A Note Concerning Infinite Regresses of Deferred Justification[*]

Abstract. An agent's belief in a proposition, E_0, is justified by an infinite regress of deferred justification just in case the belief that E_0 is justified, and the justification for believing E_0 proceeds from an infinite sequence of propositions, E_0, E_1, E_2, etc., where, for all $n \geq 0$, E_{n+1} serves as the justification for E_n. In a number of recent articles, Atkinson and Peijnenburg claim to give examples where a belief is justified by an infinite regress of deferred justification. I argue here that there is no reason to regard Atkinson and Peijnenburg's examples as cases where a belief is so justified. My argument is supported by careful consideration of the grounds upon which relevant beliefs are held within Atkinson and Peijnenburg's examples.

Keywords: infinitism, foundationalism, epistemic justification, probabilistic justification.

1. Introduction

In the terms of a long running debate in epistemology, one would describe an agent's belief in a proposition, E_0, as justified by an infinite regress of deferred justification just in case the belief that E_0 is justified, and the justification for believing E_0 proceeds from an infinite sequence of propositions, E_0, E_2, E_3, etc., where, for all $n \geq 0$, E_{n+1} serves as the justification for E_n (cf. Post 1980, Moser 1985, Klein 1998, Gillett 2003, Aikin 2011). The view that belief in a proposition could be justified by an infinite regress of deferred justification is known as infinitism.[1] Infinitism is antithetical to foundationalism about justification, which maintains, roughly, that all successful chains of justification originate from *basic beliefs*, which are either self-justifying or justified by some non-doxastic fact or entity.[2]

In the minds of foundationalists and non-foundationalists alike, it is difficult to see how an infinite regress of deferred justification could generate justification for belief in a terminal proposition, E_0. It is difficult to see how justification could be generated by a regress of justification, because the 'conditional justifications' that comprise the links in such chains of justification are never discharged by appeal to a proposition whose justification is not itself conditional on the justification of some further proposition (cf. Dancy 1985, 55). It may be that the preceding 'age-old' worry (dating back to Aristotle's *Posterior Analytics*) is insufficient to yield a decisive objection to infinitism. But the worry does derive from an established

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[1] The sort of infinitism discussed here is weaker than the sort of infinitism defended by Klein, according to which propositions can *only* be justified by infinite regresses of deferred justification (Klein 1998, 2007).

[2] Whether infinitism and foundationalism are formally inconsistent depends on the exact conception of the two doctrines. I would opt for a conception of foundationalism such that justification cannot proceed from an infinite regress of propositions, while at the same time originating from basic beliefs (but see Aikin 2008, where mutually consistent versions of the two views are described). I take it that a version of foundationalism of the sort I prefer is consistent with there being cases, as proposed by Turri (2009, 162-3), where (i) an agent has access to an infinite sequence of reasons, E_0, E_2, E_3, etc., each of which is entailed by its successor, and (ii) the agent is justified in believing the first element of the sequence, E_0.

understanding of the manner in which arguments are capable of transmitting justification from premises to conclusions. And it is fair to say that this understanding legitimates a standing, though defeasible, presumption against the claim, for any given regress of deferred justification, that that regress generates justification for believing its conclusion. While there is room for debate concerning the force of the standing presumption against the justificatory capacity of regresses, it is clear that, in the context of the current debate over infinitism, one cannot make a case for infinitism *merely* by presenting an example of an infinite regress of deferred justification, and claiming that the regress does justify its conclusion. In order for the example to be rationally compelling, it would have to have relevant exceptional features, sufficient to overcome legitimate skepticism concerning the justificatory capacity of regresses.

In a number of recent articles, Atkinson and Peijnenburg (hereafter A&P) claim to provide examples where a belief is justified by an infinite regress of deferred justification (Atkinson & Peijnenburg 2009; Peijnenburg & Atkinson 2013, 2014a, 2014b). A&P's examples are offered as an argument for infinitism about justification (the view that beliefs can be justified by an infinite regress of deferred epistemic justification), and it is A&P's intention that acquaintance with their examples serve as a reason for accepting infinitism. A&P are aware of the standing presumption against the justificatory capacity of regresses. In the face of that presumption, their examples are offered as illustrating a new, and hitherto overlooked, formal possibility. In other words, A&P believe that the standing presumption against the justificatory capacity of regresses is overridden in the case of their examples, due to exceptional features of those examples. While A&P's examples do have some interesting features, I will here endeavor to show that there is no reason to regard A&P's examples as cases wherein a belief is justified by an infinite regress of deferred justification.

