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I want to consider how the general characteristics of a discipline might facilitate “social mechanisms for distributing knowledge” that do not depend on uniformity of use, but, in fact, on different uses by different people. Indeed, I want to show that the ways in which a discipline is organized afford the growth of knowledge and do so, in particular, by facilitating an approach to what Thomas Kuhn described as “the essential tension” between, on the one hand, the traditional or customary elements of disciplined enquiry, which are prerequisites for there being a community of enquiry, and, on the other hand, the innovative elements of disciplined enquiry, which are needed on account of the always already inadequate character of our engagement with the objects of enquiry.

Keywords: Disciplines; Knowledge; Enquiry

Introduction

In his “Social Epistemology: a statement of purpose”, Steve Fuller already anticipated, in 1987, some of the questions we are still grappling with 25 years later (and had been prompted to grapple with 25 years before, with the publication of the first edition of Thomas Kuhn’s The Structure of Scientific Revolutions). This is particularly evident in Fuller’s parable of the physics textbook, which, wanting to put the social in epistemology, he discusses in terms of “the fallacy of composition”:

Once that book on Newtonian mechanics is put in the hands of many different people, each of whom has read many other different books, it is simply bad psychology to expect that this multitude of readers will uniformly use the book as intended.

He mentions, later, that “the social mechanisms for distributing knowledge do not themselves function in a sufficiently invariant manner to ensure that … truths will be transmitted intact” (Fuller 1987, 1–2, emphases added).
I want to use “that book on Newtonian mechanics” as a metonym for “the discipline of physics” and to consider, not only the “psychology” of a discipline, of which physics is merely an example, but, more importantly, the general characteristics of any discipline——institutional and intellectual—and how these characteristics might facilitate “social mechanisms for distributing knowledge” (and for producing it too) that, departing from Fuller’s comments (not intended, I think, as a definitive analysis), do not depend on uniformity of use, but, in fact, on different uses by different people, as Kuhn had already noted (1959, 227–8, n. 2). Indeed, I want to show that the ways in which a discipline is organized afford the growth of knowledge. In particular, disciplines do so by facilitating an approach to what Kuhn described as “the essential tension” between, on the one hand, the traditional or customary elements of disciplined enquiry, which are prerequisites for there being a community of enquiry, and, on the other hand, the innovative elements of disciplined enquiry, which are needed on account of the always already inadequate character of our engagement with the objects of enquiry. (Because of their inexhaustibility and our finitude, they always remain at least partly outside our reach.)

I proceed in three main stages: In the first Section, I provide an overview of the institutional, cultural, intellectual and normative elements that underpin any individual discipline, subdiscipline or, though less reliably, inter-discipline in the larger system of enquiry. In the second Section, I provide a framework, making use of a notion of “shallow consensus”, for considering how we should understand and how we, as individual disciplinary practitioners, will engage with the various elements which, taken together, constitute a given discipline. (We should, in short, understand them as being multiply interpretable, rather than having the same fine-grained meaning for all stakeholders.) And in the third Section, I show how these various elements, interpreted within the shallow consensus framework, provide a basis for understanding how the competing modalities of tradition and innovation are balanced, in any successful discipline, in ways that permit the orderly growth of knowledge.

My own approach, as will appear, is itself multi-disciplinary, at least in the sense that I, writing as a philosopher, do not think that what philosophers have to say about these matters exhausts what it might be interesting to say about them. In particular, I draw again, as I did in Naturalizing Epistemology, on management science as a source of insights about the problems of managing the production and distribution of knowledge within a disciplinary framework. Of course, this means that my statements are not even intended to have the canonical disciplinary forms of analyses of concepts or reports of findings in metaphysics. I do not think that the disciplines are the sorts of things that lend themselves to that kind of approach; they have histories, not essences. What I am going to do, rather than offering a metaphysical analysis, is consider, as Dean (1999, 23) suggests, some “‘how’ questions …”, which he enumerates as follows:

(1) [How are] characteristic forms of visibility … ways of seeing and perceiving [arranged within a discipline?];
How are distinctive ways of thinking and questioning, relying on definite vocabularies and procedures for the production of truth [developed and disseminated within a discipline?];

How are specific ways of acting, intervening and directing, made up of particular types of practical rationality ("expertise" and "know-how"), and relying upon definite mechanisms, techniques and technologies [propagated within a disciplinary framework?];

How are characteristic ways of forming subjects, selves, persons, actors or agents [deployed within a discipline?].

I will thus attempt to develop what Dean might call “an analytics of disciplinarity”.2

Prolegomenon to an Ethnography of the Disciplines

It is not surprising, perhaps, that there is great interest in what disciplines are and how they work among the practitioners of intellectual enterprises which lack or are actively denied that status. So, for example, Simon During writes that, in pondering “a bewildering array of researchers [who] declared themselves to be in cultural studies” and what this implied about whether “one person could make assessments of research across these diverse fields”, he reached “a somewhat unexpected conclusion”. He continues:

[I]t’s not just that the parameters of cultural studies are blurred, rather, in the end, we don’t have a good understanding of what disciplines are, especially if we conceive of them not just as subdivisions of knowledge but also as institutional forms of life.

He adds, later: “[T]hick descriptions of disciplines as an institutional form of life are rare” (During, 2006, 266, emphasis added).

