Hume's Pivotal Argument, and His Supposed Obligation of Reason

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Abstract

Treatise 1.4.1, "Of scepticism with regard to reason", argues that whenever we attempt to assess our probability of error, "we are oblig'd by our reason" to consider also the probability of error in that assessment, leading to a fatal regress which – but for irresistible nature – would extinguish all belief. The argument plays a huge role in the *Treatise*, and has recently attracted many defenders, rejecting the previously standard objection that such iterated reflection need not imply *reduction* of probability. This paper, however, presses a more fundamental objection – *that there is no obligation of reason to iterate in the first place* – something obscured by the failure of previous analyses to focus on specific examples. Unlike the *Treatise*, Hume's *Enquiry* of 1748 is richly illustrated with examples, making it likely that he himself would have encountered these problems. And there are traces in the *Enquiry* of a fundamental change of view, corroborating the significance of this argument for his philosophical development.

Hume's argument in *Treatise* 1.4.1, "Of scepticism with regard to reason", is one of the most important in the entire work, setting an extreme sceptical tone which persists into the Conclusion of Book 1, and delivering a result that appears to wreak havoc there. The significance Hume accords it in 1739 is also witnessed by the number of times that he references or alludes to it in other sections of the *Treatise*.[1] Yet it does not feature in his 1748 *Enquiry concerning Human Understanding*, and became in time (arguably) "the only major argument of Book I of the *Treatise* not repeated in his later writings".[2] Accordingly, it was for many years neglected by scholars, and omitted from most books on Hume, which typically aspired to give a smooth picture of his epistemology that encompassed both the *Treatise* and the *Enquiry*. Other likely factors here were the argument's tension with the "naturalist" view of Hume popularised by Norman Kemp Smith and later Barry Stroud, and its mismatch with the conventional structure of topics (ideas, induction, causation, external world, personal identity, etc.) around which

[1] Hume explicitly refers to this argument no fewer than three times in other sections of the *Treatise* (*T* 1.3.13.5 n. 24, 1.3.13.17 n. 26, and 1.4.7.7 n. 53), and twice implicitly (in the first and last paragraphs of the following section, at *T* 1.4.2.1 and 1.4.2.57). *T* 1.3.13.5 talks of it as exhibiting a "very memorable" point "which is of vast consequence" for the understanding, presumably alluding to its huge significance in the Conclusion of Book 1.

[2] Immerwahr (1979, p. 234), from whom this quote is taken, draws the reasonable conclusion that this gives good "reason for thinking that Hume is dissatisfied with this argument".

many books on Hume have been organised.[3] This neglect, however, came to an end in the 1980s, with three authors – Fred Wilson, Richard DeWitt, and Ted Morris – all seeking to rehabilitate Hume's argument against what they considered to be an overwhelmingly dismissive orthodoxy,[4] and a fourth – Robert Fogelin – treating it fully (and fairly sympathetically) within a major book on Hume's scepticism. Since then, there has been an enduring resurgence of interest in and support for the argument, seemingly putting it on a stronger footing and generating fruitful discussion about its place within Hume's philosophy. Indeed, a clear majority of those who have written on the argument over the last few decades have presented it as being at least substantially, or potentially, defensible.[5]

Against this more recent trend, my primary aim in this paper is to highlight a fundamental and decisive flaw which has been overlooked by both Hume's critics and defenders, probably because they have generally discussed the argument only at a very abstract level, without focusing on specific examples. When we do focus in this way, I suggest, the flaw is inevitably revealed, and I maintain that this very plausibly explains why Hume's first *Enquiry* both omits the argument, and explicitly rejects the sort of "antecedent scepticism" that seems to lie behind it. If this conjecture is correct, then Hume's changing attitude towards the argument of *Treatise* 1.4.1 could well have been pivotal in respect of the development of his scepticism, giving valuable insight not only into the epistemology of the *Treatise*, but also the contrasting features of his mature epistemology as presented in the *Enquiry* and later works. Hence my title's deliberately provocative reference to "Hume's Pivotal Argument".

1. Introduction

Hume's argument "Of scepticism with regard to reason" falls into two parts. The first part – which I shall call the *Uncertainty Argument* – starts from the observation that we are fallible even in performing simple mathematical calculations; hence it is rational to be less than completely certain even in these cases, and accordingly "all knowledge degenerates into probability" (*T* 1.4.1.1). Whether in fact *all* knowledge would thus degenerate can be disputed, since self-evident "intuitive" judgments, for example, are not obviously subject to this problem. But for present purposes I shall be accepting Hume's argument to this point, and in §2 below give a supportive illustration involving the solution of a quadratic

[3] Kemp Smith (1941, pp. 447-9) quotes only a few extracts from *Treatise* 1.4.1, ignoring the crucial argument; Penelhum (1975, p. 198 n. 7) barely mentions the argument; while Capaldi (1975), Stroud (1977), and Ayer (1980) fail to mention it entirely. Many books from more recent years have also continued this pattern.

[4] Wilson (1983, p. 93) describes "the received opinion" as being "that Hume's inference is *quite obviously* erroneous", apparently taking the standard objections (which he counters at pp. 101-5) to be those of Prichard (1950) and MacNabb (1967). DeWitt (1985, pp. 136-7 n. 3) includes only Popkin (1951) and Wilson as being "clearly sympathetic" to the argument, notes Von Wright (1957, p. 153; cf. p. 223 n. 15) as also accepting it, while listing Stove (1973, pp. 131-2) and Laird (1932, p. 176) as strongly rejecting the argument, and six other commentators as ambivalent. Morris (1989, p. 39) laments that "Even a sympathetic recent commentator calls [the argument] a 'morass', while another commentator … regards the argument as 'not merely defective, but one of the worst arguments ever to impose itself on a man of genius'" – footnotes clarify that these references are to Fogelin (1985, p. 16) and Stove (1973, p. 132).

[5] Recent defenders include Dauer (1996), Lynch (1996), Lolordo (2000), Garrett (2006, pp. 160-3; 2015, pp. 223-6), Wright (2009, pp. 133-5); Meeker (2013, ch. 2-3), Owen (2015), Nelson (2017), Atkinson & Peijnenburg (2018), and Garfield (2019, ch. 8). In addition, Baier (1991, pp. 60-1), Allison (2008, ch. 8), Schmitt (2014, ch. 11), and Ainslie (2015, ch. 1) – like Morris – defend the argument in the role of a *reductio* (of some rival conception of either reason or belief: these approaches will be discussed in §7 and §8 below).

equation, a standard part of mathematical education even in Hume's day,[6] which will provide a useful focus for subsequent discussion. To highlight assessment of the probability of error, I shall suppose that solving the equation in question is financially significant, and that purchase of insurance is potentially available, thus giving a practical point to that assessment. All this displays Hume's Uncertainty Argument in a favourable light.

The second part of Hume's argument – the *Regress Argument* – builds on the first by claiming that "we are oblig'd by our reason", whenever we make any uncertain judgment, to make a further judgment assessing the extent of that uncertainty, and to take this into account, thus undermining further our confidence in the original proposition. But since this further judgment is itself uncertain, a similar obligation requires us to adjust this by making yet another judgment about its own uncertainty, and so on. We are trapped in a regress, which according to Hume should eventually leave "nothing of the original probability", so that "all the rules of logic require a continual diminution, and at last a total extinction of belief and evidence" (*T* 1.4.1.6). §3 below outlines this argument, applying it briefly to the quadratic equation illustration from §2, and defending Hume against one obvious but superficial objection that can arise from misunderstanding his treatment of probability (in which zero represents *indifference* or *lack of belief* rather than certainty of falsehood).

Various other objections have been raised against the Regress Argument (and will be mentioned below), but my distinctive focus goes to its very heart, by challenging the supposed obligation of reason to perform deep iterative reflection: there is, I shall claim, *no such obligation*, and no reasonable basis for it. §4 highlights this supposed obligation, both as briefly expressed by Hume himself and as spelled out more fully by recent sympathetic scholars. §5 then rehearses a well-known challenge to what Hume takes to be the consequence of following through on the obligation, again illustrated by the quadratic example, and questioning his assumption that the iterated reflection involved in his regress – if accepted as appropriate – must inevitably undermine the original probability. This objection, advanced long ago by Thomas Reid and revived by D. G. C. MacNabb, reveals Hume's argument to be seriously incomplete though not yet refuted. In §5 I also identify factors that might have led Hume to take for granted that a regress would indeed imply diminution of probability.

My principal objection to the Regress Argument comes in §6, which follows through the quadratic example in a practical situation where again quantification of my degree of assurance is highly pertinent owing to the possibility of purchasing insurance against error. This gives good practical reason to move beyond first-level reflection (on the mathematical problem itself) to second-level reflection (on my probability of mathematical error), but it is much harder to find a situation in which quantitative third-level reflection can plausibly be motivated. Such a situation turns out to require that I have *new information* at the relevant level (e.g. performance statistics regarding my previous attempts at second-level assessment), but even where such information is available, the consequences of this third-level

[6] See pp. 102-8 of *Arithmeticae et algebrae compendium. In usum juventutis academicae*, published in 1736 at Edinburgh by David Gregory, who was Professor of Mathematics at St Andrews from 1739-64 and whose uncle James Gregory was Professor of Mathematics at Edinburgh when Hume attended in 1721-5.

reflection seem unlikely to impact more than one level below (hence it is unlikely to affect my preferred mathematical solution). It is very hard indeed to imagine a realistic scenario in which yet higher-level reflection could be well motivated (either epistemologically or practically), and I do not attempt this in respect of the quadratic example. But even if such an unusual situation were to arise, this discussion suggests that high-level reflection would be unlikely to have significant impact on commitments more than one level down (hence it would be unlikely to affect either my preferred mathematical solution, or my confidence in that solution). The nature of any such impact would also be hard to predict, and there is nothing here to support Hume's presumption that it would undermine those commitments.

To sum up so far, Hume's plausible (and here unchallenged) Uncertainty Argument apparently seduces him into a tempting generalisation, that "going up a level" and taking our reliability into account will always improve our judgments. This works well at the first level, at least when have a particular interest in the assessment of our reliability, and when we have some statistics of past performance on which to base such an assessment. But generalising from this into the repeated iteration of the Regress Argument – supposing that "going up a level" will continue to be beneficial even when it loses any contact with either our specific interests or further statistical input – is a serious mistake. Hume's brief and hand-waving argument for this generalisation in *Treatise* 1.4.1.6 turns out to be unable to survive even detailed *exposition* involving specific examples, let alone detailed analysis.

The Regress Argument is not only faulty in itself, but also implicitly inconsistent with Hume's own principles, in that it starts off from reflection on our track record of success and failure (considering reason as "a kind of cause" in the spirit of his "probability of causes"), but then – *even if that track record is excellent* – ends up drawing an extreme sceptical conclusion which is radically at variance with that history of success. This might prompt us to wonder how committed Hume himself can be to the argument, especially given hints in the *Treatise* text that he may be presenting it, at least in part, as a *reductio* of opposing views. In §7, however, I argue that it is not textually defensible to view Hume as here proffering a *reductio* of rival views of *reason*: his words clearly indicate that he himself finds the argument *rationally* (though not *psychologically*) compelling. Far more plausible, as urged by Donald Ainslie, is to understand Hume's strategy as posing a *reductio* of a then-standard *overseer* model of *belief* or *judgment* (according to which our judgment stands over and supervises our other faculties). But as explained in §8, the coherence of such a strategy crucially depends on Hume's taking the supposed obligation of reason to be *genuine*. Only if the Regress Argument is rationally irrefutable can our inability to accept it provide an empirical objection to the overseer model. Therefore interpreting the argument as a *reductio* in this way does not absolve Hume from the accusation of fallacy.