In addition to describing their examples as cases where a proposition is justified by an infinite regress of deferred justification, A&P claim that their examples illustrate the possibility of justifying an unconditional probability by an infinite number of conditional probabilities. I will not object to this claim. The claim that an unconditional probability could be justified by an infinite number of conditional probability statements is plausible, and consistent with foundationalism about justification.[3]

2. A&P's Examples

Before considering one of A&P's examples, it is necessary to consider some of the conceptual apparatus that A&P use in describing the examples. To begin with, A&P propose that epistemic justification is sometimes a matter of probabilistic support, where a proposition E_{n+1} is said to probabilistically support another proposition E_n if and only if E_n is more probable if E_{n+1} is true

[3] Contrary to the latter claim, A&P maintain that foundationalism is in tension with the claim that an unconditional probability could be justified by an infinite number of conditional probabilities (Peijnenburg & Atkinson 2014a). In advancing the preceding point, A&P are correct in observing that conditional probabilities are not the sort of entities that foundationalists have typically embraced as a sort of basic belief. However, in accepting that an unconditional probability could be justified by an infinite number of conditional probabilities, a foundationalist need not take the conditional probabilities as foundational. Rather a foundationalist may happily maintain that an unconditional probability could be justified by an infinite number of conditional probabilities, in a case where the conditional probabilities (or their adoption) were, in turn, justified by the agent's basic beliefs.

than if it is false (i.e., under the condition that $P(E_n|E_{n+1}) > P(E_n|\neg E_{n+1})$) (Atkinson & Peijnenburg 2009, 185; Peijnenburg & Atkinson 2013, 553). Given the notion of probabilistic support, A&P represent the structure of the justificatory regresses found in their examples as follows:

$$E_0 \leftarrow E_1 \leftarrow E_2 \leftarrow E_3 \leftarrow \ldots \infty,$$

where $E_n \leftarrow E_{n+1}$ expresses that E_{n+1} probabilistically supports E_n (Atkinson & Peijnenburg 2009, Peijnenburg & Atkinson 2014a). In addition to introducing the notion of probabilistic support, A&P identify the "unconditional probabilistic justification" for a proposition with that proposition's probability. The central claim made on behalf of their examples is then that an infinite regress of deferred justification may yield "a final unconditional probabilistic justification that is not zero" (Atkinson & Peijnenburg 2009, 185; Peijnenburg & Atkinson 2013, 553). Objections could be raised regarding A&P's (revisionary) notion of epistemic justification, since it seems incorrect to say that belief in a proposition is justified simply because it is assigned a (high) probability. But I will not pursue such objections here.

With the notions of probabilistic support and probabilistic justification in the background, I now consider a representative of A&P's examples. The particular example that I consider is apt for evaluating A&P's ideas, because its informal features provide a plausible model for the probabilities that are central to the example. The example involves a colony of bacteria whose members reproduce asexually (Atkinson & Peijnenburg 2009). Asexual reproduction thereby functions by a 'mother' producing a 'daughter'. A&P stipulate that ancestors of the colony extend backward in time for eternity, where (in general) the probability that a daughter of a mutated mother is mutated is 0.99, and the probability that a daughter of a non-mutated mother is mutated is 0.02. Let *b* be a particular presently existing member of the described colony of bacteria, and let E_0 be the proposition that expresses that *b* is mutated. Next (for all *n* greater than zero) let E_n be the proposition that expresses that the ancestor of *b* born *n* generations in *b*'s past is mutated. We then have:

(*) $\forall n \geq 0$: $P(E_n|E_{n+1}) = 0.99 > P(E_n|\neg E_{n+1}) = 0.02$.