As usual with During, his statement is terse but rich in implications. Let us tease some out. First of all and, from the point of view of the structure of this paper most importantly, During says of disciplines that they are both “subdivisions of knowledge” and “institutional form[s] of life”. Secondly he gestures towards, without actually naming the godfather of “thick description”, Clifford Geertz, whose own musings on the disciplines inspired one of the most widely cited commentators on disciplinarity, Tony Becher. Becher says of Geertz’s unpublished “Towards an ethnography of the disciplines”, that it “set me off on the investigation on which the present study is based”, i.e. his Academic Tribes and Territories (1989, xi). This is good company to be in, I think, and, indeed, I hope to emulate Geertz’s (1982, 21) commitment:

to attempt to navigate the plural/unific, product/process paradox [associated with the disciplines] by regarding the community as the shop in which thoughts are constructed and deconstructed, history the terrain they seize and surrender, and to attend therefore to such muscular matters as the representation of authority, the marking of boundaries, the rhetoric of persuasion, the expression of commitment, and the registering of dissent.

Indeed, there is, encouragingly, some overlap between Geertz’s list and Dean’s, and in attempting my own armchair ethnography I will be guided by that overlap.
In any event, let us begin with the distinction between field of enquiry and institutional infrastructure. Actually, this is a point of dispute (e.g. about whether the one determines the other) and yet the distinction underpins a common perception about the disciplines — namely, that they characteristically, perhaps unavoidably, have both intellectual and institutional aspects. So, for example, philosophy is both an intellectual tradition, with its hot topics, key figures (Plato, Kant), canonical texts (*The Republic*, *Meditations*) and a system, perhaps a rather loose system, of institutions, such as, *inter alia*, professional associations, publishers and university departments offering tuition in philosophy as an undergraduate subject and training in it for postgraduate students.

It can be useful, as we begin to sketch the lineaments of a discipline, to imagine that we are attempting to instruct one of these very students, starting a PhD programme, on what sort of environment he is getting caught up in. We would like him to understand a bit more about what it means to become a scholar in the context of a specific discipline than, certainly, almost everyone of my (Baby Boomer) generation did when we slowly but eventually made our ways into our various communities of enquiry. What should we tell him about? (Our answers will constitute a first-draft sketch of the discipline as a cultural system, to adapt another Geertzism. 3)

Taking up During’s point, echoed by Becher and by Whitley (2000), that it can be useful to distinguish intellectual and institutional elements, we might begin with some of the more obvious points about the institutional aspects of a discipline.

Here, then, are some elements of a discipline as an institutional form that have been widely recognized in the literature (and some that have not, but reflect my own experience).

A discipline supports and is supported by 4

- its recognition as a discipline in a classificatory system such as the Australian Bureau of Statistics Fields of Research coding system, 5 which groups disciplines at two-, four- and six-digit levels 6 or in some library or database cataloguing system;
- a professional association (Becher 1989, 19; During 2006, 267; Post 2009, 752) which sponsors
  - conferences (During 2006, 266), particularly as ceremonial gatherings in which interaction rituals are enacted which sustain a sense of corporate identity and foster in individuals an affiliative identity with the discipline (Collins 1998, xviii; Christie and Maton 2011, 5);
  - awards and prizes, partially defining a “system of rank and reward” (Sullivan 1996, 229);
  - scholarly journals (Becher 1989; 19; Post 2009, 753; Strober 2006, 317) recognized in an indexing system (e.g. the *Philosopher’s Index*) as sharing the disciplinary orientation;
  - a code of professional ethics (Becher 1989, 24; Elkana 1981, 17; Khrishnan 2009, 28; Ylijoki 2000, 339);
an academic organizational unit, typically a department, which functions within a university as a site for teaching and research (Post 2009, 752; Strober 2006, 318) and which superintends
  - hiring, confirmation and promotion of staff, using criteria which reflect the concerns and standards of the discipline (During 2006, 268; Post 2009, 753; Strober 2006, 316);
  - the allocation of academic workload (Khrishnan 2009, 27; Redner 1987, 44);
  - the reproduction of the discipline via the training of postgraduate students (Khrishnan 2009, 45; Post 2009; Strober 2006, 318);

an undergraduate curriculum, usually embodied in the form of a major sequence of study (Embree 2010, 3; Khrishnan 2009, 42; Post 2009, 749; Strober 2006, 318) which supports and is supported by
  - instruction in teachable disciplinary knowledge (During 2006, 277; Sullivan 1996, 229);
  - the identification and inculcation of discipline-specific graduate attributes;
  - explicit (or implicit) engagement with the discipline’s “threshold concepts” (Meyer and Land 2003) and characteristic ways of thinking and acting via its signature pedagogies (Shulman 2005);

publishers, which serve the discipline by the provision of what Lester Embree calls “canonical types of texts” (Embree 2010, 8), including
  - scholarly journals (often in conjunction with sponsoring professional organizations), which provide authorized outlets for contributions to the literature of the field;
  - works of reference, such an encyclopaedias, companions and handbooks which provide a survey of the discipline as seen by distinguished practitioners;
  - textbooks for undergraduate and coursework postgraduate teaching which cover the essential intellectual aspects of the discipline;
  - research monographs, where these support the objectives of the discipline;

social networks, including those sponsored or facilitated by associations and departments, but not limited to these, which provide
  - patronage networks (During 2006, 267);
  - a system of gatekeepers, controlling access to opportunities and rewards (Becher 1989, 60; Post 2009, 753), e.g. department chairs, journal editors and scholarship selection committees;
  - audiences for dissemination of work (Elkana 1981, 15; Redner 1987, 44) and, more generally, a network of communication (Becher 1989, 20), nowadays enhanced by list servers, RSS feeds, electronic bulletin boards and the like.

