

Hume's Central Principles

4. Hume on Induction



Peter Millican
Hertford College, Oxford

4(a)

From the Idea
of Causation
to Induction

A
T R E A T I S E
O F
Human Nature :
B E I N G
AN ATTEMPT to introduce the ex-
perimental Method of Reasoning
I N T O
M O R A L S U B J E C T S .

*Rara temporum felicitas, ubi sentire, quae velis ; & quae
sentias, dicere licet.* TACIT.

V O L. I.

O F T H E
U N D E R S T A N D I N G .

L O N D O N :

Printed for JOHN NOON, at the *White-Hart*, near
Marcet's-Chapel, in *Cheapside*.

M D C C X X X I X .

1739

The Idea of Causation

- To understand reasoning to the unobserved (i.e. *probable* reasoning, though Hume has not yet used the term), “we must consider the idea of *causation*, and see from what origin it is deriv’d” (*T* 1.3.2.4).
- The search for the origin of this idea will shape the remainder of *Treatise* 1.3.
- There is no specific quality that characterises causes and effects, so it must be some *relation* between the two. (*T* 1.3.2.5-6)

Contiguity and Priority

- We find causes and effects to be *contiguous* in space and time (*T* 1.3.2.6), though a footnote hints at a significant reservation (explored in *T* 1.4.5 which points out that many perceptions have no spatial location).
- We also find causes to be *prior* to their effects (*T* 1.3.2.7), though again Hume seems to indicate that this isn't a particularly crucial matter (*T* 1.3.2.8).
- There still seems to be something missing ...

Necessary Connexion

- There follows a famous passage, which is commonly misunderstood:

“Shall we then rest contented with these two relations of contiguity and succession, as affording a compleat idea of causation? By no means. An object may be contiguous and prior to another, without being consider'd as its cause. There is a NECESSARY CONNEXION to be taken into consideration; and that relation is of much greater importance, than any of the other two above-mention'd.” (*T* 1.3.2.11)

To Neighbouring Fields

- Hume is looking for the crucial extra component (*beyond single-case contiguity and succession*) that makes up our idea of cause and effect
- It seems elusive, so he proceeds like those who “beat about all the neighbouring fields, without any certain view or design, in hopes their good fortune will at last guide them to what they search for” (*T* 1.3.2.13).
- There are two such fields ...

The Causal Maxim

- The first field is the Causal Maxim:
 - “Tis a general maxim in philosophy, that *whatever begins to exist, must have a cause of existence*” (*T* 1.3.3.1)
- Hume argues that this is neither intuitively nor demonstratively certain (*T* 1.3.3.1-8)
- “Since it is not from knowledge or any scientific reasoning, that we derive [this] opinion ..., [it] must necessarily arise from observation and experience. ... (*T* 1.3.3.9)

Leading Up to Induction

- *Treatise* 1.3.4 argues that causal reasoning, if it is to result in real belief, must start from something perceived or remembered.
- *T* 1.3.5.1 sets out a corresponding agenda:
“Here therefore we have three things to explain, viz. *First*, The original impression. *Secondly*, The transition to the idea of the connected cause or effect. *Thirdly*, The nature and qualities of that idea.”

“Of the impressions of the senses and memory”

- The title of *Treatise* 1.3.5 seems odd, since memory presents *ideas*, not *impressions*.
- But Hume’s main point here is that the perceptions of the senses and memory are alike in being more *strong and lively* – having more *force and vivacity* – than the ideas of the imagination.
- That force and vivacity, apparently, is what enables them to act as a “foundation of that reasoning, which we build ... when we trace the relation of cause and effect” (*T* 1.3.5.7)

Recap – the road to *Treatise*

1.3.6

- Recall Hume's aim here:
 - He is seeking to understand our idea of necessary connexion (cf. *T* 1.3.2.11).
 - This leads him to ask “Why we conclude, that ... particular causes must necessarily have ... particular effects, and why we form an inference from one to another?” (*T* 1.3.3.9).
 - The key part of this process is “the inference from the impression to the idea” (cf. *T* 1.3.5.1); call this “causal inference” for short.

4(b)

The Argument concerning Induction

A
T R E A T I S E
O F
Human Nature :
B E I N G
AN ATTEMPT to introduce the ex-
perimental Method of Reasoning
I N T O
M O R A L S U B J E C T S .

*Rara temporum felicitas, ubi sentire, quae velis ; & quae
sentias, dicere licet.* TACIT.

