Dear colleagues: It is a pleasure to have the opportunity to speak with you again. The paper is a (very) rough draft of the second chapter of a book that I’m writing on the role that considerations of ignorance and the limits of human knowledge play in Hayek’s arguments for liberalism in various domains, and the implications of ignorance for the possibilities of a liberal social order. However, please be aware that the project is currently in a state of flux in the sense that I’m considering taking the focus off of Hayek and placing it more on the implications of (what I call) “the argument from ignorance.” The problem is that, although I think it’s possible to show that this argument figures centrally in Hayek’s work, I’m ultimately less concerned with this historical case than I am with the general social- and political-philosophical implications of the argument from ignorance. So, there’s something to be said for not bogging the book down in (mostly immaterial) historical exegesis. In any case, in my presentation, I will review the argument from ignorance and the project as it has progressed to date. Your suggestions and constructive feedback for improving the project are greatly appreciated. –Best, Scott

Chapter Two

The Case for Methodological Liberalism: Kinds of Scientific Rationalism

In the first chapter, I showed that Mises’ and Hayek’s respective arguments against socialism can be fruitfully understood as instances of the argument from ignorance. That is, Mises’ argument against the possibility of a successful isolated socialist oasis and Hayek’s arguments against both the “mathematical” and “competitive” solutions to the calculation problem are grounded in
premises concerning the policymakers’ ignorance of knowledge required to realize the relevant goals. In the present chapter, I show that Hayek’s argument(s) against the methodological position he dubbed “scientism” can also be understood as grounded on a premise concerning the (scientific) actor’s ignorance of knowledge necessary for the realization of the aims of the scientific approach.

Scientism is the methodological variant of an epistemological attitude that Hayek dubbed “constructivist rationalism.” According to Hayek (citation), the constructivist believes that, because social institutions are always and everywhere a product of human activity, they can be changed at will in order to realize various social goals. The constructivist further denies the possibility of the non-deliberative emergence of “spontaneous” social formations. Thus, to be a constructivist about methodology – to defend scientism – is to insist that science can always and only be deliberately modified to realize social goals. We can always make science do what we want it to do and, if there’s something that we want to do with respect to which extant science is inadequate, we must deliberately alter scientific practice in order to realize the relevant results.

It is worth noting that Hayek’s argument against scientism is inextricably linked with the arguments against socialism that we considered in the previous chapter and the argument against the possibility of effective countercyclical macroeconomic policy that we will consider in the next chapter. It is no coincidence that the defenders of one or the other of these latter programs also tend to advocate (and overstate the possibilities for) scientistic methodology. The scientific approach aims at predictions of social phenomena adequate in their specificity and reliability for the purposes of central planning and macroeconomic management. The means for the realization of this methodological goal (itself a means to the relevant economic policy objective) is,
Hayek's argument against scientism is to the effect that this goal of social-scientific predictions adequate for effective economic management cannot be realized on the basis of existing knowledge. We don’t know how to generate predictions in the social sciences adequate to these tasks. The scientistic approach does not suffice and the predictions that we can produce in the social sciences on the basis of our present knowledge suffice only for more limited policy goals. The knowledge required to realize the methodological objectives of scientism (and, thus, required to realize the economic policy ambitions of its defenders) does not exist.

Treating Hayek’s argument against scientism as an instance of the argument from ignorance bears interesting implications for scientific freedom. *Methodological liberalism* is the denial of both aspects of the scientistic thesis. It is not the case that science can always be deliberately changed to serve whatever goals we might adopt. Nor must science be designed in order to serve our chosen ends. Both the ends and means of successful science are the results of processes that are at least in part spontaneous, and which cannot be deliberately realized entirely on the basis of premeditated design. If, at any given time, science (or, more exactly, one of its many fields, subfields, or disciplines) is successful, it is in virtue of a partially unintended bi-directional fit between the goals and methods of science, and not because someone(s) designed and executed a plan for the realization of this state of affairs. The results of successful science
are in part ecologically rational and not entirely rational in a constructivist sense. And to insist on the necessity in scientific inquiry of this result – to insist that scientific success can never be entirely planned and controlled, and, thus, can never be coerced – is to be a methodological liberal.

Hayek’s Argument(s) from Ignorance against Scientism

In the wake of the Great Depression, during the interwar years and after, there was a common consensus that centralized government planning was necessary to the future maintenance and flourishing of western civilization. From the dogmatic Marxism of Otto Neurath, the “social science expert” of the Vienna Circle of Logical Positivism, and the gradualist socialism of Fabians like Beatrice and Sidney Webb, Hayek’s employers at the London School of Economics, to the “Tory Socialists,” who acquiesced in the postwar consensus for the British welfare state, there was widespread agreement across the political spectrum in favor of central planning.

1 Vernon Smith’s (2008, 2) discussion of the distinction between the constructivist and ecological varieties of rationality is worth quoting at length:

“Constructivist rationality, applied to individuals or organizations, involves the deliberate use of reason to analyze and prescribe actions judged to be better than alternative feasible actions that might be chosen. When applied to institutions, constructivism involves the deliberate design of rule systems to achieve desirable performance…

Ecological rationality refers to emergent orders in the form of practices, norms, and evolving institutional rules governing action by individuals that are part of our cultural and biological heritage and are created by human interactions, but not by conscious design.