Here, now, are some elements of a discipline as an intellectual form.
A discipline supports and is supported by

- “styles of subjectivity” (During 2006, 266), embracing
  - criteria for assessing the value of work (Bourdieu 1975; Khrishnan 2009, 46; Post 2009, 753; Redner 1987, 39; Sullivan 1996, 229);
○ a concept of rigour (Strober 2006, 322);
○ a rhetoric or more broadly a demeanour that identifies its user as a member of the disciplinary community (Sullivan 1996, 232) and so makes their contributions visible to others in the community;

• an accepted narrative of the discipline’s development and legitimacy (During 2006, 267; Embree 2010, 3; Sullivan 1996, 228);
  ○ including the identification of heroic, e.g. founding and still canonical, figures (Becher 1989, 25; During 2006, 267; Embree 2010, 3; Ylijoki 2000, 340) and current charismatic figures (During 2006, 267);
  ○ and frequently embodied in ceremonial gatherings and interaction rituals (Collins 1998) which orient individuals towards the community and place them in its history;

• a body of accumulated knowledge and skills (Becher 1989; Khrishnan 2009, 43; Sullivan 1996, 229; Ylijoki 2000, 340) including
  ○ identification of an agreed domain, object or topic of research in the discipline (Becher 1989, 9; Khrishnan 2009, 10; Post 2009, 758);
  ○ a clear agenda for research (Khrishnan 2009, 14), including definitions of problems and of solutions (Bourdieu 1975, 22; Elkana 1981, 14; Embree 2010, 3) and a distinction, pointing to opportunities to contribute to the growth of knowledge, between settled and unsettled (or even disputed) claims (Sullivan 1996, 231) or open problems (Elkana 1981, 14), with, in some cases, a recognized hierarchy of problems in relation to their urgency or significance;
  ○ a characteristic disciplinary methodology (Becher 1989, 20; Elkana 1981, 14; Post 2009, 751) including rules for the evaluation of potential contributions (Bourdieu 1975; Khrishnan 2009, 35);
  ○ a corpus of “doctrinal” knowledge (or settled knowledge) embracing facts, definitions, frames, analogies and schemas (Sullivan 1996, 228);
  ○ a network of conceptual, explanatory and metaphysical theories (Elkana 1981, 14) or body of literature (Becher 1989, 20) underpinning curriculum and research activities;

• a discursive community with a common language (Becher 1989, 24; Post 2009, 766; Strober 2006, 316) including
  ○ field-specific jargon or terminologies (Embree 2010, 3; Khrishnan 2009, 23; Strober 2006, 316);
  ○ grammars or “knower codes” which underpin individuals’ contributions to disciplinary discussions (Luckett 2010, 1) by providing a generative system for producing recognizable, well-formed contributions to knowledge;
  ○ rhetorical devices for displaying competence (Sullivan 1996, 232);
  ○ patterns of citation and reference that distribute deference and manage reputations (Sullivan 1996, 238).

In some ways, the institutional aspect of a discipline is easier and in some ways it is harder to delineate. It is easier because an institutional element of a
“disciplinary matrix” (to adopt a Kuhnism (Kuhn 1970, 182)) might seem to have a more straightforward ontological status than an intellectual element. A professional association, for example, the American Philosophical Association, has headquarters and publications; it sponsors conferences, collects dues and fees and elects officers. And all this might seem less problematic, as a focus of analysis, than, say, identification of the reigning hot topics in philosophy, or its canonical texts, or its characteristic ways of thinking and acting … some of its intellectual elements, which may be, and in this case probably transparently are, a lot more obviously unsettled or even contested than the institutional elements. On the other hand, it may be harder to address the institutional elements of a discipline because or in so far as these elements bleed into the intellectual elements, especially in relation to culture and norms. Where do we place, for example, what Robert Post calls the “criteria that can be used … to assess the value of disciplinary work” (2009, 760), which seem to be widely, if not universally (and perhaps “shallowly”), shared by members of a disciplinary community and on which such activities as peer review of submissions to journals and hiring and promotion of academic staff would seem to depend? Are these criteria institutional or intellectual elements? Certainly, they are institutionalized in various ways, but they also, just as certainly, play a key role in the production and distribution of intellectual products of disciplinary activities. And, of course, once we recognize this obscurity or complexity, the distinction itself——between intellectual and institutional——may appear less secure.

Notwithstanding these reservations, I offer, as a tentative map, the graphical summary, on the following page, of the discipline as a cultural system. It represents, if nothing more, a good starting point for further enquiry, implying, as it does, a checklist of questions which we might raise about a discipline or “wannabe” discipline. A checklist, indeed, that our befuddled postgraduate student might use to determine the outlines of the ecosystem he is encountering and trying to engage with.

In the next Section, I will consider how we ought to understand the force of saying, for example, that a discipline has a distinctive methodology or that it is characterized by a particular patronage network. Before doing that, however, I want to consider some principles, drawing on the work of Becher and Whitley, that we might use to provide a classification of the disciplines, not on the sort of subject-matter basis that appears to underpin the Australian Bureau of Statistics approach, but, rather, on a functional basis, in terms of some dimensions along which we can array the particular disciplines which we encounter.

