



## From *The Sensory Order* to the Liberal Order: Hayek's Non-rationalist Liberalism\*

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**Abstract.** Hayek's arguments for a constitutionally constrained government are consistent with, and to some extent rest upon, his work in theoretical psychology. By exploring his view of the mind in *The Sensory Order*, we can see the psychological and epistemological underpinnings of Hayek's belief in the mind's limits and the indispensability of spontaneously emergent social institutions. The Austrian view of microeconomic coordination is a logical outgrowth of Hayek's theory of mind. Constraints on government are necessary not because self-interest leads rational government actors into temptation, but because even altruistically-motivated actors are epistemically unable to intervene effectively in spontaneously emergent institutions.

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### Introduction

Much of the voluminous literature on the social theory of F. A. Hayek has focused on his economics or his politics, or the relationship between the two. A far smaller proportion has explored the relationship between his work in the Austrian tradition in economics, his defense of political liberalism *and* his work in theoretical psychology and philosophy. In this paper I wish to argue that the view of the human mind he offers in his work on theoretical psychology, *The Sensory Order*, is crucial to understanding both his economics and his politics, and makes use of a theoretical perspective parallel to them. The argument Hayek offers for constitutional constraints on the size and scope of government is intimately linked with his description of the limits of the human mind. Human actors require constitutional constraints because we are epistemologically unable to generate social order in any other way.

Hayek's work parallels that of a long line of thinkers dating back at least to the Scottish Enlightenment, which sees human actors as having limits to their individual abilities, but playing roles as component parts of larger institutions and systems that make it possible to maximize social cooperation.<sup>1</sup> Humans are more the product of social and natural systems

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than are those systems the products of human design. As such we need to respect these systems and understand the limits to our ability to manipulate and change them.<sup>2</sup> Hayek's work offers an alternative to the scientifically untenable view of mind often implicit in the work of those who favor comprehensive government planning or piecemeal government intervention as well as the view held by many defenders of the market among neoclassical economists. By recognizing and integrating the roles of contextual knowledge, institutional evolution, and spontaneous order in both his economics and social theory, Hayek's liberal vision of a constitutionally constrained government emerges quite easily. What Hayek offers is a theory of the market that does not rest on the rationalist foundations that have been soundly criticized by many on the left and right. As such, it also offers an alternative to neoclassical economics as a means for illuminating the benefits of the market economy and the liberal order.

### **The Limits of the Human Mind**

As Butos and Koppl (1993:307n4; see also Butos and Koppl (1997) and 1999) point out, Hayek's theory of mind has been largely neglected, which is particularly surprising given the extensive literature on his papers of the 1930s and 40s that dealt with economics and knowledge. What is also surprising about this neglect is how easily Hayek's theory of mind fits into his economic and social thought. Ultimately, Hayek's conception of the human mind is that it is a spontaneous order much like the various social and economic phenomena he has explored in other works. An important implication of this conception is that the human mind can never be fully known by the human mind, i.e., there are insurmountable limits to our ability to know, predict, and control the mind. These limits preclude a rationalist understanding of the world that sees the mind as set apart from, and completely determining the direction of, physical and social processes.

Hayek's most complete version of his theory of mind appears in *The Sensory Order* (Hayek 1952a). The question he wants to address there is the desire to "know the kind of process by which a given physical situation is transformed into a certain phenomenal picture" (Hayek 1952a:7). Put another way, why is the way we perceive the world through our senses different from the way we might describe that world in the language of science? An answer to either question will be a start toward a theory of how the mind operates.

For Hayek, the mind is the result of twin processes of evolution. To some extent the physical structure of the brain has evolved in certain shared ways that are reflected in the strong consistencies in perception among most humans. At the same time, the environment and experiences of particular people will lead individual minds to evolve in distinct directions and guide perception in different ways. For example, the experience of learning one's mother tongue clearly shapes one's perception of the world.<sup>3</sup> As we move through our lives, the various experiences we encounter all affect our mental evolution and development so that at any given point, the mind can be seen as the product of these historical and experiential events. Thus mind is a cultural product that evolves from a particular physical structure.<sup>4</sup> Hayek would agree with so-called "materialists" in maintaining the physical basis of the order we call mind, but he would depart from their belief that the mind can be *reduced* to physical phenomena. The self-organizing properties of mind take it beyond our ability to understand in physical terms, despite its ultimately material basis.<sup>5</sup>

What mind does, according to Hayek (1952a:48ff), is to serve as a classification process. To recognize something as a distinct sensory “datum,” it must be differentiated from other sensations flowing in. Hayek’s theory suggests that the mind has evolved to perform exactly this function—the mind is “a process which *creates* the distinctions in question” (48). The various combinations of neural firings that comprise a given mental event have evolved as the means by which we interpret the world. The mechanism of that evolution is the success of any given picture of the world in guiding our action in that world. Sets of classifications that do not successfully guide action (i.e., ones that do not in some sense correspond to the physical world), will prevent the organism whose actions are being guided from thriving. Classification processes that survive are those that have in some way corresponded to external events.

Hayek (1952a:112–118) uses the metaphors of “map” and “model” to describe the mental order more precisely. The “map” refers to the semipermanent neural connections and linkages the brain has built up as the result of past experience. In some sense it is the classifying structure that drives mental functions. The “model” refers to “the pattern of impulses which is traced at any moment within the given network of semipermanent channels” derived from the specific environment in which the person is currently placed (114). The map generates the model. Based on previous sensory experience, the mind gives us a model of the present environment that serves as the backdrop for classifying incoming sensory information in the current context. The model is also forward-looking in that it enables the actor to anticipate the likely consequences of both his own actions and external events. Hayek envisions a feedback process between the two, as input from the various existing environments can eventually change the map, while the map is what creates any specific model. Again, the mind is both the product of experience and experience’s classifier.

