Diversity in the Moral Sciences

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1 AN INTEGRATIONIST PROPOSAL

Pete Boettke's "What Is Still Wrong with the Austrian School of Economics?" sketches a program for Austrian economics based on a Kuhnesque analysis of scientific communities. His core recommendations focus on what we might call the *Uptake and Diffusion* dimensions of the scientific enterprise. In his concluding paragraph he advances two critical recommendations:

> *Uptake:* To encourage uptake by the wider economic community, take to heart "Polanyi's insights about plausible, intrinsically interesting, and creative research agendas, and [we] must therefore regard our work as a productive input into the ongoing research production of others within the broader community of economists and political economists" (ms, 39).[1]
>
> *Diffusion:* Diffusion requires, "At the level of teaching… presenting in as clear and as persuasive a manner as is possible the great insights of the mainline of economics and political economy, from Adam Smith to F. A. Hayek. It [requires]… understanding the evolution of ideas, their debates and the challenges, and to be respectful and engaging with respect to the critics of mainline economics…. And, as a citizen of the Republic of Science, embrace your role enthusiastically and without reservation. Be a competent referee, jump at opportunities to serve on organizing committees when asked, and, when asked to assume leadership roles, do so with a purpose and with professionalism."

On one interpretation these are sensible and worthy platitudes: one should seek to show how one's work is plausible and engage the wider group of inquirers. If taken with a considerable helping of salt these are eminently worthy recommendations. I am not convinced, however, that they should form central tenets in the research program of an outlier approach such as Austrian economics. If taken as a core commitment, they entail what I shall call an *Integrationist* program, a concomitant of which is a reduction

[1] Unless otherwise noted, parenthetical page references refer to Boettke's "What Is Still Wrong with the Austrian School of Economics?" in this issue.

in the unique insights of the Austrian approach and, so, an overall reduction of the diversity of perspectives in political economy and moral sciences. And a diversity of perspectives within political economy and the moral sciences is a critical resource for the intellectual community.

Section 2 shows that the Uptake and Diffusion recommendations, *if taken as core commitments*, lead to an Integrationist program. Section 3 then argues that a cost of this program is to decrease the diversity of perspectives in economics, which in turn decreases the ability of Republic of Economic Science to explore and solve a wider variety of problems. I then present the "Fundamental Diversity Dilemma," according to which there is a trade-off between uptake/plausibility and diversity: as we increase uptake and plausibility, we decrease diversity. I conclude in Section 5 by a defense of the role of heterodox research programs, and questioning the focus on a small set of metrics to indicate excellent and important research.

2 DIVERSE CATEGORIZATIONS V. THE PULL OF INTEGRATION

2.1 Categorizations

It may seem absurd that scientists should not aim to make their research as plausible as possible, and seek the widest possible uptake. After all, science aims at truth, and progress is constituted by an ever-increasing body of true beliefs about the world. The most obvious — and, I fear, common — basis for this view is what I have (Gaus, 2018) called *Naïve Naturalism*, according to which:

> 1. The world is ultimately constituted by all the facts there are (the complete set of facts).
>
> 2. Science is the progressive uncovering of increasingly accurate representations of these facts; each new scientific discovery presents a set of facts that strictly dominates earlier versions (the later includes all what is correct in the earlier version and adds to it).

On Naïve Naturalism, scientific progress secures, as it were, ever-better resolutions of the facts that compose the world. It is as if blurry and confused pictures become increasingly better representations of what *is*. Since what is a true representation is the same for all — what is true is true for all — then a successful scientific inquiry produces a better representation, and all should be able to see this better representation; consequently, it should receive wide uptake among open-minded and rigorous scientific inquirers. On Naïve Naturalism, if Representation *A* is superior to *B*, by

hypothesis *A* dominates *B: nothing is lost in the move from B to A.* Consequently, other inquirers should find *A* more plausible than *B*, and, sans non-epistemic motives such as professional rivalry, be ready to take it up. Plausibility and Uptake are obviously well grounded.