Whitley identifies three dimensions which are relevant to understanding the different ways in which disciplines address their domains of enquiry and deploy their intellectual resources through the institutionalized mechanisms available to them (see Figure 1).

First of all, we have (slightly modifying Whitley’s own wording), the dimension of technical task certainty, which measures “[t]he extent to which work techniques are well understood and produce reliable results”.10
Readers will be aware of the ways in which the degree of technical task certainty can vary (a) from one discipline to another, as, for example, between (the settled parts of) physics and (the leading edge of) literary criticism; and (b) within a discipline between more and less settled parts of the discipline, as, for example, between the settled part of physics, such as ordinary measurements of the position or momentum of medium-sized objects, and the leading-edge of experimental work, such as that being carried out, as I write, at the Large Hadron Collider in search of the Higgs Boson. Readers will recognize the description of more and less certain situations: 11

In field where this is relatively [low] results will be ambiguous and subject to a variety of conflicting interpretations and the use of technical procedures will be highly tacit, personal and fluid. It will not be very obvious when particular methods should be used, nor when they have been applied successfully. [Think: literary criticism.] Where technical task [certainty] is [higher], … there will be a well-established set of research techniques which can be acquired through formal training programmes and whose use is relatively straightforward and success is easy to determine. [Think: the sorts of tasks set for first-year laboratory physics.] Research results will be more predictable, visible, and replicable in these fields than in others. Given a particular problem, scientists will be fairly clear about how it should be dealt with, how the appropriate methods should be applied, and how the results should be made sense of …
Secondly, and again modifying Whitley’s terminology slightly, we have the
dimension of *strategic task certainty*, which Whitley identifies with “the stability of
problem formulations, and of hierarchies of problems according to their impor-
tance and significance”. When we have low degrees of certainty, in this sense that
means “uncertainty about intellectual priorities, the significance of research topics
and preferred ways of tackling them, the likely reputation pay-off of different
research strategies, and the relevance of task outcomes for collective intellectual
goals”.12 Again, readers will easily be able to think of examples of disciplines at or
near either end of this spectrum.

Thirdly, we have the dimension of *mutual dependence*, which is more about the
structure of the network of enquiry than it is about the tractability, given existing
methods and ideas, of the problems characteristic of the domain of enquiry. Where
there are high degrees of mutual dependence, “scientists become more reliant on a
particular group of colleagues for reputations and access to resources”. In these sit-
suations, according to Whitley, “competition for reputations and control of the
direction of research … grows in intensity”.13 Indeed, this dimension shows some
similarity to one identified by Becher and described by him in terms of a person/
problem ratio which underpins his distinction between rural and urban modalities
of enquiry.

In particular, Becher notes that “[i]n some specialist fields, it became clear that
the number of issues currently being pursued was relatively small, though the
number of people in pursuit of them might be quite substantial”. In this case, we
can, of course, expect the “competition for reputations” to “grow in intensity”. On
the other hand, there are also

knowledge areas … in which the questions that could be asked at any given time, with
some reasonable expectation that they might be answered, were virtually unlimited,
while the number of those engaged in answering them was negligible in comparison.

In this case, “it makes better sense [according to Becher] to adopt a division of
labour”, in which each individual or team works its own territory, with little direct
competition for the control of that territory from other individuals or teams.14 We
thus distinguish between disciplines which are urban (high people/problem ratios)
and rural (low people/problem ratios).15

Of course, it still remains, as I have indicated, to consider how we are to under-
stand the various claims that we might make or investigate about a particular disci-
pline. Whitley’s analysis of the dimensions gives some indication that it is not a
simple matter to understand how a discipline recruits the various elements which we
have identified and, indeed, confirms Becher’s suggestion that “[t]he concept of an
academic discipline is not altogether straightforward”.16 Indeed it is not. Certainly, it
is not straightforward and may vary from one discipline to another, from one period
in the history of a discipline to another, and, indeed, from one “school” or subdisci-
pline within a particular discipline to another, how we are to understand, for
example, the idea that a discipline is defined by a canonical set of texts (we know that
canonicy can be and has been a site of contestation, not consensus) or by a
founding narrative, identifying heroic and charismatic figures in the history of the discipline. And we know that patronage circles can divide under the pressure of intellectual division, and vice versa. Certainly, we must not imagine that it is a matter, simply, of looking the answers up in some standard work of reference, for such works themselves sometimes offer different accounts of these disciplinary elements, being part of the debate, rather than an appeals court to which to refer the debate.

**Shallow Consensus**

It is all very well to say that a discipline is defined in terms of the sorts of elements that I have catalogued. Certainly, we expect that a mainstream discipline will be served by a professional association and will support journals in which significant work is published and will reproduce itself by training postgraduates and support this training and its research activities more generally through its relations with granting agencies and via cross-subsidies from the income generated by undergraduate teaching. But this way of describing the matter hypostasizes both “the discipline” and, indeed, the several elements (journals, majors and association) by which it is said to be constituted. And the hypostasization conceals two problems, only one of which I will address here. First of all, if we are to treat both the elements and the discipline appropriately, we will need to understand how the discipline came to be constituted as it is and in terms of these elements. This requires historical, perhaps specifically genealogical work (in the Foucauldian sense). I will not attempt that here. Secondly, however, we need, in order to get past the crudest manifestations of hypostasis, to understand what it is we are saying when we say that a particular discipline is constituted by these various elements. What are we claiming?