Hayek has frequently pointed to David Hume and Immanuel Kant as the two primary influences he has inherited from the liberal tradition. From Hume comes Hayek’s emphasis on spontaneous order and the empirical basis of society and morality. From Kant comes Hayek’s emphasis on freedom and the importance of universal rules of justice. Chandran Kukathas (1990) interprets Hayek’s enterprise as one that attempts to bridge Hume and Kant into an integrated theory of the liberal order. Kukathas believes that this attempt is ultimately a failure as those two perspectives cannot be reconciled. For our purposes here, it is worth noting that Hayek’s theory of mind is a specific instance where he has (at least implicitly) brought Hume and Kant together. For Hayek, the mind has “categories” in the Kantian sense. Mind is a classification system, where those classifiers are part of the structure of the mind, and not the world itself. However, there is a Humean aspect to the story, as Hayek’s theory of mind denies that these Kantian categories are a permanent part of the physical structure of the mind. Rather the categories are the product of biology interacting with empirical experience, that is, they evolve as the particular human actor grows and learns. Hayek’s theory of mind tries to provide an empirical explanation for the source and continuing evolution of those a priori categories. In that way, he is trying to straddle the epistemological space between Hume and Kant.

The mind, for Hayek, is the reason that the world is “presented” to us as organized and sensible, rather than a chaotic blur of random images and movement. Note, however, that the orderliness of our perception of the world is a product of the mind, and explicitly not, for Hayek, a feature of the world itself. The physical world, *described at the atomic level*, is not

sensible or orderly. Our phenomenal understanding of it is orderly because what the mind does is order sensations—hence, the “sensory order.” As Butos and Koppl (1993:308n5), point out, the mind does not *construct* interpretations of reality, rather “the mind *is* an interpretation of reality.” The mind does not, on Hayek’s account, translate sensations into a mental picture, it is the means by which we classify things as sensations in the first place.

Hayek argues that one of the most important implications of this theory is that we can never fully explain our own minds. Logically, if the mind is the way in which we classify the world around us, we can never “step back” and attempt to view the mind itself as a sensory input. To borrow an analogy from Michael Polanyi, one cannot examine one’s spectacles while simultaneously wearing those spectacles. Hayek (1952a:185) makes this point more generally:

any apparatus of classification must possess a structure of a higher degree of complexity than is possessed by the objects which it classifies . . . therefore, the capacity of any explaining agent must be limited to objects with a structure possessing a degree of complexity lower than its own.

Therefore, Hayek (185) concludes, “there also exists . . . an absolute limit to what the human brain can ever accomplish by way of explanation.” The best that we can do is to understand some of the rules by which mind operates and offer an “explanation of the principles” (Hayek 1967a) of the sensory order.

For Hayek, mind is a set of dispositions or expectations about the world. The map is what enables the classification of incoming sensory data, generating the model. This suggests that much of what we know about the world is in the form of theories rather than brute facts. What we know, from experience, are sets of expectations about particular types of situations and how best to act in them. Those expectations and the implied actions are well described as conjectures in Popper’s sense of the term; what we know is what we think will happen, based on experience. As we shall see later, viewing knowledge as expectations and conjectures links up with Hayek’s long-standing emphasis on the role of rules in generating social order. That claim is no less true of the mind, where rules (“what we think will happen in situation x”), in the form of the map-model interaction, generate the sensory order. We do not know the world in all of its details, and it will be the case that, as with any rule, there will be cases where our conjectures will be inaccurate in certain specific instances. Hayek’s theory of mind can also help us to understand why people make mistakes and how they can learn from them. In a later section, we shall contrast this Hayekian perspective of limited knowledge, and rule-based behavior with the rationalist model associated with mainstream economics, and much of rational choice theory more broadly.

Although Hayek’s theory of mind is important in its own right, the linkage between that theory and Hayek’s economic and social theories is what constitutes his true contribution. One of the central implications of his theory of mind is that not all human knowledge can be explicitly articulated:

If it should turn out that it is basically impossible to state or communicate all of the rules which govern our actions, including our communications and explicit statements,

this would imply an inherent limitation of our possible explicit knowledge . . . (Hayek 1967b:60).

The limits of explicit human knowledge form the basis for Hayek's economic and social thought and are the crucial difference between his approach and that of both socialism and modern neoclassical economics.

### **Epistemology, Economics, and the Economy**

For Hayek, social coordination processes and the institutions that comprise them are ultimately about the communication and use of knowledge (Hayek 1948:91). The problem of social coordination is how best to discover and utilize the diverse and fragmentary pieces of knowledge embedded in individual minds. In much the same way that classical economics focused on the role of markets in coordinating the division of labor so as to promote economic growth, Hayek emphasizes the division of *knowledge* inherent in complex social orders and argues that spontaneously evolved institutions, such as the market, are the only real way to achieve the epistemological coordination necessary for economic growth.<sup>6</sup> The necessary role of spontaneously evolved institutions is that only they can enable us to make use of the knowledge possessed by individual economic actors, because, as has been pointed out in the previous section, a substantial portion of that knowledge is tacit and cannot be consciously known and communicated linguistically.<sup>7</sup> A Hayekian economic theory would therefore recognize the limits of rational choice and understand the role that undesigned social institutions play in facilitating economic order by enabling us to act on the basis of incomplete and inchoate knowledge and correct the errors we will inevitably make. Hayek's work in the Austrian school of economics offers the core concepts of just such an approach. In particular, Hayek's rejection of the neoclassical emphasis on maximization and equilibrium points toward a Hayekian alternative to the overly rationalist neoclassical paradigm.