V O L. I.

O F T H E
U N D E R S T A N D I N G .

L O N D O N :

Printed for JOHN NOON, at the *White-Hart*, near
Mercer's-Chapel, in *Cheapside*.

M D C C X X X I X .

1739

The Famous Argument (×3)

- *Treatise* 1.3.6 contains the famous argument concerning induction, though Hume doesn't seem entirely to appreciate its significance – it is mainly a staging post in his search for the origin and nature of our idea of causation.
- In the *Abstract* of 1740 it is elevated to a much more prominent position, as the centre-piece of Hume's "Chief Argument".
- The fullest and clearest version is in the first *Enquiry*, Section 4.

Streamlining the Argument

- In the *Treatise*, Hume's focus is on *causal* inference "from the impression to the idea".
- In the *Abstract and Enquiry*, he broadens it to ask about the foundation of "all reasonings concerning *matter of fact*" (A 8):

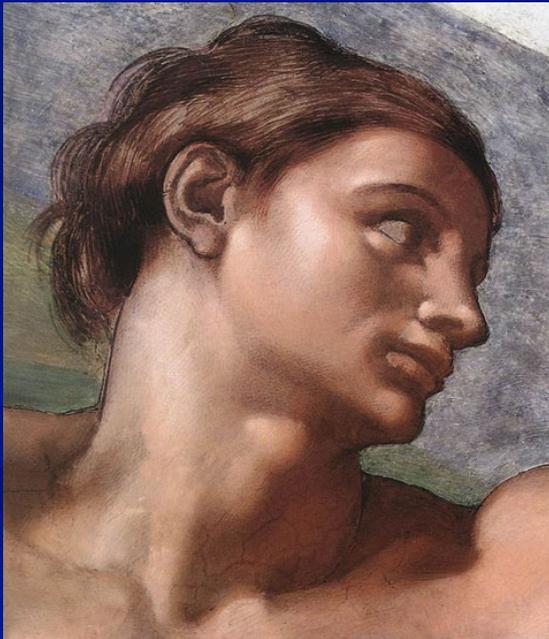
"What is the nature of that evidence, which assures us of any real existence and matter of fact, beyond the present testimony of our senses, or the records of our memory." (E 4.3)
- His first point is that all such [inductive] inference depends on *causal* relations (A 8, E 4.4).

Causal Inference Is Not A Priori (1)

- In the *Treatise*, Hume starts from causal inference, arguing that this cannot be a priori, just because we can *conceive* of things coming out differently (*T* 1.3.6.1).
- Here he evinces the [common, but not obvious] assumption that any a priori inference would have to yield complete certainty.
- “’Tis therefore by EXPERIENCE only, that we can infer the existence of one object from that of another” (*T* 1.3.6.2).

A Thought Experiment

- In the *Abstract and Enquiry*, Hume imagines Adam, newly created by God, trying to envisage the effect of a billiard-ball collision:



- how could he possibly make any prediction at all in advance of experience?



Causal Inference Is Not A Priori (2)

- Here also Hume's subsequent argument is stronger, because he doesn't rely just on *conceivability*, but puts more emphasis on *arbitrariness*:

“Were any object presented to us, and were we required to pronounce concerning the effect, which will result from it, without consulting past observation; after what manner, I beseech you, must the mind proceed in this operation? It must invent or imagine some event, which it ascribes to the object as its effect; and it is plain that this invention must be entirely *arbitrary*. ...” (E 4.9)

Experience and Constant Conjunction

- The kind of experience on which causal inference is based is repeated patterns of one thing, *A*, followed by another, *B*:
 - “Without any farther ceremony, we call the one *cause* and the other *effect*, and infer the existence of the one from that of the other.” (*T* 1.3.6.2)
- “Thus ... we have ... discover’d a new relation betwixt cause and effect, when we least expected it ... This relation is their **CONSTANT CONJUNCTION.**” (*T* 1.3.6.3)

“Perhaps ’twill appear in the end ...”

- The capitalisation in *T* 1.3.6.3 clearly links back to *T* 1.3.2.11, as does the text:

“Contiguity and succession are not sufficient to make us pronounce any two objects to be cause and effect, unless ... these two relations are preserv’d in several instances [i.e. there’s a constant conjunction].”
- But how can this give rise to the new idea of necessary connexion? Anticipating *T* 1.3.14.20,

“Perhaps ’twill appear in the end, that the necessary connexion depends on the inference, instead of the inference’s depending on the necessary connexion”.