Commonsense science accepts Naïve Naturalism, and within a shared paradigm that agrees on basic categories, measuring devices and testing procedures, it may well seem to inquirers that Naïve Naturalism tracks their assumptions. But different scientific programs are often based on very different categorizations of the world, and so represent the world in fundamentally different ways. Kuhn (1970, 41) observes:

> After about 1630, for example, and particularly after the appearance of Descartes's immensely influential scientific writings, most physical scientists assumed that the universe was composed of microscopic corpuscles and that all natural phenomena could be explained in terms of corpuscular shape, size, motion, and interaction. That nest of commitments proved to be both metaphysical and methodological. As metaphysical, it told scientists what sorts of entities the universe did and did not contain: there was only shaped matter in motion. As methodological, it told them what ultimate laws and fundamental explanations must be like: laws must specify corpuscular motion and interaction, and explanation must reduce any given natural phenomenon to corpuscular action under these laws. More important still, the corpuscular conception of the universe told scientists what many of their research problems should be.[2]

On the categorizations of corpuscular science, for example, gravity was an "occult quality" with suspect metaphysics (Kuhn, 1970, 105); because action-at-distance appealed to categorizations and laws inconsistent with corpuscular science, it was implausible. More generally, if representation *A* is based on categories inconsistent with those a group employs, it will not find *A* a plausible representation.

As Hayek (1952, 48-52) stressed, all categorization depends on ignoring some differences (which become non-differences) and focusing on others (which become real differences). What category schema *A* classifies as the same things may be different things on *B*. Categorization schemas *A* and *B* may differ in three ways. (*i*) *A*'s and *B*'s categorizations may take the same underlying entities $\{e_1 \ldots e_6\}$ and group them together in different ways, such that for *A* $\{e_1, e_3, e_5\}$ are one thing $\{e_2, e_4, e_6\}$ another; while for *B* $\{e_1, e_2, e_3\}$ are one thing $\{e_4, e_5, e_6\}$ another. Note here that the two category schemas (or, as I shall say, "perspectives") agree on the basic entities $\{e_1 \ldots e_6\}$ but categorize them in

[2] Kuhn, *The Structure of Scientific Revolutions*, p. 41.

different ways. (*ii*) Another possibility is that one perspective may omit from their classifications entities that are captured in another.[3] (*iii*) Lastly, the perspectives may disagree on what are the basic entities, as corpuscular and Newtonian science did.

2.2 Uptake and Plausibility

As I have recently argued (Gaus, 2016, chap. 3), when perspectives on a phenomenon are based on fundamentally different categories, they can have great difficulty sharing their insights: indeed, they cannot be fully sharable. Newtonian mechanics solved certain fundamental problems by positing the unseen force of gravity. Unless corpuscular scientists were willing to throw out basic metaphysical commitments and accept a new and suspicious entity, they could not see this as an insight. Indeed, they generally saw it as a retrograde step, reintroducing the sort of unseen forces they had been successful in banishing from science.

A less dramatic example, but one closer to home, is the difference between orthodox rational choice explanations and the Hayekian account of mind and rule-following. A fundamental commitment of a wide swath of mainstream economics is some version of *Homo economicus*. Articulations of this idea vary, but two commitments are at its core: (*i*) that a rational agent can be represented a consistent chooser, basically along the line of von Neumann-Morgenstern type utility functions and (*ii*) that the rationality of such agents is instrumental.[4] Thus, when an economist such as Buchanan seeks to explain a phenomenon such as social norms, he seeks to show how norms can arise from the choices of *Homo economicus* (Gaus, 2018). An informative, non-question begging analysis, should seek to derive norms from instrumental goal pursuit. Hayek (1973: 11, 81ff), in contrast, advances a theory of mind in which purposive action — the crux of *Homo economicus* — is no more basic than rule-following behavior and, indeed, rules are "purpose independent." Rather than seeing the human brain as a cost-benefit calculating machine, Hayek (1979, 197) holds that it is "an organ enabling us to absorb…culture." Because conformity to cultural rules is at least as important as instrumental action, Hayekian economics accords a role to norms and culture that makes it closer to anthropology and sociology, but often ill translates into the basic categories of mainstream economics. Given the basic explanatory categories of *Homo*

[3] In these first two differences between *A* and *B* they may formally share what Page (2007, chap. 3) calls "one-to-one mappings of the world," which involves having a unique name for each element $\{e_1, e_2, e_3\}$. In the last they do not.

[4] Far too often, the second point is thought to be implied by the first — it is not (Gaus, 2008, 50-3).

economicus the Hayekian analysis is unenlightening, and not an advance at all. It fails as a good explanation, seeming to simply beg the critical questions.