In §9, I propose an interpretative hypothesis, that Hume himself came to realise the inadequacy of the Regress Argument when working towards his *Philosophical Essays* of 1748 (now known as the first *Enquiry*). This hypothesis builds on my earlier philosophical conclusions, that the argument is impossible to spell out coherently beyond the first few levels, and that this incoherence becomes clearest when the attempt is made to apply it to specific examples, an expository device that Hume uses frequently in the *Enquiry* (though not in the *Treatise*). Hence if my negative conclusions about the logic of the Regress Argument are correct, and if Hume was not merely presenting it as a *reductio* of others'

principles, then one can reasonably *predict* that he would have changed his mind about it in the 1740s – a prediction which is, moreover, confirmed by various traces in the concluding section of the *Enquiry*. The significance of this change in his views is explained in the concluding §10, which highlights the massively destructive role played by the Regress Argument in the final section of *Treatise* Book 1, and by contrast the "mitigated" scepticism advocated in the final section of the *Enquiry*.

2. The Uncertainty Argument

Suppose that I need to solve some familiar type of mathematical equation – maybe a *quadratic* equation – in a practical situation where the solution really matters: if I get it wrong, then I shall lose a significant sum of money, say $1,000. Suppose also that someone gives me an opportunity to *insure* against such a loss: how much should I be prepared to pay for this insurance? The ideal answer will depend on the probability that my solution is wrong. And this probability, as Hume points out, may itself depend not so much on the reliability of the mathematical procedure that I use to solve the problem, as on my own reliability in carrying out that procedure. He goes on to recommend the obvious approach, in accordance with his method of "probability of causes" (*T* 1.3.12), which is to consider how well I have performed in the past. And note that he makes no suggestion here of scepticism about my memory or other records – this scepticism is directed towards *reason*, not *memory* or *the external world*:

> In all demonstrative sciences the rules are certain and infallible; but when we apply them, our fallible and uncertain faculties are very apt to depart from them, and fall into error. We must, therefore, in every reasoning form a new judgment, as a check … on our first judgment or belief; and must enlarge our view to comprehend a kind of history of all the instances, wherein our understanding has deceiv'd us, compar'd with those, wherein its testimony was just and true. Our reason must be consider'd as a kind of cause, of which truth is the natural effect; but such-a-one as by the irruption of other causes, and by the inconstancy of our mental powers, may frequently be prevented. By this means all knowledge degenerates into probability; and this probability is greater or less, according to our experience of the veracity or deceitfulness of our understanding, and … the simplicity or intricacy of the question. (*T* 1.4.1.1)

Accordingly, I need to look at my past record of solving quadratic equations: how reliable have I *actually* been, given the "history of all the instances" that I can remember or have recorded? Suppose, for example, that I judge my experienced reliability as 95%. In that case, an appropriate price for me to be willing to pay to insure against a $1,000 error will be $50.

Hume goes on to claim that this kind of uncertainty will infect even much simpler mathematical examples, appealing to considerations (including an apparent Sorites argument at *T* 1.4.1.3) that are far less straightforward than his initial simple point about our fallibility.[7] Here significant objections can be raised, casting doubt on whether the Uncertainty Argument really implies that "*all* knowledge degenerates into probability" (*T* 1.4.1.1). For example, it might be that I have *always* got quadratic equations right, in which case, the case for diminution either initially or subsequently is less clear, since arguably a Humean "proof" could resist probabilistic erosion.[8] Or there might be cases of "knowledge"

[7] For defence of this Sorites argument, see Meeker & Poston (2010, pp. 227-9), who draw interesting comparisons with the structurally similar "anti-luminosity" argument influentially advanced by Williamson (2000, ch. 4).

[8] As claimed, for example, by Garrett (1997, pp. 150, 253 n. 8; 2015, pp. 304-6), in the context of discussing Hume's argument against the credibility of testimony for miracles.

that are based on immediate *intuition* rather than calculation, and hence would not be subject to the same possibility of error.[9] But for present purposes, these objections can be put to one side, and we can focus on the quadratic case sketched above, in which I am well aware of my own past fallibility.

3. The Regress Argument

Let us accordingly assume that Hume's Uncertainty Argument has adjusted my confidence concerning the $1,000 quadratic equation to 95%, based on my remembered past experience. That seems reasonable enough, and I might well consider $50 an appropriate price to pay if insurance is available against getting it wrong. But this is only the first step in Hume's destructively sceptical argument, and I have yet to face his vicious regress, which he apparently sees as applying to any probable judgment whatever:[10]

> Having thus found in every probability, beside the original uncertainty inherent in the subject, a new uncertainty deriv'd from the weakness of that faculty, which judges, and having adjusted these two together, we are oblig'd by our reason to add a new doubt deriv'd from the possibility of error in the estimation we make of the truth and fidelity of our faculties. This is a doubt, … of which, if we wou'd closely pursue our reason, we cannot avoid giving a decision. But this decision, tho' it shou'd be favourable to our preceeding judgment, being founded only on probability, must weaken still further our first evidence, and must itself be weaken'd by a fourth doubt of the same kind, and so on *in infinitum*; till at last there remain nothing of the original probability, however great we may suppose it to have been, and however small the diminution by every new uncertainty. No finite object can subsist under a decrease repeated *in infinitum*; and … must in this manner be reduc'd to nothing. … [O]ur first belief … must infallibly perish by passing thro' so many new examinations, of which each diminishes somewhat of its force and vigour. When I reflect on the natural fallibility of my judgment, I have less confidence in my opinions, than when I only consider the objects concerning which I reason; and when I proceed still farther, to turn the scrutiny against every successive estimation I make of my faculties, all the rules of logic require a continual diminution, and at last a total extinction of belief and evidence. (*T* 1.4.1.6)

So after I have made my first-level judgment about the quadratic equation itself (e.g. that its only positive solution is x=16), and then the second-level judgment that I am 95% reliable in solving quadratic equations, I should supposedly make a third-level reflective judgment to take into account "a new doubt deriv'd from the possibility of error in the estimation we make of the truth and fidelity of our faculties". In other words, I should factor in my reliability (or otherwise) in making second-level judgments about the reliability of my competence in solving such problems as quadratic equations. And after having done that, I should make a fourth-level judgment to factor in my reliability (or otherwise) in making such third-level judgments, and so on *ad infinitum*. Each of these additional factors, Hume thinks, will involve some diminution of the overall probability that I should assign to my first-level judgment about the quadratic equation itself, thus progressively resulting – if my judgments are faithful to "the rules of logic" – in "a total extinction of belief and evidence".[11]

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[9] Fogelin (1985, p. 15) takes this point to be clear, but it is critically discussed by Morris (1989, pp. 43-6) and Allison (2008, pp. 214-19), as well as by Meeker & Poston (see note 7 above).

[10] Hence the sceptical implications of the Regress Argument are intended to apply to all beliefs derived from reasoning, whether initially demonstrative (as in the Uncertainty Argument) or probable.

[11] Despite Hume's talk of our being "oblig'd by our reason" and "the rules of logic", Owen interprets Hume's argument as being more *descriptive* than *normative*, exhibiting not so much a theoretical obligation as a practical risk: "The point is not that a belief, with full force and vigor, is seen to be unjustified; rather, it is that because the force and vigor continually decrease, the idea seems in danger of ceasing to be a belief at all" (2015, p. 113). Lolordo, likewise, while showing sympathy for the supposed normative obligation (2000, pp. 433, 437, 442, 446), appears to explain the regress in descriptive terms, as arising because we "feel compelled to add considerations about the reliability of our faculties into the chain of reasoning leading to the original proposition" (p. 437). Such descriptivist interpretations are empirically

We shall shortly consider whether indeed "we are oblig'd by our reason" to enter Hume's sceptical regress. But before proceeding, it is worth noting that he sees the outcome of this regress as being "total extinction of belief", so when he talks of the "original probability" being "reduc'd to nothing", charity requires that we should interpret all this as taking place on a scale that treats 0 as *indifference*. Such a scale is unconventional by modern standards, since we are used to treating 0.5 as indifference, and 0 as certainty of falsehood. But the Humean alternative is perfectly coherent, as can be seen if we imagine the conventional scale – with 1 held fast as representing certainty – being "stretched" linearly downwards so that certainty of falsehood moves down from 0 to -1, and indifference (which is halfway between the two extremes) correspondingly moves down from 0.5 to 0. This interpretation of Humean probabilities is moreover strongly supported by two consistent features of his more mathematical discussions of the topic. First, in a number of places (e.g. *T* 1.3.12.19, 2.3.1.12; *E* 10.4), he treats the force of probabilistic evidence as being measured by the *difference* between the number of positive "experiments" and the number of negative "experiments", so that an exact balance of evidence either way, corresponding to complete indifference, would give a value of 0 (rather than the conventional 0.5). Second, he often talks of probabilities as being *proportional* to the overall number of instances (e.g. *T* 1.3.12.10-11, 15-19, 22; 1.3.13.20; E 6.2-4; 10.3-6), suggesting that the balance of "experiments" should be *normalised* so that uniform positive evidence gives a value of 1. These two features are combined in the *Treatise*'s most sustained discussion of probabilistic evidence, at *T* 1.3.11.9-13, which accordingly seems to imply a theory in which the *force of evidence* constituted by p positive and n negative instances – let us call this a Humean *credibility* – should be calculated arithmetically as $(p–n)/(p+n)$.[12] Where all instances are positive, this gives a result of 1, while if all are negative, the result is -1.[13] Though this theory is indeed coherent, however, it has the serious drawback of complicating the mathematics of standard operations (such as conjunction of independent events, or disjunction of mutually exclusive events). This in turn potentially has implications for Hume's Regress Argument – for example, by obscuring the conditions under which an iterated conjunction's probability will tend towards 0 – which would need to be addressed by any defence of his position. But for present purposes we can leave such complications aside.

implausible: most of us feel no such compulsion, and as Hume himself acknowledges at *T* 1.4.1.7, there is no *practical* risk of our beliefs dissipating regressively in anything like this way. So if "total extinction of belief" (*T* 1.4.1.6) is supposed to be a prediction of a *descriptive* psychological theory, rather than a *normative* requirement, that descriptive theory would have to be rejected as an empirical failure. It would then be hard to see why Hume should see this prediction as such a potent *epistemological* threat (most notably at *Treatise* 1.4.7.7).

[12] All this is not to deny that Hume often treats probability in a predominantly psychological manner, with little regard to its quantitative aspects. But within Treatise 1.4.1 itself, it is clear that he is treating probabilities and degrees of evidence as comparable ("greater or less") and subject to arithmetical reduction (at paragraphs 1, 3, 6, 8, and 9). Hence any rigorous treatment of Hume's Regress Argument has to build on some explicit mathematical interpretation of Humean probabilities, and the theory sketched here, I believe, provides the best combination of coherence and textual fidelity. For its application to Hume's Maxim on miracles (*E* 10.13), see my (2011, p. 162 n. 12).

[13] Maher (1981, p. 141) proposes a somewhat similar theory, except that his *vivacities* cannot be negative, and hence are set to 0 in cases where my own method would yield a negative *credibility*. This seems plausibly Humean, but too vague to provide the basis of a useful calculus of probabilities. For example, the prediction that one tossed coin will land heads-up would have *vivacity* 0, exactly the same as 100 tossed coins all landing heads-up together, and more generally the *vivacity* of a disjunction of exclusive propositions would not be a well-defined function of the component *vivacities*.