It follows immediately from (*) that E_{n+1} probabilistically supports E_n, for all $n \geq 0$. A&P also show that we can calculate the value of $P(E_0)$, by appeal to (*), in the following manner. The calculation begins with the observation that

$$P(E_0) = P(E_0|E_1)P(E_1) + P(E_0|\neg E_1)P(\neg E_1),$$

by the Law of Total Probability, and similarly that

$$P(E_n) = P(E_n|E_{n+1})P(E_{n+1}) + P(E_n|\neg E_{n+1})P(\neg E_{n+1}), \text{ for all } n \geq 0.$$

So, in the case where $P(E_n|E_{n+1}) = \alpha$, and $P(E_n|\neg E_{n+1}) = \beta$ (for all $n \geq 0$), we have:

$$P(E_0) = \alpha P(E_1) + \beta P(\neg E_1) = \alpha P(E_1) + \beta(1 - P(E_1)) = \beta + (\alpha - \beta)P(E_1).$$

Similarly: $P(E_1) = \beta + (\alpha - \beta)P(E_2)$, and $P(E_n) = \beta + (\alpha - \beta)P(E_{n+1})$, for all $n \geq 0$.

By replacing $P(E_1)$ with $\beta + (\alpha - \beta)P(E_2)$ in $P(E_0) = \beta + (\alpha - \beta)P(E_1)$, we have:

$$P(E_0) = \beta + (\alpha - \beta)(\beta + (\alpha - \beta)P(E_2)) = \beta + \beta(\alpha - \beta) + (\alpha - \beta)^2P(E_2).$$

By iterated applications of the preceding, we have (for all $n \geq 3$):

$$P(E_0) = \beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n + (\alpha - \beta)^{n+1}P(E_{n+1}).$$

Now note that $(\alpha - \beta)^{n+1}P(E_{n+1}) \leq (\alpha - \beta)^{n+1}$, for all n, given that $P(E_{n+1}) \leq 1$, for all n. It, thus, follows from the fact that $(\alpha - \beta)^{n+1}$ goes to zero, as n goes to infinity (since $0 < \alpha - \beta < 1$), that $(\alpha - \beta)^{n+1}P(E_{n+1})$ also goes to zero, as n goes to infinity. Given the preceding, it is possible to omit the term $(\alpha - \beta)^{n+1}P(E_{n+1})$ in the following calculation of the value of $P(E_0)$:[4]

$$\begin{aligned} P(E_0) &= \beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots \\ &= \sum_{n=0}^{\infty} \beta(\alpha - \beta)^n \\ &= \beta/(1 - \alpha + \beta), \text{ since } 0 < \alpha - \beta < 1 \text{ (by the standard formula for geometric series).} \end{aligned}$$

So where $\alpha = P(E_n|E_{n+1}) = 0.99$ and $\beta = P(E_n|\neg E_{n+1}) = 0.02$ (as we have A&P's example), $P(E_0) = 2/3$. In other words, (*) entails that $P(E_0) = 2/3$.

In A&P's example, we have $P(E_n|E_{n+1}) > P(E_n|\neg E_{n+1})$, for each link $E_n \leftarrow E_{n+1}$, among the infinite sequence $E_0 \leftarrow E_1 \leftarrow E_2 \leftarrow E_3 \leftarrow \ldots \infty$. We can also compute that $P(E_0) = 2/3$, given (*). So according to the definitions introduced by A&P, we have:

(1) E_0 is the terminus of an infinite sequence of propositions, where each proposition in the sequence probabilistically supports the proposition to its left.

(2) E_0 is unconditionally probabilistically justified (i.e., E_0's unconditional probabilistic justification is 2/3, or, in other words, $P(E_0) = 2/3$).

3. Evaluation of A&P's Example

A&P claim that the preceding example is one in which the belief that E_0 is justified by an infinite regress of deferred justification. I deny that this is so. To get to the bottom of the matter, we will have to think carefully about the grounds upon which respective beliefs are held within the example.

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[4] To be precise, it follows from $P(E_0) = \beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n + (\alpha - \beta)^{n+1}P(E_{n+1})$, for all $n \geq 3$, that $\lim_{n\to\infty} P(E_0) = \lim_{n\to\infty} (\beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n + (\alpha - \beta)^{n+1}P(E_{n+1}))$. But $\lim_{n\to\infty} P(E_0) = P(E_0)$, and $\lim_{n\to\infty} (\beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n + (\alpha - \beta)^{n+1}P(E_{n+1})) = \lim_{n\to\infty} (\beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n) + \lim_{n\to\infty} (\alpha - \beta)^{n+1}P(E_{n+1})$ [by the Sum Rule] $= \lim_{n\to\infty} (\beta + \beta(\alpha - \beta) + \beta(\alpha - \beta)^2 + \ldots + \beta(\alpha - \beta)^n)$ [since $\lim_{n\to\infty} (\alpha - \beta)^{n+1}P(E_{n+1}) = 0$] $= \sum_{n=0}^{\infty} \beta(\alpha - \beta)^n$. So $P(E_0) = \sum_{n=0}^{\infty} \beta(\alpha - \beta)^n$.

