Foundationalism and Coherentism

Based on what?

Inferential justification

- A belief is *inferentially justified* when it is supported by another justified belief.
  - (An inferentially justified belief is also called a *nonbasic* justified belief, or a *mediately* justified belief)

- E.g. The oxygen theory of combustion was supported by the observation that magnesium gains mass as it burns.

- What is the relation of 'support' between beliefs? What are its properties?

Positive relevance

- Epistemic support is connected to a logical relation called *positive relevance*. (This is an inferential relation between propositions.)

- To say that *A is positively relevant to B* (within some state of knowledge K) means that learning that A is true increases the epistemic probability of B.
  - I.e. B is more probable in K+A than it is in K
  - I.e. $P_K(B \mid A) > P_K(B)$

Positive relevance?

	A	B
(i)	Some teachers are boring	Most teachers are boring
(ii)	Many people are sure that they have seen ghosts	Ghosts really exist
(iii)	Zhou was born in China	Zhou's mother was born in China
(iv)	Mike is a reincarnation of Attila the Hun	Sophie is a reincarnation of Joan of Arc
(v)	Some chimps can drive cars	Some car drivers are chimps

Facts about positive relevance

- If A is positively relevant to B, then B is positively relevant to A (though not usually to the same extent).

  I.e. If $P(A \mid B) > P(A)$, then $P(B \mid A) > P(B)$.

  - E.g. the belief that Smith robbed the 7-11 on Main St. supports the belief the Smith robbed the 7-11 on Fraser St., and vice-versa.
- There is also 'negative relevance', or 'undermining', where $P(A \mid B) < P(A)$.
- 'Independence' occurs when $P(A \mid B) = P(A)$

Different kinds of relevance

- Positive
  - $P(A \& B) > P(A).P(B)$
- Negative
  - $P(A \& B) < P(A).P(B)$
- No relevance (independence)
  - $P(A \& B) = P(A).P(B)$

Inferential justification

- The extreme case of positive relevance is *logical consequence*.

- E.g. I believe (with certainty) that $26 \times 7 = 182$.
- Why do I believe this? Because:

$26 = 20 + 6$.

Hence $26 \times 7 = (20 + 6) \times 7$
$= (20 \times 7) + (6 \times 7)$
$= 140 + 42$
$= 182$

1. $26 = 20 + 6$
2. $20 \times 7 = 140$
3. $6 \times 7 = 42$
4. $140 + 42 = 182$
5. For all x, y and z, $(x + y) \times z = x \times z + y \times z$

$\therefore$ 26 x 7 = 182

- This argument is deductively valid, so that if the premises are true then the conclusion must be true as well.

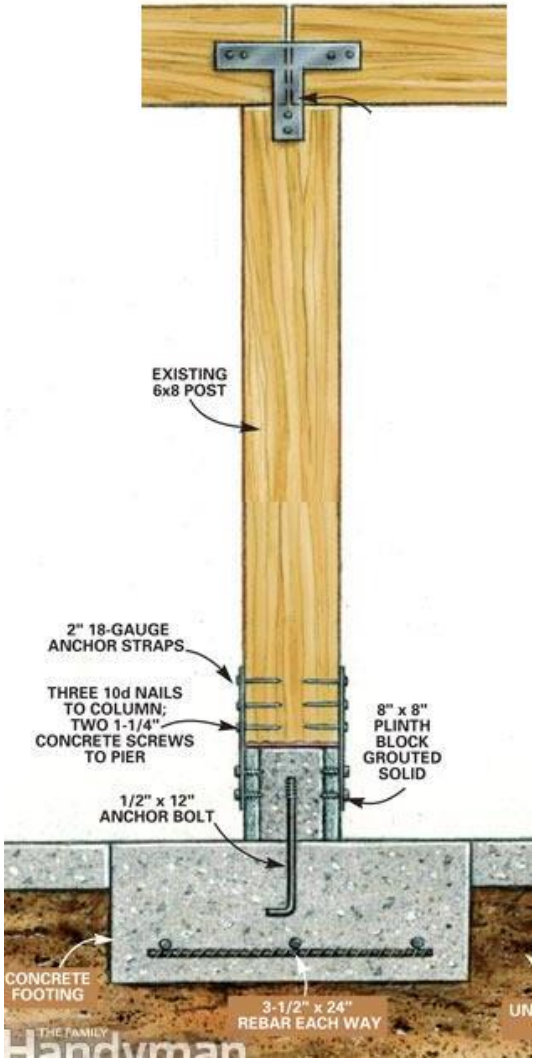
Inductive support

- Outside of mathematics, there are few cases of deductive support (strict logical consequence).
- E.g. The fact that magnesium gains weight when it burns doesn't *logically* entail that the magnesium is bonding with something in the air.

  (Maybe the magnesium is giving off phlogiston, which has negative weight.)
- Here we have *inductive* or *probabilistic* support, usually defined as: $P(H \mid E) > P(H)$.