The two concepts are not inherently in opposition; the issues are emphatically not about constructivist versus ecological rationality…and in fact the two can and do work together. For example, in evolutionary processes, constructivist cultural innovations can provide variations while ecological fitness processes do the work of selection” (italics in the original).

Butos and Koppl (2003) coin the phrase “processive” rationality to describe the concept of rationality associated with complex emergent orders.

2 See the proposed chapter outline of an early version of Hayek’s unfinished Abuse and Decline of Reason project reproduced in Caldwell (2010, 5)
However, it was also generally acknowledged that the social sciences, as then constituted, were inadequate to the onerous requirements of successful central planning. Social control of the sort required of planning can only be predicated on highly specified and reliably accurate predictions of social phenomena. The predictive deficiencies of the social sciences in these respects were too obvious to ignore. The issue for advocates of economic planning then became the means by which social-scientific predictions might be raised to the required standards of specificity and accuracy. Reform of the social sciences, along the lines of the techniques that had proven so successful in the “hard” sciences, was suggested as a means to the end – necessary for the further goal of effective central planning – of adequate predictions of social phenomena.

Thus, the scientism that Hayek knew and argued against, was the view that the social sciences could be, and could only be, deliberately remade to deliver predictions of the specificity and accuracy required of effective central planning. Hayek’s argument from ignorance against scientism aims to show that the importation of the methods of the physical sciences is no way to improve predictions of social phenomena and, moreover, that there is no other known means for the deliberate realization of this goal. We don’t possess the knowledge required to purposefully elevate the predictive capacities of the social sciences to the arduous standards required of effective economic control. If this goal is to be realized, it cannot be brought about deliberately, but requires the fortuitous operation of circumstances currently unknown to the social scientist.

Thus, Hayek denies both tenets of constructivist methodology: not all scientific goals can be
brought about deliberately and some scientific goals, if they can be realized at all, can only emerge spontaneously.3

Hayek’s conception of scientism, and thus, of the reasons for its inadequacy, changed over time. In fact, he offered two distinct explanations for the ignorance that he argued would plague attempts to import the methods of the physical sciences into the social disciplines. According to Hayek’s early methodological writings, there is a meaningful difference between social and physical phenomena that makes the methods appropriate to explaining the latter inappropriate for explanations of the former. According to his later methodological writings, the differences between the sciences are ones of degree and not of kind, but are no less dire for the predictive aspirations of the scientistic approach.

Hayek’s argument in “Scientism and the Study of Society” ([1952] 2010) proceeds in three major steps. First, Hayek distinguishes between the methods available to the social sciences. There are those techniques that the scientistic approach suggests ought to be adopted, on the grounds that these are purportedly the methods that have proven so successful in the physical sciences; and there are those methods that the social sciences have, without input or interference from the physical sciences, evolved of their own accord to account for social phenomena.

3 It should be noted that Hayek’s argument from ignorance is directed against scientism as a means to the realization of a particular social goal and not against scientism as an end in itself or as a means toward some other end. The conclusion is not that we don’t know how to effect scientism in the social sciences; it is that we don’t know how to make scientism effective as a means to the end of improving social-scientific predictions. The social sciences can try scientism, and may eventually discover other ends for which it is an appropriate means, but we should not expect these ends to include that of improving social-scientific predictions to the extent required of effective central planning.
According to the scientistic approach, the social sciences should adopt the historicist, collectivist, and objectivist methods of the physical sciences, and minimize the theoretical, individualist, and subjectivist methods that have developed non-deliberatively in the social disciplines. Second, Hayek considers the predictive capacities of the existing methods of these fields, which constitute the minimum standards that the scientistic approach must surpass if it is to realize the predictive adequacy required of effective economic management. Ideally, the scientistic approach would accurately predict social events with a tolerable degree of specificity, but, at a minimum, it must surpass the “explanations of the principle” ([Ibid.], 105-107) that the social sciences, with their theoretical, individualist, and subjectivist methods, can manage. Third, Hayek argues that the scientistic approach cannot meet, much less surpass, even the minimal predictive standards of the present methods of the social sciences.

To say that the social sciences should be objective rather than subjective is to say that social-scientific explanations should run in terms of either directly observable behavior or the physical processes that underlie individual mental phenomena; and should, in any case, avoid reference to the subjective beliefs, opinions, and expectations of economic actors. Hayek criticizes this suggestion on the grounds that it artificially limits, in the name of an ephemeral methodological principle, the extent and kind of knowledge upon which social-scientific predictions can be based. The defender of scientism recommends that the social scientist willfully ignore knowledge that is both available and relevant. The social scientist possesses a mind of a common structure as the minds of other humans, including the subjects of social inquiry. The social scientist is thus able to infer (fallibly, of course) from direct acquaintance of this mental structure
to certain properties of the minds of these subjects. It is only in virtue of knowledge of the common structure of the human mind that interpersonal communication is possible. The demand for objectivism requires that the social scientist ignore this knowledge, even where it is most obvious, or most obviously relevant.

