Goodman 1955, *Fact, Fiction, and Forecast*: the New Riddle

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The Old Problem, (Dis)solved

Old Problem: (?) judgments about the future "are neither reports of experience nor logical consequences of it," and "there are no necessary connections of matters of fact" (59-60).

I always took it to be less Humean than this: can you justify induction without begging the question?

Central point: "Why one prediction rather than another?"

Humean answer: past regularity creates a habit.

Satisfactory? Many either (i) think Hume misunderstood his own problem, or (ii) say he didn't take his solution very seriously.

A "skeptical solution"?

Goodman disagrees: we shouldn't sharply distinguish the problem of *demarcation* from that of *justification*.

Reason to be worried about the setup of the problem: "Come to think of it, what precisely would constitute the justification we seek?" (62)

- Explain how we know which predictions will be correct?

We know no such thing!

- Try to *find* such a criterion?

Again, there is none – that's what makes induction *in*duction.

- Try to show which hypotheses are *probable*? If 'probable' tied to future frequency distributions, this is again precisely what we can't *know*; if not, it's unclear why we should care.
  - Not sure about this. Why not say that 'probable' doesn't guarantee a frequency distribution (sometimes this won't even make sense, since will be a one-off hypothesis like 'the 157th emerald is green'). Instead, say that it puts it within a class of propositions P such that the frequency of truths among P is high. Or maybe say that 'probable' means that it is rational to have high credence.

New tack: how do we justify a *de*duction?

Step 1) Show that it conforms to general rules of deductive inference.

Step 2) Show that the general rules of deduction are valid.

Given that we have formally worked-out rules of deduction, this is usually routine.

- Self-evident axioms? Rules of the human minds? No:

  > "I think the answer lies much nearer the surface. Principles of deductive inference are **justified** by their conformity with accepted deductive practice. Their **validity** depends upon accordance with particular deductive inferences we actually make and sanction. If a rule yields unacceptable inferences, we drop it

> as invalid. Justification of general rules thus derives from judgments rejecting or accepting particular deductive inferences... The point is that rules and inferences alike are justified by being brought into agreement with each other. *A rule is amended if it yields an inference we are unwilling to accept; an inference is rejected if it violates a rule we are unwilling to amend.*" (63-4)

There's both something quite compelling and something quite disturbing about this passage!

Holism/reflective equilibrium? ✓
Conventionalism about validity? ×

My preferred reading: read "their validity depends..." as "our justification for taking them to be valid depends...." In a sense, their validity does, since our ability to gain knowledge/justification by the (correct) rules depends on having justification for believing that they are so.

- Thus the point is not a *metaphysical* one about what it takes for a rule to be valid, but an *epistemological* one about how we are to determine which ones to accept as (mind-independently) valid.

A different tack: rigidify on the rules we accept, so that we get rid of the terrible counterfactuals. This looks more like a bandaid to cover up the problem...

Now return to justifying *in*duction.

The same rules apply. "An inductive inference, too, is justified by conformity to general rules, and a general rule by conformity to accepted inductive inferences. Predictions are justified if they conform to valid canons of induction; and the canons are valid if they accurately codify accepted inductive practice." (64)

Does the same tack work? Our justification in *using* the inferences (and ability to gain knowledge from them) arises from this reflective equilibrium state; but the rules themselves are independent of the process.

The problem of demarcation vs. the problem of justification.

"The problem of induction is not a problem of demonstration but a problem of defining the difference between valid and invalid predictions." (65)

Constructive Confirmation Theory

The interplay above is an instance of the "dual adjustment between definition and usage, whereby the usage informs the definition, which in turn guides extension of the usage." (66)

This leads us to the task of defining 'confirmation.' Goodman goes through various puzzles we face:

Is *definition* really the right characterization of what we're doing?

- Brute hypothetico-deductive model lets every statement confirm every other.
- Paradox of the ravens.

Hosiasson-Lindenbaum, *not* Hempel!!

- Need to not look at evidence-statements in isolation, but at whole body.

b is black, *c* is not black.

The point: recall that step 1 of justifying a deduction was subsuming it under general rules, which we could easily do because we have a well-worked out rigorous theory of deduction that satisfies the

reflective equilibrium of step 2. Once this is recognized, we see that the job of justifying *in*duction requires us to carry out an analogous project.

The New Riddle

The upshot: we can't carry out the constructive project of confirmation theory in full parallel to that of deductive logic. There is no *syntactic* criteria for demarcating the justified from the unjustified inductions.

Confirmation relations do not hold in virtue of form.

Initial puzzle. Contrast:

> 'This piece of copper conducts electricity' $\rightarrow$ 'all copper conducts electricity'
>
> 'This man is a third son' $\not\rightarrow$ 'all men are third sons'

Diagnosis: *Law-like* statements vs. accidental generalizations.

Only the former get support from instances.

But how do we delineate the law-like from the accidental? This is serious:

> x is **grue** iff x is first examined before t and green, or is not and is blue.
>
> All instances of green emeralds so far confirm both
>
> (1) All emeralds are green.
>
> (2) All emeralds are grue.
>
> So it looks like we can confirm anything we like (about some unobserved class of objects) with a suitably constructed predicate.

Note that there is nothing special about *time* here – that is just one instance of the general **projection problem**.

The problem, of course, is that we have no non-question-begging way of determining that (1) is law-like and (2) is not.

Proposals:

- Appeal to background knowledge. The fact that we have (i) 'All iron conducts' in our evidence makes (ii) 'All copper conducts' law-like, but not (iii) 'all things on my desk conduct.' Why? (i) and (ii) fall under H: every class of things of the same material is uniform in conductivity. But (i) and (iii) fall under K: every class of things that are either of the same material or all on a desk are uniform in conductivity.

The demarcation problem has been pushed back to saying why H is law-like and K is not.

- Law-like hypotheses have "complete generality" – they aren't equivalent to hypotheses containing particulars.

All equivalents?	Excludes nothing
Some equivalents?	Excludes everything

– The predicates must be "purely qualitative" or "non-positional." No non-question-begging way to specify these – see if they work in an induction!

'Blue' and 'green' have to be defined in terms of time if we start with 'grue' and 'bleen'.

  - Note well: this has already given up on a *syntactic* criterion.
  - More generally, note that we can specify the meaning of a predicate (in a formal language) simply by giving it an extension/intension, i.e. selecting the objects to which it applies. Although it is convenient to do this in english using sentences that make reference to times, there is nothing essential to that. Q: Is this related to the reference class problem?

Upshots

– The real problem with Hume's account was not his descriptive approach, but just that he didn't carry it out with enough precision. "Regularities are where you find them, and you can find them anywhere." (82)

– The constructive project of confirmation theory is in serious trouble.

– Reading question: what happens when we emerge with the first emerald after time t?

  Is it that he will admit it's not grue, but he has no way of seeing why that suggests it's actually green rather than grue*?