'The happy thought of a single man': On the legendary beginnings of a style of reasoning

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A B S T R A C T
In this paper I direct attention to one feature of Hacking's recent work on styles of reasoning and argue that this feature is of far greater philosophical significance than Hacking's limited discussion of this suggests. The feature in question is his use of 'legendary beginnings' in setting out a given style, viz. the method of introducing a style of reasoning by recounting a popular and quasi-mythical narrative that ties the historical emergence and establishment (the 'crystallisation') of that style to a particular person in a particular place and at a particular time. Whilst Hacking both deploys and discusses this method, his comments suggest that this is primarily a stylistic device employed for reasons of expedience. In contrast, it is argued here that recounting the legendary origins of a style of reasoning affords a distinctive way of vindicating that style, a vindication from within the style itself.

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“...to construct for itself that royal road. On the contrary, I believe that it long remained...in the groping stage, and the transformation must have been a transformation brought about by the happy thought of a single man.”


In this paper, I want to direct attention to one feature of Hacking’s recent work on styles of reasoning (SOR), and to argue that this feature is of far greater philosophical significance than Hacking’s limited discussion of this suggests.2 The feature in question is his use of ‘legendary beginnings’ in setting out a given SOR, by which I mean the method of introducing an SOR by recounting a popular and quasi-mythical narrative that ties the historical emergence and establishment (the ‘crystallisation’) of that SOR to a particular person in a particular place and at a particular time. Whilst Hacking both deploys and discusses this method, his comments suggest that this is primarily a stylistic device employed for reasons of expedience. In contrast, I want to argue that recounting the legendary origins of an SOR does philosophical work, in that it affords a distinctive way of vindicating that SOR, a vindication from within the style itself.

1. SOR—The Very Idea

Here, as I see it, is the basic idea of an SOR.3 If asked to enumerate those things that we humans have learnt over time, the ‘intellectual achievements of human civilization’ to use an old-fashioned

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2 Although Hacking has expressed uneasiness with both the terms ‘Style’ and ‘Reasoning’ [see, for example, his contribution to this volume], I persist with the phrase ‘Styles of Reasoning’ nonetheless, since it has gained widespread usage in referring to Hacking’s project, whilst no alternative has yet crystallized in his work.

3 What follows in this section is an attempted summary of what I take to be core features of Hacking’s work on SOR’s, based on Hacking’s writings. These include Hacking (1975, 1982, 1990, 1992, 1999), in addition to those references cited below.
phrase, we tend to concentrate on facts discovered or technologies invented, with each of these discoveries happening in a specific time and specific place to a specific group of people. This obscures the fact that in addition we have also had to learn how to find things out. Prior to this time, we may have had the potential cognitive abilities to reason in a given way but no one had learnt how to exercise them, or at least not in a way that could be call a stable achievement of ours. So, we both had to learn how to exercise these abilities, and to evolve social organisations within which such actualised abilities can be fostered.

Here are some examples:

We have learnt to construct deductive proofs in mathematics. We have learnt the method of building apparatus in a laboratory to manipulate and create phenomena experimentally. We have learnt to make theoretical models of aspects of nature to understand them. We have learnt how to think in probabilities and under uncertainty. We have learnt to classify living things according to principles of hierarchical structure. We have learnt to use the historic derivation of genetic development.

Call each of these a style of reasoning (SOR), so that we have the mathematical style, the experimental style, the hypothetical style, the taxonomic style, the statistical style and the historico-genetic style.

An SOR is, in part, constituted by specific methods of reasoning, specific classes of sentences and specific types of objects of study. A specific method of reasoning involves a distinctive way of finding things out that is grounded in cognitive human capacities; has emerged at distinct moments in human history; and has evolved in stable and historically traceable ways. A specific class of sentences are those new candidates for being true-or-false which come into being with that style of reasoning, since the style provides a general type of criterion for the truth value of sentences of that class. A specific class of objects refers to the distinct class of objects of study introduced by that method of reasoning, the introduction of which is typically accompanied by ontological debates concerning the existence of these objects. To say that these three features ‘in part constitute an SOR’ is meant to capture the idea that these three features are necessary (but not sufficient) constituents of the very style itself.

As an example, take the taxonomic SOR. The methods of reasoning involve the ordering of difference and variation in terms of some form of hierarchic structure that emerged in a stable manner in the work of Linnaeus in the 1740’s and 50’s; the class of sentences are those involving claims about such species and genera and their connections; and the type of objects of study include the species and genera of systematic biology, and the ensuing debates as to whether these exist in nature. It is not that Linnaeus invented the style of reasoning and this created new methods, sentences and objects. These three, in part, are the SOR, and none of these can be made sense of outside of that SOR and thus without reference to each other.