4. The Supposed Obligation of Reason

Recall how Hume, having reduced "knowledge" to "probability" through his Uncertainty Argument, proceeds to introduce his ultimately all-encompassing destructive regress:

> Having thus found in every probability, beside the original uncertainty inherent in the subject, a new uncertainty deriv'd from the weakness of that faculty, which judges, and having adjusted these two together, *we are oblig'd by our reason* to add a new doubt deriv'd from the possibility of error in the estimation we make of the truth and fidelity of our faculties. (*T* 1.4.1.6, emphasis added)

Thus reason supposedly *obliges us* to take into account "the possibility of error in the estimation we make of the truth and fidelity of our faculties", and this apparently involves a judgment of probability that we have erred in our estimation. Clearly such error is entirely possible – even likely – and accordingly defenders of Hume's argument have typically taken the obligation to be a clear requirement of epistemic responsibility. The underlying motivation here seems to be something like *the principle of total evidence*, that in Keynes's words, "in reckoning a probability we must take into account all the information which we have".[14] If, therefore, we have information about our own fallibility, that too must be put into the reckoning when making an overall judgment to which that fallibility might be relevant. Ted Morris expresses this line of thought well:

> Hume clearly thinks that, as rationally reflective epistemic agents, we are obliged ... to critically assess the quality of our judgments of probability. ... But if this is correct, why should reflective evaluation of our abilities stop there? Isn't it merely arbitrary to claim that we should assess our judgments of probability, and to say that it is unnecessary to assess our ability to make assessments of this kind? ... To stop at the first stage of assessment is sheer dogmatism, an unwarranted departure from the spirit of rationally reflective epistemic agency, unless some argument can be given to show that assessments at that *stage* are somehow infallible. (Morris 1989, p. 48)

So having estimated that we are, say, 95% likely to have solved the quadratic equation correctly (a *second-level* judgment), we need to go on to make a further assessment (now *third-level*) about the accuracy of that estimate.[15] But clearly this further assessment will itself be fallible, and so the same argument can be used for going yet further. We have already seen Hume's own presentation of this point (at the beginning of §3 above), and again Morris expresses it clearly:

> If we apply these considerations to the judgment we make at the second stage of assessment, we should also assess *that* judgment as an assessment of probability. This sets up a vicious infinite regress of assessments of assessments. We have no justification for stopping the procedure at any particular stage. ... If we are reasonable, then, we are committed to assessing every assessment of probability we make in the light of our realization that we are highly fallible assessors. ... Given the way Hume presents his argument, there is no non-arbitrary end to the stages of iterated assessment I'm obliged as a rationally reflective epistemic agent to go through. My assessment should never conclude. I must always keep reassessing, and presumably should withhold judgment until the testing procedure ends. But here it never does. I'm never warranted in believing, so I never believe. Meanwhile, my confidence level decreases with each further assessment. (Morris 1989, pp. 48-51)

Morris thus argues that a "reflective epistemic agent" is rationally obliged to enter Hume's regress. Henry Allison, likewise, sees this as obligatory for a "maximally responsible but fallible reasoner"

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[14] Keynes (1921, p. 313) calls this "Bernoilli's maxim", citing Jacob Bernoulli's *Ars Conjectandi*, p. 215.

[15] To avoid any risk of confusion here, note that what Morris calls "the first stage of assessment" is the first *reflective* stage, which involves making what I am calling a *second-level* judgment. Enumerating the levels in this way means that our *fourth-level* judgment will nicely coincide with what Hume at *T* 1.4.1.6 calls the "fourth doubt".

(2008, p. 223), because "according to 'the rules of logic' to which this reasoner is committed, there is no *principled* point at which she could stop the process of reflective assessment and confidently retain her belief" (2008, p. 224). Other scholars also agree,[16] but in §6 below I shall be challenging this.

5. Challenging the Iterative Reduction

First, however, let us clarify how Hume's argument is supposed to apply to our example, and at the same time, briefly address the principal objection that has hitherto dominated most discussion of the argument. In the case we have been considering: (a) I have just attempted to solve a quadratic equation (e.g. using the standard formula); and (b) my remembered and recorded past experience suggests that I get such things right 95% of the time. Also, as a matter of pragmatic – rather than epistemological – significance, (c) an incorrect solution will cost me $1,000; and (d) I have an opportunity to insure against making a mistake, thus giving a practical purpose to my estimate of this probability.[17] If my estimated 5% probability of error is correct, then the price that I should be prepared to pay for insuring against a $1,000 loss is $50. If my estimate is incorrect, then the appropriate price might be very different, and we can assume that it is my interest to get the price right.

So to continue this story, the worry has now been raised that perhaps my estimate of 95% reliability is wrong: but what follows? In the practical case that we are considering, it would be natural to check over my memory and records of solving quadratic equations,[18] to ensure that my estimate of 95% reliability is broadly correct. Hume's argument hasn't mentioned any sceptical worries about memory or written records, and indeed, he earlier enjoined us to consider the "history of all the instances" in which we have made previous judgments, so apparently he sees no problem in principle here. Moreover he recognises that my verdict after this checking might be "favourable to [my] preceeding judgment" – perhaps it turns out that I have indeed been 95% reliable, or perhaps even better, say 97% reliable. Yet according to Hume, "this decision … being founded only on probability, must weaken still further our first evidence" (*T* 1.4.1.6). But in the situation we are discussing, such a claim seems very dubious (and at least requires some defence): it may indeed be true that the confirming assessment is "founded only on probability", but in so far as it has any force, this tends to *increase* rather than *reduce* my confidence of having solved the quadratic equation correctly. This simple point, commonly considered to be the chief objection to Hume's argument, goes all the way back to Reid:

> My decision upon this second point is favourable to my first judgment, and therefore, as I apprehend, must strengthen it. To say, that this decision, because it is only probable, must weaken the first evidence, seems to me contrary to all rules of logic, and to common sense. (Reid 1785 VII.iv, p. 568)

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[16] See, for example Dauer (1996, p. 214), who quotes Morris approvingly, and Lynch (1996, p. 96). Owen is less committal, remarking that "Our inherent fallibility is always a consideration, weakening the force with which the original belief is held", and "this sort of judgment can reiterate" (2015, p. 113). For more on Owen, see note 11 above.

[17] To be clear, there is no suggestion here that the availability of insurance changes my *epistemological* situation with regard to the equation's solution: it simply gives my estimate of error a practical significance.

[18] Or perhaps of solving quadratic equations that have similarly-sized coefficients, or solutions of the same type (real or complex), or that are similarly factorisable (or not). Hume points out that the probability of error must be assessed relative to "the simplicity or intricacy of the question" (*T* 1.4.1.1), but expresses no obvious concerns about the difficulty of identifying an appropriate reference class, so we shall ignore that complication here.

In recent years the objection has been associated with MacNabb, who puts it in somewhat similar language: "it seems evident to commonsense that the second-order judgement that I am very likely, though not certain, to be correct in some first-order judgement increases rather than diminishes the authority of that first-order judgement" (1951, p. 101).[19]

Given that this objection is indeed fairly "evident to commonsense", it is striking that Hume's text offers no argument for his apparent assumption that any higher-order judgment, simply in virtue of "being founded only on probability, must weaken" the lower-order evidence to which it is applied. This suggests that he might simply have taken for granted the most familiar pattern of iterated probabilities, which applies when we are faced with a sequence of outcomes, each of which is a *necessary condition* for the next stage.[20] One clear example of this would be an "accumulator bet", where I gamble on the sequence of events *A, B, C,* and *D* (e.g. results of football matches, or horses winning races), and I win only if *all four* component predictions are fulfilled. Another example would be the passing of a message down a line of testimony from *P* to *Q* to *R* to *S* to *T*, where the message gets passed faithfully only if all four transfers succeed. In such cases, adding an additional *uncertain* event to the sequence can only *reduce* the overall probability of success, and if the sequence is potentially infinite, then this overall probability will almost inevitably tend to zero on the conventional scale of probabilities.[21] But note that the epistemic consequences in terms of *rational belief* will differ radically between these two examples: whereas a massively iterated accumulator bet becomes vanishingly unlikely *to win*, a massively iterated line of testimony becomes vanishingly unlikely *to deliver a trustworthy report*. Hence I should tend towards *disbelief* that the accumulator will win, but *indifference* as regards the content of the report (unless, of course, I have some other source of information available). The latter – but not the former – would fit with the total loss of belief that Hume sees as the upshot of his argument.[22] It is therefore interesting to note that earlier in the *Treatise*, at *T* 1.3.13.5, he discusses chains of historical testimony as potentially giving rise to "re-iterated diminutions" of "force and evidence", and there refers forward to *T* 1.4.1 as providing "one very memorable exception" to the general impossibility of "conviction ... subsist[ing] under such re-iterated diminutions". Perhaps, then, he viewed repeated checking as

[19] MacNabb is credited, for example, by Loeb (2002) p. 224, Allison (2008) p. 223, and Owen (2015) pp. 113-14. Allison and Owen find the objection ultimately unconvincing, while Loeb appears to accept it, albeit with some ambivalence.

[20] Loeb (2002, pp. 224-9) suggests a possible alternative explanation, whereby Hume conflated *estimates of likelihood* with *degrees of confidence*, owing to his interpretation of both in terms of vivacity of ideas: "Hume takes degree of confidence to consist in degree of vivacity. But the only degree of vivacity in sight is the one that constitutes the … estimate of likelihood. So Hume supposes we reduce *that* vivacity, thus initiating the series of reductions." (p. 229).

[21] A zero limit is not strictly implied unless we add some upper bound (less than certainty) on the relevant probabilities, e.g. "each of which has a probability less than $1-\varepsilon$, where $\varepsilon>0$". Reid (1785 VII.iv, p. 569) presses this as an objection against Hume's argument, pointing out that "an infinite series of quantities decreasing in geometrical proportion ... amounts only to a finite sum". Fogelin acknowledges Reid's point, but replies that Hume "need only argue that there is some finite degree of probability below which the chance of error never falls" (1985, pp. 17, 174 n. 4). This reply – which is cited approvingly by Dauer (1996, p. 214) and Owen (2015, p. 115) – indeed seems reasonable, since in practice Hume's reflective series would quickly lead to judgments of which we are unlikely to feel anything like 100% certain. All this mathematical detail, however, is irrelevant against the more fundamental objections urged in the current paper.

[22] Precisely because Hume's regress should be towards *indifference* rather than *certain falsehood*, the most coherent interpretations of his argument do not involve simple multiplication of *probabilities* – a fault common to Wilson (1983) and DeWitt (1985) – but instead successive undermining of *evidential force*. Amongst recent scholars, Owen (2015, pp. 113-14) is most explicit about this connection, but see also for example Morris (1989, pp. 50-3), Lynch (1996, p. 94), Lolordo (2000, pp. 437-8), Garrett (2006, pp. 162-3; 2015, pp. 224-5), and Allison (2008, pp. 223-3).

relevantly similar to a chain of testimony, but in neither place does he provide any explicit argument for such a parallel.[23]

Moreover, this sort of progressive diminution is not always the right way to treat iterated probabilities, particularly when dealing with a sequence of *distinct items of evidence bearing on a single claim*. Here, adding new positive evidence (e.g. testimony of further witnesses in favour of a reported event) will usually *increase* the overall probability rather than reducing it, even if that new evidence by itself would have minimal force (e.g. where the further witnesses are only 51% likely to tell the truth on any particular occasion).[24] So a crucial question for Hume's Regress Argument is whether the main case that we have been discussing – of the quadratic equation whose solution is being iteratively checked – is closer in spirit to the case just mentioned – of a sequence of distinct items of evidence bearing on a single claim – than it is to a chain of testimony (or, indeed, an accumulator bet). Hume himself does not address this question, apparently taking for granted that "many new examinations" will automatically generate a decrease in probability. But the fact that iterated probabilities can behave quite differently in different cases makes it incumbent on defenders of his argument to *justify* treating them as he does, especially given the counterintuitive outcome to which this leads.[25]

6. Challenging the Supposed Obligation

To explore whether any such justification might be available, let us try iterating our concerns about the quadratic case in the sort of way that Hume recommends. Suppose, then, that my first estimate of my reliability at solving these equations was 95%, but now, on checking, I get 97% instead. This would appear to give some substance to Hume's point that my estimating abilities are unreliable, and hence that I should attempt to measure my unreliability and factor it into the overall assessment. If I accept this obligation, then such measurement will presumably involve me in trying to recall the past cases in which I have carried out this sort of checking of previous estimates (pondering a "history of all the

[23] If any judgment is to be considered worthy of belief only if it is accompanied by a higher-level judgment to the effect that the original judgment is well-founded – *testifying*, so to speak, to its credibility – then a sceptical iteration evidently results (of a form that might plausibly be suggested by the analogy with chains of testimony). Dauer's and Garrett's interpretations of Hume's argument (sketched in note 46 below) take roughly this form. Wilson (1993) claims most explicitly that Hume's argument should indeed be understood "in the context of an analogy with a chain of testimony" (p. 105), basing this on Hume's use of the word "authority" at *T* 1.4.1.5 (p. 94). The word "testimony" occurs just once in *T* 1.4.1, but this is in the very first paragraph when referring to the "testimony" of "our understanding" about a *first*-level judgment; so this provides little support for Wilson's interpretation.