I suppose the most obvious answer is that we are claiming that there is wide acceptance of, commitment to, or use of, these elements by a community of enquiry whose existence as a community is, in turn, based on this consensus in attitudes, values and activities. So, for example, the philosophical community is grounded in the widespread acceptance by its members that there are particular:

- conferences which it is important to attend;
- scholarly journals which one ought to “keep up with”;
- textbooks which are appropriate for undergraduate teaching;
- exemplary recent research which at least the specialists need to be engaged in discussing;
- standards for the recognition of such exemplary work and, indeed, for evaluating work at all the various levels at which it is produced;
- ways of displaying to others one’s membership in this community;
- agendas for research in each of the major subdisciplines.

Of course, as soon as we begin listing these elements, the idea that there is “widespread acceptance” of, say, a particular list of journals to be “kept up with” seems less plausible. After all, aside from subdisciplinary differences within the community (logicians “keep up with” different journals than phenomenologists),
there are also “schools” within philosophy, such as materialists in the philosophy of mind or Straussian in political philosophy, and what needs to be “kept up with” is probably more frequently determined by school affiliation (in this sense) than by some more diffuse disciplinary affiliation. What sort of consensus or sharing or agreement can we reasonably attribute given these internal differences? (And I have hardly touched the surface, let alone plumbed the depths—imagine what hard-headed Australian “realists” might say about “post-modernism” in philosophy!)

It is here, I believe, that we can make use of an idea that I have been canvassing for some time and which, in fact, I owe to Kuhn, though the terminology is mine, not his. This is the idea of shallow consensus and it can be illustrated in any of a variety of different discourses. Take, for example, what is probably quite reasonably described as a very widespread consensus, among citizens of the USA, on the value of liberty. Certainly, there is consensus. I am sure that suitably worded survey questionnaires would or indeed do reveal wide agreement with, say, the proposition that liberty is a significant good. What a more qualitative, a more ethnographic approach would reveal, however, is also important: namely, that what one person means who says that liberty is a significant good is often, perhaps even profoundly, different from what another person might mean who also says that liberty is important. Take, for example, the familiar philosophical distinction (confused and confusing as it is!) between negative and positive liberty (Berlin 1969). One of our enthusiasts for liberty might think, like Ron Paul (as I wrote running for the Republican nomination for the US Presidency), that liberty means non-interference, especially from government; that is the sort of liberty she thinks important. But this is very different from the kind of liberty that another enthusiast might value, namely, the (positive) liberty of opportunity that might be secured by government-managed (and taxpayer-funded) health, education and welfare programmes that are intended to support individuals’ capabilities (to use some contemporary terminology) to exercise meaningful liberty, e.g. in the choice of satisfying careers. So, while we have agreement between these two individuals, of a kind that might be captured by a survey (at least a “coarse-grained” one), the agreement is quite shallow; when we start to probe the individuals’ beliefs and values and commitments, we find, in fact, that they actually disagree, perhaps heatedly and fundamentally, about some important points——e.g. whether taxation should support social welfare programmes.

It is actually this kind of consensus or agreement in commitments or values that will characterize the disciplinary communities, I believe. While there may be agreement in the philosophical community that Plato is a significant figure, or that Wittgenstein is, what Plato and Wittgenstein mean to different individuals in the community will vary widely; there will, to take only the most obvious aspects, be many different “readings” of these two philosophers, some of which will stand at stark, perhaps irreconcilable, variance with one another.

This is hardly “stop the presses” observation (indeed, it is already implicit in Whitley’s dimensions of technical and strategic task certainty), but it does permit us to tie the discussion of the disciplines to some familiar points (though not as
familiar as they should be) of the figure who, for me, is the grandfather of social epistemology, Thomas Kuhn.\(^{20}\)

Kuhn, of course, saw the disciplinary community as held together, *inter alia*, by their common acceptance of a “paradigm” (more generally, “disciplinary matrix”) serving to guide their collective endeavours in a field of enquiry.\(^{21}\) But what we can see, if we look more closely, is that what is “commonly accepted” is, precisely, something that not only permits, but perhaps even encourages, precisely the divergences in interpretation that I have been sketching. There are four specific elements I want to enumerate. I will emphasize, in the next Section, that, while the divergent interpretability of these elements poses a challenge for the analytic task of characterizing the nature of disciplinarity, it also affords a solution to a problem which is fundamental for any disciplinary community (and to whose solution Kuhn made a notable contribution)—namely, that of balancing the traditional and the innovative approaches to the production of knowledge.

Firstly, what Kuhn’s “normal scientists” orient to when they agree in orienting to a “paradigm” is a concrete achievement and, as such, it can be interpreted or, as Kuhn says, “articulated” in a variety of different ways.\(^{22}\) Because the paradigm is concrete, it cannot be exhaustively characterized and, accordingly, any particular characterization is already incomplete and “partial”. There are, inevitably, alternative characterizations (also “partial”) and, accordingly, a variety of different characterizations, each of which is a characterization of the paradigm on whose significance the articulators are (shallowly) agreed.

