Goodman's "Grue" Argument in Historical Perspective

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Overview of Today's Talk

- Today, my main aim will be to sketch and trace some important consequences of the following (crude) analogy:

  entailment : inference : : confirmation : evidential support

- I will focus on arguments *against* classical deductive and inductive logic ("relevantist" and "grue" arguments).
- The talk is mainly *defensive*. I won't offer positive accounts of the "paradoxical" cases I will discuss (but, see "Extras").
- I'll begin with Harman's defense of classical deductive logic against certain (epistemological) "relevantist" arguments.
- Then, I'll argue that *if* you like Harman's defensive move in the deductive case, you should like a similar defense of inductive logic (from Goodman's "grue") *even more*.
- I will indicate how a "Harmanian maneuver" might be used to defend either Hempelian or Carnapian inductive logic.
- I will focus mainly on defending Carnapian IL from "grue".

- Here is a (naïve) "*reductio*" of classical deductive logic:
  - (1) For all sets of statements X and all statements p, if X is inconsistent, then p is a logical consequence of X.
  - (2) If an agent S's belief set B entails p (and S *knows* $B \vDash p$), then it would be reasonable for S to infer/believe p.
  - (3) *Even if* S knows their belief set B is inconsistent (and, hence, that $B \vDash p$, for *any* p), there are still *some* p's such that it would *not* be reasonable for S to infer/believe p.
  - (4) $\therefore$ Since (1)–(3) lead to absurdity, our initial assumption (1) must have been false — *reductio* of the "explosion" rule (1).
- Harman [9] would concede that (1)–(3) are inconsistent, and (as a result) that *something* is wrong with premises (1)–(3).
- But, he would reject the relevantists' diagnosis that (1) must be rejected. I take it he'd say it's (2) that is to blame here.
- ☞ (2) is a *bridge principle* [13] linking *entailment* and *inference*.
- (2) is correct *only* for *consistent* B's. [*Even if* B is consistent, the correct response *may* rather be to *reject* some B_i's in B.]

- The choice of *inconsistent* belief set B is intentional here.
- In such contexts, there is a *deep disconnect* between (known) *entailment* relations and (kosher) *inferential* relations.
- Will a more sophisticated DBP (2′) help here? A *dilemma*:
  - (2′) will be *too weak* to yield a (classically) *valid* "reductio".

    or
  - (2′) will be *false*. [Our original BP (2) falls under this horn.]
- Let B be S's belief set, and let q be the conjunction of the elements B_i of B. Here are two more candidate BP's:
  - ($2'_1$) If S knows that $B \vDash p$, then S should *not* be such that *both*: S believes q, *and* S does not believe p.
  - ($2'_2$) If S knows that $B \vDash p$, then S should *not* be such that *both*: S believes each of the $B_i \in B$, *and* S does not believe p.
- ($2'_2$) is *false* (preface paradox) *and* too weak (it's wide scope).
- ($2'_1$) *may* be true, but it is also *too weak*. [It's wide scope, and the agent can reasonably disbelieve *both* q *and* p].

"Potted History" Version of Goodman's Argument

- Consider the following two inductive arguments:

($\mathscr{A}_1$) (E_1) a is a green emerald. ∴ (H_1) All emeralds are green.

($\mathscr{A}_2$) (E_2) a is a grue emerald. ∴ (H_2) All emeralds are grue.

- A "potted history" version of Goodman's argument ([8]):
  (1) Arguments ($\mathscr{A}_1$) and ($\mathscr{A}_2$) have the same logical form.
  (2) Argument ($\mathscr{A}_1$) is "inductively valid" (*i.e.*, E_1 confirms H_1).
  (3) ($\mathscr{A}_2$) is *not* "inductively valid" (*i.e.*, E_2 does *not* confirm H_2).
  (4) ∴ "Inductive validity" is not *merely* a matter of logical form.
- My talk today aims mainly to undermine Goodman's argument (in *FF&F* [8]) for premises (2) and (3).
  - Sidebar: I also think (1) is *question-begging*. I won't be able to get to this today, but see my "Extras" slides for more.

