. This reaction, in combination with the other ones, is a very good indicator.

Throughout his entire discussion of the virtues of behavioristic psychology, Reichenbach returns again and again to the notion of control. Behaviorism, in sticking to a physicalist language of stimulus and reaction, succeeds where the vague, metaphysical, introspective psychology fails (1938, p. 241):

> It is the advantage of behaviorism that an objective language is obtained which can be controlled by everybody; reports of the person are not needed, and the method is applicable to animals as well as men.

Where he objects to behaviorism, it is in the confusion of this point about language with a point about method: the objective, physicalist language of behaviorism does not obviate the usefulness of self-observation as a method in psychology; here, too, the language is the language of control (1938, p. 243): "The method of self-observation is, I think, a necessary element of psychology; it is to be controlled but not to be dropped."

The point in stressing the use of the notion of "control" here is to stress the other side of the problem of dependence of knowledge upon the will: the will must be disciplined. "Control," for Reichenbach, involves the intersubjective co-ordination of the scientific will and the checking of claims against the world and with one another. The point of

the context of justification and the intersubjectivity of scientific knowledge is that they allow such checking. "Control" seems to have been chosen because of its relations to the word "kontrollieren" of Reichenbach's native German; this word suggests less domination by a superior power (putting someone under one's control) and more the checking of equipment or of procedure (as in "control group"). Indeed, Reichenbach uses "control" in this way quite explicitly in discussing unanticipated experimental results in physics—one checks one's accounts of abstractions and inferred concrete objects (his *illata*) by checking them against independently achievable alterations in observable and manipulable concrete objects, such as wires and batteries (1938, pp. 274–275):

> Imagine an engineer who discovers a new effect in a vacuum tube, say, a sudden rise of anodic current when a certain pressure of a specific gas is poured into the tube. At first he will not believe in this physical interpretation of his experience. He will look over his wires, batteries, and screws to ascertain whether the concreta basis of his inferences is unchanged. He will then control his instruments and his set by replacing his tube by another tube of known effects; he thus determines whether his concreta basis leads to usual concrete effects if it is used in a normal way. He connects in this way the observed fact with a wider concreta basis. Whoever takes part in practical work with abstracta and illata—and almost every branch of higher engineering is occupied with such things—will know that this return to the concreta basis is used as the only decisive method of control.

So, I am not suggesting a coercive political agenda in Reichenbach's work; something like "science inevitably seeks political control." Rather, I am suggesting an interesting connection that is quite necessary given Reichenbach's claims about scientific freedom: science will achieve objectivity, despite the necessary expression of scientific freedom, through a demand for epistemic control; science seeks claims that can be checked against the world and which epistemic agents can agree upon (so we can check one another). This politically tinged language is the natural language of expression in Reichenbach's scientific epistemology. Reichenbach's logical empiricism stressed both a human right to epistemic freedom and the need for exercise of the will in the pursuit of knowledge; this had to be counter-balanced with a source of epistemic responsibility in the control of claims to know. The construction of the context of justification, then, is the source of epistemic responsibility of science and the social responsibility of the scientific philosopher.

METAPHYSICS AND SCIENCE IN NEURATH AND REICHENBACH

"Control" in the sense at issue is obviously close kin to "verifiability" and, even more so, to "testability." This is not a sense of "control" unique among logical empiricists to Reichenbach, moreover. Otto Neurath also used the word in this way (Neurath [1931] 1983, p. 48):

> What do I mean by a positive statement, and how can I test it? A statement that cannot be controlled is a *thesis devoid of sense*. Those who thus succeed in formulating a system of laws which they apply in *predicting events* were best regarded as 'representatives of a scientific conception of the world'.

Indeed, Neurath was as likely to use the notion of "rationally uncontrolled assertion" as "unverifiable sentence" is discussing the nature of metaphysics.[5] This allows Neurath to avoid the pseudo-rationalism (another of his favored terms) of a belief any general *method* of verification in favor of a fallible procedure of check and control. More than this, however, the term "uncontrolled" as used by Neurath and Reichenbach suggests a *danger* in metaphysics. Metaphysical claims lack all connection to empirical claims. Belief in such claims, thus, does not help and may actually hinder ability to act in the world of physical things. Metaphysicians, therefore, consciously or unconsciously, offer stories that might decrease agents' abilities constructively to act in the world. Thus, for example, one of the main lessons of Neurath's *Anti-Spengler* is exactly that belief in the Spenglerian story of the decline of western civilization decreases one's ability to act in the world: dedicated to "youth and the future they shape," the work ends with a plea to "young people who take life seriously" to "advance to strong constructive activity" (Neurath [1921] 1973, pp. 158, 213). Similarly, pseudo-rationalist metaphysics, which offers reasons why certain procedures must lead to knowledge, decreases the number of options one seriously considers through a misleading story of rational inevitability.