[24] This point is familiar in the literature concerning Hume on miracles, since it underlies a long-standing objection to him – going back to Babbage (1838) and more recently urged by Earman (2000, ch. 18) – based on the possibility of convincing evidence for a miracle deriving from large numbers of *independent* witnesses. Ahmed (2015) defends Hume, providing mathematical analysis to highlight the serious difficulty of *knowing* (or even being confident), in any situation that might be thought to be of this kind, that the witnesses are *genuinely* independent in the appropriate sense.

[25] In recent years, a popular way of defending Hume's argument against the Reid/MacNabb objection has been to interpret Hume's regress not as involving a progressive reduction of a particular probability (or credibility), but rather, an expanding "margin of error": see, for example, Lynch (1996, p. 94), Bennett (2001, p. 315), Wright (2009, pp. 134-5), and Owen (2015, pp. 114-15). I find these proposals technically problematic (for reasons that need not concern us here), and inconsistent with Hume's view of probabilities as having specific degrees corresponding to levels of psychological vivacity of belief that are straightforwardly *comparable* (i.e. greater, less, or equal). Atkinson & Peijnenburg (2018) suggest instead on Hume's behalf that the point of the argument is diminution of the probabilistic impact of successive iterations, but this seems hard to square with the significance that Hume accords the argument. In any case, none of these approaches can defend his argument against the more fundamental problems urged in §6 below.

instances"), with a view to confirming that they have all indicated a reasonable level of accuracy (say, within 5% either way). At this point I am unlikely to have many past cases to go on, since such higher-level checking is something I rarely do. And if I then go up another level, to consider my track record in cases where I have tried to assess such higher-level checkings, I will almost certainly draw a statistical blank. Continuing further again – into yet higher-level checkings that become harder and harder to understand, let alone carry out – seems pointless and even absurd, yet according to Hume the regress has barely started, since "we are oblig'd by our reason" to continue it to infinity! Something seems to have gone seriously wrong here.

To analyse the situation more systematically, let us wind back to the beginning and ask what all this was supposed to achieve. I started out wanting to know the solution to a quadratic equation, and calculated a credible answer. At that stage, I had no particular interest in the general accuracy of my quadratic-solving ability, though I was of course taking this somewhat for granted in setting out to solve the equation myself (rather than, say, paying someone else to solve it for me). The fact that $1,000 depended on my getting it right might well have given me some concern about the correctness of my answer, but the natural response to such concern – unless outside help was available – would have been for me to do repeated mathematical checking, ideally using a variety of techniques.[26] Left to myself in this situation, it is hard to see any obvious motivation for going to any higher level of reflection about my abilities, since doing so is not going to help me to get the right answer.[27]

Such motivation can arise, however, if I am given the opportunity to *insure* against error. This gives me a clear interest in discovering my general level of accuracy, not for its own sake, nor because it helps me to solve the equation, nor because it will impact on my solution, but simply in order to work out the appropriate odds for prudent insurance. So now I have a good practical reason for moving up to the second level, to assess my own abilities. The obvious way of undertaking this assessment is to follow Hume's advice and check out my past statistics, by considering the "history of all the instances, wherein [my] understanding has deceiv'd [me], compar'd with those, wherein its testimony was just and true". So I need to go back to my memory and records, on which – as emphasised earlier – Hume's argument has cast no doubt. There is, however, a complication here: these records might help me to identify my past solutions of quadratic equations, but how can I know whether or not these solutions were *correct*? Unless I have outside feedback – from a teacher, perhaps, or a computer, or from some kind of practical outcome that hinges on my getting things right – it seems that even in assessing my past record, I am thrown back on the need to do more *mathematical* (rather than higher level) checking.

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[26] In the case of a quadratic equation, for example, I might check how accurately the standard formula has been applied, then also check that the solution(s) yielded by the formula work correctly when plugged back into the equation, then even perhaps try a range of further values of the quadratic function and sketch the corresponding (parabolic) graph. If all these checks succeed and thus corroborate each other, this gives strong evidence that the solution is correct.

[27] This is another point well made by Reid: "If he should afterwards find reason to suspect his first judgment, ... reason will direct him not to form such a series of estimations upon estimations, as this author requires, but to examine the evidence of his first judgment carefully and coolly; and this review may very reasonably, according to its result, either strengthen or weaken, or totally overturn his first judgment. (1785 VII.iv, p. 570). Reid thus alleges (without fully explaining) that Hume's requirement to form an iterative "series of estimations upon estimations" is bogus. The current section aims to show in detail that this allegation is correct, something not previously achieved as far as I am aware.

But let us put this complication to one side, and assume that my past level of performance can be readily discovered, perhaps because my solutions were formally (and reliably) graded in some educational context. So now I can count through and check the percentage of equations that I have solved correctly. And again, if my past history of solving quadratic equations – *even after making all the checks that I can carry out myself at the mathematical level* – reveals 95% reliability; and if getting it right is worth $1,000 to me in this case; then it makes sense – *even after such careful personal checking* – to pay $50 to insure against failure. But now Hume's third level of reflection is supposed to come into play: how can I be sure that the figure of 95% is correct? Given my acknowledged interest in discovering my past level of accuracy, this question might indeed concern me. But if it does, the obvious and appropriate thing for me to do is to recheck my statistics – to go back again over those educational records etc. – and carefully recalculate the relevant percentage. If I then get the same answer, I am reassured that I had it right before. If I get a different answer, I will do yet more checks. And if checking again and again just brings me a random sequence of very different answers, I will conclude that I am hopeless at this sort of exercise. But in none of these cases is there any obvious benefit in moving up to a higher level of systematic reflection about my abilities in making such statistical assessments, since doing so is very unlikely to help me make better judgments at the levels that concern me.[28]

I say "very unlikely", because it is not entirely *impossible* that such higher-level reflection could help here, though the kind of scenario involved would be extremely unusual. Suppose, then, that I have been in this sort of situation many times before, assessing my reliability on a variety of mathematical problems (with a view to purchasing insurance or whatever), and in these situations I have repeatedly assessed my past statistics in an apparently consistent manner, but have then repeatedly discovered after the event – presumably through some independent feedback – that my estimates were uniformly wrong (e.g. 3% too high). In that case, I could indeed improve my second-level assessment of my reliability in solving quadratic equations (e.g. by adjusting it down from 95% to 92%), but only because I have a genuine track record of such assessments to consult, which is itself informed by some reliable independent feedback. But this possibility gives no help to Hume's argument, which takes the obligation of reason to move to higher levels as applying quite independently of such concrete information (which is why it can continue to infinity). I am supposed somehow to be obliged to reflect on my ability to make high-level statistical assessments, *even if I have no track record of having performed such assessments, and no other source of information to inform those reflections*.

Even in the unusual scenario just described, in which I do have some incentive for third-level reflection in order to correct my second-level statistical assessment of my first-level reliability, there is

[28] This issue can be illuminated by considering how one might design a computer program to implement such iterative reflection. At the first level, let us suppose, equations are entered by the user and solved by formula. These results are then passed to the second level, which checks them (presumably using some other method, cf. note 26 above) and collates statistics of accuracy. Then what? Even to attempt a third level of checking, the program needs some way of assessing the accuracy of its second-level assessments, and unless there is some outside "oracle" to give relevant input here, the program can only do this assessment by relying on the same mathematical methods that it has used at the first two levels. Thus third- and higher-level assessment looks utterly pointless. Note also that faulty implementation of such higher-level processes would have no impact whatever on the system's accuracy at the first two levels, a moral that seems to apply equally to the human case: excellence at arithmetic – and being well aware of one's excellence – need not require any skill in high-level reflective self-assessment.

no reason to expect that this will change my first-level solution to the quadratic equation itself. It might slightly diminish my *confidence* in that solution (say, from 95% down to 92%), but this gives me no reason for abandoning it: indeed it could well give me a more solid basis for sticking to that solution in preference to any other, by providing long-term statistical evidence, with reliable independent feedback, that my reliability is over 91% (which in turn suggests that my actual answer is over 10 times more likely than any alternative).[29] Thus even where level-3 reflection diminishes my confidence at level-2, it will not thereby change my decision at level-1. This casts doubt on Hume's unargued assumption at *T* 1.4.1.6 that higher-level doubts must inevitably iterate down to "weaken ... our first evidence": indeed the example we have just examined suggests that higher-level reflection is unlikely to impact on the specific judgment made just two levels below, let alone further. Hence level-4 reflection, even if we could make sense of it in some probably far-fetched and artificial scenario (which I shall not attempt to imagine here), looks unlikely to impact on the level-2 assessment that informs my purchase of insurance, let alone on the quadratic solution itself. Moving up Hume's regress has by now become both barely intelligible and utterly pointless.

But further, even if such increasingly high-level reflection could in principle impact on our arithmetical conclusions or our confidence in them, it would not follow that it was rationally well motivated. There should be no automatic assumption that reflection becomes more authoritative at higher levels, since on the contrary it is likely to become less, rather than more, reliable (and not only because we quickly run out of experiential data). Humans are characteristically far better at concrete than abstract thinking, and far more likely to be reliable when pondering specific problems of a kind that they have trained to solve than when engaging in highly abstract reflection. We are also often bad at assessing our own competence, with some people too confident, and others too diffident. Those schooled in solving equations, with frequent feedback from a teacher, will be vastly more aware of their competence in that specific skill than in their high-level reflection. Moreover, we are easily distracted and confused when faced with multiple problems and complex information, so the idea that we have a rational duty – when trying to solve an equation – to divert our focus from that mathematical problem into highly abstract levels of reflection about our own competence is clearly ludicrous on any practical level. Relatedly, worrying about our abilities can tend to undermine those very abilities. For example, a chess player who feels unconfident about his endgame technique, and finds himself reflecting anxiously on past failures, is typically less likely to succeed in a real-time contest than one who is able to focus wholeheartedly on the problem at hand (though the reverse can apply when plenty of time is available, as in correspondence chess, where careful analysis of past errors, and how to avoid them, can indeed be genuinely helpful). The key point, however, is that all these are *empirical* matters: however they might turn out, *it is not an a priori truth that higher-level reflection is epistemologically beneficial*. *Hence it cannot be an priori truth that such reflection is a rational obligation*.

Here the defender of Hume might be tempted to protest that the point just emphasised, so far

[29] Moreover given the host of alternative possible answers to such a problem (assuming that it does not occur within a multiple choice exercise), switching from my actual answer by guessing an alternative would be most unlikely to get me to the right answer even if my reliability were very much lower.

from being an *objection* to him, is entirely in line with his own principles. For Hume does not generally treat obligations as being a priori, either in the case of morality (e.g. *T* 3.1.1.4-6, 17-25; 3.2.5.4-6; 3.2.6.6) or in the current case of reasoning according to the "probability of causes" (*T* 1.3.12). This is true enough, but then the criticism becomes that in the argument of *Treatise* 1.4.1, Hume fails to be consistent with his own principles when he insists that infinitely iterated doubts are an obligation of reason, despite there being no apparent *empirical* basis for any such obligation. Indeed it is hard to see how he could even suppose there to be any plausible empirical case for a method of proceeding which he himself considers psychologically *unfeasible* beyond the initial stages (*T* 1.4.1.7, 10), is ultimately *impossible* even in principle (as requiring infinite iteration), and which – were it possible – would be *self-defeating* (as leading to total loss of belief). Accordingly, his argument for the supposed obligation of reason briefly outlined in *T* 1.4.1.6 – like those of Morris and Allison also quoted in §4 above – has a strongly aprioristic flavour, failing even to consider the empirical question of how far iterated reflection is *actually* beneficial in practice. But this empirical question ought to be crucial to any proper application of the method that Hume advocates, treating reason "as a kind of cause" and *statistically assessing its empirical track record* in delivering truth, with an awareness that the probability of error may vary in different cases "according to the simplicity or intricacy of the question" (*T* 1.4.1.1).[30] If we pursue this method rigorously, in the spirit of Hume's "rules by which to judge of causes and effects" (*T* 1.3.15, cf. *T* 1.3.13.11), then we should apply the same kind of probabilistic thinking to the outcome of specific reasoning methods. Thus the very principles from which Hume's argument begins require us to assess such methods *on the basis of their past track record*, as emphasised in my previous paragraph. But again, if we assess the method of extreme iterated doubt in this way, it is immediately revealed to be hopeless, generating confusion and tending to undermine our judgments, even in cases where sticking to first-level induction could have brought us a success rate of over 90%! So Hume's insistence in *T* 1.4.1 that rationality would require "total extinction of belief" – by uncritically adhering to the method of extreme iterated doubt even as it becomes manifestly out of line with the statistical track record from which the entire assessment is supposed to begin – is showing *too little* reflective consistency with the inductive principles from which he starts, rather than *too much*.[31]

These points are cumulatively devastating, but not particularly difficult to see once we attempt to apply the iterative doubt of *Treatise* 1.4.1 to a specific example (such as our quadratic equation). And if Hume had made the same attempt, rather than discussing the method so summarily and at such a high level of abstraction, it is hard to believe that he would have remained persuaded that it was rationally defensible, let alone rationally obligatory. His Regress Argument starts reasonably enough, from the observation that any "probable" judgment we make will carry a risk of error, and the consequent

[30] Hume's statement at *T* 1.4.1.1 that "Our reason must be consider'd as a kind of cause" seems to be intended precisely to highlight that he is here applying his method of "probability of causes" (*T* 1.3.12). This is the only occasion where he talks of reason in such a way, and there is no comparable statement elsewhere in his writings.

