Know-how and Epistemic Friction

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Table of contents

1. Epistemic friction

Epistemic friction and epistemic freedom

Gila Sher (2016), taking some ideas from Kant, Wittgenstein and McDowell[1] discusses an interesting pair of concepts:

- *epistemic friction*
- *epistemic freedom*

These serve as epistemic values: a epistemic state can be evaluated in terms of their degree of friction or freedom.

Friction and freedom *pull* in different directions. However, we ought not to decide between them, but try to find a balance between them.

[1] Another antecedent is C.S. Peirce, who speaks of 'security' and 'uberty'.

Epistemic friction

A state manifests epistemic friction insofar as it is tethered to something other than itself.

What a friction-manifesting state is tethered to could be the world (for example, when we assess its accuracy or adequacy), or the mind (for example, when we assess its coherence).

Friction is a requirement for a state to be genuinely cognitive.

2. The epistemic friction of know-how

Accuracy and know-how

The epistemic status of know-how depends on its ability to support practical success (Hawley 2003).

- This suggests a function for know-how attributions: we attribute agents who are reliably successful the state of being reliably successful because of their cognitive state. (Cf. Craig (1998): we attribute know-how how to good sources of information about how to do something.)

For this to happen, our know-how must be sensitive to what is possible (in a contextually defined sense) in the world where our actions take place.

Bengson & Moffett (2011): to know how to do something requires having an epistemic relation to something that is in effect a way to do it.

Know-how as a cognitive state

Haugeland (2017) suggests that this tether of certain forms of know-how (in particular, scientific know-how) is what makes it a cogntive state:

> [knowing how and knowing-that] are alike, of course, in that they are species of knowing–that is, ways of being onto the world, and vulnerable to error.
>
> — *Two Dogmas of Rationalism*, p. 296

2. The epistemic friction of know-how

Furthermore:

> Empirical scientific know-how is a cultural-historical achievement: it is the product of great effort by many individuals over many years. Such a history implies not only that know-how is difficult to develop but also that not just anything will work. Reliable laboratory procedures are highly constrained, and just how they are constrained is what must be learned or found out, by the relevant community, in learning or finding out how to design and perform them. The same point can be cast comparatively, in terms of learning or finding out what will work better, as opposed to not so well. But what will work or not in actual practice, or work better than something else, is a function of the world. Therefore, in learning what will and won't work, or what will work better–that is, in acquiring the relevant know-how–scientists are learning something about the world.
>
> — *ibid*, pp. 296-297

Friction and sources

One plausible thought is that the friction of a state depends on the ways in which one arrived at that state.

The reliability of a method is a function of its capacity to track properties that are friction-generating.

The sources of know-how

Most debates about know-how have dealt with the issue of the nature of know-how, and in particular, whether it is or not a kind of propositional knowledge.[1]

A secondary question is how we come to acquire know-how. (Clearly, a lot depends on how we conceive of know-how, but in principle the options are similar however one does this.)

[1] Ryle (1949) influentially argued that it is not; recent work such as Stanley & Williamson (2001) argue the contrary.

The sources of know-how (cont.)

There is a number of options:

1. By observation (of other people doing what we want to learn, by trying ourselves, etc.)
2. From testimony
3. Through reasoning (deductively or inductively)[1]
4. By imagining

[1] On the latter, I have some new work coming you can ask me about during Q&A.

A case: imagination as a source of know-how

[...] there was a technical heel hook move I wanted to master. To do this, I started by finding a quiet place to breathe, relax and get focused. Next, I moved my body in a way that replicated pulling with my heel. I then created a short movie of performing the heel hook. I visualized confidently setting the heel, applying the right pressure, pulling with the rest of my leg and core and confidently doing the move to reach the next hold. The move is hard, so I visualized myself trying hard, but also doing so smoothly, accurately and successfully. I created a blueprint in my mind of how to perform the move, and that helped me confidently master it in practice.

— Mirsky 2022

Imagining under constraints as a way to learn how

While some authors reject the idea that the imagination can be a valid source of empirical justification, many authors have recently defended the idea that imagining under constraints can provide justification.

Using this idea, I propose that imagination can serve as a source of know-how when it operates under certain constraints.

What constraints?

Subject constraint we imagine how a task-relevant subject (and not just any subject) could perform the task (for example, we imagine ourselves trying)

Ability constraint we imagine the subject as having roughly the same abilities as they really have (for example, we imagine ourselves having the abilities we do)

Circumstance constraint we imagine the subject under circumstances that are not too far away from some relevant set of conditions (for example, we imagine the circumstances unchanged from the actual ones)

3. Know-how as a source of epistemic friction

Know-how as a basis for knowledge

We can turn things around and ask: does know-how provide epistemic friction? How basic a source of friction can know-how be?

Some pragmatistically-oriented epistemologies seem to suggest that know-how is basic (just remember Wittgenstein's reference to Goethe's "Im Anfang war die Tat").

Hetherington's radical anti-intellectualism

Another case of interest is Hetherington's (2011) reduction of propositional knowledge into know-how: in this case, knowing propositions just is having certain abilities:

> Your knowing that p is your ability to manifest various accurate representations of p. The knowledge as such is the ability as such.
>
> — p. 42

The friction of propositional knowledge derives from the fact that abilities often depend on facts. For a particular (but important) sense of ability, if it is impossible to do something, it is not possible to have the ability to do it.