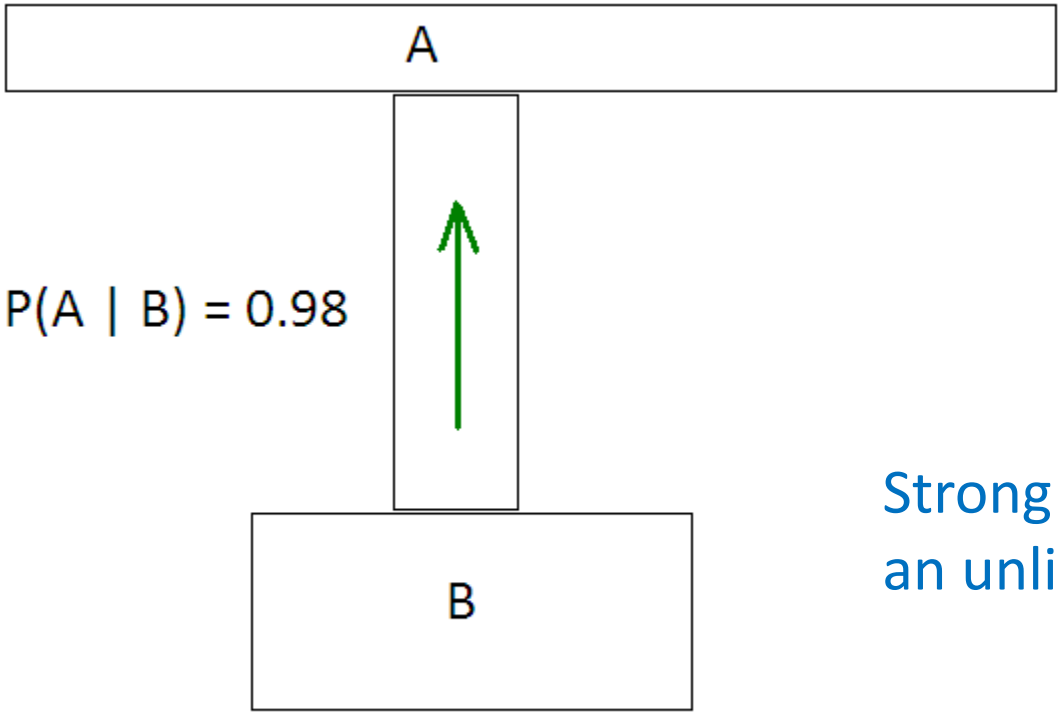
Positive relevance *transfers* justification

- In construction, we say that a column supports a beam, which supports a floor joist, etc.
- Of course a column cannot support anything, unless it is *itself* supported by something else (e.g. a footing).
- Thus we say that a column merely ***transfers*** load from the beam to the footing (i.e. it transfers support from the footing to the beam).



Positive relevance *transfers* justification

- In somewhat similar way, probability theory says that relations of positive relevance *transfer* probability from one belief to another.
- E.g. Suppose P(A | B) is high, say 0.98, so that B is strongly relevant to A.
- Does it follow that A is probable? No. It means only that A is probable *given B*.
- Probability theory says that: $P(A) \geq P(A \mid B).P(B)$, i.e. A high value for P(A | B) means that most of B's probability is transferred to A.



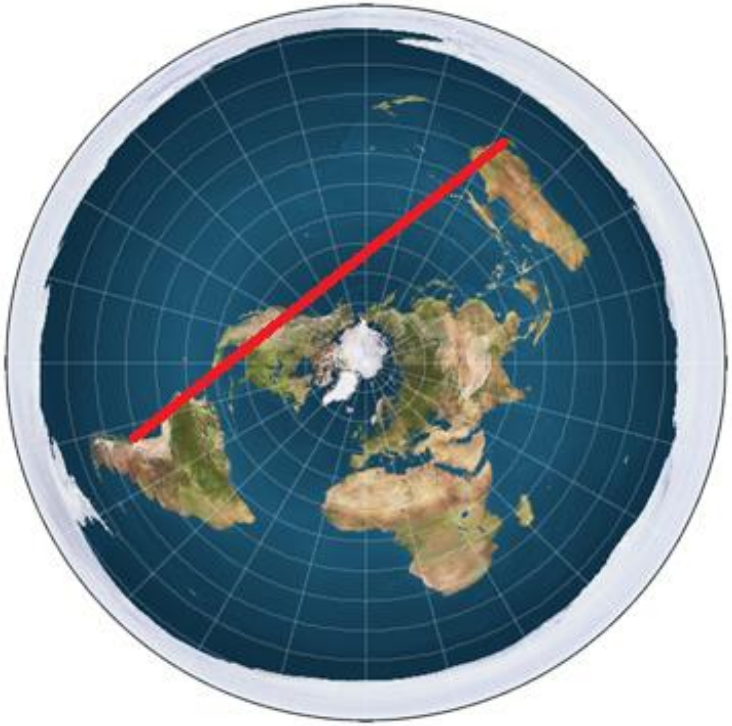
Strong relevance with an unlikely belief

- If P(A | B) = 0.98, then 98% of B's probability is transferred to A.
- But if P(B) = 0.0001, then that ain't much!