Assuming we accede to A&P's conceptions of probabilistic support and probabilistic justification, it may appear that their example counts as a case where a belief is justified by an infinite regress of deferred justification simply because (1) and (2) hold.[5] The idea would be that (2) expresses that belief in E_0 is justified (to degree 2/3), while (1) expresses that this justification proceeds from an infinite regress of deferred justification. As a matter of fact, the satisfaction of (1) and (2) is insufficient to make A&P's example a case where a belief is justified by an infinite regress of deferred justification. In order to see why the satisfaction of (1) and (2) is insufficient, notice that (1) and (2) would be true of an agent who was justified in accepting (*), and formed the conclusion that $P(E_0) = 2/3$, by a non-regressive deduction from (*) (based on calculations of the sort described in the preceding section). It is fair to assume (in the present context) that such an agent would be justified in believing E_0, or would at least possess an unconditional probabilistic justification for E_0 (according to A&P's proposed standards). But in a case where an agent concluded that $P(E_0) = 2/3$ by a simple deduction from (*), and was thereby justified in believing E_0, it is clear that the agent's justification for believing E_0 would not have proceeded from an infinite regress of deferred justification. So the satisfaction of (1) and (2) is insufficient to make A&P's example a case where a belief is justified by an infinite regress of deferred justification.

The preceding elaboration of A&P's example does not show that their example is not of a case where a belief is justified by an infinite regress of deferred justification. But it does illustrate the following point: If we are to see the example as a case where a belief is justified by an infinite regress of deferred justification, then the example must be read (or elaborated) in such a way that the justification for E_0 (or for $P(E_0) = 2/3$) proceeds from an infinite regress of deferred justification, and not from (*) by a non-regressive series of deductive steps. In the remainder of the section, I consider two plausible readings of A&P's example, where the belief that E_0, or the adoption of $P(E_0) = 2/3$, would be justified by an infinite regress of deferred justification, if it were justified at all. The two readings are representative of the two possible ways of understanding A&P's example where the relevant belief would be justified by an infinite regress, if it were justified at all.[6]

According to the most straightforward reading of A&P's example, we have an agent who believes each element of the sequence E_0, E_1, E_2, etc., and, for each $n \geq 0$, E_{n+1} serves as the justificatory basis for E_n. On this reading of the example, it is the chain of 'basings' between respective pairs of propositions (E_n and E_{n+1}) that is supposed to generate justification for believing E_0. The regress of justification proceeds, roughly, as follows: b is mutated. The claim that b is mutated is justified (to a degree), since b_1 (b's immediate ancestor) is mutated (and P(b is mutated | b_1 is mutated) > P(b is mutated | b_1 is *not* mutated)). The claim that b_1 is mutated is justified (to a degree), since b_2 (b_1's immediate ancestor) is mutated (and P(b_1 is mutated | b_2 is

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[5] For evidence that this is what A&P actually think, see (for example) the final paragraph of page 553 of (Peijnenburg & Atkinson 2013).

[6] While A&P are uncommitted on the question of whether their examples concern doxastic or propositional justification (Peijnenburg & Atkinson 2013, 546, 555), I here proceed as if the key issue is of the doxastic justification for belief in E_0. My approach to the example simplifies matters, without loss of generality. There is no loss of generality, since it is correct to hold that E_0 is propositionally justified by an infinite regress of deferred justification, for the agent of A&P's example, just in case there is some reading/elaboration of A&P's example (concerning the grounds upon which relevant beliefs are held) such that the agent's belief that E_0 is doxastically justified by an infinite regress, within that reading/elaboration (cf. Turri 2010).