Secondly, much of what individuals working in a particular disciplinary context agree about—e.g. that Plato is a significant figure, or that the issue of free will and determinism is a vexed one—is highly abstract, as is the agreement, already mentioned, between the libertarian and the socialist, on the importance of liberty. “Plato” names an abstraction, as does “liberty” and, accordingly, there is, again, work of articulation to be done in developing these ideas to the point where they can be brought to bear in real intellectual or other kinds of work. And, as with the concreteness of the paradigm, where there is articulatory work, there are opportunities for divergence in articulations and, hence, any consensus about these abstractions will be a shallow one.

Thirdly, much of what is agreed to by members of a disciplinary community is “tacit”,\(^{23}\) rather than explicit, and this too supports multiple interpretability and hence a diversity of different ways of applying a shared “tool-kit” to a “shared” agenda of problems. If what the mentor has already mastered is an unarticulated, perhaps even inarticulable, skill, then her students can each form a different (also tacit) understanding of what that skill consists in, and, again, we have opportunities for divergent understandings.

Finally, we have Kuhn’s epochal (and widely misunderstood or, even more commonly, ignored) contribution to axiology, namely, his emphasis on “shared” values rather than prescriptive rules for the evaluation, by enquirers, of proposed
contributions to their field of enquiry. As Kuhn (1959, 330, emphasis added) puts it, speaking of the standards disciplinary practitioners use:

The considerable effectiveness of such criteria does not ... depend on their being sufficiently articulated to dictate the choice of each individual who subscribes to them. Indeed, if they were articulated to that extent, a behavior mechanism fundamental to scientific advance would cease to function.

So, again, we have that what the members of a community “subscribe to” is not something that, on closer analysis, they will all understand in the same way; rather, something that, in principle, each might (and might legitimately) interpret in a distinctive way. Again, there is merely shallow consensus, as with our libertarian and socialist understandings of the value of liberty. But what Kuhn adds is crucial: If we did not have this sort of multiple interpretability, “a behavior mechanism fundamental to [disciplinary] advance would cease to function”. Indeed it would. I address this point in the next Section, and thus show how disciplinarity might contribute to the growth of knowledge. First, however, one final consideration to further elucidate the idea of shallow consensus.

You and I agree, let us suppose, that some concrete achievement or some abstract concept is significant for our activities. Perhaps we agree in our command of, and in recognizing the importance of commanding, some “tool-kit” of inarticulable (or anyway unarticulated) skills. Certainly, we agree that certain values ought to superintend our assessments of our own work and that of our colleagues in our disciplinary community. That we agree on these matters, even if shallowly, might give us “common cause”; it might enable us to see each other as colleagues, as engaged, with each other, in some joint project. But how is it that we are able to sustain what is, after all, at least partly an illusion: namely that we agree with each other in or about these matters? After all, we don’t agree at a more fine-grained level of analysis (and, as I will show, and as Kuhn already argued, it is important that we disagree). Our consensus is shallow, but what makes it a consensus at all? What sustains it as such?

There are, in fact, a lot of ways of answering this question. One way is “tactical”, if you will. “United we stand; divided we fall”, we sometimes say and, saying it, we acknowledge something that may be as important in disciplinary communities as political ones. In so far as we do agree, at some level of abstraction anyway, we can be partners in an enterprise and since we may be partners with those we disagree with against those we disagree with even more or whose ideas and values we actively abominate, it may be in our interests to “gloss over” our differences, at least in contexts where they are slight in relation to much bigger differences between “us and them”. Certainly, whatever the libertarian might say about the advocate of positive liberty (and Berlin himself did say some of these things), the libertarian does share something with the positive liberty socialist that neither shares, say, with the advocate of a hierarchically organized polity in which the many serve the few. Just so in relation to the philosophers or the cognitive psychologists or the particle physicists;
their intra-community differences pale in comparison with their differences from those “beyond the pale”.

Secondly, the tools available for recognizing incipient divergence in articulations do not really work that well. After all, we have to use the same abstract and concrete materials to talk about and illustrate our articulations of abstract concepts and concrete paradigms as we started from. (We do not have anything that is not either concrete or abstract to use in our conversations. As we try to explain our differences, they can be occluded by the kinds of abstract and concrete talk we have to use to provide this explanation.) It will, accordingly, not always be obvious when we have diverged in our understandings.

Finally, as Brian Loasby reminds us, we have bounded rationality to thank for the fact that even multiply interpretable paradigms and values and concepts can provide a “consensual” basis for disciplinary activity. He says:

> Fortunately, partial ignorance and bounded rationality come to our aid; for it is no easier to recognise the existence—or absence—of a consensus than of an optimum. Full consensus on objectives is not necessary to keep an organisation together; nor is it necessary to effective decision-making. The problem of integration need not be completely resolved. Even the individual need not fully reconcile his internal conflicts, since neither the interdependencies between the components of his preference function nor the interdependencies in the complex situation to which it is applied can be fully understood, or properly taken into account even if they were. Schizophrenia is indeed a problem, but moderate inconsistency is not. If this is true of the individual, then surely it must be true in the greater complexity and amid the additional obscurities of decision-making within an organisation. (1976, 140)

### The Affordances of Shallow Consensus

How are we to understand a discipline? As constituted by a shallow consensus, partly concealing the prospects for multiple interpretability of its key elements, about various intellectual and institutional matters, including, especially: what problems are important, who the important figures in the history and present practice of the discipline are, how we are to evaluate potential contributions to the field of enquiry, how we are to select from applicants for a job in a discipline-based department, etc. It is not that everyone within a particular community will agree in detail about these (and other) matters. As we have seen that is empirically not to be expected and, indeed and as Whitley’s dimensions indicate, there is likely to be considerable variation, between disciplines, between periods, between different subdisciplines or schools within a particular disciplinary framework in how much fine-grained consensus there will actually be. So we cannot expect the identification of the disciplines to be as straightforward as a more hypostasized reading of the list of elements might suggest.