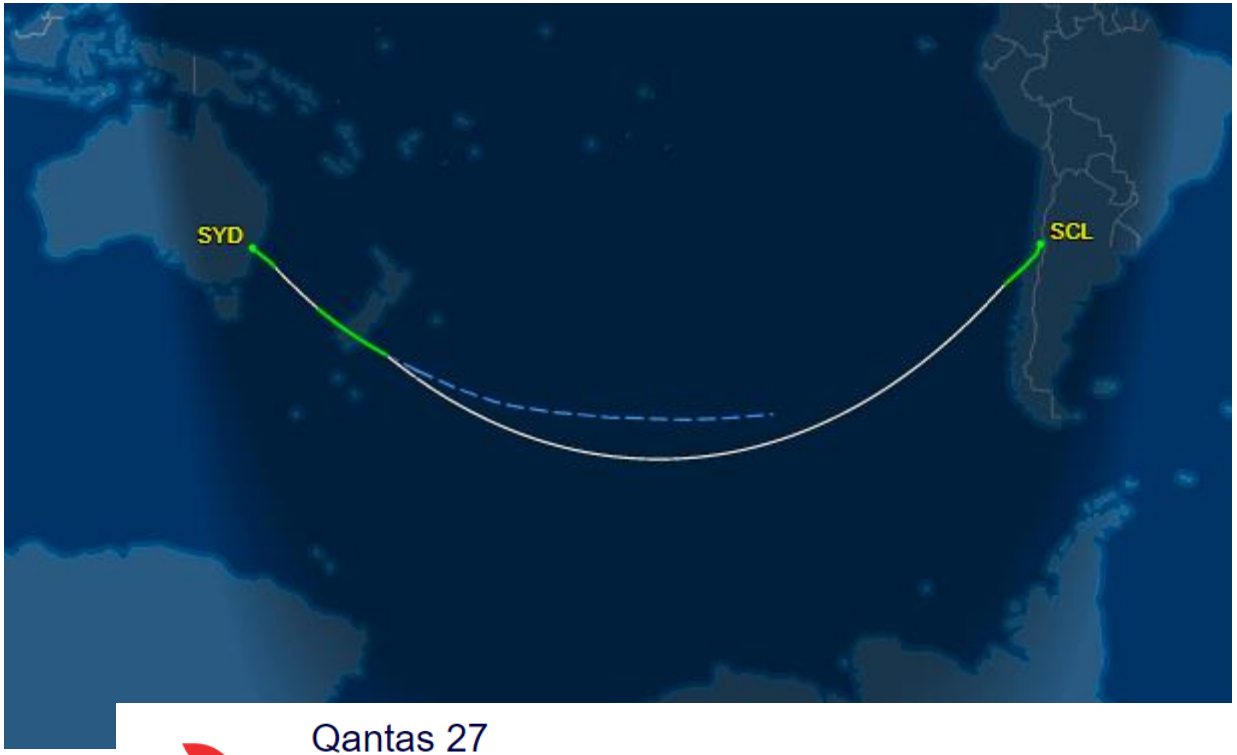
- E.g. the belief that *there are buildings on the hidden side of the moon* is positively relevant to the belief that *the earth has been visited by extra-terrestrials.*

- In a similar way, the fact that B is *negatively* relevant to A (i.e. B undermines A) doesn't entail that A is improbable.

- E.g. the belief that the earth is round is undermined by the belief that the shortest way to fly from Sydney to Santiago is over North America. (About 30 hours flying!)



D’Oh! (11 hours, 25 min flight)



Qantas 27

QFA27 / QF27

Upgrade account to see tail number

ARRIVED 3 HOURS 31 MINUTES AGO

SYD	SCL
SYDNEY, AUSTRALIA	**SANTIAGO, CHILE**
left **GATE 9**	landed at
Sydney - **SYD**	Comodoro Arturo Merino Benitez Int'l - **SCL**
TUESDAY 28-JAN-2020	TUESDAY 28-JAN-2020
02:20PM AEDT (1 hour 35 minutes late)	(35 minutes late) **11:45AM -03**

11h 25m total travel time

Regress Argument

- This idea that positive relevance between beliefs merely *transfers* probability (or justification), and doesn't *create* probability, is the basis of the 'regress argument' for foundationalism.

- If justification isn't created by positive relevance, then somewhere in a person's belief system there must be beliefs that are justified in some other (non-inferential) way.

Justified Basic Beliefs

- B is a **justified *basic* belief** $=_{df}$ B is justified, but is not justified on the basis of any other beliefs.