A Question of Faculties

- Since causal reasoning from [impression of] cause *A* to [idea of] effect *B* is founded on “past *experience*, and ... remembrance of ... *constant conjunction*” (*T* 1.3.6.4),
 - “the next question is, whether experience produces the idea [of the effect *B*] by means of the **understanding** or **imagination**; whether we are determin’d by **reason** to make the transition, or by a certain association and relation of perceptions?”
- Hume will now argue that it can’t be reason.

The Need for Extrapolation

- [All inference to matters of fact beyond what we perceive or remember seems to be based on causation, and] all our knowledge of causal relations comes from experience.
- Such learning from experience takes for granted that observed phenomena provide a guide to unobserved phenomena.
- We thus *extrapolate* from past to future on the assumption that they resemble. But do we have a rational basis for doing so?

UP: The Uniformity Principle

- Hume then focuses on the principle (UP) presupposed by such extrapolation:
 - “If reason determin’d us, it wou’d proceed upon that principle, *that instances of which we have had no experience, must resemble those of which we have had experience, and that the course of nature continues always uniformly the same.*” (T 1.3.6.4)
 - This seems *conditional*: *IF* reason is involved, *THEN* it must be based on this principle.
 - But later: “probability *is* founded on the presumption of a resemblance ...” (T 1.3.6.7)

UP in the *Enquiry*

- In the *Enquiry* is less explicitly stated:
 - “all our experimental [experiential] conclusions proceed upon the supposition, that the future will be conformable to the past”. (*E* 4.19)
 - No suggestion of conditionality (cf. also *E* 5.2: “in *all* reasonings from experience, *there is a step taken by the mind*” corresponding to UP).
 - Vaguer than original *Treatise* UP, and so more plausible: we expect the future to “resemble” (*E* 4.21) the past, but not copy exactly.

The Role of the Uniformity Principle

- Hume need not be suggesting that we think of UP *explicitly* when making inductive inferences (and *T* 1.3.8.13 says typically we don't).
- Rather, in making an inductive inference, we *manifest* the assumption of UP, in basing our inferential behaviour on past experience.
 - So inferring from past to future is *ipso facto* treating “the past [as a] rule for the future” (cf. *E* 4.21)
 - Hence the question arises: *can this assumption be founded on reason*, or is there some other explanation for why we make it?

Can UP be Founded on Argument?

- After stating UP in the *Treatise*, Hume immediately continues:

“In order therefore to clear up this matter, let us consider all the arguments, upon which such a proposition may be suppos’d to be founded; and as these must be deriv’d either from *knowledge* or *probability*, let us cast our eye on each of these degrees of evidence, and see whether they afford any just conclusion of this nature.” (T 1.3.6.4)

- By *knowledge*, Hume means *demonstration*, as becomes evident in the next sentence.

- Both forms of argument are quickly ruled out, *demonstration* by the Conceivability Principle:

“We can at least conceive a change in the course of nature; which ... proves, that such a change is not absolutely impossible [and thus] a refutation of any pretended demonstration against it.” (*T* 1.3.6.5)

- And *probable* argument by circularity:

“probability ... is founded on the presumption of a resemblance betwixt those objects, of which we have had experience, and those, of which we have had note; and therefore 'tis impossible this presumption can arise from probability.” (*T* 1.3.6.7)

(Hume first argues, at *T* 1.3.6.6-7, that probable argument is causal and hence dependent on UP.)

Enquiry More Complete

- At *T* 1.3.6.4, Hume assumes that *demonstration* and *probability* are the only possible foundations for UP; but in the *Enquiry*, he also rules out *sensation* and *intuition*:

“there is no known connexion between the sensible qualities and the secret powers; and consequently, ... the mind is not led to form such a conclusion concerning their constant and regular conjunction, by any thing which it knows of their nature.” (*E* 4.16)

“The connexion ... is not intuitive.” (*E* 4.16)

The “Sceptical” Conclusion

“even after experience has inform’d us of [causal] *constant conjunction*, ’tis impossible for us to satisfy ourselves by our reason, why we shou’d extend that experience beyond those particular instances, which have fallen under our observation.” (*T* 1.3.6.11)

“even after we have experience of the operations of cause and effect, our conclusions from that experience are *not* founded on reasoning, or any process of the understanding” (*E* 4.15)