I am not saying that no arbitrage between the two perspectives is possible: Vernon Smith's (2008) analysis of ecological rationality is a case in point, though Smith too explicitly sees himself as developing a fundamentally different conception of rationality than that which dominates the mainstream paradigm. The critical point is that resistance to Hayek and Vernon Smith's more theoretical work is rooted in the perspective of the basic models and categories of much mainstream economics. To increase uptake either (*i*) the mainstream would have to alter its categories to begin to accommodate more "ecological" ideas or (*ii*) the Hayekian categories would need to be modified to better map on the mainstream's categories. Both routes make the findings of the other more plausible because the categories become more similar, and so they facilitate uptake. But for that very reason they are *integrationist*: the perspectives become more alike.

3 DIVERSITY AND THE PRICE OF LUNCH

3.1 Complex Systems and Diverse Categorizations: The Opportunities for a Free Lunch

Perhaps the most revolutionary idea introduced by Hayek (1964) was that the economic system was a type of complex phenomena,[5] a thesis that has only recently gained wide support (Wilson and Kirman, 2016), though still resisted by most mainstream economists, wedded as they are to equilibrium models. Complex systems are characterized by a large number of densely interacting elements, with the result that at any time, the value of any one variable is highly dependent on the value of many others, which in turn are often dependent on it. Such systems thus are characterized by multiple levels of positive as well as negative feedback. The feedbacks and interactions may lead the system in a wide variety of directions, and not toward any dominant equilibrium (Arthur, 1994). Models that seek to identify all the relevant variables and their interactions may well be computationally impossible, and in any event would include a massive number of variables that could not be accurately measured.

As Hayek (1975) stressed in his Nobel Laurate address, we seldom have the ability to accurately predict such systems. Page (2007: 214-30) has shown, however, that these interactions sometimes can be effectively predicted by a diversity of models, often simple linear models, that employ different categorizations. Categorizations based on

[5] See Lewis (2015, 2016).

different perspectives can simplify or "clump together" difficult-to-model interaction effects, and combining them may approximate much more complex models. To better understand how, consider a slight modification of toy example from Page (2007: 218-221). Suppose that we have a network comprised by three variables (*x,y,z*), which simply have on/off values, as in Table 1. Suppose further that the values have an interaction effect, and the outcome is employment growth in a city.

x	*y*	*z*	Employment	Eq 4 prediction
0	0	0	**0**	**.5**
0	0	1	**1**	**1**
0	1	0	**1**	**1**
0	1	1	**0**	**.5**
1	0	0	**2**	**1.5**
1	0	1	**1**	**1**
1	1	0	**1**	**1**
1	1	1	**2**	**1.5**

Table 1: Three variable system with interaction effects (employment growth in 10K) (modified from Page, 2007, 218-19).

Even this simple interactive system is quite complicated to represent. The equation that maps these variables on to employment is:

(Eq. 1) $E = 2x + y + z - 2(xy) - 2(xz) - 2(yz) + 4(xyz)$

Now consider two simple linear models, based on perspectives *A* and *B*. Perspective *A* only has category *x*, and predicts on the basis of it alone:

(Eq. 2) $E_A = .5 + x.$

In contrast, B seeks to model the interaction effects among all three categories (variables), but it simplifies this task by mapping strings of variables — x, y, z tuples — on to employment values, according the rule:[6]

[6] As Page (2007, 391) points out, this is a Walsh function. See Page and Richardson (1992).

$$\text{(Eq. 3)} \quad E_B = \begin{cases} .5, if\ x + y + z = 2 \\ 1.5, \text{if } x + y + z = 0, 1, 3 \end{cases}$$

Both *A's* and *B*'s models are simple; combining them we get a model that, in fact, is surprisingly close to equation 1:

Eq. 4 $E_{(\text{mean A+B})} = .5 + x + .5y + .5z - xy - xz - yz + 2xyz$

As the fifth column in Table 1 shows, the combined prediction of these simple models based on our two perspectives manages to catch most of the interaction effects. Of course they are not as good as a fully accurate model of all the interaction effects (Eq. 1), but the difficulty posed by complexity is precisely that such fully specified equations are often impossible to discover or calculate. Combining simpler models that handle the interactions in different ways (*A* ignores them, while *B* uses a simple function) can help us cope with complexity, but for that we need perspectives with very different categorizations and models.