- A basic belief is analogous to a concrete footing, which is a part of a building that is not supported by any other part of the building.
- Beliefs are generally structured in evidential chains -- analogous to vertical loading chains in buildings.
- Basic beliefs are at the *ends* of such chains.
- Alleged examples of basic beliefs include perceptual beliefs and 'self-evident' logical truths.

Regress argument that JBs exist

1-1. The alternative to JBs is that each justified belief has an evidential chain that either:

(a) terminates in an unjustified belief

(b) is an infinite regress of beliefs

(c) is circular

1-2. (a) is impossible, because inference merely *transfers* justification. An unjustified belief has none to transfer.

1-3. (b) is impossible. No person could have an infinite series of beliefs. (And, again, inference merely *transfers* justification.)

1-4. (c) is impossible, because inference merely *transfers* justification.

1-5. **There are justified basic beliefs** from (1-1) - (1-5).

Foundationalism and Coherentism

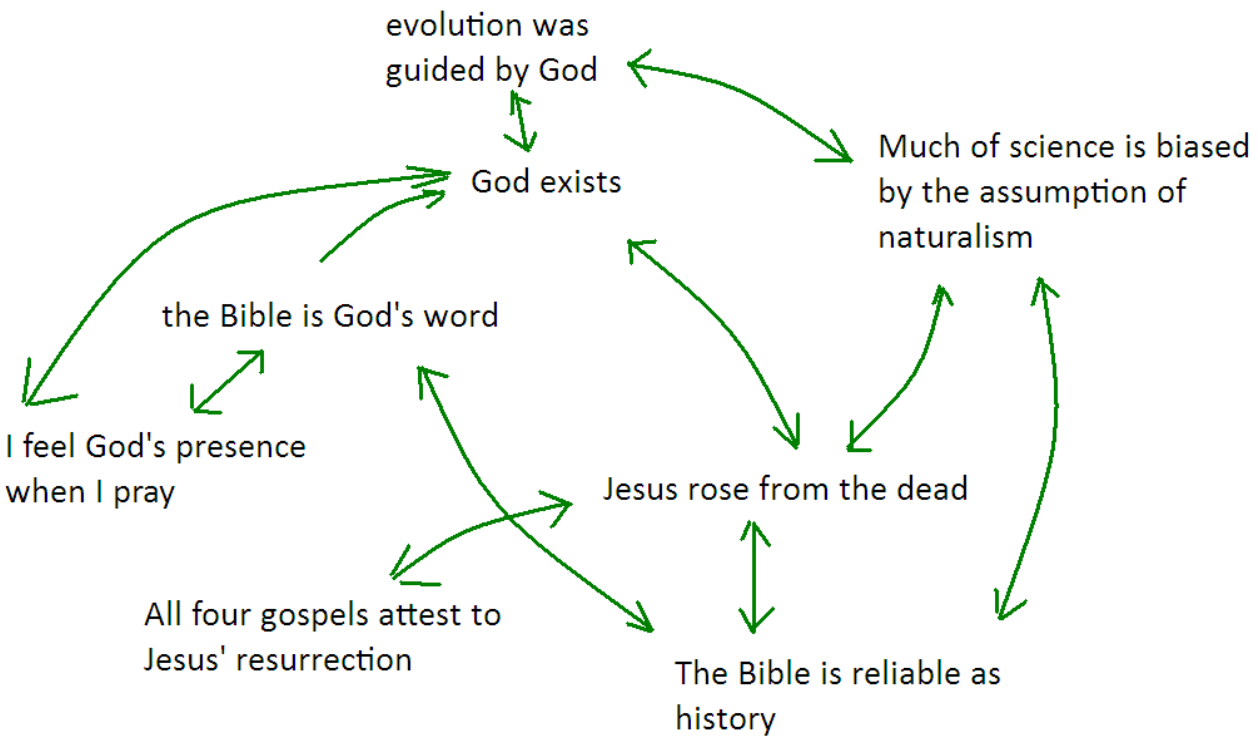
- Foundationalism says that **there are justified basic beliefs**, which serve as a foundation (via positive relevance, or inference) of the rest of the belief system.

- The main competitor of foundationalism is *coherentism*.

- **Coherentism**, the main competitor for foundationalism, denies 1-4 in the regress argument. Fundamentally, *it denies that inference merely transfers justification*. An interlocking web of supporting inferences actually *creates* justification.

Does coherence *create* probability?

- A system of beliefs that is mutually supporting is said to be *coherent*. One can picture a coherent belief system as a complex web of beliefs, each of which supports many other beliefs in the web, either directly or indirectly.



Cartesian (or "classical") foundationalism

- Justified basic beliefs must be *infallible*, e.g.:
  - beliefs about our own conscious states
  - Self-evident logical truths
  - Not much else!
- Inferential support must be *deductive*.
  - *A* deductively supports *B* iff P(*B* | *A*) = 1.

- *S*'s belief that *P* at *t* is infallible if S's believing *P* at *t* entails that *P* is true.