Hayek's earliest work in economic theory was more closely wedded to ideas that are now essential to neoclassicism. His early monetary theory was articulated in the language of equilibrium, though he was frequently at pains to emphasize the various disequilibrium processes of adjustment central to modern markets.<sup>8</sup> It is not until the mid and late 1930s that Hayek begins to assess more critically the direction neoclassicism was taking. It is important to note that this reassessment takes place on *epistemological* grounds. As Bruce Caldwell (1988; see also Foss (1995)) has argued, Hayek's (1937) paper "Economics and Knowledge" can be seen as the beginning of Hayek's "transformation."

What arguably sparked this turn, and the other papers on knowledge that were part of it (Hayek 1948), was Hayek's ongoing participation in the socialist calculation debate. As both a liberal and an economist, Hayek was probably caught off guard by Oscar Lange's (1936) attempt to employ the tools of neoclassical microeconomics in the service of defending the feasibility of public ownership of the means of production. Until Lange's paper, Hayek likely saw himself as using what he perceived to be accepted "mainstream" economic theory to argue against the earlier socialist and market socialist proposals. Only when faced with Lange's "general equilibrium market socialism" is Hayek confronted with a possible tension

between his liberalism and his self-understanding of his own approach to economics.<sup>9</sup> It is not long afterward that the papers on knowledge appear and soon after that when Hayek dramatically reduced his output of technical economics.

The issues that were specifically so perplexing about Lange's proposal were those concerning knowledge and the role of equilibrium. As Hayek (1948:188) pointed out in his response to Lange: "It is difficult to suppress the suspicion that this particular proposal has been born out of an excessive preoccupation with problems of the pure theory of stationary equilibrium." What was at issue was whether the assumptions made by neoclassical theory could be so easily transferred to Lange's Central Planning Board. The mathematics of general equilibrium theory require that the observing economist: 1) treat the firm's cost and revenue curves as given and known; 2) treat the consumer's preferences as given and known; and 3) treat the quantity of available resources as given and known. Based on those givens, consumers are assumed to maximize utility while producers are assumed to maximize profits. With those assumptions, and a few other more technical ones, it was theoretically possible to solve for an equilibrium vector of prices. What Lange essentially argued was that the assumptions needed for equilibrium in *the market*, were the same needed for a planning board to achieve equilibrium and allocate resources efficiently. For Lange, this argument was enough to conclude that planning was feasible, at least in theory.

The source of both Hayek's objections to the Lange argument, and his later distancing from neoclassicism, is in "Economics and Knowledge" (1937). He argued that economic equilibrium had to be defined in terms of the knowledge held by economic actors and was that state of affairs where all actors' plans could be successfully executed. Equilibrium requires that each actor has enough knowledge to have correct expectations of the future, including the actions of other choosers. For Hayek, the theory of economic equilibrium at best described the endpoint of some process of social learning. The problem is that we do not have a satisfactory description of the social learning taking place during the competitive process that might lead to the equilibrium result. We needed to fill in the empirical missing pieces about how the discovery and transmission of knowledge occurs in actual markets.

The really existing economic problem then is not one of maximizing utility and profits based on *known* preferences, prices, costs, and revenues. Both the maximization process and the information required to perform such an operation are beyond the limits of the human mind, as Hayek understood it. Instead, the "economic" problem was how do firms and consumers most easily discover and disseminate knowledge about cheaper production methods and better consumption bundles? Here we see the linkages between the sensory order and the social order. Individuals are engaged in the market process in order to *learn* about what they want, what others want, and what opportunities are available to them. Such information is not a "given" to actors, but is discovered through their interactions in the market process. The market is one collection of institutions in which, and through which, individuals continually hone their understandings of the world and gradually improve the accuracy and detail of their mental maps. Hayek's emphasis in the 1937 paper on the interaction between our expectations, the market process, and human learning is the framework of *The Sensory Order* applied to actors in the economy.

Some might object that *The Sensory Order* was not published until 1952, so how could it relate to Hayek's economics in the calculation debate? As Hayek notes in the preface

(p. v) to that book, the original essay it is based on was written as a student in the early 1920s. One might see the decision to revise and publish the essay in the early 50s as a sign that Hayek was more completely seeing what the source of his objections to Keynes, Lange, and, eventually, the equilibrium direction of neoclassical economics really was. He needed to make the case for his epistemological perspective (and its psychological foundation) in order to show where his evolving and developing perspective on political economy was derived from.<sup>10</sup> In Hayek's view, a thinker's underlying epistemological perspective would likely be closely related to his vision of economic and political order. This idea is clearly evident in Hayek's own work.

### **Knowledge and Error in Neoclassical Economics**

Equilibrium-bound approaches obscure the important functions of the market that a Hayekian perspective emphasizes. By assuming all of the relevant knowledge as given, a neoclassical approach to defending markets is unsuited to dealing with the epistemological implications of Lange's arguments. This is because Lange was using those same assumptions in his defense of planning. Hayek was forced to confront a situation where some of the very tools he understood himself as using to explain market interaction were now understood by economics to be neutral with respect to the ownership of the means of production. The key to the epistemological issues was the notion of knowledge being "given."