This mention of Linnaeus as the originator of the taxonomic SOR may seem implausible, given that we can find examples of taxonomic reasoning prior to Linnaeus and in other cultures not influenced by him. The point, however, is not that Linnaeus was the first to deploy taxonomic reasoning, but that it became crystallised in his work, where crystallisation is a ‘fixing of how to go on in the future, usually after centuries, perhaps millennia, of inchoate precursors’. At a certain juncture in history, then, these disparate features were put together by a small group of people in ways that caught on, so that the practice of reasoning in this way spreads across people and over time. Crystallisation is achieved because each SOR is partly constituted by distinctive techniques of self-stabilisation, as a result of which the style becomes less dependent on its historically contingent origins and increasingly secure. Although the stabilising techniques that constitute an SOR ensure its durability, it not the case that they must persist for ever. Like crystallisations in the chemical sense, an SOR may be reversible: we may desist from thinking in this manner, although the reasons for this may appeal to factors outside the SOR itself.

One such stabilising feature of an SOR is the role played by a canonical format for the presentation, preservation and transmission of the crystallised style, including standard examples, publication fora, research groupings and the like. Another feature is its self-authenticating character; loosely: the criteria for the acceptance or rejection of aspects of the style are provided by the very style itself. So, to use an oft-cited example from Hacking’s early work, with the statistical SOR comes the introduction of new criteria for the assertability of classes of statements involving probabilities, criteria which are themselves assessed using probabilities. Hacking notes that some self-stabilising techniques are better than others, which explains why some SOR’s (e.g. the mathematical style) are more established and enduring than others (e.g. the taxonomic style). Further, this feature of SOR’s can explain the durability of SOR’s relative to other forms of conversation, such as in discussions about morality and humanistic thought, for which ‘there does not exist a set of self-stabilising techniques’ and thus do not constitute an SOR.

2. Legendary Beginnings

A noticeable feature of Hacking’s discussions of SOR is the role played by legendary beginnings in outlining a given style, viz. an overt focus on a named iconic trailblazer who is typically viewed (at least in popular imagination) as the originator of that style. We have already mentioned his use of Linnaeus for the taxonomic style. Other examples found in Hacking’s discussions of SOR’s include Galileo for hypothetical modelling; Thales as the emblem for the mathematical style; Boyle for the laboratory style; Pascal for statistical reasoning; and Al-Khwarizmi for the algorithmic or combinatorial styles.

Indeed, in his most recent writings, Hacking formalises this use of legendary beginnings in the form of the following two schemas. According to the first,

\((*\star)\) [The crystallization of a given SOR produces] a shift in conceptions of what it is to tell the truth about X.

According to the second:

\((**\star)\) The significant change took place in the Y century and its emblem is Z.

Accounts of SOR’s aspire to fill in the formal letters in these schemas. In the case of mathematical reasoning, for example, we are interested in:

\((M\star)\) a shift of conceptions of what it is to tell the truth about geometrical objects

\((M**\star)\) This significant change took place in the sixth century BC, and its emblem is Thales.

The inquiry here in this paper focuses on the idea of legendary beginnings as captured in \((**\star)\) and its relationship to the idea of an SOR captured in \((\star)\).

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The phrase 'legendary beginnings' is Hacking's own, and picks out two interrelated features. The first is a focus on beginnings: a style of reasoning can be seen as coming into being at a given historical moment and at a given geographical location, which recounting aspects of that moment can shed philosophical light on that given SOR. The term 'philosophical' in the last sentence is to distinguish Hacking's project from the historian: he is not providing an historical anthropology of scientific reasoning but drawing on such historical anthropology to provide a philosophical one. What precisely this means is a matter of some controversy, but I use it here in the following minimal sense as pertaining to ambitions: Hacking sees his work as making a contribution to philosophical, and not historical, discussions of these styles.

This lack of historical ambition is related to the second feature, a focus on legend. Whilst each style is tied to a named, actual originator, it need not be the case that the style actually originated with that person. Rather, the named person acts more as an emblem for the crystallisation of a given style, a populist stand-in for the collaboration and interaction between various historical individuals and with certain social settings to produce the SOR. For example, as we saw, if X in the schema above is geometrical objects then the Z in the schema is Thales, although this is more a matter of legend and we are even unsure that there was any such historical figure or whether he wrote anything or whether others were more deserving of his mantle as originator.

This move to legend rather than history is motivated in part by a rejection of the fantasy of the historical hero, the solitary genius who suddenly conjured up the SOR ab initio. It is Thales's popular reputation that is the Z in the schema, and thus the idea and its context, rather than the historical Thales himself or any act of individual brilliance.

At first blush, both features of Hacking's 'legendary beginnings' methodology are puzzling. The focus on beginnings is puzzling because it stands in tension with a central feature of his work in this area, the dominant concern for the stability and potential autonomy of SOR's. A given SOR comes into being via various 'little local interactions' involving a 'network of people, answering to the needs, interests, ideology or curiosity of some of its members, defended by bluster and insidious patience'. But once the SOR has become crystallised, it achieves a certain degree of stability in ways that move beyond its contingent point of origin and becomes a 'self-sustaining mode of knowledge'. Once stabilised, an SOR 'becomes independent of its own history...autonomous of their origins and originators'; 'a style becomes autonomous of the local microsocial incidents that brought it into being.'