An odd argument …

"We can see the connection between infallibility and foundational status. If a belief was fallible, then it might be wrong. If it might be wrong, one would need some assurance that it's correct. Otherwise, there would be no difference between an acceptable belief and an unacceptable guess. But there won't be other acceptable beliefs providing evidence in its favour if the belief is basic. So the only way a basic belief can be acceptable, it seems, is if it's infallible."

- Martin, Ch. 5.

Problems with classical foundationalism

1. So *few* beliefs are infallible that not much can be supported by them.
   - E.g. How do we infer (with certainty!) the nature of the external world from our own conscious states?
   - (Are we even infallible about our own conscious states?)

Problems with classical foundationalism

2. Justifying beliefs about the external world, by support from beliefs about our conscious experience, is **a very odd thing to do**.
   - "People rarely base their beliefs about the external world on beliefs about their own inner states."
   - E.g. "I am now seeming to see something chair-like"

3. The requirement of *deductive* support is way too restrictive.
   - In actual cases of human knowledge, beliefs are supported inductively – at best – by the empirical evidence.

Coherentism

Coherentists endorse the following two central ideas:

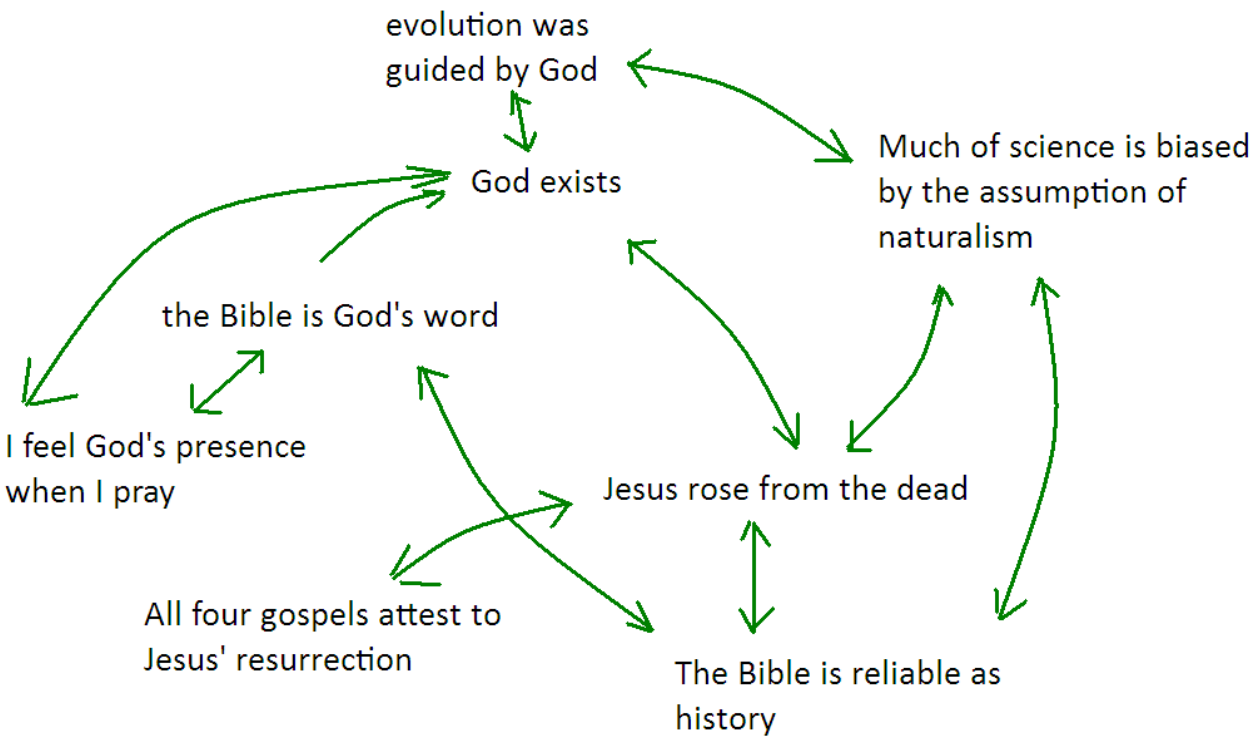
Cl. Only beliefs can justify other beliefs. Nothing other than a belief can contribute to justification.

C2. Every justified belief depends in part on other beliefs for its justification. (There are no justified basic beliefs.)

(Feldman, p. 61)

Justification arises “from the web”

CT3. S is justified in believing p iff the coherence value of S’s system of beliefs would be greater if it included a belief in p than it would be if it did not include that belief.