For neoclassical economics, the humans who populate its model are assumed to know a great deal about the structure of their problem situation. They know their own utility or production function, they know all of the relevant market prices, and they know all else that is relevant in order for them to maximize utility or profits. Maximization is simply solving the problem that is implicit in the data. Agents know the ends they wish to pursue and they know what means are at their disposal. The optimal solution is automatic; there is no meaningful choice. Producers do not "choose" to maximize profits, they simply "do" (or are assumed to). The same is true of consumers and utility.

Two implications of this view of economic actors and their knowledge is that actors are never surprised and they can never err. Nothing can happen that was not expected and no actor can ever look back and say he did something wrong. The lack of surprise is inherent in the assumption of perfect knowledge and the absence of error is implied by the combination of perfect knowledge and the assumption of maximization.<sup>11</sup> Notice that these are both true even in the world of rational expectations, where agents may only know a range of possible outcomes rather than a singular one. Even here, if agents really do know all of the possibilities that might occur and can assign probabilities to each one, there is no surprise and no error. Actually outcomes may differ from what was expected, but this will not surprise the agent as he knew that other outcomes were possible to one degree or another. In addition, he cannot look back and say he made an error as he acted optimally given what he knew at the time (see also Kirzner 1979). The sort of "uncertainty" that such probability models include is not genuine uncertainty (what Harper (1996:95ff) calls "structural uncertainty") as there can be neither surprise nor error.

Where there is neither surprise nor error, there also cannot be either discovery or learning. Agents in neoclassical models do not learn in any meaningful sense. In order to learn or discover, there must be something the agent was utterly unaware of at the moment of action. This is not possible in a world where knowledge of ends and means are given to the actor. The agent cannot improve on the outcome, thus there is nothing to be learned. Of course, in the real world, attempts at any sort of maximization cannot take place until actors have *learned or discovered* exactly what ends they might wish to pursue and what means are at their disposal to do so. Complete knowledge of either is denied to us, given the limits of the mind we have discussed previously. As a result, we face a sort of structural uncertainty that cannot ever be eradicated. By assuming that the knowledge of means and ends is given to us, and that such knowledge is of a sort that can easily be obtained by actors, neoclassical economics adopts a rationalist view of both “choice” and knowledge that is ultimately untenable.

In a world where learning is unnecessary and knowledge is understood as objective and true (as opposed to taking the form of theories and conjectures), the economic problem is a much simpler one. If we want agents to make optimal choices, we simply need to make sure that the data facing them enable them to do so. Thus the general equilibrium modelling strategy falls into place: make sure prices are right before people are allowed to actually “act,” i.e., maximize. Because agents cannot meaningfully learn, some exogenous force must be invoked to ensure that prices are correct so that equilibrium can be reached; hence, the Walrasian auctioneer. There can be no endogenous change in such models, as there is nothing for agents to learn and thus no reason for them to change their behavior. They only need to maximize based on the prices they take as parametric. Compare this story to Hayek’s concern about the real world learning processes necessary to increase the accuracy of actors’ expectations. Hayek’s conception recognizes the existence of uncertainty, surprise, and error and searches for the solution in the ways in which market processes facilitate learning and communication. This is the natural outgrowth of a view that sees knowledge taking the form of theories rather than data (as in neoclassical models). For those models and their rationalist assumptions about knowledge, economic optimality is just a matter of getting prices right. For Hayek and his theory of mind, the same question is a matter of how actors “test” their “theories” in a world of uncertainty, implying a much broader set of questions about the ways in which alternative institutional arrangements hamper or facilitate learning. As Loasby (1999:52) puts it: “Indeed the formulation of standard models assumes that the only obstacles to successful performance arise from inadequate incentives: knowing how is never a problem.”

### **Discovery, Learning, and Economic Calculation**

Hayek’s argument was ultimately one about the comparative epistemological properties of alternative sets of social and economic institutions.<sup>12</sup> The case for the market rested on the ability of spontaneously emerged prices to make privately held, and frequently tacit, knowledge socially usable. Conversely, the limits to economic planning were a function of the limits of articulatable knowledge. In a world where all knowledge was explicit and objective, and where one mind was able to survey all of that knowledge, it was at least



conceivable that it could be consciously marshalled and directed from one center. However, in a world described by Hayek's theory of mind, the role of spontaneously emergent social institutions is to make such contextual and tacit knowledge socially usable, and to provide a process by which erroneous knowledge can be discovered and corrected. If the mind can never exhaustively describe and know itself, any one mind or group of minds can surely never direct economic processes that can only be understood in terms of the phenomenal pictures (i.e., expectations) held in the minds of all of the actors in the economy.<sup>13</sup> To successfully coordinate an economy *ex ante*, one would need to understand the structure and contents of the minds of those being planned.

However, the institutions of the market, such as prices and profits, do provide information as to which economic activities will be more or less efficient, and competition provides the incentives to ensure that such information is used well. Prices provide information to use for future plans, they indicate the success of past plans, and provide the incentives and information to discover previously unknown uses of resources.<sup>14</sup> As money prices result from the push and pull of competition, and in turn inform future competitive activities, they serve as surrogates for the knowledge possessed by the actors involved. It is money prices that facilitate the processes of learning and discovery that we call economic calculation and market competition.