In the absence of scientism, the social-scientist is free to build a theory from elements that make reference to either physical properties or mental properties, but the scientistic approach insists, because theories that run entirely in physical terms have proven so successful in explaining physical phenomena, that mental properties can safely be, and ultimately ought to be, ignored in explanations of social phenomena. The defender of scientism apparently believes that the predictions of a scientistically-informed social science will be more specific and accurate if their epistemic foundation is artificially limited in this manner. Thus, Hayek argues that a transition to objectivism could not possibly improve social-scientific predictions beyond what is possible with the subjectivist approach – which puts no restrictions on the material the scientist might employ in developing a prediction – because the former means predicting on the basis of less (or, more exactly, no more) knowledge than the latter.

But, beyond this, Hayek rejects the constructivist’s specific proposals for objectivist programs in the social sciences. Behaviorism, Hayek argues, cannot be consistently carried out. The behaviorist aims, in explaining social phenomena, to bypass reference to subjective properties by developing theories that run entirely in terms of the observable reactions of agents to purely physical stimuli. However, the behaviorist is forced to rely upon the classification of external stimuli effected by the human sensory apparatus and the assumption – which it should prove, but instead, merely takes for granted – that this classification is the same for all human
agents. Behaviorists “all take it naively for granted that what appears alike to us will also appear alike to other people. Though they have no business to do so, they make constant use of the classification of external stimuli by our senses and our mind as alike or unlike, a classification which we know only from our personal experience of it and which is not based on any objective tests showing that these facts also behave similarly in relation to each other” (Hayek [1952] 2010, 109) Only if the common classification of stimuli could be established objectively, in the terms behaviorism itself demands for the social sciences, would this reliance on the subjective material of sensation be licensed. As it stands, Hayek argues, the behaviorist both eats cake and keeps it.

On the other hand, Hayek rejects physicalism for the social sciences on the grounds that it is both irrelevant to explanations of social phenomena and, in any case, a long way from being achieved. Physicalism requires a complete reduction of the mental to the physical which, even if it were available, would be, according to Hayek, utterly superfluous to social-scientific explanations. Nothing interesting would follow for an explanation of, say, Custer’s Last Stand from the possibility of reducing Custer’s hubris – or any of his other mental states, or those of either his soldiers or the rampaging Sioux – to some underlying firings of neurons. Even if we possessed a complete reduction of the mental to the physical, we would still explain Custer’s Last Stand in terms of the old mental categories (Ibid., 113), i.e., in terms of what Custer, Crazy Horse, et al. believed and expected at Little Bighorn. Thus, the social sciences should not wait for a reduction of the mental to the physical.

To transition to such an objectivist approach in the social sciences would, at best, mean building predictions on no more knowledge than the social sciences, as presently constituted,
employ; at worst, it would mean the impossibility of consistent behaviorism or the irrelevance of physicalism. The objectivism of the scientistic approach, Hayek concludes, is no means for the improvement of the predictions of the social sciences.

Hayek rejects the holistic (collectivist) methods of the scientistic approach for similar reasons. Unlike the individualistic approach that has evolved of its own accord in the social sciences, and which aims to show how social wholes emerge from the interactions of the subjective material of individual actors, methodological collectivism aims to discover systematic regularities in the behavior of purportedly *sui generis* social wholes. However, according to Hayek, the collectivist method starts from the error of taking these wholes as directly given objects of perception rather than as what they are, namely, mental constructs—“provisional theories…constructed by the popular mind to explain some of the individual phenomena which we observe” (*Ibid*, 118). The defender of scientism is thus led to accept as objective what are, in fact, opinions or “vague popular theories” (*Ibid*.). The task of the social sciences is to improve upon these nebulous conceptions by showing how social structures can emerge from familiar subjective material. A method that shortcuts such due diligence and starts instead from imprecise conceptions cannot lead to better predictions than the individualist approach that takes seriously its task of improving upon the vague theories of the popular imagination (*Ibid*, 118-120).

Relatedly, Hayek argues that the statistical method, which also trucks in holistic material, is no instrument for the improvement of social-scientific predictions. The structures that the social sciences aim to rebuild emerge from the complex systematic interrelations between individual elements. The very existence of these structures, and, thus, the need for a science that explains their emergence, depends on the presence of particular relationships between the
elements. However, the statistical method proceeds – and can only proceed – by ignoring the systematic relationships that give rise to social phenomena. In other words, the objects of social inquiry, or, more exactly, the relationships that make these objects interesting for the purposes of the social sciences, cannot be expressed by the statistical method: “in the statistical study of social phenomena the structures with which the theoretical social sciences are concerned actually disappear” (Ibid., 124).

Thus, Hayek concludes, methodological collectivism in the social sciences means either reifying prevalent, but crude, holistic concepts that the theoretical social sciences in fact aim to refine, or adopting statistical forms that necessarily ignore the very systematic relationships that make social phenomena interesting. The scientistic recommendation of methodological holism is no means for the improvement of the predictions of the social sciences.