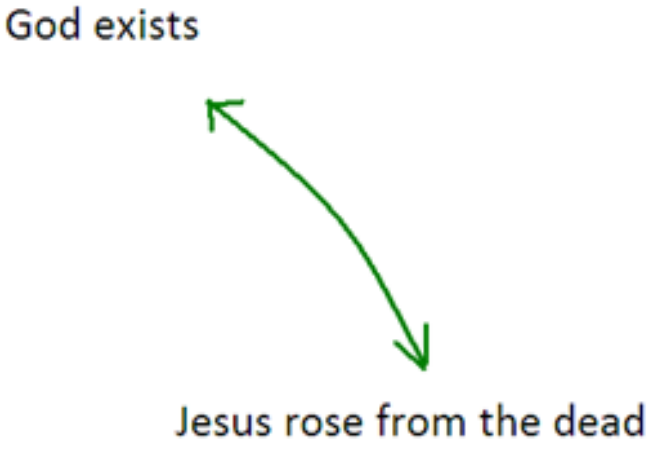
Coherentism

- Coherentism says that justification is a *(w)holistic* property of belief systems.

"… inferential justification, when properly understood, is ultimately nonlinear or *holistic* in character, with all of the beliefs involved standing in relations of mutual support, but none being justificationally prior to the others. In this way, it is alleged, any objectionable circularity is avoided." (BonJour, p. 189.)

Coherentism

- "coherentists emphasize that the support beliefs give to each other **can go in both directions**: if S's belief that p justifies S's belief that q, then to some extent, it will work the other way too, with S's belief that q justifying S's belief that p." (Martin)



Advantages of coherentism

1. There is no need for basic beliefs, which many see as problematic.
   - Internalists in particular have trouble accepting them
2. The proposed basic beliefs of even modest foundationalists (i.e. ones that arise from perception) don't seem to provide a sufficient foundation for our scientific knowledge.
   - This is the "problem of induction".

Objections to coherentism

- The Alternative Systems Objection
  - "there will always be many, probably infinitely many, different and incompatible systems of belief which are equally coherent."
  - (E.g. the flat earth system)

- The Isolation Objection
  - How does coherentism properly respect the "data of experience"? Respect for truth requires that perceptual beliefs are given special authority, as (almost) irresistible.
  - But to give them such status would effectively make them basic.

Alternative systems

- "Coherence is, of course, a virtue for systems of belief: we wouldn't want our beliefs to be radically inconsistent, or with large isolated areas, unconnected by explanatory or inferential links with the rest.
- But any number of mutually incompatible but internally coherent belief-webs can be cooked up; more than one of these coherent webs can't be true …
- This shows … that while coherence may be necessary for justification, it can't be sufficient. **Justification has to have something to do with connecting beliefs to the outside world**, but coherence pays no attention to this matter.

Fixed vs. drifting continents?

- Martin brings up the two geological paradigms, fixism and mobilism, from 1915 – 1960.
  - "… competing, incompatible but internally coherent webs can – and do – coexist, at least for a while."

- Does this case help coherentists to answer the Alternative Systems objection?

Isolation problem

- “Why couldn’t a system of beliefs be perfectly coherent while nonetheless entirely impervious to any sort of influence or input from external reality, thus being completely isolated from it?”
- E.g. we could (coherently) regard all perceptual experiences as illusions, and give them no weight or authority at all.

The Asch conformity experiment

- In the Asch conformity experiment, one could regard one's own visual perception as unreliable, and so follow the majority opinion.
  - But would the resulting beliefs be justified/warranted?

A question for coherentists:

- How do you give perceptual beliefs their proper respect and authority, i.e. their (almost) non-negotiable status, without making them basic?

N.B. Cause ≠ justifier

- To solve the isolation problem, the coherentist needs their belief system to be constrained by the real world.
- Of course the real world *causes* perceptual beliefs, and thus our belief system has a kind of 'input' from reality.

"But [the coherentist] must insist that merely being produced in this way gives them no special justificatory status, so that their justification has to be assessed on the same basis as that of any other belief, namely by how well they fit into a coherent system of beliefs. …

…Thus, according to this sort of view, a belief that is a mere hunch or is a product of wishful thinking or even is just arbitrarily made up, but that coheres with a set of other beliefs (perhaps arrived at in the same ways!), will be justified; while a perceptual belief that is not related in this way to other beliefs will not be."
(BonJour, pp. 190-1)

Somehow the coherentist needs to give some sort of authority to perceptual beliefs, to give them extra weight, without saying that the beliefs are justified by the way that they're caused.

BonJour's suggestion

- The belief system includes a *general* belief, e.g. :

Observational beliefs are generally true

Such beliefs give a privileged status to observational beliefs. But what justifies such general beliefs?