It is unusual to place Neurath and Reichenbach side-by-side when discussing logical empiricism; Neurath is the leader of the "left Vienna Circle" whereas Reichenbach, while not a Circle member at all, is often firmly associated with views of the "right" Circle.[6] I suggest that there is more to the connection between Neurath and Reichenbach than has sometimes been allowed. In 1938, Reichenbach is firmly within the physicalist wing of logical empiricism and his views on "control" illuminate the twin resources of epistemic control available within the physicalist phase of logical empiricism: On the one hand, on Reichenbach's view individual concrete material objects simply presented themselves to us in our experience; he calls this the "peremptory character of immediate things" (1938, p. 275). These things are beyond our willful control and present the material conditions of knowledge; they are the things in experience whose brute existence nothing worthy of being called "knowledge" could ignore. On the other hand, communal volitional decisions as to the meanings of words provide the semantic control over the languages we speak. Our joint decision to speak the same language and to hold one another to its requirements provided the grounds upon which to object to deviant, deceptive, or meaningless speech.

As it did for Neurath, Reichenbach's interest in "control" finds expression also in the tight connection that he makes—if only by decision—between knowledge and prediction. Prediction is all about control of experience aided by being able reliably to foretell the consequences of natural and social acts. Indeed, Reichenbach's pragmatic justification of induction—perhaps the most famous portion of the book—makes explicit the way in which Reichenbach sees reliable action as the point of knowledge-seeking (1938, p. 346):

> Inductive inference cannot be dispensed with because we need it for the purpose of action. To deem the inductive assumption unworthy of the assent of a philosopher, to keep a distinguished reserve, and to meet with a condescending smile the attempts of other people to bridge the gap between experience and prediction is cheap self-deceit; at the very moment when the apostles of such a higher philosophy

> leave the field of theoretical discussion and pass to the simplest actions of daily life, they follow the inductive principle just as surely as does every earth-bound mind.

Indeed, the inductive principle is a principle of action: inferring in accordance with the assumption that there is a limit of frequency is acting and, if Reichenbach's justification of induction works, is a way of acting epistemically that leads to reliable action generally, if there is reliable action at all.

EPISTEMIC CONTROL AND THE REJECTION OF *A PRIORI* KNOWLEDGE IN REICHENBACH

It is worth recalling the form of the pragmatic justification of induction in Reichenbach's text: The argument says that assuming that there is a determinate limit of frequency and inferring from observed frequencies to the limit frequency, adjusting as needed, will lead (eventually) to the correct limit of frequency if there is a limit at all. Thus, one is warranted in so inferring, regardless of whether there are frequency limits (laws of nature, one might say), since the point of knowing is reliable prediction and this process leads to reliable prediction if prediction can be reliable at all. Now back in his dissertation in 1915, Reichenbach had provided what he thought of as a transcendental deduction of the need for probability judgments if the world was to be objectively represented at all. The pragmatic justification of induction seems, on the face of it, to be a similarly transcendental argument, with a somewhat weaker conclusion. Reichenbach's pragmatic argument has a tint of Kantianism about it; it sounds almost as if he is saying that the inductive principle is a necessary precondition of knowledge. Reichenbach himself noted this tone and sought to argue against reading too much Kantianism into his position in 1938. For our purposes here, what is most interesting to note are the terms in which Reichenbach distances himself from a Kantian reading of the argument (1938, p. 360):

> There might be raised, instinctively, an objection against our theory of induction: that there appears some thing like "a necessary condition of knowledge"—a concept which is accompanied since Kant's theory of knowledge with an unpleasant flavor. In our theory, however, this quality of the inductive principle does not spring from any *a priori* qualities of human reason but has its origin in other sources. He who wants something must say what he wants; he who wants to predict must say what he understands by predicting.

This is quite informal talk but it is suggestive of the key transformation between the Kantian and the probabilistic empiricist position, as Reichenbach saw it. On the one hand, we have the familiar move to meaning: what is at stake is the meaning of "prediction." More importantly, however, in my view is the phrase "he who wants something must say what he wants." The key metaepistemological move in Reichenbach's rejection of Kantianism is the movement from reason to will. The traditional *a priori* is the constraints on knowledge offered by the very nature of reason; the necessary conditions for knowledge for Reichenbach, on the other hand, are the changing desires and interests that form the decisions needed for science.