mutated) > P(b_1 is mutated | b_2 is *not* mutated)). Etc. In considering the proposed regress of justification, let us grant the assumption that each basis, E_{n+1}, *would be* sufficient to justify the desired conclusion, E_n, provided E_{n+1} was itself justified.[7] Having granted this assumption, it remains difficult to see how the chain as a whole could generate justification for E_0. We may, of course, grant that the links in the proposed justificatory chain are underwritten by (*). But the fact that (*) entails $P(E_0) = 2/3$ does not imply that the chain is sufficient to justify belief in E_0 (even granting that justification for adopting $P(E_0) = 2/3$ would be sufficient to justify belief in E_0).[8] Indeed, although (*) entails $P(E_0) = 2/3$, (*) is only sufficient to justify the adoption of $P(E_0) = 2/3$ (or E_0) provided $P(E_0) = 2/3$ (or E_0) is based upon (*) in an appropriate manner, and it appears that neither $P(E_0) = 2/3$ nor E_0 is appropriately based upon (*), within the present reading of A&P's example. Rather, each step in the proposed series of justificatory steps is configured to provide justification for the undischarged assumption, E_n, given a premise, E_{n+1}, which itself stands in need of justification.

The age-old worry concerning justificatory regresses applies to A&P's example, on the straightforward reading, since the conditional justifications that comprise the links of the proposed regress are never discharged by appeal to a proposition whose justification is not itself conditional on the justification of some further proposition.[9] While I do not claim that this worry yields a decisive objection to infinitism, it does generate a presumption against thinking that belief in E_0 is justified within A&P's example (on the straightforward reading). In the face of this presumption, A&P offer no reason for thinking that belief in E_0 is justified, save from citing the satisfaction of (1) and (2). But, as we have already seen, the satisfaction of (1) and (2) is insufficient to make A&P's example a case where a belief is justified by an infinite regress of deferred justification. Beyond the failure of A&P to provide a cogent reason for thinking that belief in E_0 is justified, there is no apparent feature of the example, on the straightforward reading, that would overturn the presumption against the claim that E_0 is justified. So it is correct to conclude that belief in E_0 is unjustified, within the straightforward reading of A&P's example. At the very least, there is no reason to regard A&P's example, on the straightforward reading, as a case where a belief is justified by an infinite regress of deferred justification, and so the example does not give us a reason to accept infinitism.

Rather than the straightforward reading of A&P's example, we could opt for a fully probabilistic reading, wherein an agent attempts to establish the conclusion that $P(E_0) = 2/3$, by an infinite regress of valid probabilistic inferences. A fully probabilistic reading of the example is in keeping with A&P's calculation of the value of $P(E_0)$ (described in the preceding section). That calculation hints at the idea that an agent might (attempt to) justify the conclusion that $P(E_0) =$

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[7] The assumption granted is a big one. Indeed, the claim that E_{n+1} probabilistically supports E_n, taken together with $P(E_{n+1}) = 1$, does not imply that $P(E_n) > 0.5$ (nor even that $P(E_n) > \varepsilon$, for any $\varepsilon > 0$).

[8] It goes without saying that justified belief in a set of propositions that entails another proposition, E, is insufficient to justify belief in E (otherwise every belief whose content was a logical truth would automatically be justified for every agent who held the belief).

[9] A&P argue that their examples provide a model of how it is that justification may emerge from a regress of reasons (Peijnenburg & Atkinson 2013, 549). If we had reason to think that this model was correct, then the model could be used to address worries concerning the justificatory capacity of regresses. However, A&P's claim to have provided a model of how justification emerges within regresses depends crucially on the claim that their examples exemplify cases where a belief is justified by a regress. So A&P cannot appeal to their model in order to address worries about their examples, without reasoning in a circle.

2/3 by an infinitely long series of applications of the Law of Total Probability. The following sequence of justificatory steps characterizes the reasoning of such an agent. Within the sequence, the agent intends that the two propositions cited at each step (excluding Step Zero) justify the proposition of the preceding step that stands in need of justification. The propositions for which justification is deferred are highlighted in dark gray.[10] The propositions that are justified by (*) (via the Law of Total Probability) are highlighted in light gray. The regress proceeds as follows, where "α" abbreviates "0.99" and "β" abbreviates "0.02":

Step Zero: $P(E_0) = 2/3$.

Step One: $P(E_0) = \beta + (\alpha-\beta)P(E_1)$, and $\beta + (\alpha-\beta)P(E_1) = 2/3$.