[31] Hence I disagree with Garrett's apparent view (2006, pp. 161-3) that Hume's Regress Argument follows from consistent application of the method of "probability of causes". Hume's discussion of that method in *T* 1.3.12 gave no hint of the sort of aprioristic iterated reflective correction that we see in *T* 1.4.1, but on the contrary was soon followed by the injunction to use experience-informed "general rules", notably those of *T* 1.3.15.

recommendation that we should moderate our confidence in any first-level judgment by taking into account our actual track record of relevant successes and failures. But this does not plausibly commit us to a policy of performing iterated assessments at ever higher levels, and doing so *even when we lack any empirical data to base them on*. Such a progression conflicts, indeed, with Hume's own fundamental principles of epistemological empiricism, since it puts epistemological weight on iterative assessments which (beyond the first few levels) lack any empirical foundation or inductive track record. And it also loses any plausible support from the widely accepted *principle of total evidence*, because without any inductive track record to base them on, fifth-level speculations (say) about my accuracy in making fourth-level assessments remain just that – speculations – and cannot provide *evidence* worthy of the name, even if my fourth-level accuracy were in fact relevant to the first-level issue that concerns me. But further, as we have seen, it is not at all clear that my fourth-level accuracy actually has *any* such relevance, still less that a negative verdict at that level should impact negatively on my confidence in my first-level judgment. To the contrary, we observe in practice that we get less reliable as we try to reflect abstractly on our higher-level abilities (losing focus, as we do so, on our first-level subject-matter). Having made that observation, *the very same principle* that motivates Hume's argument – namely, that we should take into account any method's empirical track record when evaluating its results – tells *against* raising our reflection to any further levels. Repeatedly iterated reflection turns out to be not only practically unfeasible and psychologically difficult, but also epistemologically counterproductive, as Hume himself would surely have recognised if he had worked it through with any practical example.

To sum up, then: First, Hume has offered no reason whatever – beyond a handwaving "and so on" (T 1.4.1.6) – to justify his claim that repeated iterative reflection is rationally obligatory. Second, such iteration seems unnatural and implausible, and is contrary to any established philosophical practice, so there is a clear onus on Hume to justify his claim. Third, we have seen a sequence of strong considerations that collectively make a compelling case against such iteration, both rationally and pragmatically. Fourth, this case appeals to the very principles of probable reasoning from which the sceptical argument appears to start. Hence we can very safely conclude: *Hume's statement at T 1.4.1.6 that "we are oblig'd by our reason" to engage in extreme iterative doubt is both incorrect, and also runs contrary to his own more general principles*.

7. Does Hume Himself Accept the Obligation of Reason?

These apparent tensions in Hume's position might, however, be mitigated if his Regress Argument was intended as a *reductio* of previous philosophers' views – reducing them either to absurdity or to manifest empirical falsehood – by taking the troublesome obligation of reason to be *their* commitment rather than his own. And his text does indeed rather suggest this, in two ways. First, he acknowledges that he himself cannot "sincerely assent" to the argument and relinquish all his beliefs, because they are subject to nature's "absolute and uncontroulable necessity" (*T* 1.4.1.7). Then he appears to describe the argument not as his own invention, but as borrowed from "those sceptics, who hold that all is uncertain, and that our judgment is not in *any* thing possest of *any* measures of truth and falshood":

> My intention then in displaying so carefully the arguments of that fantastic sect, is only to make the reader sensible of the truth of my hypothesis, *that all our reasonings concerning causes and effects are deriv'd from nothing but custom; and that belief is more properly an act of the sensitive, than of the cogitative part of our natures*. (*T* 1.4.1.8)

Emphasising this passage, Annette Baier situates Hume's argument within a broader narrative of the *Treatise* as a "progress of sentiments" in which the scope of "reason" is progressively widened to become sensitive and ultimately social, rather than purely intellectual: "Hume claims explicitly that [*Treatise* 1.4.1] is directed at reason as ratiocination or cogitation ... displaying ... the arguments of the 'fantastic sect' of sceptics who try to destroy ratiocination with their ratiocination" (Baier 1991, p. 61). She elsewhere describes the target of Hume's *reductio* strategy as "rationalism" (p. 87), "rationalist or intellectualist reason" and "calculative (non-causal) reasoning" (p. 96). The common factor here seems to be not so much a particular philosophical view, or a particular rationalist philosopher, as a broad contrast with Hume's own "sensitive" picture of causal inference. Likewise Morris – whose account of the supposed obligation of reason we saw in §4 above – interprets Hume's Regress Argument as a *reductio*, starting from the false ideal of "rationally reflective epistemic agency" and proving its absurdity: "Hume is saying that … if we were reflective rational epistemic agents, then not only would we know nothing, *we would be unable to form any beliefs at all!"* (Morris 1989, p. 59).[32]

Although this sort of interpretation has obvious attractions, not least that it potentially absolves Hume from the fallacies implicit in the Regress Argument, it seems to me both historically and textually implausible. First, it is far from clear that any previous philosophers would actually have been committed to the novel and radically sceptical argument that Hume would thus be foisting on them. Even if they agreed with its reasonable initial moves, namely the Uncertainty Argument and the introduction of second-level reflection, he could not expect that this would force them into his vicious regress, *unless he himself took this to be a genuine rational requirement*. Further, as we have already seen, he apparently sees the argument's logic as starting from *his own* method of "probability of causes", rather than from any rival "rationalist" position, and the argument's faults, as uncovered in §5 and §6 above, are sufficiently general that, once they have been recognised, the argument simply ceases to pose a coherent *reductio* of *any* plausible ideal of reasoning, whether "intellectualist", "calculative", "rationally reflective", or whatever. So if the argument is indeed supposed to be a *reductio* of some previous view of reason, it is hard to identify which target Hume might have in mind. Both Baier and Morris gesture towards Descartes, whose "method of doubt" does indeed recommend fundamental questioning of our faculties with the sort of insistent rigour that Hume's argument displays.[33] But the

[32] In a similar spirit, Allison (also cited in §4 above) explains Hume's regress as involving not "how a normal human reasoner ought to perform, but how a maximally responsible but fallible reasoner *would* proceed": "Hume is arguing counter-factually that if reason were to act alone …, then the total extinction of belief would occur. And, since this does not occur, it follows that reason does not operate in this way" (2008, p. 227). Schmitt likewise sees Hume as considering "a certain counterfactual idealization of a human subject, *one using reason unlimited by the imagination*" (2014, p. 321).

[33] Morris indicates in an endnote that his phrase "rationally reflective epistemic agents" (1989, p. 40) is intended to cover pre-Humean "'Cartesian' or 'rationalist'" conceptions, but to be "forward looking as well" (p. 59, n. 8). Baier refers to "Book One's *reductio ad absurdum* of Cartesian intellect" (1991, p. 21), and says that in Part 4, "It is Cartesian-style justification that is sought, and found missing" (p. 106), though she admits in an endnote to having "done Descartes an injustice by using him as the fall guy in the exposition of Hume's moves, since the actual Cartesian position gives the passions of the soul a vital role to play in the search for truth" (p. 298, n. 16). This *reductio* line of interpretation was

recursive *probabilistic* doubts of Hume's argument seem very un-Cartesian, because the method of doubt explicitly rejects anything short of *certainty*, and Descartes accordingly shows little interest in probability.[34] Even if Descartes had such an interest, moreover, there is nothing in his texts to suggest that he would be committed to accepting the dubious steps that we have identified in the Regress Argument. That argument's main problem, to be clear, is not that it is obsessively concerned with rationally reflective doubt (of which Descartes might well approve); rather, it is that the argument's way of applying that doubt is fundamentally *irrational*. For as we saw in §5 and §6 above, Hume is simply mistaken in supposing that thoroughgoing rational reflection would have the consequences that he alleges. So from a logical point of view, the Regress Argument cannot *in fact* provide a cogent *reductio* of Descartes's view of reason (nor, I suspect, that of any other prominent pre-Humean philosopher). And from an interpretative point of view, if Hume mistakenly thought that the Regress Argument *did* provide a cogent *reductio*, then this could only apparently be because he himself failed to see the argument's faults, in which case the *reductio* interpretation loses most of its point.

Quite apart from the difficulty of identifying some prior view of reason that provides a plausible target for a would-be *reductio*, Hume's text gives the clear impression that he himself indeed views the problematic obligation of reason as entirely genuine, and accordingly accepts the Regress Argument as a cogent challenge. Passages confirming this – either explicitly or implicitly – occur repeatedly both in *Treatise* 1.4.1 and in two subsequent sections of Book 1 Part 4 (emphasis added in all cases):[35]

> *we are oblig'd by our reason* to add a new doubt ... of which ... we cannot avoid giving a decision. ... when I ... turn the scrutiny against every successive estimation I make of my faculties, *all the rules of logic require a continual diminution, and at last a total extinction of belief and evidence*. (*T* 1.4.1.6)
>
> *I have here prov'd, ...; I say, I have prov'd*, that these same principles, ... *must*, by continually diminishing the original evidence, at last reduce it to nothing, and utterly subvert all belief and opinion. ... But as experience will sufficiently convince any one, who thinks it worth while to try, that *tho' he can find no error in the foregoing arguments*, yet he still continues to believe ... (*T* 1.4.1.8)
>
> But here, perhaps, it may be demanded, how it happens, *even upon my hypothesis*, that these arguments above-explain'd produce not a total suspense of judgment, and after what manner the mind ever retains a degree of assurance in any subject? (*T* 1.4.1.9)
>
> This sceptical doubt, both with respect to reason and the senses, is a malady, which can never be radically cur'd ... *'Tis impossible upon any system to defend to defend* either *our understanding* or senses; and we but expose them farther when we endeavour to justify them in that manner. ... *Carelessness and inattention alone can afford us any remedy*. (*T* 1.4.2.57)
>
> *I have already shewn, that the understanding, when it acts alone, and according to its most general principles, entirely subverts itself*, and leaves not the lowest degree of evidence in any proposition, either in philosophy or common life. *We save ourselves from this total scepticism only by means of that ... seemingly trivial property of the fancy, by which we enter with difficulty into remote views of things ...* [If we accept refin'd reasoning], *we subvert entirely the human understanding.* (*T* 1.4.7.7)

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also anticipated by Passmore (1952, p. 135): "Hume, it must be remembered, is working within the Cartesian tradition; and within that tradition his argument is effective *ad hominem*".

[34] This is related to another characteristic of Descartes's method, that its main focus is on avoiding falsehood rather than maximising truth. The Regress Argument, by contrast, is directed against those who are comfortable with accepting *some* probability of falsehood, but would not wish to see that probability raised to the point of indifference.

[35] There is also a passage in the 1740 *Abstract* that appears to be endorsing Hume's scepticism with regard to reason: "Philosophy would render us entirely *Pyrrhonian*, were not nature too strong for it." (*A* 27).

