Announcements and Such

- One Song — *The Crusaders*
  - "That's How I Feel" from *Crusaders I*

- **Final Exam will be:**

  Wednesday, May 16, 5–8pm @ 141 MCCONE

- **Possible Questions to be posted on May 1**
- **Today:** *Skepticism I*
  - Setting the stage for skepticism (in general)…
  - Skepticism about *induction* (three arguments)

- **Next Time:** *Skepticism II*

Skepticism I
The Knowledge (We Think) We Have

- Throughout the course (so far), we have assumed that we have a fair amount of knowledge, e.g.,
  - knowledge about our immediate surroundings
  - knowledge about ourselves
  - (some) knowledge about the future
  - scientific knowledge
  - moral knowledge
  - religious knowledge
- To be sure, some of these kinds of knowledge are more tenuous and controversial than others
- But, we all operate under the assumption that we have a fair amount of non-trivial knowledge
- The skeptic(s) offer general challenges to this claim

Skepticism I
The Possibility of Pervasive Error I

- The main strategy of the skeptic is to get us worried about strange possibilities — *possibilities of pervasive error*. There are various kinds:
  - The possibility that I am hallucinating now
  - The possibility that I am dreaming now
  - The possibility that I am now a brain in a vat
  - The possibility that there is an evil demon who is making things appear to me this way, but they are (in fact) nothing like the way they seem, …
- We can lump these possibilities together into:
  - The possibility that I am now in **A BAD CASE** — a case in which *pervasive error reigns*
- This last chapter is all about such possibilities and what they imply (or don't imply) about knowledge

Skepticism I
The Possibility of Pervasive Error II

- The main idea behind these bad cases is that — *from the inside* — they "look the same" as the good cases. In some sense, the two are *indistinguishable*.
- In this sense — *as far as we can tell* — we ***are*** now in the bad case! So, what follows? Does it follow that our beliefs are unjustified/not known?
- That, ultimately, will depend on one's accounts of justification and knowledge (and also on the details of how we understand the bad/good cases).
- But, keep in mind that this skeptical possibility isn't just a *logical* possibility — it's a possibility that we are all (now) keenly *aware* of (a *live* one).
- This provides some reason to worry that many (if not all) of our mundane beliefs are unjustified and not known, and that we should *suspend judgment*.

Skepticism I
Two Competing Epistemic Ideals

- There are two basic ideals in epistemology:
  - Believe propositions that are true
  - Avoid believing propositions that are false
- Pursuing the first ideal can lead to *credulity*, since it calls upon us to *believe* (lots of) things.
- The second ideal can lead to *Pyrrhonian Skepticism* in which we believe things only on conclusive grounds (i.e., we *withhold* belief on most things)
- The hope is to find a *balance* of these extremes
- Two main kinds of skepticism we're interested in:
  - Knowledge skepticism
  - Justification skepticism
- Knowledge skepticism will be our main concern

Skepticism I
Some Dimensions of Skepticism I

- There are various dimensions to skepticism(s):
  - **Subject matter**: the past, the future, the external world, physical objects, other minds, etc.
  - **Epistemic Attitude**: knowledge, justified belief
  - **Modality**: is skepticism *itself* a necessary truth? Is it a priori? Is it empirical?
  - **Kind of Being**: Human, subhuman, superhuman
  - **Order**: first-order *vs* second-order skepticism
    - 1st-order skepticism $\Rightarrow$ 2nd-order skepticism
    - 2nd-order skepticism $\not\Rightarrow$ 1st-order skepticism
  - **Order** is a particularly important dimension of the skeptical problem. We'll discuss it often.