Ludwig von Mises offers perhaps the best discussion of the importance of economic calculation.<sup>15</sup> Mises (1966:206–7) sees the necessity of calculation in terms of money prices as deriving from the problem of allocating capital goods (goods of the higher orders) toward the production of final goods. In a world where capital goods can produce alternative final goods and where, therefore, choices must be made as to which processes to devote them to, capital owners must have some basis for comparison. If all capital goods are perfectly substitutable, no calculation is necessary as no choice needs to be made as to which capital goods to use to produce a given output. If all capital goods are perfectly specific, such choices are not possible because each capital good has one and only one use to which it can be put. Where a final good has a number of technologically feasible methods of production involving inputs with multiple alternative uses, the producer needs some way of comparing the technologically feasible methods to determine which is the most economically rational. This is the role of monetary calculation: "Such comparisons can only be made by the use of money prices" (208).

Mises goes on to argue that economic calculation is limited to those "things which are . . . bought and sold against money" (214). This derives from money's role as the "universally used medium of exchange . . . because most goods and services can be sold and bought on the market against money, and only so far as this is the case, can men use money prices in reckoning" (208–9). For Mises, the importance of monetary calculation is that it "is the guiding star of action under the social system of the division of labor" (229). Whenever we act in the market, we make use of monetary calculation to determine which actions to take (*ex ante*) and to reckon (*ex post*) the results of those actions: "The premeditation of planned action becomes commercial precalculation of expected costs and expected proceeds. The retrospective establishment of the outcome of past action becomes accounting of profit and loss" (229). Mises adds that our ability to have this "guiding star" is dependent upon certain social institutions, namely "the division of labor and private ownership of the

means of production” (229). Thus, for Mises as for Hayek, market institutions make it possible for us to make use of the knowledge of others in ways that extend our own perceptual abilities. The formulation of plans of action in the market is crucially dependent on the existence of money prices that can inform the process of forward-looking appraisalment that underlies such plans. Without such prices, there would be no basis on which such entrepreneurs could formulate their plans nor reckon their results.

The parallels between Mises’s discussion of calculation and Hayek’s theory of mind is worth a brief discussion. The key commonality is that both are forward-looking. For Mises, economic calculation was necessary to guide entrepreneurs who otherwise would not know which resources to allocate where. As much as entrepreneurs might know from their past experience, they require a guide as to what to do next.<sup>16</sup> Their understandings of the world around them are of necessity incomplete, and the data of the market enable them to form conjectures about what they might do next. In his application of Popperian philosophy to entrepreneurship, David Harper (1996:18, emphasis in original) argues:

Knowledge of market data is always conjectural: entrepreneurs can only ever have *theories* of what consumer preferences are, together with *conjectures* about what new uses for an input are possible and what new technologies might achieve.

For Harper, entrepreneurs approach the market with already-processed knowledge available to them in the form of such theories and conjectures. It is that theoretical framework that enables them to recognize what is “new and different” by it violating their expectations of normality. Without such theories, market events would appear to entrepreneurs “to be of such an indistinguishable homogeneity that they would not be able to make sense of what is happening in the market” (Harper 1996:137).<sup>17</sup>

Thus entrepreneurs’ knowledge is largely in the form of dispositions, formed from their past experience and informed by the prices of the immediate past. Those dispositions are transformed into action through the assistance of market prices and the process of economic calculation.<sup>18</sup> The entrepreneur’s budget plays the same role as the “model” does in Hayek’s theory of the mind. It is inherently forward-looking, in that it lays out a plan of action in the current environment, and it is informed by the longer-term learning embodied in the firm in the form of routines, internal structure, and capital (both physical and human). Like the mind’s “model,” the budget can be revised as market data is discovered and interpreted. It is not fixed (perhaps like the Kantian categories in the theory of mind), rather it evolves in response to feedback (as in Hayek’s theory of mind). As Harper argues, entrepreneurs learn much in the same way as Popper describes the growth of knowledge more generally.

Of central importance to this process is the role of capital. Austrian capital theory differed from the various aggregative theories of both classicism and neoclassicism by stressing the location of goods within the structure of production and the heterogeneity of capital. For Austrians such as Hayek, goods count as capital only in the context of entrepreneurial plans. The subjective expectations of the future held by individual producers are what give particular goods the quality of being capital. These expectations and the plans based

on them also determine whether various capital goods are complementary.<sup>19</sup> In order for entrepreneurs to make plans and assess the value of capital goods, those means of production must have money prices attached to them. Only in that way can their prospective value in various production processes be assessed either *ex ante* or *ex post*. Today's capital goods derive from yesterday's plans, just as today's "map" reflects the result of the feedback to yesterday's "model." Owners of capital must constantly deal with issues of adjustment, substitution, and complementarity, and changes in the prices of capital goods signal changes in the knowledge that underlies entrepreneurial plans and expectations. It is movements in these prices, and the profits and losses that result, that sort out correct entrepreneurial expectations from incorrect ones.<sup>20</sup>

Hayek's theory of mind is consistent with Mises's discussion of monetary calculation and the Austrian theory of capital. The subjective and tacit knowledge of entrepreneurs is what determines the place and value of capital goods in their plans.<sup>21</sup> There is no Archimidean point from which the value of capital goods can be objectively assessed due to the inherent limits of the human mind. Movements in market prices signal whether capital goods have been put to good use and where they might profitably be used in the future. Only market prices can reflect (albeit imperfectly, as existing prices include errors generated by the mistaken expectations of buyers and sellers) that knowledge and allow it to be publically accessible for the purposes of monetary calculation. In some sense, what entrepreneurs do is to deploy smaller, more localized, versions of Hayek's "map" and "model" in anticipating future constellations of prices (concretized in the budget) and allowing them to make changes as their economic "sensory data," in the form of profits and losses, illustrate their degree of accuracy. In Lachmann's (1977:90 [1959]) famous analogy:

The business man who forms an expectation is doing precisely what a scientist does when he formulates a working hypothesis. Both business expectation and scientific hypothesis serve the same purpose; both reflect an attempt at cognition and orientation in an imperfectly known world, both embody imperfect knowledge to be tested and improved by later experience.