3.2 You Usually Don't Get a Free Lunch

Page (2007, 221) dubs this "The Crowd's Possibly Free Lunch Theorem." But free lunches on complicated matters are not common: we should structure our searches so that we can get them when on offer, but we shouldn't count on them. Wolpert and McCready's (1996, 1997) No Free Lunch Theorem showed that when searching for solutions on difficult problems, not only is there no search strategy that is best on all problems, *but no search strategy is best on average*. For each strategy that solves some problems well, there are other problems on which it performs poorly, and which offset its successes. Thus diverse toolboxes — say, including analytic mathematical models, agent-based computational models, experimental models, and discursive models — are needed. When one research group's favorite toolbox is flummoxed by a problem, another's is apt to find the problem much easier; no tool performs best overall.[7]

The importance of diverse perspectives is even more obvious if we accept that economics is a problem-solving exercise. In his analysis of theory choice Kuhn (1977:

[7] I am assuming here that toolboxes and search heuristics are very closely related: what tools one has heavily influences one's search strategy for new solutions. Indeed, categorizations are also closely related to search strategies: how one categorizes the world will affect how one measures the world and the tools one uses, and so the search strategies one employs. See Gaus (2016: 122-30).

321-22) stressed five main scientific values: accuracy, consistency (both internal and with other generally accepted theories), breadth of scope, simplicity, and fecundity. However, in some sciences, Kuhn (1977, 335) notes, utility may also be a desideratum. In the moral sciences — and that includes economics — utility seems critical. We want to understand efficiency, cooperation, employment, or growth, with an eye to understanding whether, and if so how, institutions, social norms and public policies may help solve current social problems. To be sure, utility is only one of the relevant scientific values, and so by no means dictates theory choice, but a theory that was useless in problem solving would be, *ipso facto*, deeply flawed.[8]

Once we expand our understanding of an adequate economic perspective to include problem solving, we again run smack into the need to pay for our lunches and hunches: no perspective is best on every problem. What one perspective finds easy, another perspective may find bafflingly complex. For example, consider again *B*'s model (§3.1), and its relatively simple way of representing interaction effects between *x*, *y* and *z*. As Page shows, equation 3, which was specified in terms of B's perspective, can be recast in A's perspective as:

Eq. 3* $E_B = .5 + x + y + z - 2(xy) - 2(xz) - 2(yz) + 4(xyz)$

A would have had great difficulty coming up with this model (even if it had the categories of *y* and *z!*).

As we know from the Hong-Page (2004) theorem, on problem solving tasks a diverse group of perspectives can, under some conditions, outperform even the best perspective (one that finds the problem easiest). Even once we realize that the conditions of the proof can seldom be fully met, it still follows that a group of good perspectives will generally outperform the best. But my point here is that as we switch from problem to problem, what was a good perspective becomes a clunky one. This is closer to Wolpert and McCready's No Free Lunch Theorem: as we build up our sophisticated economic perspective so that, say, its equilibrium model is an elegant and powerful solution to some problems, it becomes an ungainly approach to other problems — say, economic problems characterized by multiple levels of positive feedback. As Hayek rightly insisted, on these sorts of problems evolutionary and path-dependent models may get much better traction.

[8] I also believe this is true of political philosophy, thus pointing to the inadequacy of those theories of the moral ideal (e.g. Estlund 2017) that bask in the secure knowledge that they are utterly useless.

4 THE FUNDAMENTAL DIVERSITY DILEMMA

It may seem that all this implies that the moral sciences are very different than the natural: isn't it the crux of a successful natural science that inquirers see the same problem in the same way and use the same tools? No. As recent analyses of science have indicated, inquiry in the natural sciences draws on a diversity of perspectives (D'Agostino, 2010). The crux of the Kuhnian approach is to focus on scientific communities, not the reasoning of individual inquirers, and for the reasons sketched here, a diversity in the community can have benefits for all. Moreover, the very structure of the sciences, both natural and social, is based on different categorization and toolboxes: physics and chemistry apply categorizations of different granularity to the natural world, and at these different levels of categorization they employ different tools. What the physicist sees as a hopelessly complicated problem — for example trying to predict whether a particular polymer compound will form an effective plastic — is the stuff of chemistry.[9] And so too within disciplines: some biologists are concerned with micro categorizations, while others develop models at the levels of ecosystems. This is manifestly the case with the human sciences: economists, political scientists, sociologists, psychologists, social psychologists and evolutionary psychologists apply different categorizations and tools to represent and understand human social life. And within each of these different schools employ their own perspectives.