To suggest that historicism is an appropriate method for the social sciences is to advance one of two propositions: it is to suggest either that the social sciences can proceed totally sans theory, on the basis of historical reflection alone, or that the theories of the social sciences are products of the historical method. Hayek objects to both forms of historicism on the grounds that both kinds of knowledge, theoretical and historical, are required to explain any phenomena, physical or social. To argue otherwise, to suggest that the historical method is sufficient and that either it is the source of theory or that the latter is altogether unnecessary, is to confuse the logic of the relationship between theory and the study of historical events. In a phrase, historical explanation is theory-dependent. We can never explain everything that occurs in a particular spatiotemporal context, but must choose certain aspects of the phenomena that seem relevant, in some way or other, to our practical or epistemic interests. This choice can only be made on the
basis of some theory that informs the historian’s judgments of the relevance of different aspects of the phenomena (Ibid., 130-132). The historian who aims to explain Custer’s Last Stand in terms of the motivations of the principal actors rather than in terms of, say, weather conditions prevailing at Little Bighorn, needs a theory to distinguish aspects of the phenomena more relevant to the former from aspects more relevant to the latter. Such an explanation, what’s more, cannot but run in theoretical terms. The objects of historical explanations are not discrete individuals given to perception. The theoretical sciences, of both nature and society, provide the models – the “wholes” – to which a historical explanation refers, and in order to explain some concrete phenomena, the historian must rely on models from several different theoretical disciplines. Thus, the study of history presupposes theory. It is nonsensical to insist that history suffices for theory or is sufficient in and of itself.

The notion that the objects of history are given to perception in all their complexity leads to the belief, underlying all “philosophies of history,” that it is possible to discover laws that govern the historical development of these objects. However, “[t]his view…endeavours to find laws where in the nature of the case they cannot be found” (Ibid., 136). That is, philosophies of history look for simple causal laws in phenomena that are the results “of the interaction of innumerable human minds” (Ibid.). Rather than rebuilding the complex phenomena from what can be known about the individual elements, these theories “pretend to be able to arrive by a kind of mental shortcut at a direct insight into the laws of succession of the immediately apprehended wholes” (Ibid.). However, Hayek argues, there are no such given wholes, only theoretically constructed objects that cannot be understood separately from the human attitudes and actions from which they emerge (Ibid., 137-138). Since there are no such wholes, there can be no laws
that regulate their development, and, thus, there can be no predictions based on such laws that might outperform the predictions of the theoretical social sciences.

The material of the social sciences is ultimately the subjective beliefs of individual actors, and the objectivism, collectivism, and historicism that the scientistic approach recommends for the social sciences cannot express this material. The adoption of these techniques by the social sciences cannot lead to predictions of the quality required for effective centralized management of the economy. Indeed, the scientistic approach cannot approximate even the extant, autonomously-evolved methods of the social sciences, which produce only “explanations of the principle” which, although not bereft of practical value, fall far short of the predictive requirements of central planning. Thus, the knowledge is simply not available that is required for the constructivist methodologist’s goal of deliberately remaking the social sciences to be instruments of effective central planning. As Hayek conceived of scientism in his early methodological work, the methodological goals of the constructivist rationalist fall under the scope of the minor premise of the argument from ignorance. Reason is insufficient to make the predictions of the social sciences as specific and accurate as is required for effective economic planning.

*Hayek’s Later Argument from Ignorance against Scientism*

Hayek eventually came to the view, perhaps under the influence of his friend Karl Popper, that the scientistic methods which certain “men of science” had proposed to import into the social sciences were mere caricatures and not, in fact, the true methods of the physical sciences. There is only one scientific method and it looks more like Hayek’s preferred (causal-genetic) approach
than scientism. On one hand, this realization only buttressed Hayek’s argument against the methods of scientism, which were, in fact, not responsible for the successes of the physical sciences, and, so, could not be appealed to on these grounds as appropriate for the social sciences. However, on the other hand, this development of Hayek’s methodological thought meant that he could no longer argue against scientism on the basis of the fundamentally unique character of the material of the social sciences. If the physical and social disciplines follow essentially the same method, then the techniques of the former just are the techniques of the latter. Why, then, is there not room to improve the predictions of the social sciences to the extent necessary to make them effective policy instruments?

Hayek’s answer, foreshadowed in places in “Scientism and the Study of Society,” and emphasized in his later methodological writings, is that the predictive limitations of certain disciplines, especially the social sciences, are to be attributed not to their fundamentally different or deficient methods, but to the comparatively higher degree of complexity of the phenomena they investigate. The physical sciences are successful compared to the social disciplines not because their methods are, in some sense, “better” or worthy of imitation, but because they investigate phenomena that are comparatively simple. Where the scientific method is applied to relatively simple phenomena composed of a few variables relatable in terms of discoverable laws, it is possible to predict with the degree of specificity and accuracy that we find in the paradigmatic physical sciences. However, where the same method is applied to more complex phenomena that emerge from the intricate dynamic interrelations of a large number of variables, it is only possible to predict “patterns” in the phenomena and to explain the “principle” from which the phenomena emerges.
Hayek’s later argument from ignorance against scientism starts from an examination of the reasons for the explanatory success of certain scientific disciplines. Social control of the sort required for effective economic planning requires the ability to predict a comparatively narrow range of events – indeed, ideally, *particular* events specified in terms of time and place – rather than the very general, imprecise, non-temporal pattern predictions of the social sciences. Thus, increasing the specificity of, or, stated another way, narrowing the range of phenomena permitted by, social-scientific predictions is a prerequisite of improving their quality to the necessary extent. What is it about some sciences that allows them to predict with a high degree of specificity? And what, if anything, could be done to make the social sciences capable of generating predictions of comparable specificity?