“in all reasonings from experience, there is a step taken by the mind, which is not supported by any argument or process of the understanding” (*E* 5.2)

Argument Summary (in 2 Slides)

- The essential logic of the argument can be represented using the “founded on” relation (FO), together with:

p Probable inference (to the unobserved)

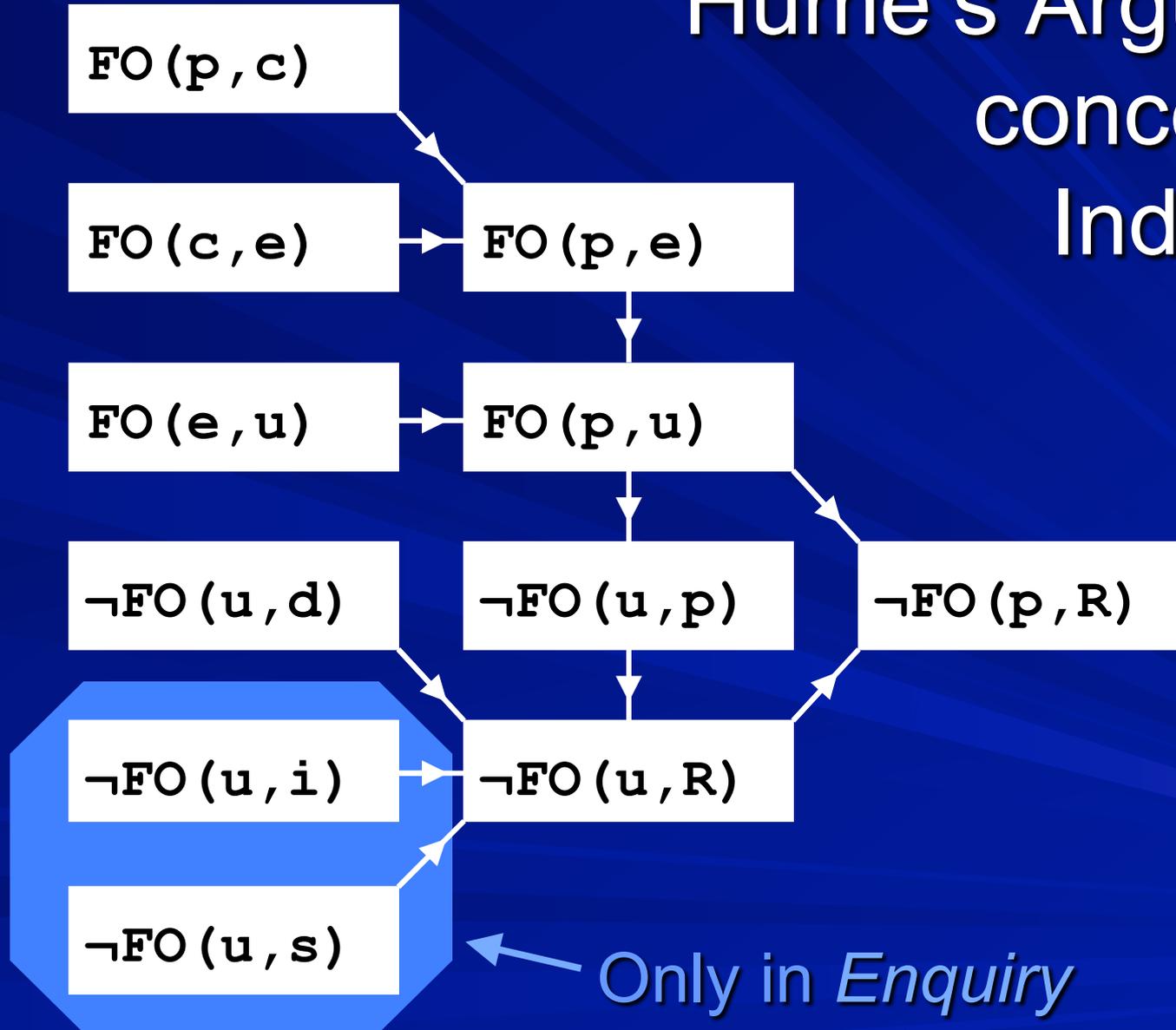
c Causal reasoning

e (Reasoning from) Experience d Demonstration

u Uniformity Principle i Intuition

R Reason s Sensation

Hume's Argument concerning Induction



Four “Kinds of Evidence” (Again)

- So the *Enquiry* argument implicitly reasons:

$\neg\text{FO}(u,s) \ \& \ \neg\text{FO}(u,i) \ \& \ \neg\text{FO}(u,d) \ \& \ \neg\text{FO}(u,p) \ \rightarrow \ \neg\text{FO}(u,R)$

If UP isn't founded on sensation, intuition, demonstration or probable inference, then it isn't founded on Reason.