In turn, the focus on the legendary is puzzling because it stands in tension with another central feature of his work in this area, the overt focus on factual microsociology as a philosophical tool. Even once we have distinguished between the ambitions of historical anthropology and philosophical anthropology, there is an important sense in which history plays a significant role in the latter: Hacking may not be doing history but he is using history, and this would seem to require actual history and not legendary tales. Hacking begins one of his earliest essays on SOR's by stressing the need for history in contrast to fantasy:

The historian may conclude that the philosophers use of the tool ['style'] is bunk, irrelevant for understanding the past. But the philosopher needs the history, for if the tool does not provide a coherent and enlightening order of the record, then it has no more place in sound philosophy than any other fantasy.

Such a starting point would lead one to expect studies of SOR's to involve into the socio-historic context that allowed for the emergence and crystallisation of a given SOR. Indeed, this is just what Hacking's (1990) book 'Taming of Chance' does provide for the crystallisation of the statistical SOR in the nineteenth century. This work, however, is exceptional in terms of most of Hacking's discussions of SOR, precisely because it deploys factual microsociology in a discussion of SOR, as opposed to the use of legendary beginnings that permeates his subsequent writings. Elsewhere, speaking of the work of Hilary Putnam, Hacking notes that Putnam's 'papers are full of fables, science fictions used to make philosophical points, delightful to read but the very opposite of factual microsociology'. Deploying the methodology of legendary beginnings seems to verge closer to enjoyable fable than historical fact, and is thus all the more surprising in its use.

Why, then, does Hacking advocate the use of legendary beginnings in recounting a given SOR? It is tempting to dismiss this feature as inessential to the core idea of an SOR, as one that constitutes a useful literary device in retelling the narrative and borne of a personal predilection for playfulness. (I like fraudulently precise dates' remarks Hacking at one point). On this reading, legendary beginnings function as an expedient shorthand manner of referring to the complex process and factors involved in the emergence of an SOR, and as a way of dramatising this by appeal to popular imagination. Perhaps, though the prominence it plays in his recent discussions suggests that its role extends beyond this pedagogical function.

The one explicit discussion of what this role could be is brief but suggestive. In response to the question 'Why talk about legendary beginnings?'. Hacking responds: 'Because folklore may tell us more about a deep common wisdom than systematic history of the sciences does'. This echoes a similar comment earlier in the text:

'I shall also use folklore about the history of the sciences more than a respectable person should. This is because I think that there is a lot of wisdom in some folklore that we are ill-advised to forget, even when it violates the rules of rigour.'

It is unclear how best to understand these terse comments. Perhaps the thought is that there are historical truths preserved in these legends, even though we lack sufficient evidence to establish the veracity of these claims. Perhaps the thought is that there is some form of truth ('wisdom') about an SOR captured in the legends, but one that is not historical truth or at least susceptible to retelling in chronological form. On the first reading, the reason these legends violate the rules of rigour is because of a lack of evidential support for the veracity of the claims made; on the second reading, it is because the narrative form of the legend precludes the need for evidential support for the veracity of the claims made.

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8 E.g. Hacking (2009), p. 76.
10 Hacking (1992), p. 132
11 Ibid.
16 Hacking (2009), p. 76.
Either way, combined with the prominence accorded legendary beginnings in Hacking's work, these comments suggest a central role for such legends in thinking about the idea of an SOR.

In the next section, I explore one way of developing these comments about the wisdom of legends, by demonstrating a possible role for such wisdom in helping us understand an SOR. More specifically, using a well known version of a legend surrounding the rise of mathematical reasoning as a springboard, I will consider some possible functions that the retelling of this legend plays, and suggest that some functions preclude the need for evidential support for the historical veracity of the claims made.

3. Happy Thoughts

Immanuel Kant famously begins the preface to the second edition of the Critique of Pure Reason on a surprisingly dramatic note, with repeated and bolded use of the term ‘revolution’ to describe an historical development in human reasoning. The development in question, ‘far more important than the discovery of the passage round the celebrated Cape of Good Hope’, is the discovery by ‘those wonderful people’ the Ancient Greeks of the method of demonstrative proof in mathematics, after much previous ‘groping’ by others, especially the Ancient Egyptians.

More than just a dramatic expression of awe both at the achievements of the Ancient Greeks and at the very experience of Geometric proof itself, Kant’s narrative here recognises the stable emergence in a given historical period of a way of telling the truth about geometric objects, that of deductive proof. It is no wonder then that Hacking explicitly treats Kant in this section of the Second Preface as a prescient precursor to his notion of a style of reasoning. Cast in this role, Kant is viewed as providing the beginnings of an account of the emergence of a distinctive style of reasoning in the mathematical sciences which, inter alia, involves a method of reasoning (a kind of perspicuous proof involving a priori relations between objects), a new class of candidate sentences for being true or false, and a new conception of geometric objects themselves (a special kind of object that can be talked about using proofs, one that is not in time and space, and, in some sense independent of the human mind).