At *T* 1.4.1.6, after stating the supposed obligation of reason, Hume implies that it is required by "all the rules of logic". At *T* 1.4.1.8, he indicates that no error can be found in the Regress Argument. At *T* 1.4.1.9-10, he recognises a challenge to explain *on his own principles* why we do not totally suspend belief in response to the argument, and his answer is not that the argument is in any way faulty, nor that it is merely a *reductio* of other philosophers' principles, but rather, that we psychologically lose focus after the first couple of stages. In the last paragraph of *T* 1.4.2, having finished his companion discussion of "scepticism with regard to the senses", Hume refers back to *T* 1.4.1 as having shown that human reason is indefensible, and repeats that only "carelessness and in-attention" enable us to avoid scepticism. Finally, in the concluding section of Book 1, he again repeats both of these messages, shortly before going on to draw from them "a very dangerous dilemma" (*T* 1.4.7.6) which is crucial to the entire discussion of that section (and which we shall consider briefly in §10 below). Here the epistemic annihilation threatened by "scepticism with regard to reason" seems to be posed as a serious problem *for Hume himself*, and one that bothers him greatly.[36] In short, every one of the texts quoted above indicates that Hume considers the Regress Argument to be entirely successful in rational terms, and there is no text in the *Treatise* that even suggests the reverse, with the single exception of the passage at *T* 1.4.1.8 which gives a hint that the argument is not his own.

8. A Reductio of Rival Theories of Belief?

What, then, are we to make of that passage from *T* 1.4.1.8, briefly quoted at the beginning of the previous section, which seemed to suggest that Hume intends his argument as a *reductio*? Such an interpretation is indeed plausible, but if we read further within the same paragraph, we find clear evidence that Hume's likely target here is not so much a rival theory of *reasoning*, as a rival theory of *belief*:

> If belief ... were a simple act of the thought, without any peculiar manner of conception, or the addition of a force and vivacity, it must infallibly destroy itself, and in every case terminate in a total suspense of judgment. But as experience will sufficiently convince any one …, that tho' he can find no error in the foregoing arguments, yet he still continues to believe, and think, and reason as usual, he may safely conclude, that his reasoning and belief is some sensation or peculiar manner of conception, which 'tis impossible for mere ideas and reflections to destroy. (*T* 1.4.1.8)

As we shall see, however, an interpretation in terms of *this* sort of *reductio* fails to defend Hume against the allegation of fallacy. For he could only reasonably consider the sceptical argument as a refutation of the offending theory of belief if he takes that argument to be itself *rationally* faultless: the supposed refutation arises because our psychological belief fails to match up to *genuine* rational requirements.

Hume's description of the rival theory is more explicit about what it does *not* involve (namely, a "peculiar manner of conception" or "force and vivacity") than about its positive account (of belief as "a simple act of the thought"). Donald Ainslie attempts to fill this out, identifying Hume's target here

[36] Some scholars – e.g. Baier (1991, ch. 1), Singer (1995), and Garrett (1997, ch. 10; 2006) – interpret the apparent dismay in *Treatise* 1.4.7 as portraying the drama of a train of thought, rather than expressing enduring anxieties, and accordingly consider Hume's text to be carefully choreographed and under control. Loeb (2002, p. 16) instead sees genuine destruction, but "delight in the result", "relish" and even "glee" within the chaos. Durland (2011) offers a systematic (but ultimately pessimistic) survey and analysis of the various ways in which scholars have attempted to reconcile the tensions in this section of the *Treatise*. See also note 51 below.

as a conception of rational belief developed by the ancient Stoics and revived by Descartes and Malebranche, which relies on *assent* or an *act of will* (Ainslie 2015, pp. 27-8), thus conceiving of belief as standardly self-conscious and deliberative:

> Where Hume models belief on the basis of our unreflective thinking, the Stoics and their early-modern descendants take the opposite approach, modelling belief on the self-conscious reasoning we undertake when trying to be sure to get things right. And so they treat what Hume calls the "reflex act of the mind," whereby we consider whether a perceived connection should be accepted, not as an option that we sometimes exercise, but as necessary in every belief. (Ainslie 2015, p. 30).

This model of the mind portrays us as "standing over" the deliverances of our mental faculties, and "takes us to be as it were superintendents of our mental processes, where the superintendent is different in kind and superior to that which it oversees ... [with] the ability to withhold our cognitive commitments until all the considerations have been properly taken into account" (Ainslie 2015, p. 31).

But this view of ourselves as superintendents or overseers of our mental processes was by no means confined to Stoics and Cartesians, for it seems to be implicit in the mental taxonomies that were widely accepted for most of the early modern period. Arnauld and Nicole's influential *Port Royal Logic* describes "the four principal operations of the mind: *conceiving*, *judging*, *reasoning*, and *ordering*" (1662, p. 23). John Locke gives a somewhat similar fourfold distinction: first, "the discovering ... of Proofs" (i.e. intermediate ideas); second, "the laying [Proofs] in a clear and fit Order, to make their Connexion and Force be plainly and easily perceived"; third, ... "the perceiving their Connexion"; and fourth, "the making a right conclusion" (*Essay* IV xvii 3). Colin Drummond, who taught Hume logic at Edinburgh, preferred a threefold taxonomy of *apprehension*, *judgment*, and *discourse*, explicitly rejecting *method* as overblown by the Cartesians.[37] Hume himself, in a long footnote at *T* 1.3.7.5, challenges the "establish'd maxim ... universally receiv'd by all logicians [which] consists in the vulgar divisions of the acts of the understanding, into *conception*, *judgment* and *reasoning*".[38] This orthodoxy was long-lived, as witnessed by Thomas Reid's much later report that "The intellectual powers of the mind are commonly divided into simple apprehension, judgment, and reasoning" (1785 I.vii, p. 65). All of these taxonomies treat *judgment* as distinct from *reasoning*, thus suggesting a structure in which the judgment *stands over* (Ainslie's term) the deliverances of the other operations of reason in drawing its conclusions. This kind of hierarchical structure is made even more explicit by Francis Hutcheson, in a Latin teaching text published soon after Hume's *Treatise*, where he says that our senses "report to the understanding", and he explains the function of memory as being to preserve for the mind "all the furniture of ideas that the faculty of judging and reasoning makes use of" (1744, pp. 112, 121). On the basis of such passages, I have elsewhere described the dominant orthodoxy in terms similar to Ainslie's: the mental faculties form "a hierarchical structure, with ... various powers 'reporting to' an *overseer* faculty – reason or the understanding proper – which perceives and judges the deliverances of the

[37] See Stewart (2005), pp. 13-14. For relevant references to other logicians and writers of the period, see the note on *T* 1.3.7.5 n. 20 in Norton and Norton (2007), p. 742.

[38] Perhaps significantly, Hume appends this footnote to his own definition of belief as "A LIVELY IDEA RELATED TO OR ASSOCIATED WITH A PRESENT IMPRESSION", thus potentially corroborating the connection that Ainslie proposes between Hume's theory of belief and his rejection of the "superintendent" or "overseer" model.

subordinate faculties in order to establish truth".[39]

Ainslie's suggestion that Hume's Regress Argument is targeting this view can indeed help to make sense of the quotations from *T* 1.4.1.8 above. There, Hume contrasts his own "hypothesis, ... *that belief is ... an act of the sensitive ... part of our natures* ... [and involves a] peculiar manner of conception, or the addition of a force and vivacity", with the rival established theory that "belief [is] a simple act of the thought, without any peculiar manner of conception". And Hume here particularly emphasises two related aspects of his theory which would be in tension with the overseer model, namely that he sees belief as arising from the causal operation of *custom*, and as doing so in a manner that "'tis impossible for mere ideas and reflections to destroy". The previous paragraph (*T* 1.4.1.7) also stresses these same two points, in the course of explaining why the Regress Argument fails in practice to undermine our beliefs (even though, as noted earlier, we can "find no error" in it):

> Nature, by an absolute and uncontroulable necessity has determin'd us to judge as well as to breathe and feel; nor can we any more forbear viewing certain objects in a stronger and fuller light, upon account of their customary connexion with a present impression, than we can hinder ourselves from thinking as long as we are awake, or seeing the surrounding bodies, when we turn our eyes towards them in broad sunshine.

On Hume's theory as developed in *Treatise* 1.3.6-12, the operation of custom *automatically* enhances the vivacity of ideas, generating the "manner of conception" or distinctive *feeling* that constitutes belief,[40] in a way that is entirely involuntary and leaves no room for any supervisory "act of assent" by some faculty of rational oversight.[41] Thus if, as Hume suggests at *T* 1.4.1.8, the point of the Regress Argument is indeed to support his theory of belief, then it is plausible to see it as doing so by providing a would-be *reductio* of the overseer model.

Understanding the Regress Argument as performing this role, however, cannot absolve Hume of its logical errors. For thus interpreted, Hume's attack on the overseer model of reason is based on an alleged mismatch with our actual doxastic behaviour, and in particular, the fact that we continue to hold beliefs despite the contrary imperative of the Regress Argument. The Humean challenge to that model is thus *empirical* rather than purely *conceptual*, and does not dispute the supposed obligation of reason "to withhold our cognitive commitments until all the considerations have been properly taken into account" and hence to engage in the iterated reflection that generates the sceptical regress (Ainslie 2015, p. 31).[42] Indeed, such an attack can be effective only on the supposition that the obligation of reason is

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[39] Millican (2012) p. 81, emphasis added. I am encouraged to find that Ainslie's discussion has converged on a similar position from a quite different direction, since my own principal focus at the time was Hume's views on *induction*.

[40] From the *Abstract* and *Appendix* onwards, Hume frequently refers to belief as a certain *feeling*, e.g. *T* 1.3.10.10; *App*.2-4, 7-8; *A* 22-4; *E* 5.11-12. For an insightful discussion of the development of these views, see Broackes (2002).

[41] However, there is some tension between *T* 1.4.1.7, which suggests that custom compels belief immediately, without any opportunity for rational oversight, and *T* 1.4.1.10, which explains that the Regress Argument fails to eliminate our beliefs because *beyond the first two stages*, "the action of the mind becomes forc'd and unnatural, and the ideas faint and obscure". The latter suggests that we *can* reflectively "supervise" our beliefs up to a point. And this fits with Hume's emphasis elsewhere on reflectively *disciplined* inductive inference using general rules (e.g. *T* 1.3.10.12, 1.3.13.11-12), and in particular his "rules by which to judge of causes and effects" (*T* 1.3.15). Hence his opposition to the overseer model is not as straightforward as might initially appear.

[42] Ainslie's own discussion of how "the process of checking iterates" (2015, p. 23) gives the impression that he – like Hume – accepts that the rational obligation would apply if the overseer model were correct. Thus we would apparently be displaying rational weakness when we fail to follow it through and "soon give up the argument surrendering to our natural inclination to believe our reasoning" (p. 24).

genuine. For if it were not – if it turned out that we had no rational obligation to enter the sceptical regress even if doing so were psychologically possible for us – then Hume's attempt to show that the overseer model would lead to a complete loss of belief would clearly fail. So to the extent that we have evidence – as Ainslie plausibly provides – that the overseer model is indeed a significant Humean *target* here, we have more justification (rather than less) for taking the supposed rational obligation to be something that Hume *accepts*, at least in the *Treatise*. This was a serious mistake on his part, as we have seen in §5 and §6 above. But I shall now argue that he himself later recognised this mistake, and decisively corrected it in the first *Enquiry*.