☞ Goodman's argument against *in*ductive logic is analogous to the (unsound) argument above against classical *de*ductive logic. This is what the rest of the talk will aim to establish.

- I'll begin by laying out the salient bits of the inductive logical (*viz.*, *confirmation*) theories of Hempel and Carnap.
- Hempelian confirmation theory uses *entailment* to explicate "inductive logical support" (confirmation), which is a logical relation between statements. [E confirms H iff $E \vDash \text{dev}_E(H)$]
- Hempel's theory has the following three key consequences:

(EQC) If E confirms H and $E \Dashv\vDash E'$, then E' confirms H.

(NC) For all constants x and all (consistent) predicates ϕ and ψ: $\ulcorner \phi x \,\&\, \psi x \urcorner$ confirms $\ulcorner (\forall y)(\phi y \supset \psi y) \urcorner$.

(M) For all x, for all (consistent) ϕ and ψ, and all statements H: If $\ulcorner \phi x \urcorner$ confirms H, then $\ulcorner \phi x \,\&\, \psi x \urcorner$ confirms H.

- These three properties are the crucial ones needed to reconstruct Goodman's "grue" argument against Hempel.
- Before giving a precise reconstruction of Goodman's "grue" argument, we'll look at the essentials of Carnapian IL/CT. [Goodman targeted both Hempel and Carnap in *FF&F* [8].]

- Carnapian confirmation (*i.e.*, *later* Carnapian theory [14]) is based on *probabilistic relevance*, *not* deductive entailment:
  - E confirms H, relative to K iff $\Pr(H \mid E \,\&\, K) > \Pr(H \mid K)$, for some "suitable" conditional probability function $\Pr(\cdot \mid \cdot)$.
    - Note how this is an *explicitly 3*-place relation. Hempel's was only *2*-place. This is because Pr (unlike $\vDash$) is *non-monotonic*.
    - Carnap thought "*suitable* Pr" meant "*logical* Pr" in a very strong/naive sense. But, Goodman's argument (charitably reconstructed) will work against *any* probability function Pr.

☞ Carnap's theory implies *only 1* of our 3 Hempelian claims: (EQC). It does *not* imply either (NC) *or* (M) (see [4]/[14]).

  - This will allow Carnapian IL to avoid facing the full brunt of Goodman's "grue" (but, it will still face a serious challenge).
- For Carnap, confirmation is a *logical* relation (akin to entailment). Like entailment, confirmation can be *applied*, but this requires *epistemic bridge principles* [akin to (2)].
- Carnap [1] discusses various bridge principles. The most well-known of these is the *requirement of total evidence*.

- **The Requirement of Total Evidence**. In the application of IL to a given knowledge situation, the total evidence available must be taken as a basis for determining the degree of confirmation.
- This *sounds* like a plausible principle. But, once it is made more precise, it will actually turn out to be subtly defective.
- More precisely, we have the following *bridge principle* connecting *confirmation* and *evidential support*:

(RTE) E evidentially supports H *for* S *in* C iff E confirms H, relative to K, where K is S's *total evidence in* C.

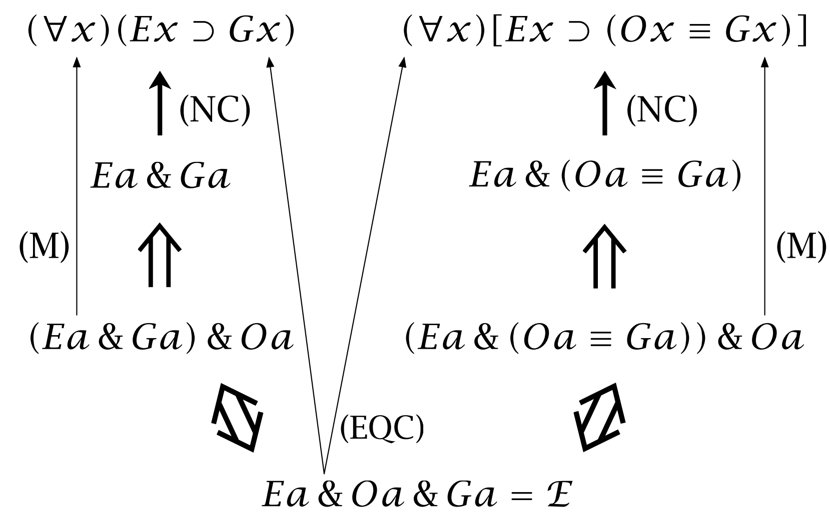
- The (RTE) has often been (implicitly) presupposed by Bayesian epistemologists (both subjective and objective).
- But, we'll see that (RTE) is an *independently* implausible BP.