Skepticism I
Some Dimensions of Skepticism II

- Here are the dimensions along which we will focus:
  - **Subject matter**: we'll be interested in a very *general* kind of skepticism — concerning *anything that is not luminously self-evident*.
    - We'll assume the skeptic is happy to grant knowledge of *luminously self-evident* things.
  - **Epistemic Attitude**: Mainly, *knowledge* skepticism, but a bit of justification skepticism.
  - **Modality**: We will interpret skepticism as a *necessary* truth (even a *truth of reason*!).
    - It would be odd to claim that we *happen to* have hardly any knowledge, but we *could have lots*
  - **Kind of Being**: *human* skepticism
  - **Order**: We'll discuss 1st and 2nd order

Skepticism I
Skepticism About Induction I

- Beliefs grounded in perception, memory, and testimony can be skeptically undermined
- So can beliefs grounded in introspection (provided that they are not luminously self-evident)
- There are also "skeptical worries" about beliefs grounded in *inference* — *inductive* inference
- On one reading of the *Treatise*, Hume comes out as an "inductive skeptic" (I think he actually *wasn't*). Popper certainly *was* an inductive skeptic.
- Hume's "argument for inductive skepticism" is interesting. I will also discuss Popper's.
- Hume (read as a skeptic) can be read as offering a dilemma for the non-skeptic about induction.
- Consider an inductive inference, say, about the future. E.g., about the sun rising tomorrow.

Skepticism I
Skepticism About Induction II

- Argument #1 for "the sun will rise tomorrow"
  - The sun has risen 10,000+ days in a row
  - Therefore, the sun will rise tomorrow.
- Of course, this argument is *invalid*, but, one may think it is a good *inductive* argument nonetheless.
- One could try to bolster this argument by adding an additional "uniformity" premise. Argument #2:
  - The sun has risen 10,000+ days in a row.
  - (U) The future will resemble the past.
  - Therefore, the sun will rise tomorrow.
- Intuitively, this argument is only as strong as its second premise is plausible. Why believe (U)?
- We can't give a *deductive* justification of (U).

Skepticism I
Skepticism About Induction III

- We could try to give an *inductive* justification of (U), but it seems that this would be *circular*.
  - In the past, the future has resembled the past.
  - Therefore, the future will resemble the past.
- This would have to *presuppose* the very thing (U) that it is trying to establish. NOTE: this is *not* so much a *logical* problem with the *argument*, but an *epistemic* problem with the associated *inference*.
- **Digression on "Begging the Question"***: All* deductively *valid* arguments "presuppose" their conclusions. But, we think *some* of these undergird reasonable inferences, and some *don't*.
- Thus, "begging the question" or "circularity" must be an *epistemic*, *not* a *logical* problem. "Humeans" seem to assume that *deduction* is OK. But, *why*?

Skepticism I
Skepticism About Induction IV

- Remember back to the achilles and the tortoise. There, we were concerned with *deduction*. One could run a "Humean" argument here as well, no?
- How might we justify *deduction*? We can't do it *inductively*, since that would be *too weak*. We can't do it *deductively*, since that would be *circular*.
- And, yet, "Humeans" (deductivists like Popper) seem to think that deduction can ground justified belief (or knowledge). Why the difference?
- **Caution!** There is a tendency to conflate *logic* and *epistemology* in these discussions. Just because *B* entails *p* — *and S knows this* — it does *not* follow that it would be reasonable for *S* to *infer p* from *B.*
  - Just take the case where *S* knows that their beliefs *B* are logically inconsistent (and, therefore, that their belief *B* entail *every* proposition *p*!).

Skepticism I
Skepticism About Induction V

- Popper was a true inductive skeptic (even if Hume wasn't). He believed that there was no such thing as inductive support — *in a **logical** sense*.
  - Again: even if Popper is right, why would that show anything about inductive *inference*?
- His argument is different than Hume's.
- Popper points out that, for any proposition *p*, and any (alleged) inductive evidence *E* for *p*, we have:
  - *p* is equivalent to $(p \vee E)$ & $(p \vee \sim E)$
  - *E entails* the first conjunct $(p \vee E)$
  - So, *this* part of *p* is *deductively* supported by *E*
  - The *other* part of *p* is the only part that *could be inductively* supported by *E*. But, it *isn't*!