But what makes identification of the disciplines problematic (at least potentially) may also underpin a “mechanism fundamental to [disciplinary] advance” … or so, anyway, I will now try to show.
Let us begin by characterizing that “mechanism”. It is most easily illustrated, as Kuhn himself does, in relation to the standards used by a disciplinary community to evaluate potential contributions to the body of knowledge being developed by that community. There are two possibilities worth considering.

Firstly, these standards might be embodied in prescriptive rules that, in each case of evaluation, produce, in the hands of different practitioners in the community, the same assessment. So, when considering, say, the relative merits of a new and an already-established claim, all the different individuals who apply the standards get the same result——e.g. that the new claim is more worthy than the established one. What this means is that, absent some other source of variation, each of the individual members of the community ought to form and act on the same evaluative judgement.

Secondly, these standards might be embodied in (interpretable) values that are more loosely coupled to individual judgements. In this case, it is possible that different individuals might, using the same standards, come to different judgements, so that, for example, some individuals might conclude that the new claim is better and some might conclude that it is worse than the established claim. This might happen for any or all of a variety of reasons. For example, the standards might be many——in relation to science, Kuhn mentions accuracy, simplicity, consistency [e.g. with background knowledge] and plausibility. And it might happen, indeed characteristically does happen, that the claim which is more accurate is less consistent (or vice versa), so that, as Kuhn says, “two men committed to the same list of criteria for theory choice may nevertheless reach different conclusions”, e.g. because one values accuracy more than consistency and the other values consistency more than accuracy.

This is, if you will, a manifestation of the sort of shallow consensus I sketched in the previous Section. Indeed, given that values are more abstract than prescriptive rules (though both are certainly abstract enough to facilitate multiple interpretability), this is one way in which we can have multiple interpretations of what appears to be a shared basis for understanding or, in this case, evaluation. What is crucial, however, is that this feature, inconvenient as it might be when it comes to identifying what is shared by the members of a disciplinary community is, in fact, Kuhn’s solution to “the essential tension” between the conservative or traditional modality, in which we rely on the disciplinary matrix to guide our enquiries and the innovative modality, in which we seek to improve precisely the matrix which we rely on. As I have already mentioned, and as Kuhn was keen to emphasize, the very possibility of disciplined enquiry depends, in large measure, on our being conservative or traditional, for it is our common orientation to the apparatus of the discipline that provides a shared basis for a common engagement with the objects of enquiry. On the other hand, as I have also already mentioned, though far too succinctly, “blind habitual” reliance on an existing disciplinary apparatus will always eventually fail. Because our objects of enquiry are inexhaustible in their characteristics and relations, because our conceptual apparatus for apprehending and understanding them is always in need of articulation to them, and because we
are, unavoidably, fallible and finite, every discipline is always already inadequate and hence always in need of renewal.

This is the tension—how do we balance the need for coherence (it is acceptance of the disciplinary matrix that is presupposed for disciplined enquiry) with the need for renewal and innovation? And it is precisely this tension that shallow consensus enables disciplinary practitioners to mediate in a productive way. Because or to the degree that their consensus is compatible with multiple interpretations, some individuals, applying common standards in one way, will reach different conclusions, perhaps in favour of innovation, than other individuals applying these same standards in a different way, one with more conservative implications. Accordingly, the shallow consensus underpins Kuhn’s “behavior mechanism [which is] fundamental to [disciplinary] advance”. This is Kuhn’s “risk-spreading argument” in a nutshell. We spread the risks of either too much or too little innovation (or conservation) by delegating to each individual the responsibility for interpreting shared standards (and theories, etc.), in the sure and certain knowledge that individuals will interpret these standards differently.

Since I have discussed Kuhn’s approach elsewhere at greater length, it might be interesting to consider another approach, using slightly different terminology and embodied, in this case, as it is not in Kuhn’s, in a simulation model. I refer, in particular, to a wonderful paper, about the tension between “Exploration and exploitation in organization learning”, by March (1991).

March is concerned, in particular (and the problem is clearly analogous to Kuhn’s problem), with the tension between the demands and affordances, in an organizational setting, of the exploitation of existing knowledge and skills, on the one hand, and the exploration of the potentialities of the organization for the enhancement of knowledge and skills, on the other hand. He says:

> Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution. Adaptive systems that engage in exploration to the exclusion of exploitation [those with weak strategic task certainty in Whitley’s terms, or disciplinary configurations in a pre-paradigmatic state in Kuhn’s terms] are likely to find that they suffer the costs of experimentation without getting many of its benefits. They exhibit too many undeveloped ideas and too little distinctive competence. [There are echoes here of Kuhn’s description of pre-paradigmatic science.] Conversely, systems that engage in exploitation to the exclusion of exploration are likely to find themselves trapped in suboptimal stable equilibria. [As might be the case with research programs, in Lakatos’s terms, whose positive heuristic has been exhausted.]

He concludes: “As a result, maintaining an appropriate balance between exploration and exploitation is a primary factor in system survival and prosperity”.