The contrast between this Hayekian understanding of the nature of the knowledge possessed by economic actors and that of mainstream economics is quite significant.

### **Hubris and Constraint in Political Orders**

The liberalism associated with Hayek's economics is consistent with the philosophical ideas that inform his economics. The case for the rule of law and constitutional constraints on political power, even if democratic, coheres easily with Hayek's theories of mind and economic order. If the mind cannot fully know either itself or other minds and, thus, cannot successfully consciously direct an economy, a commitment to economic prosperity and political freedom requires that discretionary political power be constrained. As Hayek argued during the course of the calculation debate, the assumptions and methods needed to use general equilibrium theory in ways that are directly policy-relevant seemed more

appropriate to a planned economy than a market one. If indeed we were all the hyper-rational agents that general equilibrium theory assumes we are, then the very need for market institutions would disappear. Hayek's several investigations (1946, 1978, most notably) into the role of competition as a discovery procedure have made this point most clearly: the whole justification for competition is our ignorance as to its results. It is that structural ignorance that makes the case for tying the hands of the political process. Hayek's legal and political philosophy flows from this perspective, as does the development of constitutional economics in the work of James Buchanan and others.<sup>22</sup>

Hayek's defense of constitutionally limited government rests on several pillars. The main one is his distinction between "law" and "legislation" as developed in the first volume of *Law, Legislation, and Liberty* (1973). He argues there that the law is comprised of the rules that frame the spontaneous order of the market, whereas legislation refers to the rules government makes to administer its own operations. The law, in Hayek's view, works best when it is the outcome of a further process of spontaneous evolution comprised of the case-by-case decisions of judges. The law represents a spontaneous ordering process that runs parallel to the market, but also provides the framework within which market processes unfold. Legislation, by contrast, is a series of administrative commands designed to direct consciously the operation of a purposive organization with defined and mostly consistent ends, in this case government. These commands are not the abstract rules of a spontaneous order, which provide guidance for achieving the diverse and possibly conflicting ends of individuals, but directives intended to allocate resources toward the organization's unified purpose.

The conclusion Hayek draws from this distinction is that the development of common law is a task properly left to the social intelligence embedded in spontaneous social processes, rather than the conscious design of legislators. The job of the legislative branch of government is to direct the resources of the government, not to attempt to direct resources in society at large. Although he gives the legislative process a role in correcting errors around the margins of the evolved common law, the role of constitutional constraints on government is to prevent it from extending its legislative power into areas where its knowledge is insufficient for its intended goals.

Hayek's defense of an evolutionary approach to the law and the privileging of the common law over state-made law is in contrast with the dominant legal positivism of this century. Legal positivism argues that whatever statutes are passed by a recognized political authority should be considered law, independent of how these statutes cohere into the broader framework of society or of how they relate to the actions of the individuals bound by them. By contrast, Hayek's views are consistent with the work of other legal theorists, notably Lon Fuller (1969:106), who argues that the term law should refer to "the enterprise of subjecting human conduct to the governance of rules," and Bruno Leoni (1972:3) who sees judge-made law as a form of collective self-constraint that only works if it emerges from the actions of the individual parties to disputes.

Fuller's description of the evolution of law fits the spontaneous order approach of Hayek's philosophy and economics. Individuals begin to deal with each other in face-to-face situations. Even in the absence of written contracts, certain behavioral norms will emerge through repeated interaction as people attempt to coordinate their behavior. If the interaction is thought to be mutually beneficial, both parties will have incentives to behave in ways

that the other expects so as to lower the cost of interaction. If certain behavioral patterns emerge so strongly that they guide people's expectations and then spread to other interactional contexts, then we have the emergence of law. As Fuller points out, normally we reserve the term "law" for sets of rules that are imposed from outside a given two-party relationship. However, if law is to be understood as the enterprise of subjecting human conduct to the governance of rules, expectations arising from repeated two-party interactions can be considered customary law. Once such expectational practices are transferred to a variety of situations, then we see something closer to the colloquial understanding of law.

Fuller (1981:220) also points out that the expectations that the common law gives rise to are not, and cannot be, fully articulated. Tacitly held limits will constrain the expectations of parties to an interaction or contract. As parties in interactional relationships converge toward mutually acceptable rules of conduct, they will be unable to consciously consider and eliminate every feasible behavior the other might take. The bounds of the consciously explicable will be related to the specific context of the original relationship. However, similar contexts will likely produce similar explicit expectations, and the tacit limits that underlie them will become part of expectation formation processes when the *explicit* customary relationships are codified into law.

Hayek's own view of the law is consistent with Fuller's. He emphasizes the need for the law to emerge from the decisions of individual judges based on the specific cases put before them (Hayek 1973:86–87). Hayek notes that "the chief concern of a common law judge must be the expectations which the parties in a transaction would have reasonably formed." These expectations must arise out of the general practices of members of the economic order involved. Hayek (87) adds that the formation of consistent expectations by these parties will be based on interpretations of appropriate behavior "which need not have been known to them in the form of an articulated rule."

Hayek's philosophy of law appears to be another application of his theory of mind. Like the prices of the market, law provides a framework for individuals to form expectations about the world around them. For humans with less than complete knowledge, the knowledge embedded in the law, like the learning represented by the Hayekian "map," provides a guide to future action even though that knowledge cannot be completely understood. Like the sensory order, the legal order is a collection of rules, evolved out of the successes and failures of various human actions, that embodies more knowledge than we can articulate.