9. Hume's Abandonment of the Regress Argument

Hume's Regress Argument is, I have argued, fundamentally flawed, and there is no way of saving it. But Hume is generally a much better philosopher – and far more logically astute – than this fallacious argument would suggest, and I believe that he himself soon came to see its flaws, most likely when attempting to spell it out more clearly. After publishing the *Treatise*, Hume quickly started reviewing both his philosophical positions and his presentation of them, and even before Book 3 was published, the 1740 *Abstract* shows him reassessing and reorganising the material of Book 1 in the direction of what would become the first *Enquiry* of 1748.[43] Although the *Enquiry* omits many topics that were covered in the *Treatise* (for example space and time, materialism and the soul, personal identity), and omits or downplays the detailed associationist psychology (most notably in discussing belief, probability, and the external world), nevertheless it tends to expand on, rather than abbreviate, the most philosophically central discussions that it does include (notably regarding induction, necessary connexion, free will, and attitudes to scepticism). Also, and strikingly, the presentations in the *Enquiry* are illustrated with vastly more *examples* than those in the *Treatise*, and these examples are typically more highly developed.[44] Hence it seems very likely that when working towards the *Enquiry* and considering his treatment of scepticism within it, Hume would have endeavoured to spell out his novel and shocking Regress Argument more explicitly than he did in *Treatise* 1.4.1, illustrating it with some appropriate example(s) to make its coherence and implications clear. I tried, unsuccessfully, to do just this in §§5-6 above, with my example of the quadratic equation, and feel confident that Hume would likewise have failed. His argument purports to apply to any reasoning whatever, but in reality it is hard to invent *even a single case* in which iteration makes sense beyond a few stages.[45] Even to the extent

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[43] The clear parallels between these two works are set out in my (2002), pp. 52-63. Regarding scepticism, however, the *Abstract* provides only one paragraph (*A* 27), which seems more in line with the *Treatise* than with the *Enquiry*, since it appears to endorse Hume's "scepticism with regard to reason" (see note 35 above).

[44] Thus the discussion of the idea of necessary connexion in the *Treatise* barely mentions the examples of billiard balls (*T* 1.3.14.18), a couple of mathematical relations (*T* 1.3.14.23), and a blind man's false suppositions that scarlet is like a trumpet sound, and light like solidity (*T* 1.3.14.27); while the parallel discussion in the *Enquiry* mentions billiard balls repeatedly (*E* 7.6, 21, 28, 30), heat and flame (*E* 7.8), the influence of will on our limbs and other organs (*E* 7.9, 12, 14), a man struck with palsy (*E* 7.13), our power to raise up a new idea (*E* 7.16), the effects of sickness, time of day, and food (*E* 7.19), descent of bodies, growth of plants, generation, and nourishment (*E* 7.21), and vibration of a string causing a sound (*E* 7.29). In the case of induction, the contrast is even starker, with *T* 1.3.6 briefly mentioning only one example (flame and heat at *T* 1.3.6.2), while *E* 4 contains over twenty, some of which are developed extensively (e.g. billiard balls at *E* 4.8-10; momentum at *E* 4.13, 16; the nourishing qualities of bread at *E* 4.16, 21).

[45] If this claim is disputed, I offer a Humean challenge: you "have only one, and that an easy method of refuting it; by producing" an example where deep iteration makes good sense. "I cannot find, I cannot imagine any such [example].

that it does make sense, moreover, there is no compelling reason to expect that it will lead towards "extinction of belief" (*T* 1.4.1.6). So if, in the early 1740s, Hume attempted to polish his argument to the presentational standards of the *Enquiry* – and, in particular, to elucidate it with examples – then he must surely have recognised its inadequacies for himself.

The consequences of this discovery for the overall development of Hume's philosophy are less evident, though we can hazard some plausible speculations, corroborated by traces in the *Enquiry* despite the lack of any explicit mention of the argument there. The Regress Argument was novel and ingenious, and might also have particularly appealed to Hume as providing an attractive synthesis between the Pyrrhonian "mode of infinite regress" and the probable appearances accepted by Academic sceptics. If, however, its probabilistic ingenuities fail, then all we seem to be left with is the relatively crude iterative requirement to question our sources of assurance, effectively reducing the argument to the second sceptical mode of Agrippa, as expounded by Sextus Empiricus:[46]

> In the mode deriving from infinite regress, we say that what is brought forward as a source of conviction for the matter proposed itself needs another such source, which itself needs another, and so *ad infinitum*, so that we have no point from which to begin to establish anything, and suspension of judgement follows. (*Outlines of Scepticism*, I.166, p. 41)

Hume's dismissive comment about the "trite topics, employed by the sceptics in all ages" (*E* 12.6) suggests that he would not want to give weight to such a crude and hackneyed sceptical argument. It seems obviously unanswerable if one accepts the premise that *any* "source of conviction" must be backed up by "another such source … *ad infinitum*". And for anyone aspiring to achieve justified belief, it accordingly serves as a *reductio ad absurdum* of that premise, demonstrating that any serious epistemology must at least be prepared to take *some* "source of conviction" for granted if it is to get off the ground. Based on this line of thought, it is tempting to see, in the first *Enquiry*'s forthright rejection of *antecedent* scepticism, an implicit acknowledgement of the Regress Argument's failure:[47]

But I keep my mind still open to instruction, if any one will vouchsafe to bestow it on me." (quotations are from *E* 2.6 and 4.20; cf. also *E* 4.16, 23). To quality as a plausible example, it is not enough just to give some formal recipe for iteration – as is done, for example, by Garrett (2006, pp. 162-3; 2015, pp. 224-5) and Atkinson & Peijnenburg (2018, §§3-5) – there must also be some explanation of why iteration can reasonably be expected to improve our judgments and thus can plausibly be considered a rational obligation. For a comment on Garrett, see note 46 below. Atkinson & Peijnenburg provide an iterative sequence of tautological (and to that extent unobjectionable) formulae, but we are given no explanation why ascending the sequence might be *helpful*, since the formulae are calculable only on the implausible (and unargued) assumption that the relevant conditional probabilities are available to us at every level. Moreover, since the formulae involve an arbitrary threshold of ¾, it seems that the approach can work for *this* value only if it works for *all* values, thus requiring – again very implausibly – that the relevant probability distributions are identical at every level.

[46] See also the "Two Modes" of "the more recent Sceptics" that Sextus presents at *Outlines* I.178-9. Despite the apparent relative crudity of these sceptical modes, Dauer (1996, pp. 214, 223) and Garrett (2015, pp. 223-6) understand Hume's Regress Argument in ways that are structurally similar, demanding an infinite hierarchy of increasingly high-level judgments to the effect that the previous judgment in the series is respectively "OK" (i.e. founded on reasoning that contains no illegitimate steps) or "seemly" (i.e. not overconfident). This sort of reading makes the argument much simpler than Hume's text suggests, removing any reference to specific or varying probabilities, and treating the issue at each level as simply binary (i.e. either OK/seemly, or not). But technically this approach may give the best chance of making sense of the iterative reduction that Hume claims, because it focuses on a single *positive* judgment at each level, making it plausible that weakening at any point in the hierarchy would iterate downwards. Even if it can thus evade the problems discussed in §5 above, however, it still fails to the more fundamental objections in §6.

[47] This tempting speculation is strikingly corroborated by Thomas Reid's discussion of Hume's Regress Argument, which ultimately leads along this very same path, making points against antecedent scepticism that are very similar to Hume's in the *Enquiry*: "If the Sceptic can seriously doubt of the truth and fidelity of his faculty of judging when properly used, and suspend his judgment upon that point till he finds proof, his scepticism admits of no cure by reasoning … until he shall have new faculties given him, which shall have authority to sit in judgment upon the old. … The

> There is a species of scepticism, *antecedent* to all study and philosophy, which is much inculcated by DES CARTES and others … It recommends an universal doubt ... of our very faculties; of whose veracity, say they, we must assure ourselves, by a chain of reasoning, deduced from some original principle, which cannot possibly be fallacious or deceitful. But neither is there any such original principle, ... Or if there were, could we advance a step beyond it, but by the use of those very faculties, of which we are supposed to be already diffident. The Cartesian doubt, therefore, were it ever possible to be attained by any human creature (as it plainly is not) would be entirely incurable; and no reasoning could ever bring us to a state of assurance and conviction upon any subject. (*E* 12.3)

Hume here interprets such scepticism as demanding *prior* verification of our faculties before we are permitted to rely on them, which plausibly fits both with the sceptical mode's iterating demand for a "source of conviction", and the Regress Argument's iterating demand for probabilistic confirmation.[48] He now rejects this as obviously hopeless, in putting an onus on the believer to justify his epistemic faculties against the sceptic *ab initio*. Far more appropriate is to accept the believer's reasonable default assumptions (plausible examples being *that external objects exist*, *that memory is broadly reliable*, *that clear and distinct conceivability implies possibility*, and *that the future will resemble the past*), and to put an onus on the sceptic to defeat these assumptions by showing "either the absolute fallaciousness of [our] mental faculties, or their unfitness to reach any fixed determination" (*E* 12.5). This strategy thus involves a rejection of *antecedent* scepticism in favour of what Hume here calls *consequent* scepticism. Faced with such a challenge, the sceptic cannot win by lazily iterating abstract doubts, as the sceptical mode or the Regress Argument would prescribe; instead, he must actively present some compelling *objection* to our epistemic faculties, apparently in the form of either some contradiction or incoherence ("absolute fallaciousness"), or else irremediable empirical error ("unfitness to reach any fixed determination").

Hume demonstrates the effectiveness of this strategy in his rejection of extreme scepticism later in Section 12 of the *Enquiry*, notably in the central case of induction. First, he dismisses the "*popular*" objections to "reasonings concerning matter of fact" – those deriving from natural error and differences of opinion according to circumstance – as "but weak" (*E* 12.21), just as he had earlier rejected the "trite topics … against the evidence of *sense*" (*E* 12.6). Such objections show only that we must rationally *correct* our judgments and take circumstances into account; they cannot realistically hope to persuade us to disregard completely either sensory or inductive evidence. More substantial are the "*philosophical* objections, which arise from more profound researches" (*E* 12.22), and in particular, Hume's own sceptical argument of Section 4 which he now puts into the mouth of the sceptic. That argument seems

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Sceptic has here got possession of a strong hold which is impregnable to reasoning, and we must leave him in possession of it, till Nature, by other means, makes him give it up. … no reasoning can prove the truth and fidelity of our faculties. … For it is evident, that every argument offered to prove the truth and fidelity of our faculties, takes for granted the thing in question" (1785 VII.iv, p. 571).

[48] Hume's description of "antecedent" scepticism might seem to imply that he takes such scepticism to be by definition entirely *a priori*, in which case it would not encompass the argument of *Treatise* 1.4.1, since that starts from the empirical observation that "our fallible and uncertain faculties are very apt to ... fall into error". Such an interpretation, however, seems inconsistent with Hume's taking "Cartesian doubt" as a paradigm, given that Descartes's own sceptical arguments start from his empirical awareness of "the large number of falsehoods that I had accepted as true", his finding that "the senses deceive", and his appeal to the possibility of dreaming which is also empirically based (CSM ii 12-13, AT 17-19). Passmore appears to favour the *a priori* interpretation, while acknowledging that "the 'scepticism with regard to reason' which Hume presents in the *Treatise* … is there commingled, as it is in Descartes, with what Hume calls 'consequent scepticism' – the scepticism which arises out of our discovery that our faculties not only might, but do in fact, lead us into error." (1952, p. 134).

to give the sceptic "ample matter of triumph; while he justly insists" on *our lack of rational grounding* for the assumption of uniformity which underlies all our inference to unperceived matters of fact. But against this, *the sceptic cannot point to any advantage in our giving up that assumption*: "On the contrary, he must acknowledge, if he will acknowledge any thing, that all human life must perish" were we "universally and steadily" to relinquish inductive inference (*E* 12.23). Nor can he demonstrate any fundamental problem – such as logical inconsistency – in the assumption of uniformity. So if we start from default *acceptance* of our natural faculty of inductive inference, then the sceptical argument is disarmed. Ultimately, therefore, that argument "can have no other tendency than to show the whimsical condition of mankind, who must act and reason and believe; though they are not able, by their most diligent enquiry, to satisfy themselves concerning the foundation of these operations". But notice that our continuing in this whimsical condition – i.e. reasoning inductively without any foundational basis – can be *epistemologically* legitimate only because the traditional Cartesian onus of proof has been shifted. And it is Hume's dismissal of antecedent scepticism at *E* 12.3 which has prepared the ground for this shift, enabling induction to survive the sceptical onslaught undefeated, even though we would be unable to establish its credentials in advance against the sceptic.