☞ Moreover, Goodman's "grue" argument will rely *more heavily* on (RTE) than the relevantists' argument relies on (2). In this sense, Goodman's argument will be *even worse*.

- Before reconstructing the argument, a brief "grue" primer.

- Let $Gx \overset{\text{def}}{=} x$ is green, $Ox \overset{\text{def}}{=} x$ is examined prior to t, and $Ex \overset{\text{def}}{=} x$ is an emerald. Goodman introduces a predicate "grue"
$$Gx \overset{\text{def}}{=} x \text{ is grue} \overset{\text{def}}{=} Ox \equiv Gx.$$
- Consider the following two universal generalizations
  (H_1) All emeralds are green. [$(\forall x)(Ex \supset Gx)$]
  (H_2) All emeralds are grue. [$(\forall x)[Ex \supset (Ox \equiv Gx)]$]
- And, consider the following instantial evidential statement
  ($\mathcal{E}$) $Ea \,\&\, Oa \,\&\, Ga$
- Hempel's confirmation theory [(EQC) & (NC) & (M)] entails:
  (†) $\mathcal{E}$ confirms H_1, *and* $\mathcal{E}$ confirms H_2. [proof]
  ∴ (‡) $\mathcal{E}$ confirms H_1 *if and only if* $\mathcal{E}$ confirms H_2.
- What about (later) Carnapian theory? Does *it* entail (‡)?
- ☞ NO! There are Carnapian *countermodels* to (‡). [See Extras.]
- So, Hempel was an easier target for Goodman than (later) Carnap (to be fair, Goodman talks only about *early* Carnap).
- Now, we're ready to reconstruct Goodman's argument.

A Proof of (†) From Hempel's (NC), (M), and (EQC)



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- There is just one more ingredient in Goodman's argument:
  - The agent S who is assessing the evidential support that $\mathcal{E}$ provides for H_1 *vs* H_2 in a Goodmanian "grue" context $C_{\mathcal{G}}$ has Oa as part of their total evidence in $C_{\mathcal{G}}$. (*e.g.*, [2], [16].)
- Now, we can run the following Goodmanian "*reductio*":
  (i) E confirms H, relative to K iff $\Pr(H \mid E \,\&\, K) > \Pr(H \mid K)$.
  (ii) E evidentially supports H *for* S *in* C iff E confirms H, relative to K, where K is S's *total evidence in* C.
  (iii) The agent S who is assessing the evidential support $\mathcal{E}$ provides for H_1 *vs* H_2 in a Goodmanian "grue" context $C_{\mathcal{G}}$ has Oa as part of their total evidence in $C_{\mathcal{G}}$ [*i.e.*, $K \vDash Oa$].
  (iv) *If* $K \vDash Oa$, *then—c.p.—*$\mathcal{E}$ confirms H_1 relative to K iff $\mathcal{E}$ confirms H_2 relative to K, for ***any*** Pr [*i.e.*, (‡) holds, ∀ Pr's].
  (v) Therefore, $\mathcal{E}$ evidentially supports H_1 for S in $C_{\mathcal{G}}$ if and only if $\mathcal{E}$ evidentially supports H_2 for S in $C_{\mathcal{G}}$.
  (vi) $\mathcal{E}$ evidentially supports H_1 for S in $C_{\mathcal{G}}$, but $\mathcal{E}$ does *not* evidentially support H_2 for S in $C_{\mathcal{G}}$.
- ∴ (i)–(vi) lead to an absurdity. Hence, our initial assumption (i) must have been false. Carnapian inductive logic refuted?