It is worth highlighting that the affinity between Kant and Hacking extends beyond the choice of exemplar to include some of the fine details of the account. First, both concentrate on the emergence of proof, in which we ‘not only see that the theorem must be true but also that we understand why it is true’, as they key moment in the revolution, as opposed to concentrating on the ideal conception of geometrical objects (as in Husserl) or the axiomatic method or the use of postulates per se (as in Crombie). Second, both separate out the emergence of this mathematical style from logic; Hacking himself—as we shall see—does not regard logical reasoning in this sense as an SOR. Third, and most important in our context, both introduce the method by appeal to the legendary figure of Thales. Kant is clear that it is a legend: he describes it as a revolution brought that occurred when ‘a new light flashed upon the mind of the first man (be he Thales or some other) who demonstrated the properties of the isosceles triangle’. The naming of Thales here follows Diogenes Laertius in the ‘Lives of Philosophers’; the qualification reflects the fact that the attribution of Thales’s theorems and legends to Thales is indirect and contested, even in The Lives of Philosophers itself. (Some translations actually use the term ‘legend’ in place of Kemp-Smith’s ‘account’ to capture the status of Laertius’s story).

There are, however, two features of Kant’s telling of the story that have no echoes in Hacking’s work. The first is Kant’s overt focus is on the individual hero, the ‘happy thought of a single man’, and not the collective. In contrast, whilst Hacking may point to Thales as the legendary beginner of the style, he is treated as shorthand for a community of inquirers amongst whom the style began to develop and for the social institutions and mechanisms needed for there to be uptake and stabilisation of the style. Second, whilst Hacking emphasises contingency in the emergence, crystallisation and future progression of the given style, Kant highlights certainty. Our legendary Thales has marked “out the path upon which the science must enter, and by following which, secure progress throughout all time and in endless expansion is infallibly secured.” Importantly, this sense of certainty is not limited to the future progression of the style, but is depicted by Kant as a feature of our recollection of the earliest origins of the style. Kant begins this section of the Preface by noting that: “In the earliest times to which the history of human reason extends, mathematics, among that wonderful people, the Greeks, had already entered upon the sure path of science.” It is true that here Kant can be seen as noting that human reasoning has a history, but reflection on that history reveals that the style itself is seen as already on the sure path, even though in practice this ‘may not have been easy’ without the revolutionary intervention of the single thought of the happy Thales.

It is tempting to dismiss these two features of the Kantian narrative as inessential and simply reflective of an outdated way of thinking about scientific progress. Detailed studies of scientific reasoning in practice has put pay to the image of the hero in history, and, unlike Kant, we now lack belief in inevitable progress. Granted, but I think there are aspects of both these ideas that are not inessential to Kant’s narrative and that should be taken seriously.

Hacking’s use of the legendary beginner may point towards the role played by an individual thinker in deploying a style of reasoning, but that individual quickly drops out in favour of viewing the style as embedded in social groupings, structures and institutions. If, however, one shifts focus away from the task of providing an historical narrative of the crystallisation of a given SOR, it is important to recognise that a primary locus of a crystallised SOR is the individual and her actualised cognitive capacities. A profound change occurs in her patterns of thinking, one for whom metaphors such as the flashing of a new light (or the flashing light bulbs of cartoons) make sense, and for whom the experience of the flash involves a certain sense of the inevitable. For an individual to recognise a new SOR is for her to treat a new set of ought-claims as relevant to the assessment of her subsequent performances. She now recognises that certain patterns of thinking and acting now become obligatory or permitted or prohibited; she sees herself situated in new normative space and is actively able to negotiate her way through it. To change modalities, things that were hitherto silent now speak as evidence for claims, claims which themselves now have a voice in light of the new possibilities for assessment that have arisen.

I am well aware that, in introducing talk of norms into a discussion of SOR’s, I am going beyond anything that Hacking explicitly says, and—I suspect—beyond that which he would approve. Yet to talk of SOR’s is to talk of cannons of appropriate reasoning in a
given domain, and I simply do not understand how one can make sense of this without invoking overtly normative vocabulary. Grasping an SOR involves seeing certain performances as beholden to certain norms; that there are new ways of ways of telling the truth that answer to new standards; and that part of what it is for such styles to emerge is for an individual to recognise the authority of these norms. This is not to overly intellectualise the idea of an SOR: the actual process of recognition and administration of these norms is a material and social process, including the process of making claims on others and the joint sharing of proofs, possibilities and arguments.

Taking seriously this normative dimension of the emergence and crystallisation of a given SOR is central to the role I see played by legendary beginnings in talk of SOR’s. For, there are a number of well known difficulties surrounding any attempt to narrate the emergence of normative space, difficulties that are solved by the turn to the legendary.23 In the next section, I aim to show how use of legendary narratives can help overcome the problems of narrating the emergence of normative space more generally, and in the following section I apply this to the specific case of Hacking’s discussions of SORs.

4. Grasping a style

From a normative perspective, to grasp a new SOR is to be gripped by it.24 I intend two things by this phrase. First, to actualise the capacities needed to master an SOR, an individual must recognise the normative force of certain ought-claims that are implicated in such an SOR. She must thus treat herself as bound by these norms and allow them to make claims on her thinking and acting. Second, the sense in which she is bound is not one that precludes the possibility of challenging and/or transgressing the norms.25 In grasping a new SOR, she recognises the authority of these norms as legitimate and thus not as an external coercive force. In other words, her grip on the new norms involved in an SOR involves recognising the propriety of those norms, and with this recognition the norms are capable of getting a grip on her. There are thus two types of authority implicated in grasping an SOR: an individual must recognize the authority of the norms to legitimately bind and compel her thoughts and actions, and recognise that she herself acts as an authority with regards the legitimacy of these normative claims, by taking responsibility for the correctness of such claims (such as through a preparedness to challenge or transgress them should they cease to seem appropriate). These twin types of authority are intertwined in the grasp of an SOR. Absent the latter, then what is recognised is a form of coercive force that cannot be transgressed. Absent the former, then the possibility of incorrectly following the norm falls away.