The limits to explicit knowledge and our ability to know the contents of other minds (in this case their intentions and expectations) also prevent us from planning the law much as we are prevented from planning an economy or, in a complete contradiction in terms, consciously directing the contents of our mind. As Leoni (1972:18–19) argues:

[The] conclusions [of the calculation debate] may be considered only as a special case of a more general realization that no legislator would be able to establish by himself . . . the rules governing the actual behavior of everybody in the endless relationships that each has with everybody else.

Given that the knowledge needed to create a system of law (understood as engendering mutually consistent expectations) is embedded in social processes and cannot be marshalled

in one mind or group of minds, there is a prima facie case against government attempting to consciously design interpersonal interactions through the law.

There is a significant difference between the Leoni-Fuller-Hayek conception of law as a set of spontaneously evolved problem-solving institutions and practices and the conceptions of the law most associated with neoclassical economics and modern interventionist political thought. For neoclassical economics, the law, according to the approach associated with Richard Posner, should strive to maximize net social benefits, defined as pecuniary and specific to the particular case. The job of the judge is to make case law on the basis of cost-benefit analyses that assess the effects of alternative legal rules on the affected parties. In much contemporary political thought, the law is seen as a means to achieve some form of social justice. Rather than maximizing net monetary benefits or utility, the law should serve abstract principles of distributional equity, for example. The legislator and/or judge are presumed to both know the relevant principles and how the effects of the case at hand fit, or do not fit, those principles. In both cases, the makers of the law are presumed to have, or be able to obtain, a great deal of explicit knowledge in order to do what is right (Cordato, 1989, Aaronson, 1992). The law is a tool consciously deployed for a particular end, rather than emerging in order to overcome the unavoidable ignorance of actors, by providing them a set of rules by which they can pursue their diverse and possibly inconsistent ends.

Like much of public choice economics, Hayek's view is that the state is to be constrained by constitutional rules that prevent it from extending its power beyond its capabilities. However, there is a difference in how each derives this conclusion. For modern public choice, the argument for constraints is that rationally maximizing politicians will pander to special interests, at the cost of general economic welfare, in the absence of constitutional limitations on their powers. In addition, individual wealth producers will not have sufficient incentives to invest in long-term economic contracts or capital if the threat of private or public confiscation is large. Constraints are a way to signal the unlikelihood of public confiscation. The modern public choice approach rests on the assumptions of self-interest and maximization by both political actors and wealth producers. One might respond to this argument by wondering what would prevent unconstrained but altruistic political actors from benevolently using the power vested in them.

Hayek's argument for constitutional constraints can address this question in a way consistent with public choice. The core issue for Hayek is not that we are insufficiently altruistic to live without constraints, but that we do not possess sufficient knowledge to do what is right, *even if we were sufficiently altruistic*.<sup>23</sup> Modern public choice usually criticizes arguments that rely on altruistic political actors by claiming we are, in fact, not altruistically motivated. The problem, however, is that opponents might continue to press the case that we can be changed. In many ways, Hayek's argument fuses the public choice emphasis on incentives with the long-time Austrian concern with knowledge. Properly operating social institutions provide actors with both the incentives and the knowledge to take actions that will produce social benefits. Neoclassical analyses of the firm, the market, and the political process tend to focus too narrowly on aligning incentives correctly in order to induce optimal behavior. Recall the earlier discussion of the function of prices in neoclassical approaches: getting prices right is important because they enable the incentives facing individuals to be aligned in such a way as to induce an equilibrium outcome. For Hayekians, the incentive function

of prices, or any other social institution, is clearly important. However, actors require not only motivation, but information in order to make order-generating choices. It is this lack of information that links Hayek to public choice analyses. The limits on knowledge inherent in Hayek's view of mind suggests that political self-interest becomes a problem because even well-intentioned political actors are unable to consciously direct resources and create laws in the ways they believe they can, thus leading them to use their power in the service of political self-interest. Constitutional rules are the public expression of our self-recognition of the limits to our reason.

The progressive erosion of those rules in the last 200 years is based on a hubris that cannot be justified.<sup>24</sup> The inevitable result of that hubris is a society dominated by either interest-group tyranny or more ruthless totalitarianism. As Boettke (1995) points out, this was the theme of Hayek's (1944) *The Road to Serfdom*. The limits to conscious design ensured that even the best-intentioned attempts at social or economic planning would fail and start us down the road to serfdom. Boettke argues that people have overlooked the Austrian economics at the root of Hayek's argument. The present paper extends that point by claiming that for understanding the argument in *The Road to Serfdom*, it is not only necessary to understand Hayek's Austrian economics, but also his theory of mind. Genuine political order will emerge when the actions of both individuals and the state are bounded by sets of rules that have spontaneously emerged from repeated human interaction. Any attempt to specify those rules a priori, or to redesign significantly legitimate existing ones, will undermine political order.

## Conclusion

Hayek's case for the liberal order is more than just a claim about the problems of government intervention or the benefits of the market. His argument is consistent with his view of the nature of the human mind and the way in which the mind is limited by being embedded in social structures and history. The limits of the human mind are also the limits of the ability to consciously construct and direct economic processes and the social order more broadly. Thus, unlike that of some neoclassical economists, Hayek's liberalism is not open to the charge that it over-estimates the rationality of human actors. It is precisely the ignorance of human actors that forms the basis for Hayek's liberalism.