- Premise (vi) is based on Goodman's *epistemic intuition* that, in "grue" contexts, $\mathcal{E}$ evidentially supports H_1 but *not* H_2.
- Premise (v) follows logically from premises (i)–(iv).
- Premise (iv) is a theorem of probability calculus (***any*** Pr!).
  - The *c.p.* clause is $\Pr(Ea \mid H_1 \,\&\, K) = \Pr(Ea \mid H_2 \,\&\, K)$. [See [16].]
- Premise (iii) is an assumption about the agent's background knowledge K that's implicit in Goodman's set-up ([2], [16]).
- Premise (ii) is (RTE). It's the *bridge principle*, akin to (2) in the relevantists' *reductio*. This is the premise I will focus on.
- Here are my two main points about Goodman's argument:
  - (ii) must be rejected by Bayesians, for *independent* reasons.
  - Unlike Hempel's theory, Carnap's $\mathfrak{c}$-theory *doesn't entail* (‡).
- This suggests Goodman's argument is *even less* a *reductio* of (i) than the relevantists' argument is a *reductio* of (1).
- Moreover, a careful reading of *Fact, Fiction, and Forecast* reveals that this *was* Goodman's argumentative strategy.

Three Salient Quotes from Goodman [8]

☞ The "new riddle" is *about* inductive *logic* (*not epistemology*).

Quote #1 (page 67): "Just as deductive logic is concerned primarily with a relation between statements — namely the consequence relation — that is independent of their truth or falsity, so inductive logic . . . is concerned primarily with a comparable relation of confirmation between statements. Thus the problem is to define the relation that obtains between any statement S_1 and another S_2 if and only if S_1 may properly be said to confirm S_2 in any degree."

Quote #2 (73): "Confirmation of a hypothesis by an instance depends . . . upon features of the hypothesis other than its syntactical form".

☞ But, Goodman's *methodology* appeals to *epistemic* intuitions.

Quote #3 (page 73): ". . . the fact that a given man now in this room is a third son *does not increase the credibility of* statements asserting that other men now in this room are third sons, *and so does not confirm* the hypothesis that all men now in this room are third sons."

- As Tim Willimson points out [18, ch. 9], Carnap's (RTE) must be rejected, because of the problem of old evidence [3].
- If S's total evidence in C (K) entails E, then, according to (RTE), E cannot evidentially support *any* H for S in C.
- As a result, there are C's in which we can't use $\Pr(\cdot \mid K)$ — for *any* Pr — when assessing the *evidential import of* E in C.
- There are (basically) two kinds of strategies for revising (RTE). Carnap [1, p. 472] & Williamson [18, ch. 9] suggest:

(RTE$_\top$) E evidentially supports H for S in C iff S possesses E as evidence in C and $\Pr_\top(H \mid E \,\&\, K_\top) > \Pr_\top(H \mid K_\top)$. [$K_\top$ is "empty", $\Pr_\top$ is "inductive" [14]/"evidential" [18]/"logical" [1].]

- Note: Hempel explicitly *required* that confirmation be taken "*relative to* $K_\top$" in all treatments of the paradoxes [10, 11]. (RTE$_\top$) is a charitable Carnapian reconstruction of Hempel.
- A more "standard" way to revise (RTE) is [(RTE′)] to use $\Pr_{S'}(\cdot \mid K')$, where $K \vDash K' \nvDash E$, and $\Pr_{S'}$ is the credence function of a "counterpart" S' of S with total evidence K'.