Recognizing these twin types of authority poses a certain problem should one wish to tell a chronological narrative about the emergence of this dimension of an SOR from the perspective of the individual thinker. The former requires the thinker to treat herself as always already bound by the norm prior to her recognition of its propriety, whereas the latter precludes this. In other words, what is required in order to recognise the normative force of an SOR is the recognition that one is already bound by this norm prior to the recognition (the first type of authority), even though one must also recognise that one cannot be bound prior to such recognition (the second type of authority). So, in recognising the normative force of perspicuous proof for geometrical objects, our legendary Thales must perceive this force to always already have been operative prior to his recognition of this. But this was obviously not how the emergence appeared to him: he did not first grasp the normative force of the proof and then endorse it, as if the proof can just be experienced as a proof but have no binding force, only for it to be subsequently acknowledged as binding.

This means that when our legendary Thales remembers the emergence of the SOR or when he retells the narrative to himself or others of the dawn of the new light, he must recall or retell it retrospectively, the way it appears to him subsequent to his already having acquired the SOR. But this narrative can longer be a straight historical narrative, for it involves a remembering or retelling of the narrative using concepts unavailable at the time of the emergence.26 This is not limited to the legendary Thales; the same is true of us when we retell the legendary narrative of Thales. Like the discoverer of the path round the Cape, Thales is depicted as the discoverer of normative facts, those that make normative demands on us, that preceded his act of discovering them, even though—unlike the empirical facts involving the Cape—such normative facts could not precede his discovery of them.

Is such a retrospective narrative, one told from the perspective defined by the current normative commitments of the teller, false? The very question seems to misunderstand the function that such narratives play.27 Retelling the narrative in this manner does not have a reporting function but a prescribing one. Take the idea of evidence. To claim that ‘this is evidence for that’ is not merely to report on an independently existing state of affairs, but to make a normative claim about the epistemic authority that ‘this’ has. Such a normative claim thus functions more like a demand than an assertion, a demand regarding how one ought to respond to ‘this’ and ‘that’. As a result, citing normative facts in this manner always operates from the present, i.e. from the teller’s current recognition of the propriety of the normative facts. Similarly, by retelling the narrative of the emergence of mathematical proof by appeal to the legend of Thales, we—the tellers of the narrative—are not fact-stating but prescribing how one ought to respond in reasoning to an isosceles triangle. In retelling the narrative thus, we are not citing Thales’s authority for our current justificatory practices. Rather, we depict him as a discoverer of the SOR, who—like Dias—boldly came across hitherto unrecognised facts, and in so doing we voice our own recognition of those facts as always already there in a way that endorses them as legitimate and demands that others do so too. That is, we retell the narrative in a manner that vindicates that SOR by presenting it as to be followed.

5. Legends, Not Myths

A core question driving our discussion here is this: ‘What kind of light can be shed on an SOR by recounting its history’? Our

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23 Although there are numerous discussions of the problems surrounding the narration of the origins of normativity, I focus here on a problematic that emerges (in differing guises) as a central theme amongst members of what has been called ‘The Pittsburgh School’ [Maher (2012)], including Sellars (1997) [especially as interpreted by Kukla (2000)]; McDowell (e.g., 2009), and Brandom (1994, 2009).


25 The issue of just how one can contest such norms ‘from within’ without appeal to a meta-normative standard is difficult, and far beyond our current scope. See, for example, Fisch & Benbaji (2011).

26 Davidson (1999) makes a related point, using claims about the holism of the mental to note the in-principle difficulty of narrating the emergence of thought, as a result of which this can only be done retrospectively, from within our current concepts (‘by our own lights’). Davidson, however, is talking of narrating the emergence of thought per se, and not of the emergence of an SOR from within an up-and running background of general mindedness. (Thanks to Leo Townsend for bringing Davidson to my attention in this context).

27 Here I am drawing on an idea put forward by Rebecca Kukla (2000), whose reading of Sellars is a primary source of my thinking here. That said, the appropriation is partial, in that I omit aspects of her use of the notion of constitutive misrecognition here, for reasons noted elsewhere [Wanderer (2010)].
reflections on the Kantian legend have distinguished between two types of narrative that one can tell about the history of a given SOR, and thus two different responses to the question. The first is a prospective narrative that spells out, in chronological terms, the historical and micro- and macro-sociological context surrounding the emergence and crystallisation of that SOR. The goal of telling such a narrative is primarily explanatory, aiming among other things to provide a sense of the manner in which the given SOR arose; to convey a sense of how each subsequent stage in its development emerges from its predecessor; and to help understand the possible reasons for its continued persistence (or possible demise) over time. The second is a retrospective narrative that provides an account of the emergence of that SOR from the perspective of the current normative commitments of the teller, such that the performance of the narrative itself prescribes the new suite of normative commitments characteristic of a given SOR as to be followed. The goal of telling such a narrative is vindicatory: it serves to endorse and recommend that SOR of which it is a legendary history.