The key lies in the metaepistemological point of Reichenbach's epistemic voluntarism. We no longer have an *a priori* guarantee in transcendental philosophy that knowledge is possible at all. We do need to determine what we want of knowledge and, given our choices regarding the goal of knowledge, we can determine whether knowledge in that sense is possible at all and under what conditions. We have here a sort of voluntary *a priori*—a willful, existential Kantianism. Of course, Reichenbach holds no truck with romantic individualism, so this existential Kantianism must, if it is to help construct the context of justification, become a matter of communal, not individual, choice.[7]

These are the terms in which Reichenbach expresses the import of the "formalistic conception of logic" (1938, p. 334f). The formalistic conception contrasts with a traditional "a prioristic interpretation" of logic, that sought to subject us to the commands of the mind (1938, p. 334):

> For the first interpretation, which we may call the *aprioristic interpretation*, logic is a science with its own authority, whether it is founded in the *a priori* nature of reason, or in the psychological nature of thought, or in intellectual intuition or evidence—philosophers have provided us with many such phrases, the task of which is to express that we simply have to submit to logic as to a kind of superior command.

The formalistic interpretation of logic frees us from this superior command by recognizing the necessities of logic as the entailed necessities of our choices of linguistic forms: we subject ourselves to the consequences of our own choices, nothing more and nothing else. As Reichenbach says (1938, p. 336) "logical necessity . . . is nothing but a relation between symbols due to the rules of language." These rules are, moreover, our rules; within a rationalized context of justification, we will have chosen these rules quite explicitly.

This epistemic voluntarism is Reichenbach's general weapon against a priorism in all its forms. In late work, such as his (1951) *Rise of Scientific Philosophy*, Reichenbach deploys this voluntarism in his discussion of the nature of ethics, insisting that if we properly see the logical type of the ethical imperative, we shall see that such imperatives simply express volitions. On this basis, he sets up a second-order volition that he dubs "the democratic principle": "Everybody is entitled to set up his own moral imperatives and to demand that everyone follow these imperatives" (1951, p. 295). What is the nature of this principle? It is not a dictate of reason; it is a freely adopted principle of rationalized social life (1951, p. 296):

> I do not derive my principle from pure reason. I do not present it as the result of a philosophy. I merely formulate a principle which is at the basis of all political life in democratic countries, knowing that in adhering to it I reveal myself as a product of my time. But I have found that the principle offers me opportunity to propagate and, in large measure, to follow my volitions: therefore I make it my moral imperative.

The language to this point in Reichenbach's discussion has been robustly individualistic but Reichenbach does not wish to be seen as a radical individualist—indeed, his democratic principle is opposed to an "anarchist principle" that says simply "everyone has a right to do what he wants" (1951, p. 294). Part of the argument against this

anarchic individualism is an obscure argument about the difference between rights to act and rights to demand (1951, p. 295f). A more promising line of argument, given Reichenbach's metaethical stance is provided by a sort of pragmatic argument based on a psychological principle of harmonizing effects of living within groups whose individuals have opposing volitions (1951, p. 297):

> Whoever wants to study ethics, therefore, should not go to the philosopher; he should go where moral issues are fought out. He should live in the community of a group where life is made vivid by competing volitions . . . . There he will experience what it means to set his volition against that of other persons and what it means to adjust oneself to group will . . . . The exponent of individualism is shortsighted when he overlooks the volitional satisfaction which accrues to belonging to a group.

Lest there be any doubt in the minds of the reader of his text that this argument is meant to recall the pragmatic justification of induction, Reichenbach ends the argument is this way (1951, p. 301):

> We try to pursue our own volitional ends, not with the fanaticism of the prophet of an absolute truth, but with the firmness of the man who trusts his own will. We do not know that we shall reach our aim. Like the problem of a prediction of the future, the problem of moral action cannot be solved by the construction of rules that guarantee success. There are no such rules.

Lest it seem that I am making too much of this metaepistemological reorientation from reason's immutable structure to the framing role of changeable volitions, it is interesting to see that in 1928, in a popular work, Reichenbach drew this inference explicitly ([1928] 1978b, p. 244):

> Rational knowledge in our sense is not tantamount to categorization within the pre-established cubby-holes of a reason that governs *a priori*, but simply amounts to unconditional faith in the power of the human capacity for knowledge—within the framework of a critique of its own goals. Thus the rational element is itself subject to change; and it emerges with increasing clarity that the basic stance of science is a faith more akin to an instinct than to rational insight, to will than to knowledge. Thus the will, the tenacious, malleable, indefatigable, and yet, eternally modifiable will is probably the basic element that truly represents the world view standing behind the scientific investigation of nature.