- Carnap never re-wrote the part of LFP [1] that discusses the (RTE), in light of a probabilistic *relevance* ("increase in firmness" [1]) notion of confirmation. This is too bad.
- If Carnap had discussed this ("old evidence") issue, I suspect he would have used something like (RTE$_\top$) as his bridge principle connecting confirmation and evidential support.
- Various other philosophers have proposed similar accounts of "support" as some probabilistic relation, taken relative to an "empty" (perhaps "*a priori*") background &/∨ probability.
  - Richard Fumerton (who, unlike Williamson, is an epistemological *internalist*) proposes such a view in his [5].
  - Patrick Maher [14] applies such relations extensively in his recent (neo-Carnapian) work on confirmation theory.
  - Brian Weatherson [17] uses a similar, "Keynesian" [12] inductive-probability approach to evidential support.
- So, many "Bayesians" *already* reject (RTE), for reasons that are largely *independent* of "gruesome" considerations.

- So far, I have left open (precisely) what I think Bayesian confirmation theorists *should* say (*logically* & *epistemologically*) in light of Goodman's "grue" paradox.
- Clearly, BCTs will need to revise (RTE) in light of "grue". But, the standard (RTE′) way of doing this to cope with "old evidence" isn't powerful enough to avoid *both* problems.
- The more draconian (RTE$_\top$) — suggested by the work of Carnap — avoids both problems, from a *logical* point of view (*if* "inductive"/"logical" probabilities *exist*!). But, what should would-be "Carnapians" say on the *epistemic* side?
- I'm not sure what the evidential relations *are* in "grue" contexts (but, see "Extras"). But, *that* doesn't undermine my line on Goodman's "grue" *argument* against *inductive logic*.
  - Analogy: Harman doesn't tell us (in general) how someone *should* respond to the discovery that their beliefs are inconsistent. But, *that* doesn't undermine Harman's points about relevantist "reductios" of classical deductive logic.

[1] R. Carnap, *Logical Foundations of Probability*, 2nd *ed.*, Chicago Univ. Press, 1962.
[2] D. Davidson, *Emeroses by other names*, *Journal of Philosophy*, 1966.
[3] E. Eells, *Bayesian problems of old evidence*, in C. Wade Savage (*ed.*) *Scientific theories, Minnesota Studies in the Philosophy of Science* (Vol. X), 205-223, 1990.
[4] B. Fitelson, *The Paradox of Confirmation*, *Philosophy Compass* (online publication), Blackwell, 2006. URL: `http://fitelson.org/ravens.htm`.
[5] R. Fumerton, *Metaepistemology and Skepticism*, Rowman & Littlefield, 1995.
[6] C. Glymour, *Theory and Evidence*, Princeton University Press, 1980.
[7] I.J. Good, *The white shoe is a red herring*, *BJPS* **17** (1967), 322.
[8] N. Goodman, *Fact, Fiction, and Forecast*, Harvard University Press, 1955.
[9] G. Harman, *Change in View: Principles of Reasoning*, MIT Press, 1988.
[10] C. Hempel, *Studies in the logic of confirmation*, *Mind* **54** (1945), 1–26, 97–121.
[11] ______, *The white shoe: no red herring*, *BJPS* **18** (1967), 239–240.
[12] J. Keynes, *A Treatise on Probability*, Macmillan, 1921.
[13] J. MacFarlane, *In what sense (if any) is logic normative for thought?*, 2004.
[14] P. Maher, *Probability captures the logic of scientific confirmation*, *Contemporary Debates in the Philosophy of Science* (C. Hitchcock, *ed.*), Blackwell, 2004.
[15] D. Miller, *Out Of Error: Further Essays on Critical Rationalism*, Ashgate, 2006.
[16] E. Sober, *No model, no inference: A Bayesian primer on the grue problem*, in *grue! The New Riddle of Induction* (D. Stalker *ed.*), Open Court, Chicago, 1994.
[17] B. Weatherson, *The Bayesian and the Dogmatist*, *Proc. of the Arist. Soc.*, 2007.
[18] T. Williamson, *Knowledge and its Limits*, Oxford University Press, 2000.

"Carnapian" Counterexamples to (NC) and (M)

(K) Either: (H) there are 100 black ravens, no nonblack ravens, and 1 million other things, or ($\sim H$) there are 1,000 black ravens, 1 white raven, and 1 million other things.