My suggestion here is that Hacking’s use of legendary beginnings here betrays sensitivity to the need for both kinds of narrative in shedding light on a given SOR. The suggestion operates at two levels. First, I contend that the best understanding of Hacking’s sketchy and programmatic remarks about SOR’s legendary origins is one that takes seriously the need for both kinds of narratives. Second, that developing the sketch into a fuller picture ought to involve further elaboration of the idea of a retrospective narrative, alongside a prospective narrative.

The suggestion here needs to be taken with some degree of care. There are many narratives of the emergence of norms, such as familial genealogies or states of nature stories, which too draw on myth for legitimising purposes. Hacking’s narratives differ from these on my reading in that, for the case of SOR’s, there are two narratives available, a retrospective and a prospective one. Further, it is important that in Hacking’s work the legendary narrative takes place within the same temporal frame as the prospective one. That is, we can use a unified temporal framework to relate the characters drawn on in the retrospective narrative to those mentioned in the prospective narrative and to ourselves. As a result, although they are very different narratives, Hacking’s use of historical legend allows the two to touch as it were, and to thereby affect the other. In the case of most standard narratives of the emergence of norms, in contrast, it is only the retrospective narrative—the genealogy or state of nature story—that is available.

One reason for this difference is that standard genealogical narratives are interested in the emergence of normative force ab initio, in how one enters into normative space to start off with. Typically, we are presented with an individual operating in a world of causal laws lacking a grasp of normative force, and the narrative aims at saying something about the manner in which the grasp of norms evolves. The transformation in cognitive abilities explored by Hacking, in contrast, is not best characterised as one from outside such a normative space to within that space but as an expansion of the frontiers of the normative space within which she already operates.28 Hacking repeatedly tells us that not all ways of thinking are styles of reasoning in his sense: some basic styles of reasoning, such as Pierce’s deductive-inductive-abductive triumvirate, lack history and are thus not styles of reasoning. Whatever one makes of this claim, and I will return to it, one upshot is that we are dealing with a fully reasoning animal gripped by rational norms and the narrative explores the actualisation and stabilisation of additional reasoning abilities grafted on to the basic ones. As a result, there will always be two narratives available to tell about the emergence of a given SOR, different narratives with different functions, albeit narratives that stand within a unified temporal framework and thus capable of impacting on each other.

This is clearest in Hacking’s recent attempt to appropriate the writings of Bernard Williams on ‘Truth and Truthfulness’ into the SOR project.29 Hacking’s appropriation is partial, in that he primarily concentrates on the latter chapters of Williams’s book—especially the account of Thucydides’ innovative use of historiography (‘there was a shift in conceptions of what it is to tell the truth about the past, that took place in the fifth century B.C. and its emblem is Thucydides’) and Rousseau’s famous transition from sincerity to authenticity (‘there was a shift in conceptions of what it is to tell the truth about the self, that took place in the eighteenth century and its emblem is Rousseau’). As the use of the schema in the bracketed sentence here suggest, Hacking treats the latter part of Williams’s book as providing a sympathetic example of work on SOR outside the realms of scientific thinking. In contrast, Hacking is less effusive about the former chapters of the book, in which Williams delivers a State of Nature myth designed to show the need for us to think that truth is worthwhile in its own right. A central theme of Williams’s book is that whilst truthfulness has a history, truth does not. Thus if one wants to tell a story about the emergence of our practice of valuing the true, one has to resort to a retrospective narrative alone, such as that provided by a State of Nature story. Whatever one thinks of the State of Nature story provided by Williams, it is not a contribution to the SOR project precisely because it operates outside the historical realm entirely.

Let us use the term ‘myth’ for narratives of origin for which there is no prospective narrative available. Let us use the term ‘legend’ for narratives of origin for which there is both a prospective and retrospective narrative available, interconnected in the manner just noted. In these terms, Hacking’s accounts of the beginnings of SOR’s are legendary and not mythical. That, at least, is the suggestion proffered here.

6. Why not just a prospective narrative?

This suggestion can be made clearer by querying the utility of the possible interaction between these two narratives. Crudely posed: what do we miss about a given SOR if we only have one such narrative without the other? One response can be gleaned by comparing this reading of Hacking with another reading of Hacking’s work on SOR’s that ignores one of these narratives entirely.

The reading I have in mind is that displayed in a recent critical review of the idea of Styles of Reasoning by Martin Kusch.30 The first part of Kusch’s review involves a detailed reconstruction of Hacking’s work on the idea of an SOR, with the goal of establishing that the “theory deserves to come under the heading of Historical Epistemology” [158]. The second part aims to problematise aspects of the theory, including what Kusch views as a failure to embrace the relativistic implications of historical epistemology. I will argue that the problems identified in the second part of Kusch’s paper stem

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28 In answer to the question ‘how many discursive communities are there?’, Kukla & Lance (2009) canvass three possibilities: a) there are multiple discursive communities, b) there is only one discursive community, and c) ‘there is one, fundamental discursive community, but there can be provisional and derivative discursive communities within that’ (ibid., pp. 197). Drawing on his early work on SOR, Kukla & Lance treat Hacking as a prime exponent of option a). In contrast, the discussion here suggests that Hacking is best read as endorsing a version of c) and not a), Kukla & Lance themselves tentatively dismiss c), because they are ‘not compelled enough by such possible recherché counterexamples... to be convinced that adding discursive subcommunities to our ontology is worth the complications’ (ibid., pp. 205). To my mind, Hacking’s work on SOR provides a rich source of examples motivating such a complication that are anything but recherché.


