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

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ABSTRACT

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 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.

> "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. But it must not be supposed that it was easy for mathematics…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."
>
> Immanuel Kant, Preface to Second Edn. Of the Critique of Pure Reason (trans. Kemp Smith), Bxi.

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 crystallised 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.

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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 hierarchic 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'.[4] 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).[5] 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.[6]

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.[7] According to the first,

(∗) [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:

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

(M∗∗) 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 (∗∗) and its relationship to the idea of an SOR captured in (∗).

[4] Hacking (2009), p. 14.
[5] Hacking (1992/2002), p. 194.
[6] Hacking (1996), p. 74.
[7] Hacking (2009), pp. 58–9. These schema are derived by Hacking from Williams (2004). Cf. Hacking (2004).