According to Hayek’s epistemology, knowledge comes in two varieties: there is “scientific” (or “theoretical”) knowledge (“knowledge of general rules”) and there is empirical (or “historical”) knowledge (“knowledge of the particular circumstances of time and place”) (Hayek [1945] 1948, 80).

The possibility of a “full explanation” or a “precise prediction of particular events” requires that the scientist possess both kinds of knowledge to a sufficient extent: “[s]uch prediction will be possible if we can ascertain…all the circumstances which influence those events. We need for this both a theory which tells us on what circumstances the events in question will depend, and information on the particular circumstances which may influence the event in which we are interested” (Hayek [1961] 2014). According to Hayek, the

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4 The latter variety includes knowledge of which we may not be “explicitly aware,” but which we “merely manifest…in the discriminations which we perform” (Hayek 1952, 19). This is “tacit” knowledge (Polanyi 1966) or “knowledge how” as opposed to “knowledge that” (Ryle 1946).

5 A “full” explanation need not be complete in the sense of encompassing *every detail* of the phenomena under investigation: an explanation “can never explain everything to be observed on a particular set of events” (Hayek 1952, 182). The concept of explanatory “fullness” should be thought of as sensitive to scientific context.
comparative predictive success of certain disciplines is not due to the superiority of their methods, but to the fact that the epistemic requirements for precise predictions are satisfied in these disciplines, but cannot be satisfied in other disciplines, including the social sciences, because of the relative complexity of the phenomena. That is, these “more successful” disciplines concern themselves with phenomena which, because their complexity does not outstrip the cognitive limitations of the scientist, permits predictions of the required degree of specificity. But, there’s no guarantee that every phenomena that we might want to explain will be of this sort and, in the fields that investigate these more complicated phenomena, predictions of particular events, or of comparable specificity, will be impossible.

The relevant point can be stated a bit differently. Given Hayek’s bifurcated epistemology, an explanation is an implication of the marriage of particular theoretical statements with data relevant to the variables referenced in these statements. These implications will rule out certain events in the relevant domain. Other things equal, the more comprehensive our theory and the more complete our data, the more events these conjunctions will prohibit, and the more precise predictions will be. So, the goal of making the predictions of the social sciences as precise (not to mention accurate) as the predictions of the sciences of simpler phenomena requires, at a minimum, that we possess theories and data sets comparable in their comprehensiveness to those conjunctions of theory and data that permit the latter sciences to generate relatively more precise predictions.

Of course, Hayek simply defines the sciences of complex phenomena as those disciplines that cannot meet this standard. Thus, the relevant question is whether the disciplines that would, if they could, contribute to the effectiveness of government planning are among the sciences that
are constitutionally incapable of predicting with the required degree of specificity. That is, are there reasons to think scientists in these fields either cannot construct theories that are as fully specified relative to the requirements of predictions of particular events or cannot acquire data sets of the necessary degree of comprehensiveness? Is the amount of either theoretical or empirical knowledge required to deliberately realize the goal of precise prediction beyond the epistemic capacities of the relevant sciences?

I have argued at length elsewhere that Hayek recognizes severe limits on the social scientist’s ability both to specify adequate theories and gather sufficient data.6 That the social disciplines suffer from this latter “data problem” – the impossibility of collecting data adequate to the task of precise predictions of particular events – is a straightforward implication of Hayek’s argument for the complexity of economic phenomena. It is impossible to collect the data required to predict economic events. The theory developed to explain these events is “so framed that if we were able to fill in all the blanks…we could calculate the prices and quantities of all the commodities. But, as at least the founders of this theory, clearly understood, its purpose is not [quoting Pareto 1927, 223-224] ‘to arrive at a numerical calculation of prices’, because it would be ‘absurd’ to assume that we can ascertain all the data” (Hayek [1964] 1967, 35).

Hayek also recognized a “theory problem” in the social sciences, i.e., the impossibility of specifying theories to the extent required for more precise predictions. Hayek’s claim in “The Dilemma of Specialization” ([1956] 1967, 124) that preeminence in these disciplines requires learning well beyond a narrow field of gets at the heart of this theory problem.

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6 Scheall (Manuscript)
“For almost any application of our knowledge to concrete instances, the knowledge of one discipline, and even of all the scientific knowledge we can bring to bear on the topic will be only a small part of the foundations of our opinions. Let me speak first of the need of using the results of scientific disciplines other than our own, though this is far from all that is required. That concrete reality is not divisible into distinct objects corresponding to the various scientific disciplines is a commonplace, yet a commonplace which severely limits our competence to pronounce as scientists on any particular event. There is scarcely a phenomenon or event in society with which we can deal adequately without knowing a great deal of several disciplines, *not to speak of the knowledge of particular facts that will be required* [italics added].