30 Kusch (2010)—to which all subsequent page numbers in [square brackets] refer.
from not taking seriously the retrospective narrative regarding an SOR in the first part.

Although Kusch admits to being unclear as to what precisely is meant by Historical Epistemology, he points to a group of people working in the history and philosophy of science who focus their research interests on the history of the emergence and development of our epistemic ideals and practices. Kusch is well aware that identifying Hacking as a member of this group requires some work, since Hacking explicitly distances his project from those undertaken by other Historical Epistemologists and frequently claims that he is not doing history but 'philosophical anthropology' or delivering a 'history of the present'.

Kusch simply dismisses such denials, baldly stating that '[f]or all his tongue-in-cheek disclaimers, Hacking is as much a historian as he is a philosopher of science' [166], and contends that the work on SOR's deserves the title Historical Epistemology since it involves claims about 'what it is to reason and what it is to gain knowledge' (hence Epistemology) and since 'styles of reasoning come to be, change and pass away (hence History). As he puts it:

"Hacking's analysis historicises reason, historicises what counts as a scientific proposition, and historicises what passes for a scientific entity. For me this is reason enough to speak of his theory of styles of reasoning as 'Hacking's historical epistemology' [159].

In defending this identification, Kusch not only dismisses Hacking's explicit denials of these claims, but he also rejects aspects of Hacking's work on SOR. In particular, he dismisses both the focus on sharp beginnings and legends, complaining that the focus on legendary beginnings does 'historiographical violence' and constitutes 'a sudden jump into an altogether different from of inquiry' [166]. So, in identifying Hacking's use of SOR as historical epistemology, Kusch emphasises the importance of the first of the two narratives identified above, and dismisses the second. To stress: Kusch is not deemphasising the philosophical importance of the idea of an SOR, but claiming that the philosophical claims regarding our understanding of scientific reasoning and objects made by Hacking emerge from what I have called the prospective narrative about the history of a given SOR alone. In contrast, I have claimed here that a fuller understanding of the idea of an SOR requires the additional consideration of a retrospective as well as prospective narrative, and that this reading allows us to take seriously aspects of Hacking's discussion that are dismissed by Kusch.

The difference between these two readings of Hacking's project on SOR's impacts on the philosophical implications that should be drawn from reflection on the idea of an SOR. One difference in particular concerns whether the idea of an SOR invites relativist conclusions. Hacking is vehement in returning a negative response. I want to suggest that Kusch's willingness to defend a positive response stems from his rejection of the retrospective narrative that I find implicit in Hacking's writings. I will focus on one of Kusch's charges against Hacking, namely an unmotivated adherence to 'interrogative determinism'.

In rejecting the relativist tag, Hacking often portrays the idea of an SOR as helping us negotiate between the extremes of a sociological contextualism and philosophical ahistoricity. One way in which he does this, to which Kusch objects, is by making a distinction between questions and answers:

I am saying, against my constructionist friends, that answers to live questions about the natural world have nothing to do with us. Contrary to present fashionable trends I am happy with the idea of a natural world, indifferent to human beings. What I do think is contingent on human history is not only the questions we in fact address (obviously and trivially contingent) but the family of questions that make sense, which are live, and which I am inclined to call the form of scientific knowledge, in order to make the contrast with its content.\(^{32}\)

The idea of an SOR, as I understand it, is tied to this notion of form (i.e. questions) of scientific knowledge and not content (i.e. answers); the style itself includes which questions and possible answers even make sense. Whether and how a given form crystallised is a historically contingent matter, but in a given historical context and within a crystallised style, once the questions are fixed, then the answers are too.

Kusch dubs this position 'interrogative determinism' and contrasts it with his own that he calls 'interrogative finitism', according to which 'questions do not determine uniquely correct applications' [169]. The idea is something like this: in judging the propriety of a given answer to a question, we need to rely on criteria gleaned from a finite number of socially sanctioned examples of what constitutes an appropriate response. So, we have a few exemplars and need to make a judgment of similarity between these and the case at hand. A finite number of exemplars do not, however, determine what the appropriate answer is in this case, and there is room for manoeuvre depending on the weight accorded to different precedents, a weighting that will depend on locally contingent factors. For Kusch, this is not an epistemic point but a metaphysical one, i.e. it is not that this indeterminacy stems from our epistemic limitations but reflects the fact that there is no such determinate answer to the question. As a result, any answer arrived at will be the result of negotiations, contingency and locality. In such a case, one cannot make the distinction between questions and answers; the trace of contingency is found not only in the form of a scientific inquiry but extends to its content as well.