Skepticism I
Skepticism About Induction VI

- The second conjunct ($p \vee \sim E$) can *not* be inductively supported by E, in the sense that E must *always lower the probability of* this second conjunct:
  - $\Pr(p \vee \sim E \mid E) < \Pr(p \vee \sim E \mid \sim E) = 1$
- Popper concludes that, since neither part (conjunct) of p can be inductively supported by E, p *itself* cannot be inductively supported by E.
- Since this argument goes through for *any* (contingent) E and p, it leads Popper to conclude that *there can be no such thing as inductive support*
- This is clever. But, p is *also* equivalent to:
  - $(p \,\&\, E) \vee (p \,\&\, \sim E)$
- E *refutes* $(p \,\&\, \sim E)$, and E does *not* entail $(p \,\&\, E)$; ***but*** E must *always raise* the probability of $(p \,\&\, E)$!

Skepticism I
Skepticism About Induction VII

- Nelson Goodman posed a "new riddle of induction", which aims to show that there can be no *purely formal* conception of inductive support
- It is sometimes claimed that the premise of the following argument *inductively supports* its conclusion — and in a *purely formal* sense:
  - All observed A's have been B's.
  - Therefore, the next A observed will be B.
- Example:
  - All observed emeralds have been green.
  - Therefore, the next emerald observed will be green.
- Goodman purports to show that, whatever support the premise of such an argument might provide for its conclusion, it cannot be *purely formal*.

Skepticism I
Skepticism About Induction VIII

- Goodman defines a predicate "Grue" as follows:
  - x is Grue = x is green iff x has been observed
- Now, consider the following argument:
  - All observed emeralds have been Grue.
  - Therefore, the next emerald observed will be Grue.
- Since this argument is of the "good form", its premise inductively supports its conclusion.
- But, the following argument has an *equivalent* premise and an *equivalent* conclusion:
  - All observed emeralds have been green.
  - Therefore, the next emerald observed *won't* be green.
- So, a purely formal notion of support should say that *this* premise supports *this* conclusion too!

Skepticism I
Skepticism About Induction IX

- In other words, the assumption that there is a purely formal (logical) notion of inductive support has led to the absurd conclusion that *both*:
  - E inductively supports p
  - E inductively supports $\sim p$
- Where, E and p are defined using "Grue", as above.
- Goodman concludes (*via reductio ad absurdum*) that there is no purely formal notion of inductive support. This is better than Popper's argument.
- But, this also conflates (to some extent) *logic* and *epistemology*. Even if it turned out that this was a situation in which formal inductive support relations were "absurd", what would *that* show?
  - Analogy: if B is logically *inconsistent*, then B *deductively* supports p and $\sim p$. *So what*?

Skepticism I
Skepticism About Induction X

- I think there are better arguments against purely formal explications of inductive support.
- Carnap proposed a *formal analogical inference* principle to the effect that:
  - The more properties two objects share, the more probable it is that they share a novel property.
- In other words, "the more similar" two objects are (as measured by *counting the number of predicates* they jointly exemplify), the more probable it is that they share an arbitrary (novel) property.
- Since this notion of "similarity" involves *counting predicates*, it will be *language/description dependent* in the way that formal "verisimilitude" measures were (that involved *counting sentences*).
- It's a *general* problem for *purely formal* approaches.

Skepticism I
Skepticism About Induction XI

- One more puzzle. It is often assumed that:
  - "Aa & Ba" supports "All As are Bs".
  - If E supports H, then E also supports anything that is logically equivalent to H.
- These two assumptions imply the following:
  - "$\sim Aa$ & $\sim Ba$" supports "All As are Bs".
- This *seems* odd. Example: that a is a non-black non-raven supports that all ravens are black.
- This is known as "the raven paradox".
- I'll be teaching a seminar on inductive logic/ inference in the Fall (I'm writing a book on this).
- I'll also be teaching an undergraduate course on probability and induction in Spring 2008.