- Let $E \overset{\text{def}}{=} Ra \,\&\, Ba$ (a randomly sampled from universe). Then:

$$\Pr(E \mid H \,\&\, K) = \frac{100}{1000100} \ll \frac{1000}{1001001} = \Pr(E \mid {\sim}H \,\&\, K)$$

- ∴ This $K/\Pr$ constitute a counterexample to (NC), assuming a "Carnapian" theory of confirmation. This model can be emulated in the later Carnapian λ/γ–systems [14].

- Let $Bx \overset{\text{def}}{=} x$ is a black card, $Ax \overset{\text{def}}{=} x$ is the ace of spades, $Jx \overset{\text{def}}{=} x$ is the jack of clubs, and $K \overset{\text{def}}{=}$ a card a is sampled at random from a standard deck (where Pr is also standard):
  - $\Pr(Aa \mid Ba \,\&\, K) = \frac{1}{26} > \frac{1}{52} = \Pr(Aa \mid K)$.
  - $\Pr(Aa \mid Ba \,\&\, Ja \,\&\, K) = 0 < \frac{1}{52} = \Pr(Aa \mid K)$.

A "Carnapian" Counterexample to (‡)

(K) Either: (H_1) there are 1000 green emeralds 900 of which have been examined before t, no non-green emeralds, and 1 million other things in the universe, or (H_2) there are 100 green emeralds that have been examined before t, no green emeralds that have not been examined before t, 900 non-green emeralds that have not been examined before t, and 1 million other things.

- Imagine an urn containing true descriptions of each object in the universe (Pr $\overset{\text{def}}{=}$ urn model). Let $\mathcal{E} \overset{\text{def}}{=}$ "$Ea \,\&\, Oa \,\&\, Ga$" be drawn. $\mathcal{E}$ confirms H_1 but $\mathcal{E}$ *dis*confirms H_2, relative to K:

$$\Pr(\mathcal{E} \mid H_1 \,\&\, K) = \frac{900}{1001000} > \frac{100}{1001000} = \Pr(\mathcal{E} \mid H_2 \,\&\, K)$$

- This $K/\Pr$ constitute a counterexample to (‡), assuming a "Carnapian" theory of confirmation. This probability model can be emulated in the later Carnapian λ/γ–systems [14].

What Could "Carnapian" Inductive Logic Be? Part I

- Many logical empiricists dreamt that inductive logic (confirmation theory) could be formulated in such a way that it *supervenes* on deductive logic in a *very strong* sense.
  - **Strong Supervenience** (SS). All confirmation relations involving sentences of a first-order language $\mathcal{L}$ supervene on the *de*ductive-logical (*viz.*, syntactical) structure ***of*** $\boldsymbol{\mathcal{L}}$.
- Hempel clearly saw (SS) as a *desideratum* for confirmation theory. The early Carnap also seems to have (SS) in mind.
- I think it is fair to say that Carnap's project — understood as requiring (SS) — was unsuccessful. [Note: I think this is true for reasons that are *independent* of Goodman's "grue".]
- The later Carnap seems to be aware of this. Most commentators interpret this shift as the later Carnap simply *giving up* on inductive logic (*qua logic*) altogether.
- I want to resist this "standard" reading of the history.

What Could "Carnapian" Inductive Logic Be? Part II

- I propose a different reading of the later Carnap, which makes him much more coherent with the early Carnap.
- I propose *weakening* the supervenience requirement in such a way that it (a) ensures this coherence, and (b) maintains the "logicality" of confirmation relations in Carnap's sense.
- Let $\mathfrak{L}$ be a formal language strong enough to express the fragment of probability theory Carnap needs for his later, more sophisticated confirmation-theoretic framework.
  - **Weak Supervenience** (WS). All confirmation relations involving sentences of a first-order language $\mathcal{L}$ supervene on the *de*ductive-logical (*viz.*, syntactical) structure ***of*** $\mathfrak{L}$.
- Happily, $\mathfrak{L}$ is pretty weak (Carnap's $\mathfrak{c}$-theories are *decidable*). So, even by early (*logicist*) Carnapian lights, satisfying (WS) is sufficient to ensure the "logical determinateness" of $\mathfrak{c}$.
- The specific (WS) approach I favor takes confirmation to be a 4-place relation: between E, H, K, *and a* Pr*-model* $\mathscr{M}$.

