Philosophy 148 — Announcements & Such

- Branden will have office hours on Tuesday May 13 from 2–4.
- Raul will have a review for the final on Thurs. 5/15 @ 6pm (room TBA).
- Before next Tuesday, I will distribute some extra-credit problems (which will be due at the final). These will be worth 100 homework points.
- The final exam is **Tuesday, May 20 @ 8am @ 20 Barrows**.
  - I will hold a review session for the final exam — the day before the final (May 19). It will take place **May 19 @ 4–6pm @ 122 Wheeler**.
  - Before next Tuesday, I will be distributing a “sample” final exam.
- Today’s Agenda
  - The Grue Paradox (aftermath — and consequences for IL and IE)
  - Farewell
  - Course Evaluations
“Carnapian” Counterexamples to (NC) and (M)

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

Let $E \equiv Ra & Ba$ (a randomly sampled from universe). Then:

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

.: This $K/Pr$ constitute a counterexample to (NC), assuming a “Carnapian” theory of confirmation. This model can be emulated in the later Carnapian $\lambda/y$-systems [13].

Let $Bx \equiv x$ is a black card, $Ax \equiv x$ is the ace of spades, $Jx \equiv x$ is the jack of clubs, and $K \equiv a$ card $a$ is sampled at random from a standard deck (where $Pr$ is also standard):

$$\Pr(Aa \mid Ba & K) = \frac{1}{52} > \frac{1}{52} = Pr(Aa \mid K),$$

$$\Pr(Aa \mid Ba & Ja & K) = 0 < \frac{1}{52} = Pr(Aa \mid K).$$

Is “Grue” an Observation Selection Effect? Part II

Note: the “grue” hypothesis ($H_2$) entails the following claim, which is not entailed by the green hypothesis ($H_1$):

($H'$) All green emeralds have been (or will have been) examined prior to $t$. [(\forall x)((Ex \& Gx) \supset Ox)).]

Now, consider the following two observation processes:

- **Process 1**. For each green emerald in the universe, a slip of paper is created, on which is written a true description of that object as to whether it has property $O$. All the slips are placed in an urn, and one slip is sampled at random from the urn. By this process, we learn $E$ that $Ga & Ga & Oa$.

- **Process 2**. Suppose all the green emeralds in the universe are placed in an urn. We sample an emerald ($a$) at random from this urn, and we examine it. [We know antecedently that the examination of $a$ will take place prior to $t$, i.e., that $Oa$ is true.] By this process, we learn $E$ that $Ga & Ga & Oa$.

Goodman seems to presuppose Process 2 in his set-up.
What Could “Carnapian” Inductive Logic Be? Part I

- The early Carnap dreamt that probabilistic 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 $L$ supervene on the deductive relations involving sentences of $L$.
- 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. [I think this is true for reasons that are *independent* of “grue” considerations.]
- 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 $L$ 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 $L$ supervene on the deductive relations involving sentences of $L$.
- As it turns out, $L$ needn’t be very strong (in fact, one can get away with PRA!). So, even by early (logicist) Carnapian lights, satisfying (WS) is all that is *really* required for “logicality”.
- The specific (WS) approach I propose takes confirmation to be a *four*-place relation: between $E$, $H$, $K$, and a *function* $Pr$.

What Could “Carnapian” Inductive Logic Be? Part III

- Consequences of moving to a 4-place confirmation relation:
  - We need not try to “construct” “logical” probability functions from the syntax of $L$. 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” of the truth value assignment function $v$.
  - 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 $\lambda\gamma$-continuum).
    - On my approach, *any* probability function can be part of a confirmation relation. Which functions are “suitable” or “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 $c(H,E|K)$ quantifies a *logical* (in a Carnapian sense) relation among statements $E$, $H$, and $K$.
  - $(D_1)$ One aspect of “logicality” is ensured by moving from (SS) to (WS) [from an $L$-determinate to an $L$-determinate concept].
  - $(D_2)$ Another aspect of “logicality” insisted upon by Carnap is that $c(H,E|K)$ should *generalize* the entailment relation.
    - This means (at least) that we need $c(H,E|K)$ to take a maximum (minimum) value when $E \land K \Rightarrow H$ ($E \land K \Leftarrow \lnot H$).
    - Very few *relevance* measures $c$ satisfy this “generalizing” $=$ requirement. That’s another job for the inductive logician.
  - $(D_3)$ There must be *some* interesting “bridge principles” linking $c$ and *some* relations of evidential support, in *some* contexts.
    - $(D_2)$ implies that if there are any such bridge principles linking entailment and *conclusive* evidence, these should be *inherited* by $c$. This brings us back to Harman’s problem!
### Three Salient Quotes from Goodman [7]

- **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.”