The case of scientific knowledge and know-how

We do not need to go fully into this direction. It could be that knowledge in the context of a specific domain gets friction out of know-how without that being the case for every domain.[1]

Some recent work in philosophy of science seems to suggest this. I am thinking of the recent work of Nancy Cartwright (*in passim* in *Nature, the Artful Modeler*, and also in *The Tangle of science* (2024)), and Hasok Chang's pragmatic realism (in *Realism for Realistic People*). For both, the friction of scientific knowledge depends on scientific know-how (they do not put it this way explicitly).

[1] Of course, that frictions comes from know-how in a range of domains gives support to the general thesis, but this is something we can abstract from initially.

Cartwright: doing as nature does

In *Nature, the Artful Modeler*, Cartwright proposes:

Central thesis *Techné* [craft, art] provides the very best representations of Nature that are possible, human or otherwise–because this is just what Nature is like.

Cartwright thinks of know-how as something that is not evaluable in terms of truth or falsity; in her view, know-how is totally distinct from accepting any number of claims, which she assumes is the case for knowing-that. Know-how in her sense can be characterized as a kind of context-sensitive reliability– Cartwright distinguishes it from rule-following and habit

What Cartwright suggests is that what makes our scientific practices (and the know-how they embody) successful is that the world is like them.

Worries with Cartwright's model

These ideas are suggestive, but at the very least:

- The notion of similarity involved between know-how and the structure of the world is unclear.
- The model suggests that there is no real distinction between practices and know-how. But this is doubtful too.
- The model does not validate know-how as a source of friction: rather, what generates friction is that the world supports certain possible actions (know-how gets friction from the world).

Hasok Chang's pragmatic realism

For the last decade, Hasok Chang has developed a particular brand of pragmatism. In his recent book *Realism for Realistic People* (2022), he expands on these ideas in a systematic way.

Chang's goal is to give a pragmatic, anti-correlationist version of (scientific) realism.

The key idea is that we need to account for the success of scientific practices through their coherence in view of certain goals. Rather than explaining the goodness of scientific products in terms of their correspondence with the world, Chang's model explains it in terms of how they cohere with the goals that science pursues; *inquiry*, for him, is the coordination of actions in view of goals. Active knowledge requires *understanding* how goals and actions are coherent.

Active knowledge and friction

An important aspect of Chang's proposal is that active knowledge requires making sense of what works and what doesn't:

> Operational coherence does not reside in the 'mind-independent world', yet it expresses the empirical ('external') constraints on our thought, because the design of a coherent activity incorporates what we have learned from experience about what tends to make sense to do and what does not.
>
> — p. 24

Realism

This is key to understanding Chang's proposal as a form of realism:

> [Operational coherence] cannot be achieved arbitrarily by decree, wishful thinking, or mere agreement among beliefs or people. On the contrary, in order to do things coherently we need to have an understanding and mastery of our surroundings. Operational coherence carries within it the constraint by nature. Through operational coherence the world outside the control of the mind is brought to bear on knowledge.
>
> — p. 42

While Chang accepts that everything is *mind-framed*, not everything is *mind-controlled*.

Hasok Chang on truth

Truth-by-operational-coherence A statement is true to the extent that there are operationally coherent activities that can be performed by relying on its content / A proposition (understood as the content of a sentence) is true to the extent that there are operationally coherent activities that can be performed by relying on it.

(Chang is a pluralist about truth notions, so 'is true' does not mean 'is true *simpliciter*')

Operational coherence depends on what mind-uncontrolled entities are like; it is responsive to friction. (Importantly, it imposes constraints on freedom; cf. pp. 136-139)

Hasok Chang on knowledge

Knowledge I know that a proposition is true to the extent that I (personally) actually know how to carry out some operationally coherent activities by relying on it.

The friction of knowledge is grounded on the friction of our know-how concerning how to perform operationally coherently.

Problems with Chang's model

- Since Chang's account of truth-by-operational-coherence is intended as an account of primary truth, the idea that it is *preceded* by there being constraints is problematic. Cartwright simply assumed that one can rely on there being a world that is structured in a way that makes practices possible, but this is not available for Chang except in a very weak sense.

Moving forward

There are a number of issues concerning these approaches to taking know-how as friction-giving.

I think the idea needs to be qualified significantly.

What *should* remain is that the *abilities* that underlie our cognitive states are constrained by the interaction of mind and world.

Chang's distinction between primary and secondary truth is, I think, particularly problematic. Maybe the way forward for those who want to defend the thesis of know-how as friction-giving is to fully endorse some kind of holism about truth, where no truth is independent of other truths.

The place for know-how in the chain of friction

There is, furthermore, a more fundamental problem with the approach.

Know-how being friction-giving makes sense if we think of chains of friction-giving where depending on know-how entails that there will be friction for a state.

However, know-how is friction-sensitive *already*. The goodness/badness of know-how depends on there being friction.

Friction arises out of trying out actions in the world - it is a *structural* condition for inquiry.

Knowing how is a way to be sensitive to friction - I would like to suggest, the basic way to be sensitive to friction.

Thanks!