There is another possible relic of the Regress Argument in the very next paragraph of the *Enquiry*, where Hume approvingly mentions a "more moderate" version of antecedent scepticism:

> To begin with clear and self-evident principles, to advance by timorous and sure steps, to review frequently our conclusions, and examine accurately all their consequences; though by these means we shall make both a slow and a short progress in our systems; are the only methods, by which we can ever hope to reach truth, and attain a proper stability and certainty in our determinations. (*E* 12.4)

Here he retains from the *Treatise* the acknowledgement that we are fallible, and that checking is therefore desirable to maximise the reliability of our judgments. But instead of iterating to progressively higher levels, he now advocates checking at the base level only, taking care "to advance by timorous and sure steps, to review frequently our conclusions, and examine accurately all their consequences".[49] This is in striking contrast to the method advocated in *Treatise* 1.4.1, and similar in spirit to the views suggested near the beginning of §6 above in *rejecting* the Regress Argument, thus tending to confirm that Hume himself has, by now, seen what is wrong with that argument. More evidence to the same effect comes at *E* 12.18, where he says that "The chief objection against all *abstract* reasonings is derived from the ideas of space and time", which would not be the case if the Regress Argument worked. Taking all this together, we have good reason to conclude that Hume omitted the Regress Argument from the *Enquiry* not merely for the sake of brevity, but because he had by 1748 recognised its failure.

[49] Meeker (2013, pp. 91-6) argues that this "more moderate" scepticism of *E* 12.4 could be just as radical as that of the *Treatise*, highlighting the stated requirements to begin with *self-evident* principles and to examine *all the consequences* of our conclusions (though he acknowledges that these are hyperbolic and not to be taken literally). But his main point – that reviewing and examining consequences would naturally lead back to the Regress Argument – clearly fails if Hume had by then seen the fatal flaws in that argument. Hence Meeker's reasoning would tend to confirm that Hume had indeed seen these flaws, given that the *Enquiry* describes this scepticism as "more moderate", and does not follow through to draw such extreme consequences.

10. Conclusion: The Significance of Hume's Regress Argument

Although Hume's Regress Argument is fallacious, it has an interpretative significance out of all proportion to its philosophical merits. When writing the *Treatise*, Hume himself evidently found it epistemologically – though not psychologically – compelling, and gave it pride of place at the very beginning of his extended treatment of scepticism in Book 1 Part 4. There it sets the tone for much of what follows, emphasising both the extreme sceptical thrust of his philosophy, and the strong divergence between his negative epistemological conclusions and his psychological compulsion to believe. Both of these themes come to a head briefly at the end of Section 1.4.2 (where Hume stresses commonalities between the first two sections), and then in a far more sustained manner in the Conclusion of Book 1.

In that concluding Section 1.4.7, it is the disastrous upshot of his "scepticism with regard to reason" that plays the crucial role in wrecking any prospect for a rational resolution of Hume's difficulties, by undermining the distinction that he had meanwhile prominently introduced at the beginning of his discussion "Of the modern philosophy":

> In order to justify myself, I must distinguish in the imagination betwixt the principles which are permanent, irresistible, and universal; such as the customary transition from causes to effects, and from effects to causes: And the principles, which are changeable, weak, and irregular; … the former are received by philosophy, and the latter rejected. (*T* 1.4.4.1)

At *T* 1.4.7.7, Hume characterises this distinction as being between, on the one hand, "the general and more establish'd properties of the imagination" – which he identifies with "the understanding" – and on the other hand, "the trivial suggestions of the fancy". By then the distinction has already been put under some pressure from the discovery that there is "a direct and total opposition" between "those conclusions we form from cause and effect, and those that persuade us of the continu'd and independent existence of body" (*T* 1.4.4.15, recalled at *T* 1.4.7.4). But the killer blow comes from what Hume calls "a very dangerous dilemma" as to whether we should, in our reasonings, restrict ourselves to the "general" and respectable principles while rejecting those that are "trivial" and disreputable. There is an obvious argument in favour of doing so:

> For if we assent to every trivial suggestion of the fancy; beside that these suggestions are often contrary to each other; they lead us into such errors, absurdities, and obscurities, that we must at last become asham'd of our credulity. (*T* 1.4.7.6)

In response, however, the result of *Treatise* 1.4.1 makes an entrance, with devastating effect:

> For I have already shewn, [Note: Sect. 1] that the understanding, when it acts alone, and according to its most general principles, entirely subverts itself, and leaves not the lowest degree of evidence in any proposition, either in philosophy or common life. We save ourselves from this total scepticism only by means of that singular and seemingly trivial property of the fancy, by which we enter with difficulty into remote views of things ... (*T* 1.4.7.7)

This last sentence alludes to *T* 1.4.1.10, where Hume explained the Regress Argument's failure to undermine our beliefs by appeal to our fortunate – but "seemingly trivial" – incapacity to follow its intricacies beyond the first couple of levels.[50] Taking this as a model, we might then be tempted to

[50] Note that disciplined causal reasoning using general rules such as those of *T* 1.3.15 counts as one of the "general and more establish'd properties of the imagination", to be ascribed to "our judgment" or understanding rather than to "the

"establish it for a general maxim, that no refin'd or elaborate reasoning is ever to be receiv'd" (thus perhaps elevating such a maxim to the "establish'd" side of Hume's distinction), but unfortunately this would both "cut off entirely all science and philosophy" and undermine the "refin'd and metaphysical" reasoning that has led us to this very point. Summing up:

> If we ... condemn all refin'd reasoning, we run into the most manifest absurdities. If we [accept refin'd reasoning], we subvert entirely the human understanding. We have, therefore, no choice left but betwixt a false reason and none at all. For my part, I know not what ought to be done ... (T 1.4.7.7)

It is this dilemma that provokes the apparently genuine despair in the next paragraph, in which Hume declares that he is "ready to reject all belief and reasoning, and can look upon no opinion even as more probable or likely than another" (*T* 1.4.7.8). He famously moves forward from this despair thanks to *nature*, which "cures me of this philosophical melancholy and delirium ... I dine, I play a game of back-gammon, I converse, and am merry with my friends", and this enables him to forget these speculations and later to reject them as "cold, and strain'd, and ridiculous" (*T* 1.4.7.9). There is much debate about how these and the following paragraphs should be interpreted, but this is not the time to examine such a vexed question.[51] What is entirely clear, however, is that the problems with which Hume is grappling here are largely created – and hugely intensified – by his scepticism with regard to reason and the Regress Argument in particular.

Given this context, it seems very likely that Hume's philosophy – and in particular his view on scepticism – would have changed significantly if he had come to see that his Regress Argument was a failure. I argued in §5 and §6 above that it was indeed a failure, whose superficial plausibility evaporates under close analysis such as Hume himself might have been expected to undertake in any future exposition, and in particular when composing the *Philosophical Essays* which became the first *Enquiry* (a work liberally supplied with persuasive illustrative examples which – in the case of the Regress Argument – seem impossible to devise). In §9, I corroborated this suggestion with textual evidence of Hume's having realised, at some stage before publishing this work in 1748, that the Regress Argument is seriously flawed. Indeed the first *Enquiry* manifests all the signs that we might reasonably expect to result from such a realisation:[52] neither the argument itself, nor the difficulties to which it gave rise in the *Treatise*, is even mentioned or alluded to; Hume's judgments on the two varieties of antecedent scepticism seem to rule out the need for higher-level iterative reflection and to recommend instead

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fancy" or imagination (*T* 1.3.13.11). If my argument of §6 above is correct, then such reasoning would have given Hume ample means for avoiding his dangerous dilemma without relying on "trivial properties of the fancy". That he did not see this way out – or, if he did see it, did not pursue it – somewhat corroborates Loeb's suggestion, alluded to in note 36 above, that Hume in the *Treatise* "is predisposed to secure a destructive result. … part of Hume wants to undo what he constructs, at least in application to the reflective person." (2002, p. 16). Hume's calm defence of mitigated scepticism in the first *Enquiry*, however, presents a very different outlook.

[51] Discussions that are especially relevant to the current paper are those by Morris (2000), Loeb (2002, pp. 215-29), Meeker (2013, pp. 70-81), and Ainslie (2015, ch. 7); some others are mentioned in note 36 above. Meeker puts particular emphasis on the strong influence of *Treatise* 1.4.1, and the extent to which Hume's position implies "epistemic egalitarianism" (that "all beliefs are equal, epistemically speaking", p. 17). The first four chapters of his book build a strong case for Hume's being an epistemic egalitarian in Book 1 of the *Treatise*, based mainly on the Regress Argument.

[52] It would be unreasonable to expect the *Enquiry* to include an explicit retraction of the Regress Argument. Hume very rarely discussed changes in his views, and by his own account (in the 1775 Advertisement to the second volume of his *Essays and Treatises on Several Subjects*), the *Treatise* was a "juvenile work, which the Author never acknowledged"; hence reference back to it from the *Enquiry* would be even less likely.

mundane base-level checking; while the overall sceptical orientation set out in the final section of the *Enquiry* is explicitly "mitigated" (*E* 12.24-34), a description which cannot plausibly apply to the radical all-embracing scepticism of *Treatise* 1.4.1, nor to the tortured sceptical conundrums of *Treatise* 1.4.7. Moreover, a crucial aspect of this mitigation involves a fundamental change of perspective in which the onus is put on the sceptic rather than the believer, a change that can very naturally be seen as a legacy of Hume's rejection of the "antecedent" sceptical spirit that motivated his Regress Argument.

These broader points regarding the development of Hume's sceptical outlook between the *Treatise* and the *Enquiry* have been touched on only briefly here, and will be controversial. Indeed the standard assumption amongst Hume interpreters has been, to the contrary, that his scepticism underwent no major doctrinal change in the 1740s, with most scholars either treating his work as a unified corpus, or else entirely neglecting the *Enquiry*, often apparently on the presumption that its differences from the *Treatise* are a result of the "shortening & simplifying" that he mentioned in a letter of 1751 (*HL* i 158).[53] Doctrinal continuity might indeed be a natural default assumption, but I hope that the results of this paper give reason to question it, and will encourage more scholars to examine whether there are, in fact, significant *theoretical* differences between Hume's scepticism in the *Treatise* and in the *Enquiry*, including some that may be directly traceable to his having become aware of the Regress Argument's faults. If, as I expect, such investigations prove fruitful,[54] then this will confirm that although the argument is philosophically a failure, it remains of huge interpretative significance for the development of Hume's epistemology.*

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[53] I was struck by the dominance of this orthodoxy when compiling my "Critical Survey of the Literature on Hume and the First *Enquiry*" (2002, pp. 461-72). At that time, nearly all of the discussions of Hume's scepticism that I was able to find focused on the *Treatise* rather than the *Enquiry*, and few even considered the differences between them. Those most sympathetic to such a difference were by Noxon (1973), Immerwahr (1979), and Penelhum (1979), but the most explicit comparative discussion included in the survey, McCormick (1999), argues that "the sceptical attitude" of the two works is "virtually identical" – for details, see Millican (2002, pp. 422-3, 469).

[54] My own perspective on these matters is outlined in Millican (2016), which attempts to sketch a coherent narrative of Hume's philosophical development, starting from a strong interest in causation associated with various topics of religious relevance (e.g. the Causal Maxim, materialism, and free will). Lockean conceptual empiricism provided Hume with an attractive way of addressing these topics, ultimately leading to his "chief argument" (so described in the subtitle of his *Abstract* of 1740), which then largely structures his first *Enquiry* of 1748. From this perspective, the extreme scepticism of *Treatise* 1.4 is something of a distraction from Hume's main purposes, where he is led off course by conceptual complications and ingenious arguments – most notably the one discussed in the current paper – which he later sees to be far less persuasive. A more detailed account of Hume's "epistemological evolution" between the *Treatise* and *Enquiry* is provided by Qu's recent book (2020), which considers both the scholarly and philosophical issues in considerable depth, and draws illuminating comparisons with contemporary epistemology (tending to confirm the strength of the *Enquiry*'s approach). Qu's account and my own are very much in the same spirit, though he takes *Treatise* 1.4.7 to be more philosophically coherent than I do, while I see Hume's development as driven especially by the recognition that *Treatise* 1.4.1 is fatally flawed (and a consequent realisation that extreme "antecedent scepticism" is hopeless). His book nicely illustrates how systematic comparison between Hume's two rich and complex works can shed valuable light on both of them, as well as opening new lines of study regarding Hume's development. There is huge scope here for both philosophical and historical investigation, and fertile ground – hitherto largely neglected – for future scholars to explore.

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