- Compare this passage from Hume's *Letter from a Gentleman* (1745):

“It is common for Philosophers to distinguish the Kinds of Evidence into *intuitive*, *demonstrative*, *sensible*, and *moral*”

Debating Hume's Argument

- A catalogue of recent interpretations:
 - Flew 1961, Stove 1965/73: **deductivism**;
 - Stroud 1977: **extreme scepticism**;
 - Beauchamp & Mappes 1975, Winters 1979, B'p & Rosenberg 1981, Arnold 1983, Broughton 1983, Craig 1987, Baier 1991: **refuting deductivism (hence “anti-deductivist”)**;
 - Millican 1995/2002: **anti-perceptual-insight**;
 - Garrett 1997: **not founded on *reasoning***;
 - Owen 1999: **anti-stepwise-inference**;
 - Millican 2011: **not founded on *cognition***.

What Does “Reason” Mean?

- By far the most significant distinction between these interpretations is in terms of their view of “reason” or “the understanding”:
 - Flew, Stove: deductive reasoning only
 - Stroud: traditional “self-conscious” conception
 - Beauchamp *et al.*: deductivist – but rejected
 - Millican 1995: perceptual insight – but rejected
 - Garrett: reason is the *reasoning* faculty
 - Owen: intermediate steps – but rejected
 - Millican 2011: reason is the *cognitive* faculty

Inductive Inferences as “Reason”

“... with regard to *reason* ... The only conclusion we can draw from the existence of one thing to that of another, is by means of the relation of cause and effect ...” (*T* 1.4.2.47)

“... reason, in a strict and philosophical sense, can have an influence on our conduct ... by informing us of the existence of something which is a proper object of [a passion]; or when it discovers the connexion of causes and effects, so as to afford us means of exerting any passion.” (*T* 3.1.1.12)

Reducing the Field

- Hume is not an extreme, indiscriminating sceptic but a keen advocate of inductive science. So unless Hume is radically inconsistent, Flew/Stove/Stroud must be wrong.
- Ruling out a probable foundation for UP would be otiose if “reason” were deductivist, so Beauchamp *et al.* must also be wrong.
- Millican 1995 and Owen face the objection that Hume does not apparently *reject* the view of reason operative in his argument.

Agreeing with Garrett ...

- Don Garrett and I now agree on a fair number of points:
 - Hume’s “reason” is not *ambiguous* (a point on which he stood alone for many years);
 - Hume sees no obligation to prove our faculties reliable a priori (rejecting the burden of proof implied by “antecedent” scepticism – *E* 12.3);
 - The logic of his argument is incompatible with most previous interpretations (most obviously the deductivist and anti-deductivist).

... Up to a Point

- However the key disagreement remains the nature of Humean “reason”:
 - Garrett says “for Hume [as for Locke], reason is the faculty of reasoning: of making inferences, or providing, appreciating, and being moved by arguments.” (1997, p. 27)
 - I think “reason” is the overall *cognitive* faculty, just another word for “the understanding” or the “intellectual faculties”.
- This is discussed in detail in my 2011 paper, “Hume’s ‘Scepticism’ about Induction”.

“Reason” and “Reasoning”

- We tend to hear “reasoning”, “proof” and “argument” as implying *stepwise* inference or *ratiocination*, but this is anachronistic.
- Johnson in 1756 defines “argument” as:
 - “A reason alleged for or against any thing.”
- A *non-discursive* sense of “reason” is:
 - “Argument; ground of persuasion, motive.”
- And the first sense of “proof” is:
 - 37 – “Evidence; testimony; convincing token.”

“Deduction” and “Ratiocination”

- For *stepwise* inference, Johnson prefers the terms “deduction” and “ratiocination”. He gives as *discursive* senses of “reason”:
 - “The power by which man deduces one proposition from another, or proceeds from premises to consequences.”
 - “Ratiocination; discursive power.”
- The same two terms are used for contrast when defining “intuition” and “intuitive”.