At the same time, Hayek's liberalism illustrates the failures of other non-rationalist approaches that give the state more room to operate. Recognizing the limits of reason is only the beginning. The social scientist then must also endeavor to show how social institutions enable us (or fail in that attempt) to overcome those limits by providing processes through which we can make our often tacit knowledge available for others to use. Hayek's economics shows how the competitive market process, through prices and profits and other signals, does precisely this, implying that interventions in market processes, which are of necessity premised on the superior knowledge of the interveners, are bound to reduce economic coordination and prosperity. To argue that humans are "embedded" in the social world rather than approaching it as a completely "objective" phenomenon, is not to argue that individuals and their choices are unimportant. By frequently appearing to forget the embeddedness of human knowledge and action, neoclassical economics may be open

to the charge that its more atomistic form of individualism lacks sufficient appreciation for social institutions and processes. But the neoclassical case for markets is hardly the only one, and arguments against atomistic individualism are not arguments against Hayek's defense of the market and constitutionally constrained government (Horwitz 1995).

Hayek's thought will have come to fruition when the social sciences abandon rationalist and constructivist explanations of social phenomena in favor of ones that recognize the roles of tacit and contextual knowledge, institutional evolution, and spontaneous order. Such an approach would dramatically improve our understanding and appreciation of the liberal order, and must begin with a better understanding of the human mind. Hayek's *The Sensory Order* provides just such a beginning.

### Notes

1. See Bryson (1968) and Hamowy (1987) for more on the Scottish Enlightenment.
2. The epistemological argument behind this claim is outlined in the critical rationality literature. See the essays collected in Radnitzky and Bartley, eds., (1987).
3. Mises (1983:13) makes a similar point in claiming that expressing one's thoughts "is pre-determined by ... language."
4. Even in his final book, Hayek harkened back to the themes of *The Sensory Order* by arguing that reason is a product of culture not biology. See Hayek (1988:22–23).
5. See the brief discussion of the "paradoxes" in Hayek's philosophy of mind, including his relationship to materialism, in Nadeau (1997). Nadeau's reference to recent work on "supervenience" may prove to be a fruitful way to explain Hayek's non-reductionist materialism.
6. The role of the market in overcoming the division of knowledge was also noted by Mises (1920:102) in his original contribution to the socialist calculation debate.
7. For more on this aspect of the market, see Lavoie (1986) and Horwitz (1992).
8. See the essays collected in Hayek (1984).
9. This interpretation of the calculation debate is both consistent with, and inspired by, Lavoie (1985). See also Vaughn (1990:388ff) on the Mengerian foundations of Hayek's calculation articles and Boettke (1998) on the context in which Hayek was writing.
10. Hayek says in the preface (Hayek 1952a:v) that "it was concern with the logical character of social theory which forced me to re-examine systematically my ideas on theoretical psychology." That concern was likely driven by the issues raised in the calculation debate. More evidence for this hypothesis is that he decided to publish the essays collected in *The Counter-Revolution of Science* (Hayek 1952b) in the same year as *The Sensory Order*. *The Counter-Revolution of Science* contains an extended discussion of the subjectivism of properly done social science (which is juxtaposed against both historicism and, what Hayek calls, objectivism), as well as the argument that objectivist philosophical perspectives are connected with socialist political perspectives.
11. See Loasby (1999:80–1): "The 'absence of surprise' is a clear indicator that the underlying concept is of rational choice equilibrium, in which the identity of individuals has no significance, the only learning is Bayesian, and optimisation is accomplished by design; it is not an evolutionary process in which all designs are conjectural, may differ between individuals, and are liable to have unintended consequences."
12. See Steele (1992:13) who interprets Mises' original calculation argument along the same lines.
13. For a Hayekian perspective on expectations see Butos and Koppl (1993, 1997, and 1999) and Butos (1997).
14. See the discussion in Boettke (1990:130–31).
15. Horwitz (1998) explores the relationship between Mises' work on economic calculation and Hayek's work on the epistemological qualities of the market in the context of the importance of money and real world (disequilibrium) prices. See also Boettke (1998).
16. Butos and Koppl (1999) argue that Hayek's theory of mind can provide an explanation for Kirzner's conception of entrepreneurial alertness as both share the notion of being "forward looking."
17. Interestingly, despite the apparently obvious similarities to Hayek, Harper's bibliography does not contain a reference to *The Sensory Order*, nor does he discuss Hayek's theory of mind in any real way.



18. This also suggests a parallel between the Hayekian view of knowledge, the Misesian view of economic calculation and the capabilities view of the firm. See Lewin (1998), Ioannides (1999) and Dulbecco and Garrouste (1999) for more recent work on the Austrian theory of the firm from a similar perspective.
19. On the Austrian theory of capital see Lachmann (1978).
20. Lewin (1998) offers an understanding of the relationship among capital, calculation and the firm's budgeting process that informs the discussion here. He makes no parallels to Hayek's theory of mind, but does articulate the ways in which firms act and react to market feedback.
21. Hayek's (1952a:50) discussion of the process of multiple classification in the sensory order resembles Austrian discussions of the capital structure. This parallel is also noted by Loasby (1999:34).
22. For a representative sample see Gwartney and Wagner (1988).
23. Ikeda (1997) provides some nice contrasts between Austrian/Hayekian and public choice approaches to these issues.
24. That is not to say that some constitutional rules have not been strengthened over the same period. The ways in which the constitutional and legal protections historically accorded to white, male, property owners have been extended to women and to non-whites and non-property owners are all positive developments from a Hayekian perspective.

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