"… this general belief is in turn supported from within the system of beliefs by **inductive inference** from many apparently true instances of beliefs of this kind (with the alleged truth of these instances being in turn established by various specific inferences falling under the general heading of coherence)." (p. 190)

BonJour's objection

An essential component of all of this is the idea that **the observational status of a belief can be recognized *in a justified way* from within the person's system of beliefs**, for only then could this status be used as a partial basis for the justification of such a belief, …

Here again, recognizing that a belief is a result of sensory observation rather than arbitrary invention is at least reasonably unproblematic from a foundationalist standpoint that can invoke immediate experience. But for a coherentist, the basis for such a recognition can only be the further belief, itself supposedly justified by coherence, that a given belief has this status. And then there is no apparent reason why the various alternative coherent systems cannot include within themselves *beliefs* about the occurrence of various allegedly observational beliefs that would not conflict with and indeed would support the other beliefs in such a system, with these supposed observational beliefs being justified within each system in the way indicated above. (p. 195)

Further objections to coherentism

- If justification depends on the 'degree of coherence' of your belief system, then we need a clear measure of this. We don't have one.
  - "Thus practical assessments of coherence must be made on a rather ill-defined intuitive basis, making the whole idea of a coherentist epistemology more of a promissory note than a fully specified alternative." (BonJour, p. 194)

- An *internalist* coherentist needs *internal access* to her own belief system, to know how coherent it is. It's hard to see how such **reflective beliefs about their own belief system** can be justified by coherence alone. (p. 194)

Modest (or ‘weak’) foundationalism

- Modest foundationalism:
  - Basic beliefs are ordinary perceptual beliefs *about the external world* (not our own experiences)
  - Basic beliefs can be justified/warranted, and also *fallible*
  - Non-basic beliefs are justified if they are *inductively supported* by justified basic beliefs. (Deductive support isn’t needed.)

- E.g. non-basic beliefs are supported by “inference to the best explanation”

Question for modest foundationalists:

- When are non-inferential (i.e. “spontaneous”) beliefs justified?
  - (Surely they’re not *all* justified?)

- Feldman: A spontaneously formed belief is justified provided it is a **proper response** to experiences and it is **not defeated** by other evidence the believer has.

Response?

- Feldman: “The modest foundationalist idea, then, is that *experiences themselves* can be evidence”

- I.e. having a perceptual belief that is a “proper response” to a perceptual experience is enough for the belief to be justified.
- **You don’t need evidence** for the reliability of your cognitive systems.

- Doesn’t this sound a bit externalist?

Donald Davidson isn't having that!

"The relation between a sensation and a belief cannot be logical, since sensations are not beliefs or other propositional attitudes [that is, are not formulated in conceptual terms]. What then is the relation? The answer is, I think, obvious: the relation is causal. Sensations cause some beliefs and in *this* sense are the basis or ground of those beliefs. But a causal explanation of a belief does not show how or why the belief is justified."

"A Coherence Theory of Truth and Knowledge." In *Truth and Interpretation: Perspectives on the Philosophy of Donald Davidson,* edited by Ernest Sosa, p. 311. 1986.

Externalism and modest foundationalism

- Modest foundationalism is much easier for externalists, for whom a belief *is* justified (or warranted) by its causes.
  - Causal theory
  - Reliabilism
  - Engineering standpoint

Can coherence create probability?

- Probability theory says that if a pair of beliefs {A, B} is coherent, then this will increase the probability of (A&B).
  - I.e. P(A & B) > P(A).P(B), if A and B are mutually positively relevant.
  - N.B. The coherence of {A, B} adds probability to A&B, but not to A individually, or to B. **It's a 'holistic' effect**.

Coin of unknown bias

- A coin is strongly biased (say a 90% chance for one outcome, 10% for the other).
- We *know* it's biased, but we *don't know* which way.
  - we don't know whether heads or tails is the more likely outcome.
- What are $P_K(\text{head})$ and $P_K(\text{tail})$ on the first toss?
  - $P_K(\text{head}_1) = 0.5$, and $P_K(\text{tail}_1) = 0.5$
- What are $P_K(\text{head})$ and $P_K(\text{tail})$ on the second toss?
  - $P_K(\text{head}_2) = 0.5$, and $P_K(\text{tail}_2) = 0.5$
- What is $P_K(\text{head}_1 \,\&\, \text{head}_2)$? $P_K(\text{head}_1 \,\&\, \text{tail}_2)$?
  - $P_K(\text{head}_1 \,\&\, \text{head}_2) = 0.405$, $P_K(\text{head}_1 \,\&\, \text{tail}_2) = 0.095$

Crossword analogy – Susan Haack

- Think about a crossword puzzle. Suppose you write down an answer next to each clue, **but don't put the answers into the grid**. How likely is it that they're all true?
  - Now suppose you enter the words into the grid, and they're all coherent. How likely is it *now* that they're all correct?

Across

1. Cook on gridiron	grill
4. Work with shovel	dig
6. Belonging to us	ours
7. Repeated another time	again
8. Small insect	ant
9. 10 cent coin	dime
11. Frozen precipitation	snow
14. Food tin	can
15. Grayish green	olive
17. Hooting bird	owl
18. Sticky black substance	tar
19. A lollipop	sucker

(N.B. In a crossword puzzle *every belief is basic*, in the sense of getting some non-inferential justification.)

- Right. We're more confident of a set of entries if *they all fit together*.
  - N.B. support between words seems to *go in both directions here*.

- Why is this?

- Does it mean that coherence between a set of beliefs creates justification (= high epistemic probability)?