A theory capable of meeting the standards of precise prediction of social phenomena may well be a *composite system of theories*, spanning multiple disciplines each of which might investigate phenomena of greater or lesser complexity. What’s more, given that “concrete reality is not divisible into distinct objects corresponding to the various scientific disciplines,” there may be phenomena that must be accounted for if an explanation of some social phenomena is to be “full,” which are not part of the subject matter of an existing scientific discipline. The relevant scientific knowledge may not have been discovered (indeed, it may not even be discoverable).  

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7 Moreover, the epistemic requirements of resolving the theory problem in the social sciences are demanding. In order to predict particular events, the scientist of complex phenomena must know all of the parameters relevant to an explanation of the complex order under investigation, as well as the interrelations between the various subsets of these parameters both with each other and with the external environment. The extent of a scientist’s ability to fully explain or predict events with precision further depends not only on *how many* items of theoretical and empirical knowledge the scientist possesses, but also on *which* pieces of knowledge she possesses, some items being more important for an adequate explanation of the emergent order than others. The scientist might possess fewer pieces of
In short, Hayek argues that we possess neither the theoretical knowledge required to make social-scientific predictions as specific as effective economic management requires, nor could we ever, in the current state of knowledge, fill in such a theoretical construction with empirical data adequate to these predictive requirements. We simply don’t know enough to deliberately raise the predictive degrees of social-scientific predictions to the required extent.

The scientific method, when applied to relatively closed systems composed of few variables, and, especially, where repeated, controlled experiments are possible, can yield highly specific and reliably accurate predictions. However, this same method, when applied to more open systems composed of a larger number of variables, where it may be difficult, if not impossible, to uncover complex causal relations via experiment, cannot yield tolerably precise predictions. The social disciplines are sciences of complex phenomena, which is to say that they cannot, on the basis of existing knowledge, produce predictions adequate to the tasks of economic management.

Thus, Hayek retained the same basic argument (from ignorance) against scientism, though his definition of scientism change over time. Scientism was initially defined as the attempt to import the purported methods of the physical sciences into the social disciplines. Once Hayek was convinced that the stark distinction between the social and physical sciences was untenable, scientism became the attempt to apply techniques that afford precise and accurate predictions than if she possessed more items of less important knowledge. Hayek’s conception of complex phenomena also implies that a complete solution of the theory problem – and, thus, the possibility of precise predictions – requires knowledge of a more qualitative variety that is not easily expressible in terms of greater or lesser predictive degrees: the scientist must know something of the ontological properties of the various theoretical parameters. Finally, a complete solution of the theory problem requires that the scientist possess an adequate understanding of any feedback between the order under investigation and the various subsets of the elements from which it emerges. On these and other matters concerning the “theory of predictive degree” implied by Hayek’s methodology of sciences of complex phenomena, see Scheall (Manuscript).
predictions of relatively simple phenomena to far more complex systems. In both cases, the inevitable result, according to Hayek, is the same: failure to realize predictions of the required degree. The goal of constructivist methodology cannot be realized on the basis of existing knowledge. We cannot merely revise the methodology of the social sciences at will in order to make them adequate to the tasks of effective economic management.

The Case for Methodological Liberalism

This conclusion represents an ignoramus, but there’s nothing in Hayek’s argument against scientism that makes it also an ignorabimus. From the conclusion that we don’t know how to deliberately realize the goal of scientism with respect to social-scientific predictions, it does not follow that this goal will remain forever unrealized. We might, as it were, learn or develop new methods in the course of other pursuits – or circumstances outside our epistemic purview might otherwise be sufficiently fortuitous – that the goal is eventually realized despite our present ignorance. The key point is that, if it is to be realized, it will come about as a result of a process that we cannot currently foresee: we cannot plan our way to the required predictions.

If a rational outcome is simply one that results from an apt means-end relationship, then it follows from the foregoing considerations that scientific outcomes that are rational in an ecological sense, but not in a constructivist sense, are possible. That is, it is possible for this aptness relation to be the product of an undesigned, evolutionary process rather than a consequence of foresight and intent. This implies a further interesting possibility, namely, that the aptness relation that is the mark of a rational scientific outcome might emerge not because new methods have developed that allow existing, but previously unachievable, goals to be
realized, but because new scientific ends have evolved that are realizable with extant methods.
The aptness relation might emerge either because methods evolve that fit existing goals or
because goals evolve that fit existing methods. Of course, the aptness relation might emerge in
other cases in virtue of evolution both in scientific ends and methods, i.e., because both the
relevant ends and means of some inquiry are the consequences of processes that are at least
partially spontaneous. Indeed, the appropriateness of the theoretical, subjectivist, and
individualist methods of the social sciences for the goal of “pattern predictions” and
“explanations of the principle” would seem to be a case in which neither the methods nor the
ends for which these are appropriate have been decided in advance. The aptness relation here
would seem to have been a product of a bi-directional evolutionary process.\(^8\)

All of this means that the attitude of the constructivist rationalist, the insistence that the
deliberate application of the human faculty of reason is both necessary and (when done well)
sufficient for the realization of our social goals, is inappropriate with respect to the results of the
scientific enterprise. More exactly, since, as Vernon Smith (2008, 2) writes and Hayek (citation)
himself recognized, constructivist and ecological rationality often operate together, pure
constructivism, unleavened by an appreciation for the possibility of ecologically rational
outcomes, will ultimately lead the methodologist astray.