Step Two: $\beta + (\alpha-\beta)P(E_1) = \beta + \beta(\alpha-\beta) + (\alpha-\beta)^2P(E_2)$, and $\beta + \beta(\alpha-\beta) + (\alpha-\beta)^2P(E_2) = 2/3$.

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Step *n*: $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-2} + (\alpha-\beta)^{n-1}P(E_{n-1}) =$
$\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n)$, and
$\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n) = 2/3$.

Etc.

It is difficult to see how the preceding chain of reasoning could generate justification for $P(E_0) = 2/3$. As A&P will agree, there is no step, *n* (among the infinite sequence of justificatory steps), such that the finite sequence of justificatory steps proceeding from Step *n* to Step Zero is sufficient to generate justification for the conclusion that $P(E_0) = 2/3$. More importantly, the claim that the infinite series of steps justifies the conclusion that $P(E_0) = 2/3$ is suspect. Indeed, while the set of propositions invoked within the series could be used to justify the conclusion that $P(E_0) = 2/3$ (since (*) serves as the justification for the light gray propositions, and (*) entails that $P(E_0) = 2/3$), it appears that the needed premises are not arranged in a manner that is sufficient to provide such justification. Rather, each step in the proposed series of justificatory steps (beyond Step Zero) is configured to provide justification for the undischarged assumption of the preceding step, given two premises, one of which also stands in need of justification.

One interesting feature of A&P's example (on the fully probabilistic reading), concerns the terms $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n)$ that appear within the undischarged assumptions of the regress. In particular, for all $\varepsilon > 0$, there exists an *n*, such that $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n)$ is *guaranteed* to be in $[2/3-\varepsilon, 2/3+\varepsilon]$. This means that as the number of steps, *n*, increases, the undischarged assumption that $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha - \beta)^nP(E_n) = 2/3$ becomes less and less unreasonable. But there is still no *n*, such that $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n) = 2/3$. Moreover, if there were some *n* such that the interval $[2/3-\varepsilon, 2/3+\varepsilon]$ was small enough to justify $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^nP(E_n) = 2/3$, then the finite subsequence of justificatory steps preceding

[10] Notice that at each step *n*, the proposition for which justification is deferred is equivalent to the claim that $P(E_n) = 2/3$. In this sense, each step corresponds to an appeal to the claim that E_n is probable.

from step n would be sufficient to generate justification for the conclusion that $P(E_0) = 2/3$. On the other hand, while the limit of $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots + \beta(\alpha-\beta)^{n-1} + (\alpha-\beta)^n P(E_n)$, as n goes to infinity, is $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots$, it is clear that the statement $\beta + \beta(\alpha-\beta) + \beta(\alpha-\beta)^2 + \ldots = 2/3$ does not appear or serve as a justificatory basis within the proposed infinite sequence of justificatory steps. So that statement cannot serve to bolster that series of justificatory steps, and thereby confer justification upon the conclusion that $P(E_0) = 2/3$.

As with the straightforward reading, the fully probabilistic reading of A&P's example runs headlong into the age-old worry concerning justificatory regresses. So there is a presumption against thinking that the conclusion that $P(E_0) = 2/3$ is justified, on the fully probabilistic reading of A&P's example. As with the straightforward reading, there is no apparent feature of the example, on the probabilistic reading, that would overturn the presumption against the claim that $P(E_0) = 2/3$ is justified. So it is correct to conclude that belief in $P(E_0) = 2/3$ is unjustified, within the probabilistic reading of A&P's example. At the very least, there is no reason to regard A&P's example, on the probabilistic reading, as a case where a belief is justified by an infinite regress of deferred justification, and so the example does not give us a reason to accept infinitism.

4. Conclusion

A&P claim to provide examples where a belief is justified by an infinite regress of deferred justification. I began my evaluation of this claim by noting the possibility of elaborating one of their examples, so that the relevant belief would be justified on the basis of the probabilities given within the example. This elaboration of the example is of no use to A&P, since the justification for the relevant belief, within this elaboration, does not derive from an infinite regress of deferred justification. Faced with this problem, I considered possible readings of the example, where the belief that E_0, or the adoption of $P(E_0) = 2/3$, would be justified by an infinite regress of deferred justification, if it were justified at all. Within these readings, there is no reason to think that the respective belief is justified.

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