SUMMARY AND CODA

I have argued that the need within a scientific culture to balance the freedom necessary for scientific thought against the need for epistemic responsibility is the larger agenda behind Reichenbach's famous distinction between the contexts of justification and of discovery. In constructing the context of justification, scientific epistemology serves a social function; it exposes and institutes the conditions of epistemic responsibility. I have argued for this through an effort to excavate the terms within which Reichenbach expresses his epistemological project, especially the notions of volition and control.

This project has much to recommend it beyond the narrow confines of interpreting *Experience and Prediction*, however. It helps illuminate two issues in the Reichenbach literature precisely by bringing them together. The first issue is a standing issue within the interpretation of Reichenbach's philosophy of the significance of his acceptance

of Schlick's term "convention" over his own earlier use of a neo-Kantian "*a priori*." Some, like Michael Friedman (Friedman 2001), have downplayed this move as primarily terminological: the key to understanding convention as used by Reichenbach from the mid-1920s is to see it as playing the same role as the variable or relativized *a priori* of his earl work on the theory of relativity (Reichenbach [1920] 1965). Others, like Don Howard (1994), have argued that we miss a significant moment of anti-Kantianism if we downplay this shift in Reichenbach's vocabulary. I have stressed the metaepistemological level at which Reichenbach rejects the *a priori*—in essence, he rejects an *account* of the *a priori* that makes the *a priori* the realm of the inviolable demands of reason. He so ties the *a priori* to this account of it, that in rejecting the account, he rejects the very notion of the *a priori*. Thus, I split the difference between Friedman and Howard. I agree with Friedman that if we, as philosophical interpreters, have a sensible notion of the variable *a priori* in hand, then we can see Reichenbach as accepting such a notion, even when he uses the term "convention" to denote it. I agree with Howard that we miss something if we do not take seriously Reichenbach's commitment to rejecting the term "*a priori*" because of association between that notion and the notion of reason's demands. The conventional is the realm of the freedom of the will, not the necessary demands of reason. Reichenbach's metaepistemology leads him to reject the associations of the *a priori* with "ways we must think." This does not solve all remaining issues but it does raise issues at the proper interpretative level, I believe: the issue is not "is there an *a priori* element in Reichenbach's epistemology circa 1938?"—a question that depends on our ability to make sense of a variable *a priori*—but, rather, "why did Reichenbach come to associate apriorism with the necessary and inviolable demands of unchanging reason between 1921 and 1938?" (or, to put the issue in a different way, we can ask "what would Reichenbach have objected to in my phrase 'existential Kantianism'?)[8]

This leads to the second issue, which is rarely if ever considered in the arguments over the first issue, but, in fact, on my view, holds the key to it. This issue is the relation of Reichenbach's scientific epistemology to his political point of view and activities. As I have argued, the metaepistemology of Reichenbach's *Experience and Prediction* can be read as suggesting a social responsibility for scientific philosophy: exposing and creating the conditions of transparent rationality of discourse. This required an acknowledgment of an ineliminable role for volition in the construction of knowledge and the concomitant need for co-ordination and control. This connects quite explicitly with the terms Reichenbach used as a student radical in the 1910s in his writings on university reform. The Free Student Movement, according to Reichenbach (Reichenbach [1913] 1978a, p. 110), "reject[ed] every authoritarian morality that wants to replace the autonomy of the individual with principles of action set forth by some external authority." This individualism did not stand opposed to community; indeed, it formed, according to Reichenbach a proper sort of socialism (1978a, p. 110):

> It is incorrect to speak of a contradiction between individualism and socialism . . . . When we demand the autonomy of the individual and require at the same time that the individual grant to everyone else the same right to self-determination, we are really presenting one and the same thought from two different aspects.

The reason why it is the same thought is because the enemy of both is solely and wholly an external and binding constraint on the will of anyone. Reichenbach argued there were no such constraints and came increasingly to see a commitment to the *a priori* as expressing the view he so forcefully rejected.