It is interesting to note that the possibility of scientific outcomes that are rational in an
ecological sense contributes to an error theory of previous failed attempts to explain science. The
history of philosophy of science is a story of the search for an account of science’s apparent

\(^8\) This leaves open the interesting possibility that some other goal for which the scientistic approach is appropriate
might evolve of its own accord. But, if Hayek is right, the goal of realizing higher-degree predictions of social
phenomena will never be among the goals for which these methods are apt. See note 3 above.
superior rationality as a mode of belief formation and fixation. That science is more rational than other methods was typically taken as a datum by earlier empirically-inclined philosophers of science. However, these philosophers conceived of rational science as amenable to a discursive explanation, i.e., to an explicit statement of the specific rules that govern the scientific endeavor and adherence to which makes the scientific method more rational than other modes of belief formation.\(^9\) In other words, it was assumed that science is always and only rational in a constructivist sense.

Of course, it was well established by the middle of the third quarter of the last century, largely as the result of the work of W.V.O. Quine ([1951] 1961) and Thomas S. Kuhn (1962), that actual scientific practice is not so simple. Yet, for all the credit due to Quine and Kuhn\(^{10}\) for deflecting this crude constructivism, certain of their followers made an error the exact converse of the one committed by the constructivist empiricists.\(^{11}\) Some authors, e.g., those in the sociology of scientific knowledge (SSK) tradition (especially Latour and Woolgar ([1979] 1986) and, perhaps to a lesser extent, Barnes and Bloor (1982)), responded by simply rejecting the relevant premise: they argued that science is not in fact more rational than other modes of belief formation and fixation. Notice, however, that this is merely constructivism \textit{redux}: either the rules that give rise to science’s superior rationality can be comprehensively and discursively stated, or there are no such rules and science is no better than witchcraft, religious dogma, or an appeal to political authority as a method of belief fixation. The third possibility that the scientific method

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\(^9\) The goals of the offending constructivist philosophies of science was to “articulate an objective procedure or set of criteria by which such candidate knowledge [propositions generated by individual scientists] could be justified as being acceptable...without regard to the context in which they were produced” (McQuade 2010, 26).

\(^{10}\) And other, similarly-minded thinkers such as Stephen Toulmin (1953, 1961), Michael Polanyi (1958, 1966), Norwood Russell Hanson (1958), and Paul Feyerabend (1965))

\(^{11}\) See Laudan 1990
is in fact (at least sometimes) more rational than these alternatives, but is at best only partially amenable to deliberate reconstruction, was never seriously considered by those writers who leapt from the arguments of Quine and Kuhn to the conclusion of epistemic relativism. For constructivists of either an empiricist or a relativistic bent, it is all or nothing when it comes to science’s rationality.

But, the Hayekian view that recognizes the possibility of scientific outcomes that are rational in an ecological sense rejects the notion that science is rational if and only if a discursive statement of the principles that make science rational can be enunciated. Thus, we have an explanation both for the failure of constructivist philosophy of science and for the common aversion to the epistemic relativism of constructivist sociology of science. The former failed, and the latter is objectionable, because both refused to acknowledge the possibility of scientific outcomes that are rational in an ecological sense and not entirely effable.¹²

A final important consequence follows from the foregoing considerations. In particular, it follows that there are possible goals at which scientific activity might aim that cannot, even in principle, be realized via coercion. And this is so, moreover, for purely epistemic reasons, without regard to ethical qualms or questions of the incentive structure confronting coerced scientists. If the knowledge required to make effective some plan – however brutal in its coercive techniques – for the realization of a particular goal has not been discovered, coercion is neither necessary nor sufficient for the discovery of the requisite knowledge. That it is not necessary is shown by the possibility of the emergence of this knowledge via a spontaneous process. That it is

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¹² McQuade (2010, 41-48) discusses various postpositivist explanations of science which, in his view, better conform to a Hayekian conception of science as an “adaptive classifying system.”
not sufficient is a consequence of the fact that no amount of coercion can make social scientists generate predictions of the degree of both specificity and accuracy required to facilitate effective economic planning.

But, all of this is just to repeat the relevant corollary of Hayek’s argument from ignorance against scientism: if this goal – and presumably, many others of present and future science – is to be realized, it requires the spontaneous operation of circumstances that we don’t yet know. And this is to say that some degree of freedom is required in the pursuit of ends and the choice of methods in science. This is methodological liberalism. It is essentially identical with the denial of the effectiveness of coercion as a scientific method. The realization of the ends of science requires that methods be well-adapted to goals (and *vice versa*). The methodological liberal insists that this fit between scientific ends and the means for their realization is at least sometimes the process of an evolutionary, rather than a designed (or designable), process. The methodological liberal recognizes the possibility of ecologically-rational scientific outcomes.13

**Concluding Remarks**

13 It should be noted that the methodological liberal is not a methodological anarchist. The former does not subscribe to Feyerabend’s ([1975] 2010, 12) dictum that the only rule of scientific practice is “anything goes.” This is because, as scientific ends are (at least partially spontaneously) achieved, i.e., as new scientific orders emerge, strong forces in the form of rules, customs, and traditions will be set up that serve to maintain the existing order. The observance of the rules that inform the activities of the members of some scientific order may be required to secure the persistence of either the order itself or of the scientist within the order. In other words, there will usually exist good reasons for scientists within established scientific communities to accept the problems and adopt the methodology associated with their respective community. But, this is not – indeed, cannot – be the case in new areas of inquiry where the problem is essentially the discovery of the rules, if any, which will secure an order and its persistence in the relevant environmental circumstances.