Hume's Usage

- Hume, like Johnson, refers to “deductions” and “ratiocination” in contexts where stepwise argument is clearly intended:
 - *T* 1.3.14.2, *E* 5.22, *M* 1.4; *E* 4.23, *E* 12.17
- He also refers to “arguments” “inference” and “proof” that are “intuitive”:
 - *T* 1.3.14.35, *T* 2.3.2.2, *E* 4.21, *E* 8.22 n. 18
- Hume's own theory of inductive “reasoning” implies that it is not typically stepwise!

Hume's Conclusion (Garrett 1997)

“Hume . . . [is] making a specific claim, within cognitive psychology, about the relation between our tendency to make inductive inferences and our inferential/argumentative faculty: he is arguing that we do not adopt induction on the basis of recognising an *argument* for its reliability . . . this does not mean that inductive inferences are not themselves *instances* of argumentation or reasoning; . . . His point is rather that they are reasonings that are not themselves produced by any piece of higher level reasoning” (pp. 91-2)

What About Intuition?

- One objection to Garrett's position (Millican 1998, p. 151) is that in the *Enquiry*, Hume also rules out *intuition* (which is not *reasoning* in Garrett's sense) as the basis of UP.
- He responded in our *Hume Studies* debate:
“Hume ... in the *Enquiry* ... expands the famous conclusion to rule out any ‘reasoning or process of the understanding,’ thereby eliminating such non-inferential processes of the understanding as intuition ...” (1998, p. 184)

Reason = The Understanding

- But Hume implicitly identifies reason with the understanding in many places, e.g.:

“When the mind [makes an inductive inference] it is not determin’d by reason, but by certain principles, which associate together the ideas of these objects, and unite them in the imagination. Had ideas no more union in the fancy than objects seem to have to the understanding, ...”

(*T* 1.3.6.12)

- See also *T* 1.3.6.4, 1.4.1.1, 1.4.2.46, 1.4.2.57, 1.4.7.7, and compare 2.2.7.6 n. with 1.3.9.19 n.

A Sign of Convergence... ?

- Garrett has now acknowledged that Hume equates “reason” and “the understanding”:

“I grant that Hume roughly interchanges the terms ‘reason’ and ‘understanding’ ... The understanding generally involves the intuition of self-evident truths as well as reasoning ... Peter thinks reason for Hume *blew up* to cover everything that the Lockean understanding did, while I think that in Hume the understanding shrank down to encompass only what reason did, plus intuition.” (2011, pp. 18-19)
- ⁴³To me, this shrinking is historically implausible.

Epistemology or Cognitive Science?

- Garrett's 1997 formulation has a tension:
 - He sees the argument as *cognitive psychology* rather than *epistemology*: concerning the *mechanism* of inductive inference rather than whether or not it can be *justified*.
 - Yet he takes Hume's conclusion to be that “we do not adopt induction on the basis of recognising *an argument for its reliability*, for ... there *is* no argument ... that could have this effect. ... we can literally ‘give no reason’ for our making inductive inferences” (1997, p. 92)

Hume's Conclusion (Garrett 2002)

“Hume ... [is] making a specific claim, within cognitive psychology, about the underlying causal mechanism that gives rise to inductive inference: namely, that it is not itself dependent on any reasoning or inference. ... this does not mean that inductive inferences are not themselves *instances* of argumentation or reasoning; ... His point is rather that they are reasonings which are not themselves *caused* by any piece of reasoning (including, of course, themselves). ” (p. 333)

Induction in General, or Individual?