Kusch freely concedes that interrogative determinism is the default position amongst scientists; 'the members of scientific traditions usually assume that their “real” questions have determinate answers' [168]. Indeed, the default status accorded determinism is not limited to the assumptions of members of a scientific community or the result of a theoretical commitment, however tacit, to a version of realism. As we saw in the previous section, it is a basic feature of our own grasp of the norms involved in a given SOR. To grasp such norms is to be gripped by them, and once we are so gripped by those norms, they precisely do not appear to us as the finitist would have it, as open to negotiations, contingency and locality. Rather, we must treat them as always already determined, albeit in a manner that leaves open the permanent possibility of contesting the norms and hence as legitimate constraints. To view the normative content of a given SOR as the finitist would have it is precisely not to let those norms get a grip on us, and thus not to have grasped the SOR at all.

This is, of course, not an argument against Kusch's defence of meaning finitism. This would, at minimum require a defence of the claim that we should take such everyday talk of the grip of norms seriously, which is precisely the issue that Kusch wishes to protest. Nor is this a rejection of epistemic relativism as an implication of SOR's, which would involve a far fuller argument than I am capable of giving (and not just here). The main point is to highlight the link between a reading of Hacking's work on SORs that rejects the retrospective narrative, and a reading that endorses a version of epistemic relativism. What our discussion suggests is that an account of the idea of an SOR that only involves a prospective narrative and not a retrospective one lacks the resources to counter the charge of relativism, nor take seriously\(^{33}\)

\(^{31}\) See, for example, Hacking's contribution to this volume.

the thought that in grasping an SOR one is gripped by a set of norms.

7. Why not just a retrospective narrative?

To my mind, Kusch’s discussion of Hacking gets it only part right. We have thus far concentrated on the part that he gets wrong, viz. his failure to take seriously the need for a retrospective narrative of the history of an SOR in thinking through the implications of Hacking’s work. The part that he gets right involves the need to take seriously the contingency associated with a prospective narrative of the history of an SOR.33

At one level, in whatever form it takes, such a prospective narrative is important and useful for just the same reasons that any prospective narrative of what we as humans have learnt over time already noted. But there is an additional function played by such a prospective narrative when the focus of the narrative is the rise and crystallisation of an SOR. It is no surprise to learn that someone somewhere invented the light bulb or discovered penicillin. It is, however, typically surprising to learn that there is a history to a mathematical or taxonomical style of reasoning. This is because the grip that the norms involved in a style have on us as revealed in the retrospective narrative tend to blind us to the possibility of there being a prospective one. Being told a prospective narrative about an SOR can thus not only be enlightening but surprising, revealing a thoroughgoing contingency in the way in which an SOR emerges and crystallises.

Of course, as already noted, this contingency remains, according to Hacking’s picture, on the side of form and not content. Whilst we realise, as the result of a prospective narrative, that the style may not have come about at all or may have taken a very different form had conditions been different, we also realise that once the form is fixed, so too is the content. Nevertheless, the revelation of contingency at the level of form can have a disorienting effect at the level of content too, one that motivates us to constantly be prepared to call into question the legitimacy of the grip of the suite of norms caught up in a given SOR.

This can be seen most clearly when reflecting on an otherwise difficult distinction noted earlier that Hacking makes throughout his work on SORs—the distinction between reasoning that does have a history and is thus part of an SOR and reasoning that does not have a history as is thus not part of an SOR.

What does it mean to say that not all reasoning has a history? Granted, we are not able to tell as detailed a historical narrative about the emergence and crystallisation of deductive reasoning as we are of, say, statistical reasoning. Granted too that the ability to engage in deductive reasoning is intimately connected to our very ability to speak and think at all in a ways in which statistical reasoning is not. But, despite these differences, there is a prospective historical narrative to be told about the emergence of our abilities to speak and think, albeit one that falls within the province of the primatologist and cognitive anthropologist rather than the intellectual historian. Why should we not say that all basic sentences are caught up in the inferential style of reasoning, a style that emerged 5772 years ago and its emblem is Adam?

If it is not already obvious, my suggestion is this: the history of the emergence of thought that can be told by cognitive anthropologists is not one that can reveal the contingency associated with the emergence of the style—the only alternative is for us not to have spoken at all.34 All we can have in such cases is a retrospective narrative, which is why Kusch’s interrogative finitism appears least plausible for instances of deductive or inductive or abductive thinking. Such a style of reasoning is not an SOR in Hacking’s sense because it does not allow for a possible interaction between prospective and retrospective narratives, and thus appear as inevitable and incontestable.

It is thus central to the very idea of an SOR that it requires the telling of both a prospective and a retrospective narrative regarding its emergence and crystallisation. A prospective narrative shorn of a retrospective one lacks the resources to capture the determinate grip that the norms associated with an SOR have on us. A retrospective narrative shorn of a prospective one lacks the dissonance required to motivate a contestation of those norms from within the style itself, to see them as anything other than invariable. Any discussion of SOR’s should take the idea of legendary beginnings seriously, precisely because it captures this need for both.

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References


33 I am going to rely on an intuitive sense of what I mean by a prospective narrative here. This sense is broad enough to embrace those that focus on either the microsocial or the macrosocial; on material conditions or material ideas, on internal or external factor; on the long and short durée—as well as those that reject each and all these distinctions.