Naturally, much more could be said to fill in the positive details of this exceedingly brief sketch of a theory of science as a spontaneous order. However, as it is not directly relevant to our concern with Hayek’s use of the argument from ignorance, such a discussion must be saved for another time and place.
In the present chapter we have reconstructed Hayek’s arguments against scientism as instances of the argument from ignorance and drawn the relevant conclusions concerning Hayek’s positive philosophy of science. We’ve dubbed this view – the thesis that there are scientific goals that can be realized only if scientists are permitted a degree of freedom – “methodological liberalism.”

Before proceeding to the next chapter, where we will consider the role of ignorance in the development of Hayek’s thought concerning the possibilities for effective macroeconomic policy, we should take note of a fact that has been kept mostly in the background till now. The argument from ignorance against scientism is fundamental to certain of Hayek’s other uses of the argument. If the argument against scientism is sound, then its conclusion *eo ipso* forms a premise in further arguments from ignorance against other policy goals that require greater-degree predictions of social phenomena. Although Hayek did not have his argument against scientism quite in place at the time, it’s clear that something like it is implicit in the argument from ignorance that he offered in the English-language socialist calculation debate discussed in Chapter One. Moreover, as we will discover in Chapter Three, the conclusion of Hayek’s argument against scientism is an explicit premise of his “Pretence of Knowledge” argument against the possibility of effective countercyclical economic policy. Moreover, to the extent that the effectiveness of a given plan of income redistribution requires the ability to predict the relevant social phenomena with a relatively high degree of specificity, the conclusion of Hayek’s argument against socialism figures in his argument against the possibility of “social justice.”
In closing this chapter, I’d like to quote an extended passage from the pen of James Buchanan, Hayek’s friend, fellow defender of liberalism, and sometime colleague. The passage appears not in any of Buchanan’s explicitly methodological (or theoretical) writings, but in a most unusual place, namely, a letter dated October 17, 1960 addressed to Kermit Gordon (at the time, a Director of Economic Development and Administration at the Ford Foundation from which Buchanan and his then-colleagues at the Thomas Jefferson Center for Studies in Political Economy at the University of Virginia were seeking a grant). Buchanan was at pains to express the methodological uniqueness of the Jefferson Center vis-à-vis the mainstream of the economics discipline. In this brief passage, which came to my attention only very late in the production of the current essay, Buchanan expresses both the distinction between constructivist rationalism and ecological rationality and the argument for methodological liberalism in language so simple and clear that I fear the other 8,000-plus words of the present essay have been only so much wasted bytes. “There seem to me to be two essential ways of approaching the study of problems of political, social [and, thus, by the lights of the present essay, scientific], and economic organization,” Buchanan writes,

“The first way is that of setting up independently certain criteria or goals for achievement and to examine existing and potential institutions in the light of their performance or

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14 Regarding Hayek and Buchanan’s personal and professional relationship, see Buchanan (1992). Hayek and Buchanan were together for a semester at the University of Virginia in 1961, briefly at UCLA (Buchanan in the economics department, Hayek a visiting professor in the philosophy department) in 1969-1970, and again as visiting scholars at Stanford’s Hoover Institution in the late-1970s.

15 Many thanks to David Levy and Sandra Peart for permission to quote from their (draft) essay “‘Almost Wholly Negative’: The Ford Foundation’s Appraisal of the Virginia School,” which includes the Buchanan-Gordon letter in question.
expected performance in meeting these criteria. This approach, for purposes of exposition here, may be called the ‘social welfare function’ or ‘social engineering’ approach\(^\text{16}\)…The second approach is that which deliberately avoids the independent establishment of criteria for social organization…and instead examines the behavior of private individuals as they engage in the continuing search for institutional arrangements upon which they can reach substantial consensus or agreement. *It follows from this difference in approach itself that ‘individual liberty’, in the sense of individual participation in the choices of appropriate constraints on human action, will tend to assume a necessary, and hence more prominent, role in the second than in the first*” (James M. Buchanan to Kermit Gordon, October 17, 1960, William Baroody Papers, Library of Congress, Box 79, Folder 10).

Later in the same letter, Buchanan acknowledges, as has been stressed in the current chapter, that the two approaches often exist side-by-side. The issue is a matter of emphasis: “Both approaches to social problems are, of course, appropriate, and in many cases, they tend to coincide and merge one with the other. The same tools of analysis will be employed in many occasions. The difference in emphasis is, however, important, even if subtle in any specific context” (Buchanan 1960). Hayek never expressed it better—and I certainly could not do so without reliance on Buchanan’s prose.

\(^{16}\) Hayek, of course, would have called this “constructivism.”
References


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