Just as the metaepistemology of *Experience and Prediction* reflects his social and ethical agenda, so too does his rejection of the *a priori* reflect his metaethical view that moral imperatives are volitions, not offerings of reason. Reichenbach introduces the discussion of the nature of ethics in chapter 17 of *Rise of Scientific Philosophy* precisely by tying his views to the rejection of an *a priori* element in knowledge (Reichenbach 1951, p. 276):

> The exposition of the second part of this book has so far been concerned with questions of knowledge; it was shown, in particular, how the synthetic *a priori* was eliminated in the cognitive field. The present chapter will be concerned with a similar analysis of the field of ethics. The idea of a synthetic *a priori* has been applied not only to knowledge but also to ethics . . . . It is the problem of the present chapter to replace the cognitive and aprioristic conception of ethics by a conception compatible with the results of scientific philosophy.

Reichenbach's rejection of the *a priori* is a systematic commitment, based on the view that the *a priori* is irredeemably tainted with the mark of the necessary demands of reason. The rejection of this view is the primary lesson of his account of the role of volition in knowledge and in ethics. Reichenbach's metaperspective uses the language of the faculties of the mind to argue for the primacy of will over reason. In using decision and choice as the weapon against the *a priori*, Reichenbach explicitly re-introduced a notion of the will back into theories of knowledge—a theory of the subjective element in knowledge becomes a theory of free and constrained choice of structures within which to represent the world.[9] We best read Reichenbach not as attempting to give a theory of knowledge as simply a theory of accurate representation, but as also a theory of the conditions of choice that induce a genuine human and social responsibility for knowledge claims. Reflection on the social and epistemic situation surrounding the theorists of knowledge on the 1910s through the 1950s will help reveal why such responsibility was a key, if now forgotten, theme of epistemology at the time.

ACKNOWLEDGMENTS

Portions of this essay were presented at the conference celebrating Michael Friedman's work at the University of South Carolina in October 2004 and as the 2005 Hans Reichenbach Lecture at UCLA. I thank my audiences at each event, especially Mary Domski, Michael Dickson, Michael Friedman, David Kaplan, and Maria Reichenbach, for comments and encouragement. I wish to thank the other contributors to this volume, and especially its editors, for useful comments on an earlier draft. My thinking about these issues has been stimulated over the years by conversations with many people, especially Michael Friedman, Gary Hardcastle, Don Howard, George Reisch, and Thomas Uebel. John Beatty served as the material precondition

of the possibility of this essay. As I was writing the essay my good friend and valued colleague, Stephen Straker, passed away; I dedicate the essay to his memory.

NOTES

1. I am interested in the distinction as it appears in Reichenbach's text and I do not wish to say much more about it than he does. If called upon to place Reichenbach into Hoyningen-Huene's (this volume) typology, I'd say that Reichenbach was committed to versions one, three, and four, but that the key issue was how to demarcate the proper task and tools of philosophy of science, which I think is the import mainly of version four. This is why the distinction is not, in the first instance, between discovery and justification, but between the *contexts* of discovery and justification.
2. Thomas Uebel (Uebel 2005) has recently stressed the social aspects of Neurath's philosophy of science, contrasting it with a less completely social picture in Reichenbach's philosophy of science. Uebel is certainly right that the social aspect of Neurath's philosophy is much more explicit and self-conscious; it is nonetheless there also in Reichenbach.
3. The politics of logical empiricism are now no longer news. See, for example, Stadler, 2001; Uebel 2000; Howard, 2003; Reisch, 2005, and the essays in Heidelberger and Stadler, 2003.
4. "Every theory of knowledge must start from knowledge as a given sociological fact" (Reichenbach 1938, p. 3)—this is the first sentence of *Experience and Prediction.*
5. Thus, according to Uebel 2004, p. 255, Neurath wrote a letter to Rudolf Carnap in which he says "I like to use the word 'metaphysics' when I am confronted with a view that is supported by the tendency to formulate uncontrollable assertions" (Neurath to Carnap, 29 February 1935; ASP/RC 029-09-80). Cartwright et al. 1996 offers a view (or more than one view perhaps) of what Neurath meant by "rationally uncontrolled assertions" in metaphysics.
6. On the terminology of "left" and "right" here, see Uebel 2004. For Reichenbach as "right wing," see Howard 2003.
7. A recent commentator who has made much of Reichenbach's voluntarism and has also sought to use resources from existentialism to rehabilitate empiricism is Bas van Fraassen (van Fraassen 2002).
8. I have attempted to say more about Reichenbach's rejection of the *a priori* recently in Richardson 2005.
9. Interestingly, one contemporary of Reichenbach, C.I. Lewis (Lewis 1929) also argued for the primacy of will over reason and then, rather than reject the *a priori*, provided on this basis a "pragmatic conception of the *a priori*."

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