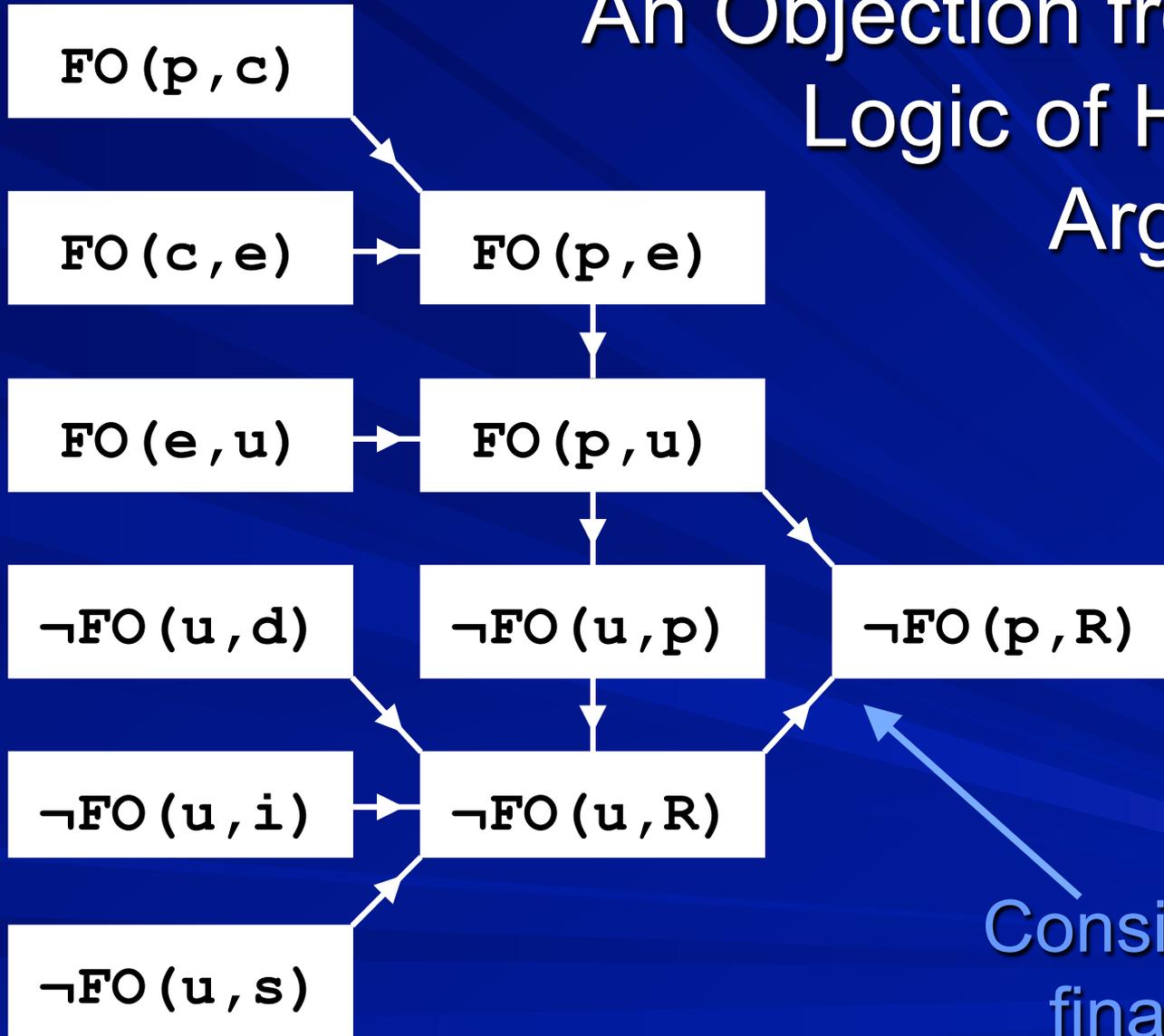
- He also made an important clarification:

“Millican understandably infers that on my interpretation ‘it is only the *general practice* of induction that fails to be determined by reason, and each of our *particular* inductive inferences is itself an instance of the operation of our reason.’ ... The crucial distinction for Hume, however, is ... between an inference being an *instance* of reasoning and the same inference being *caused by* (another instance of) reasoning.” (1998, pp. 180-1)

The Inheritance Problem

- Here the problem for Garrett is to give a plausible precise account of Hume's claim.
- If the claim concerns every individual inductive inference, and is a claim about the *psychological mechanism* involved in such inference (rather than about *epistemological* foundation), then it is unclear why lack of *ratiocinative causation* should be “inherited” by a *later* argument that starts from a previously-taken-as-established *lemma*.

An Objection from the Logic of Hume's Argument



Consider this final step

An Implausible Non-Sequitur

- The final step of Hume's argument makes no sense on Garrett's interpretation:
 - UP plays a role in the causation of probable inference;
 - UP is not itself caused by a process of ratiocination;
 - Therefore probable inference is not caused by any process of ratiocination.
- This is a complete *non-sequitur*. Probable inference could be caused by a process of ratiocination that involves UP!