What Could "Carnapian" Inductive Logic Be? Part III

- Consequences of moving to such a 4-place $\mathfrak{c}$-relation:
  - We need not try to "construct" "logical" probability functions from the syntax of $\mathcal{L}$. This is a dead-end anyhow.
  - Indeed, on this view, inductive logic has nothing to say about the *interpretation/origin* of Pr. That is *not* a *logical* question, but a question about the *application* of logic.
    - Analogy: Deductive logicians don't owe us a "logical interpretation/construction" of the *valuation function.*
  - Moreover, this leads to a vast increase in the *generality* of inductive logic. Carnap was stuck with an impoverished set of "logical" probability functions (in his λ/γ-continuum).
    - On my approach, *any* probability function can be part of a confirmation relation (*via* $\mathscr{M}$). Which functions are "appropriate" or "interesting" will depend on *applications.*
    - So, some confirmation relations will not be "interesting", *etc.* But, this is (already) true of *entailments*, as Harman showed.
  - Questions: Now, what *is* the job of the inductive logician, and how (if at all) do they interact with *epistemologists*?

What Could "Carnapian" Inductive Logic Be? Part IV

- The inductive logician must explain how it is that inductive logic can satisfy the following Carnapian *desiderata.*
  - The confirmation function $\mathfrak{c}_{\mathscr{M}}(H, E \mid K)$ quantifies a *logical* (in a Carnapian sense) relation between E, H, and K.

  ($\mathcal{D}_1$) "Logical determinateness" of $\mathfrak{c}$ is ensured by the move from (SS) to (WS) [from an $\mathcal{L}$-determinate to an $\mathfrak{L}$-determinate $\mathfrak{c}$].

  ($\mathcal{D}_2$) Another aspect of "logicality" insisted upon by Carnap is that $\mathfrak{c}_{\mathscr{M}}(H, E \mid K)$ should *generalize* the entailment relation.
  - At least: $\mathfrak{c}_{\mathscr{M}}(H, E \mid K)$ should take a max (min) value when $E \,\&\, K \vDash H$ ($E \,\&\, K \vDash {\sim}H$) — *for* ***all*** *(regular)* Pr*-models* $\mathscr{M}$.

($\mathcal{D}_3$) There must be *some* interesting "bridge principles" linking $\mathfrak{c}$ and *some* relations of evidential support, in *some* contexts.
  - My basic "bridging" idea (rough): subject-context pairs $\langle S, C\rangle$ will determine "epistemically appropriate" Pr-models $\mathscr{M}$.
  - ($\mathcal{D}_2$) implies that *if* there are any such bridge principles linking *entailment* and (say) *conclusive evidence*, these will be *inherited by* $\mathfrak{c}$. So, we also inherit Harman's problem!

"Potted History" Version of Goodman's Argument (#2)

- Some say that "sensitivity to choice of language" is a central/essential theme/aspect of Goodman's argument.
- But, this *can't* be the case, for many reasons. Here's one:
  1. Goodman's main target was *Hempel.*
  2. Hempel's $\mathfrak{c}$-relation is defined in terms of $\vDash$.
  3. $\vDash$ is *not* (essentially) sensitive to choice of language.
  4. Or, if $\vDash$ *is* sensitive to choice of language (and said sensitivity *is essential* to Goodman's argument), then Goodman's riddle is *neither new nor* peculiar to *induction.*
- Carnap's *later* theories of $\mathfrak{c}$ *are* sensitive to choice of language. But, (a) Goodman was not aware of those later theories, and (b) "grue" doesn't reveal *that* problem anyway.
- In order to pinpoint the (pernicious) language-variance of Carnap's later $\mathfrak{c}$-theories, more sophisticated constructions are required (*e.g.*, David-Miller-esque [15, Ch. 11] constructions).