C. I. Lewis and independent witnesses

- A number of witnesses report the same thing about some event – for example, that Nancy was at last night's party. Now, the witnesses are individually somewhat unreliable about this sort of thing. However, their reports are made completely independently of one another – in other words, the report of any one witness was in no way influenced by the report of any of the other witnesses.
- According to Lewis, the "congruence of the reports establishes a high probability of what they agree upon." (p. 246)

Justification “from scratch”?

- N.B. In this case of independent witnesses, we said that each witness is somewhat unreliable, but their testimony is at least *some* evidence (however weak) for the claim in question.

- Could coherence create justification “from scratch”, i.e. *purely* from the coherence of claims, that individually have no evidential value at all?

- Let A be some event.
- Proposition E_1 says that witness #1 affirms that A occurred
- Proposition E_2 says that witness #2 affirms that A occurred

- Conditional Independence (CI): $P(E_2 \mid E_1 \,\&\, A) = P(E_2 \mid A)$
  $P(E_2 \mid E_1 \,\&\, \neg A) = P(E_2 \mid \neg A)$

- Nonfoundationalism (N) $P(A \mid E_1) = P(A)$
  (each *single* witness has no evidential value) $P(A \mid E_2) = P(A)$

- [Coherence Justification (CJ) $P(A \mid E_1 \,\&\, E_2) > P(A)$].
  (together, the witnesses have evidential value)

- However, (CI) and (N) entail that $P(A \mid E_1 \,\&\, E_2) = P(A)$. So **there is no justification from scratch**.

Multiple, *slightly* evidential witnesses

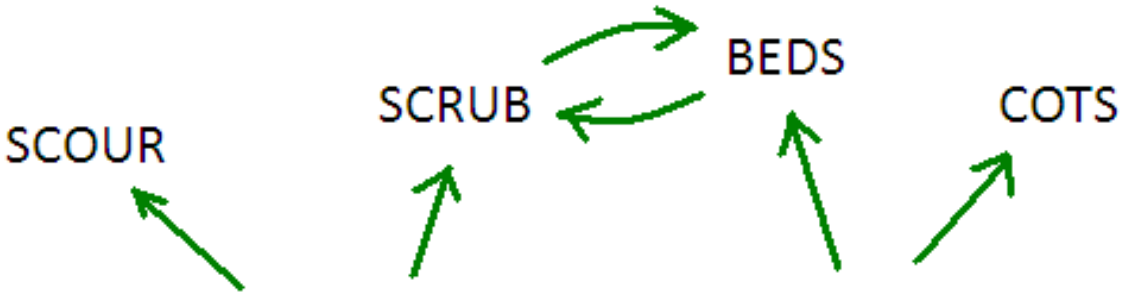
- **But** … if the witnesses are unbiased, and each have *a little* epistemic value on their own, then coherence between such witnesses is significant. E.g. suppose:

- A is an unlikely event: $P(A) = 0.01$
- 3 witnesses are all unbiased: $P(E_1) = P(E_2) = P(E_3) = P(A)$
- Independent: $P(E_1 \& E_2 \& E_3 \mid A) = P(E_1 \mid A)P(E_2 \mid A)P(E_3 \mid A)$
- Each witness has slight evidential value: $P(A \mid E_i) = 0.05$

- Then $P(A \mid E_1 \& E_2 \& E_3) = 0.59$.

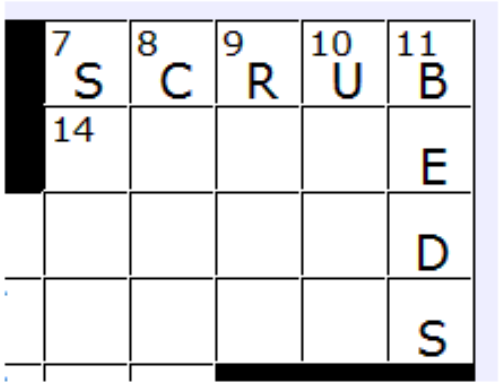
Foundation + Coherence = justification !!

Can foundationalists find a role for coherence?



7. Clean thoroughly

11. Berths



Across:

7. Clean thoroughly
14. Bring about

Down:

7. Play parts
8. Cuban leader
9. Pretense
10. Operator
11. Berths

Coherence widens the foundational base?

- In crossword puzzles, coherence seems to result in a single entry being supported (indirectly) by *several different clues*.

- In C. I. Lewis's case of multiple unreliable witnesses, we also saw that coherence creates probability only when there's a little bit of support already.

- Arguably, the epistemic virtue of coherence can only be understood in foundationalist terms!

Does the architectural metaphor work?

- Is there an architectural situation that matches the crossword puzzle?
- Suppose you're building a structure on swampy, unreliable ground. If you pour a dozen footings, then probably 3-4 will sink and disappear, but it's hard to predict which ones will do that.

By building a coherent (rigid) structure, this is no problem?