It is certainly true that a specific research program or subgroup must share a good many categorizations and tools if they are to share understandings of what constitutes a tractable and interesting program, what are the right tools to approach it, and what constitutes an interesting and well-supported result. This is also true of the moral sciences. The important point lurking here, I think, is that effective scientific inquiry and problem solving requires both a diversity of perspectives and an ability of those with different perspectives to communicate and share results. As we increase diversity we enhance our chances of hitting on a good solution, but as we do so we lessen our ability to share this solution with others, since our categories and tools are so different, one group may be unable to map the results of the other on to its perspective. That is, they will find it implausible. I have called this "The Fundamental Diversity Dilemma" (Gaus, 2016, 131): as we increase diversity we are more likely to find an optimum

[9] Notice that what is an effective plastic may be a matter of utility: Kuhn (1977: 335) suggests that utility may be a relevant value in theory choice in chemistry.

solution to our problems, but as we increase diversity we also increase the diversity of categorizations, and so we have increasing difficulty seeing the other's solution as sensible and relevant.

5. THE PRICE OF SITTING AT THE LUNCH TABLE

If we interpret Boettke's thoughtful essay in light of the Fundamental Diversity Dilemma, it presents an important insight: if Austrians aim to have a wide uptake of their insights by others, they must render their finding more plausible to other research programs. There must be a clear way to map their claims onto the categorizations of mainstream economics. My aim has been to stress that, like in most other areas, there is no free lunch here. As Austrians stress uptake and plausibility, they become committed to some sort of integrationist agenda (§2): there is seldom a way to increase plausibility without at least one of the groups transforming some of their categorizations. This has a clear cost: it decreases the diversity of economic science, and in so doing cuts off some of the benefits of diversity. The Austrians have been a repository of heterodox categorizations, models and toolboxes, many of which were later picked up by others. While the mainstream was pursuing a behaviorist agenda based on an extremely abstracted model of human agency conjoined with Herculean information assumptions, Austrians like Hayek were modeling markets in terms of far more complex notions of rationality, radically incomplete information, norm-following, cultural conformity and complexity; instead of equilibrium models, social evolutionary analysis was central. All these are in much more favor today — for example in sociology, anthropology, social psychology and complexity science (see Henrich 2016; Richerson and Boyd, 2005). Having a place at the lunch table has its attractions, but it isn't free. It decreases the ability of economic science to effectively explore a wider set of problems, and get a better handle on our immensely complex economic system.

In my view, the complexity of the moral sciences mandates a wide variety of perspectives. No single perspective or small group of perspectives could possibly capture the various levels of analysis and so, categorizations, emergent properties and interactions of human social life. Jevons (1957, 93ff), in introducing the marginalist program, recognized that its new mathematical analysis did some things (statics) well, but had far more difficulty with others (dynamics without equilibrium). And, of course, the variety of problems that the moral sciences set themselves to solve or ameliorate demands a variety of perspectives and tools. Again, there are few free lunches here.

What is required is not more homogeneity but a diverse ecosystem of research programs; some will stress more orthodox analytic approaches, some experimental, while outliers such as radical economics may employ a different set of core categorizations, such as exploitation and power. It is important that, while most will pursue versions of the dominant perspective, others develop different categorizations, models and toolkits. Such an ecosystem will be characterized both by mutual incomprehension[10] and cross-fertilization. Emergent properties, for example, which loomed so large in Hayek (1964)[11] are just now getting wider uptake in economics (Colander and Kupers, 2014); as complexity insights receive uptake, new tools such as agent-based modeling begin to spread from other disciplines into economics.

Given this, we should seriously question the addiction of so much of the economics profession to impact, citation and download statistics. To be sure, they tell us something useful: they indicate that the mainstream paradigm has found the papers easily translatable into their core categories, and have been fecund enough to generate further work in that paradigm. I do not wish to belittle them. They serve some purposes well. But like all standardized measures, they focus on a narrow range of competencies, perspectives and toolkits; whether it be standardized intelligence tests, standardized college admission tests or standardized course evaluations, these metrics give us some information while obscuring a great deal.[12] A diverse and thriving economic science needs outliers, exploring a variety of perspectives, as well as those who wish to hoe the fields of the mainstream. Given the current state of economic inquiry, I very much suspect it needs them more.

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[10] Thus Caplan (2009) on Hayek: "His original, true ideas could have been five good blog posts, his errors and bizarre obsessions are numerous, and his writing style insults every person who ever tried to write a decent sentence."

[11] See Lewis (2015, 2016). Herbert Simon (1996) is interesting as a bridging figure, often bringing concepts like emergence closer to the mainstream.

[12] They also can provide strong incentives to be an outrageous badass, whom everyone will write about. I shall defer any citations here.

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