Taking up the challenge of indicating how this might be possible (i.e. “maintaining an appropriate balance”), March develops some formal models which show, not surprisingly, that “adaptive processes characteristically improve exploitation more rapidly than exploration”. As he shows, using simulations, “[t]he certainty,
speed, proximity, and clarity of feedback ties exploitation to its consequences more quickly and more precisely than is the case with exploration. What enables a better balance to be struck between exploitation and exploration, despite this “tighter coupling” of “exploitation to its consequences” is, in March’s model, an exogenous factor, namely, “turnover”, or the introduction of new individuals, each less well adapted to the disciplinary code than more experienced members of the community. I too have developed a model in which turnover plays a crucial role. And in my model, as in March’s, it is not that new recruits to the disciplinary community know more; it is, rather, that they increase the diversity of perspectives (on the assumption that more experienced individuals become less different from one another over time) and that such a diversity is itself an engine of adaptive exploration, in particular as providing the variants in approach or thinking that can be selected from using the communities standards.

One limitation of March’s study is that it does not, perhaps because of technical limitations associated with the simulation methods that were practicable when he wrote, really engage with a potential endogenous source of diversity of perspectives, of the kind, for example, which is provided by multiple interpretability of the key shared elements of a discipline-based community of enquiry. Certainly, newcomers can inject variety into the collective pursuit of knowledge, but we can get variety without newcomers so long as there are incentives for individuals not to converge on some canonical articulation of the abstract and concrete (and hence multiply interpretable) features of their “code”. And this, if you like, is the other end of the “risk-spreading” argument, as I argued in Naturalizing Epistemology. So long as different individuals within a community can profit, in terms of their social capital, from different articulations of shared values and concepts, there will be an opportunity for diversity to be generated and engaged. Individuals who can most profit from risky behaviour have an incentive to articulate shared elements in innovative ways. These might be individuals seeking to establish a reputation or, perhaps, to trade on already accumulated social capital. As Bourdieu (1975) put it:

[T]he inherent logic of the field ... bring[s] about, under certain conditions, a systematic diversion of ends whereby the pursuit of private scientific interests ... continuously operates to the advantage of the progress of science.

Or, as I would say, the inherent logic of multiple interpretability and the divergence of interests among practicing members of the disciplinary community makes it possible for a balance to be struck, despite the tighter coupling of rewards to conservative work, between those two fundamental modalities of tradition and innovation.

What makes the consensus within a disciplinary community a shallow one is, then, what makes a disciplinary community a potentially effective mediator between exploitation and exploration and, in turn, a potentially effective instrument for the growth of knowledge. While it would be analytically cleaner if disciplinary matrices were better defined, it is, on plausible assumptions about their evolution, not an accident that they are less well defined. If they were more
well defined, we would lose “a behavior mechanism which is fundamental to [disciplinary] advance” … to the growth of knowledge, in short.

Notes

[4] For a key to the parenthetical references associated with these points, see “Reference” section.
[6] Philosophy and Studies in Religion are grouped together at two-digit level, with the following four-digit subdivisions, in which Philosophy appears as a separate field of enquiry:
  * 2201 Applied Ethics
  * 2202 History and Philosophy of Specific Fields
  * 2203 Philosophy
  * 2204 Religion and Religious Studies
  * 2299 Other Philosophy and Religious Studies
If we were interested, for example, in Epistemology, as a recognized branch of philosophic enquiry, we would look at the six-digit level and find it as 220304 Epistemology. As this example shows, six-digit classifications are likely to be of sub-disciplines.
[8] Threshold concepts are those the student must grasp as a precondition of grasping the others in a larger system of knowledge. They “open the door” to the discipline.
[9] Signature pedagogies are those which reproduce in the classroom or laboratory the sorts of activities that professional practitioners engage in——e.g. experiments in physics lab classes.
[15] It is possible, though Becher himself does not make this point, that rural disciplines reflect a “style of subjectivity”, as During calls it, that is oriented to, precisely, the cultivation of an individualized subjectivity, as in literary criticism, whereas the urban disciplines reflect a style of subjectivity that is oriented to the standardization of the subjectivity of individual enquirers on some canonical approach using some relatively prescriptive method over some relatively well-defined hierarchy of problems.
[18] I see now, though I do not think I knew this before, that Delaney (1994, 148) used this phrase in his article.
[19] On 3 January 2012, a search on “Plato” in the Philosopher’s Index returned 11,636 “hits” and one on “Wittgenstein” 7820.
[20] See my argument in *Naturalizing Epistemology* (2010), chap. 2 that Kuhn should be so regarded.
[21] See *The Structure of Scientific Revolutions* (Kuhn 1970, 11): “Men whose research is guided by shared paradigms are committed to the same rules and standards for scientific practice.
That commitment and the apparent consensus it produces are prerequisites for normal science, i.e. for the genesis and continuation of a particular research tradition”.

[22] The Structure of Scientific Revolutions (Kuhn 1970, 44 and 23): “[Enquirers] can … agree in their identification of a paradigm without agreeing or, or even attempting to produce a full interpretation or rationalization of it”. “[T]he paradigm is rarely an object for replication. Instead, … it is an object for further articulation and specification under new and more stringent conditions”.


[24] The notion of “loose coupling” is potentially very significant in understanding how disciplines function. See Weick (1976).


References