Further Logical Objections

- If Hume were only concerned to prove that *ratiocination* plays no role in the *causation* of induction (i.e. probable inference), then:
 - His argument would be incomplete, because he does nothing to rule out the possibility that induction could be caused by *bad* argument.
 - Much of his *Enquiry* argument would be redundant, because he would have no need to refute the idea that induction is founded on intuition or sensation.

Arguments Can Be Bad!

- Hume quite often refers to arguments that are fallacious, for example:
 - “can any thing be imagin’ d more absurd and contradictory than this reasoning?” (*T* 1.2.4.11)
 - “Few have been able to withstand the seeming evidence of this argument; and yet nothing ... is more easy than to refute it.” (*T* 1.4.5.30)
 - “I shall not leave it to Philo ... to point out the weakness of this metaphysical reasoning. ... I shall myself ... show the fallacy of it.” (*D* 9.4)

Induction from the Causal Maxim

- Hume refutes various attempted demonstrations of the Causal Maxim, at *T* 1.3.3.4-8.
- But such a would-be demonstration could very naturally be used to support induction, on the ground that if every change must have a cause, then the *ultimate* causal laws must be consistent over time.
- It is hard to see how Garrett's interpretation of Hume's argument can rule this out.

Price on the Causal Maxim and Induction

- Richard Price, in *A Review of the Principal Questions in Morals* (1758), argued like this, taking the Causal Maxim as intuitive:

“The conviction produced by experience is built on the same principle ... Because we see intuitively, that there being some reason or cause of this *constancy of event*, it must be derived from causes regularly and constantly operating ... And the more frequently and uninterruptedly we knew this had happened, the stronger would be our expectation of its happening again” (p. 40 n.)

“Reason is ...”

- “Reason is the discovery of truth or falshood.” (*T* 3.1.1.9)
- “That Faculty, by which we discern Truth and Falshood ... the Understanding” (*E* 1.14, note in 1748/1750 editions)
- “... reason, in a strict sense, as meaning the judgment of truth and falsehood ...” (*DOP* 5.1)
- See also *T* 2.3.3.3, 2.3.3.5-6, 2.3.3.8, 2.3.10.6, 3.1.1.4, 3.1.1.19 n. 69, 3.1.1.25-27, 3.2.2.20, *M* 1.7, *M App* 1.6, 1.21.

“Reason” as Our Cognitive Faculty

- We should take Hume at his word: by “reason” he means our cognitive powers – our discernment or discovery of what is the case, truth or falsehood.
- These powers are generally taken to include memory, sensation, intuition, demonstration, and probable inference.
- Hume shows that none of these can provide a basis for claiming to discern the ongoing truth of the Uniformity Principle.

Induction as Part of Reason ...

- On this interpretation, induction **remains included** amongst the operations of reason, even after Hume has famously concluded that it is “not founded on reason”.
- This rejects the view of Beauchamp, Winters, Baier, Millican (1995) and Owen (etc.) that Hume’s “reason” is ambiguous, switching to a less demanding notion following *T* 1.3.6.
- It agrees with Garrett in rejecting any crude ambiguity (but on a different basis).

... But Not “Founded on Reason”

- How, then, can induction be *part of* reason but yet “not *founded on* reason”?
- What Hume seems to be doing in the case of induction, the external world, and morality is performing a deep analysis of what the relevant human power involves – identifying the conceptual steps that are implicit in its activity – *and then using faculty language (“founded on reason”, “founded on the imagination” etc.) to express those underlying steps.*

A Crucial Step ...

- In performing such analysis, Hume focuses on one particularly vital step or weak link:
 - When investigating induction, he focuses on the crucial step of extrapolation from observed to unobserved which, in effect, supposes a Uniformity Principle between them.
 - In the case of the external world, he focuses on the crucial step that takes us from interrupted sense impressions to our “assurance of the continu’d and distinct existence of body”.

... Which is “Imagination-Like”

- When the underlying step turns out to be “imagination-like” – involving processes such as the communication of vivacity through association or the creation of “fictions” (or, least respectably, the operation of “whimsies and prejudices”) – Hume describes that step as owing to “the imagination”, *even if the step concerned is located, within our cognitive economy, as part of the operation of our reasoning or our senses.*

Reason and the Imagination

- Thus the conclusion of Hume's famous argument concerning induction comes to something like this:

Our cognitive process of inductive inference crucially depends on a sub-process which is *imagination-like* (based on associative extrapolation) rather than *reason-like* (based on apprehension of what is the case).
- Note that this does not prevent induction's retaining its status as a part of our reason.