Infinite Regress Arguments

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Abstract

Infinite regress arguments play an important role in many distinct philosophical debates. Yet, exactly how they are to be used to demonstrate anything is a matter of serious controversy. In this paper I take up this metaphilosophical debate, and demonstrate how infinite regress arguments can be used for two different purposes: either they can refute a universally quantified proposition (as the Paradox Theory says), or they can demonstrate that a solution never solves a given problem (as the Failure Theory says). In the meantime, I show that Black's view on infinite regress arguments (1996, this journal) is incomplete, and how his criticism of Passmore can be countered.

Keywords: infinite, regress, argument, schema, paradox, failure

[*Acta Analytica* 28: 95-109, 2013]

1. Introduction

Infinite regress arguments are powerful and frequently used. In the history of philosophy, they have, for example, been employed against the thesis that everything has a cause, and against the thesis that everything of value is desired for the sake of something else. In present-day debates, they are used to invalidate certain theories of justification, certain theories of meaning, the thesis that knowledge-how requires knowledge-that, and indeed many other things.

Black (1996) offers perhaps the most incisive study of such arguments. Black proposes a general, yet precise tool to reconstruct infinite regress arguments, and defends his theory against other proposals contained in the small literature on this challenging topic. In particular, he presents a forceful critique of Passmore's 'The Infinite Regress' (1961: ch. 2), i.e. the study which initiated the metaphilosophical debate on infinite regress arguments.[1] In this contribution, I shall not seek to demonstrate that Black's study is incorrect. On the contrary: I accept that his theory could well be used

[1] Ignoring Russell (1903: §329).

to reconstruct valid infinite regress arguments. I will argue, however, that his study is incomplete. In particular, I will show that there is another, different theory of infinite regress arguments, a theory which moreover vindicates Passmore's pioneering hypotheses on the matter. This paper's main aim is, accordingly, to show that – and how – infinite regress arguments can be used for two different purposes.

To introduce my point, let us consider the regress argument suggested by Juvenal's famous question, 'But who will guard the guardians?' (*Satire* 6.O29-34). The regress argument according to Black's theory would briefly run along the following lines:

> Suppose your girlfriend is unreliable, that all unreliable persons are guarded by a guardian, and that all guardians are unreliable. This gives us a regress which is absurd. Hence, either it is not the case that all unreliable persons are guarded by a guardian, or it is not the case that all guardians are unreliable.

By contrast, the regress argument according to Passmore's ideas would run slightly different:

> Suppose you want to have your girlfriend guarded so that she can no longer commit unfaithful acts. As a solution, you hire a guardian. Yet, as it happens with guardians, they cannot be trusted either. So a similar problem occurs: you want to have the guardian guarded. As a solution, you hire another guardian. Regress. Hence, hiring guardians is a bad solution to have your girlfriend guarded.

The point that I will make in this paper is that both reconstructions are perfectly legitimate, though it must be noted that such pluralist voices have been raised earlier in the literature (e.g. Schlesinger 1983, Sanford 1984, Day 1986). In light of these, the contribution of my paper is two-fold. First, I will substantiate pluralism on the basis of two full-fledged theories of infinite regress arguments. Second, whereas existing pluralisms defend the descriptive thesis that different cases are used for different purposes, I will defend the revisionary thesis that it is also possible to use a single case (such as Juvenal's) for two different purposes. Before I turn to my argument, let me explicate three assumptions which I share with Black.

First, our aims are metaphilosophical, i.e. we want to capture what infinite regress arguments from otherwise different domains have in common. The issue is: What is it that specific infinite regress arguments share? What is their general structure and purpose?

Second, we agree that what specific arguments can have in common is an argument schema, i.e. a general argument pattern with schematic letters, of which they are an instance. We assume that the main task of a theory of infinite regress arguments it to provide such an argument schema.

Third, we assume that the argument schema should not necessarily capture the form of infinite regress arguments as actually set out in the literature, for the latter are usually not fully explicit on all the relevant premises and inferences. Rather, the schema should capture a form that infinite regress arguments can take (if they are fully spelled out), and preferably a valid form.[2] Of course, it would be nice if the schema has sound instances as well (i.e. with true conclusions), yet our aims are directed mainly toward obtaining valid instances.

2. Paradox Theory

Here are two crucial sentences from Black's paper:

> According to me, infinite regress arguments conclude to the negation of a proposition. […] According to Passmore, they prove not that a proposition is false, but that an explanation is inadequate. (1996: 111)

So Black distinguishes between two candidate usages of infinite regress arguments. By his own theory, their use is to refute a proposition (and not to demonstrate that an explanation is inadequate); by Passmore's theory, in contrast, their use is to demonstrate that an explanation is inadequate (and not to refute a proposition).[3] In this section I consider the first option, i.e. Black's, and in the next I will turn to another theory which later I shall employ to save Passmore's theory from Black's criticism.

What does an infinite regress argument look like if it is used to refute a proposition? What form does it take? Here is Black's argument schema:[4]

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[2] This does not exclude, of course, that such an argument schema is by and large a generalization of cases.

[3] As Black notes, one may say of course that, by the second theory, infinite regress arguments refute the proposition that an explanation is adequate. Yet, there remain substantive differences, as we shall see.

[4] A comparable view is defended by Gratton (2010), who identifies some significant variations of the Paradox Schema. None of them, however, corresponds to the Failure Schema.

Paradox Schema

(1) Premise: At least one item of type i is F.

(2) Hypothesis: For any item x of type i, x is F only if there is a new item y of type i such that x stands in R to y and y is F.

(3) Infinite regress: There is an infinity of items of type i that are F and stand in R to their successor. (1-2)

(4) Premise: ~(3): There is no such infinite regress.

(C) ~(2): For at least one item x of type i, x is F and it is not the case that there is a new item y of type i such that x stands in R to y and y is F. (1-4)

This schema has two premises, i.e. lines (1) and (4), one hypothesis, i.e. line (2), and two main inferences, i.e. lines (3), and (C). For details about the inferences, see Black (1988, 1996: §2). I should say that I modified and simplified his proposal in some minor respects. Most importantly, I have taken line (1) as a premise rather than a hypothesis. If (1) were taken as a hypothesis, then it would be possible to conclude with a rejection of (1) as well: It is not the case that at least one item of type i is F. As many such instances state common sense scenarios, I have excluded this option for sake of simplicity.

To obtain instances of this schema, 'type i' is to be replaced with a specific domain, and the capitals 'F' and 'R' with predicates which express properties/relations. Let us consider the following two simple and classic instances:[5]

items of type i	*x is F*	*x stands in R to y*
persons	x is reliable	x is guarded by y
propositions	x is justified to S	S has a reason y for x

By following these filling instructions, we obtain the following instances:

Guardians (Paradox instance)

(1) My girlfriend is reliable.

[5] The guardians case was introduced in Sect. 1 above, and the justification case derives at least from Aristotle's *Posterior Analytics* (72b5-24) and Sextus Empiricus' *Outlines of Pyrrhonism* (1.166-7). For many more filling instructions, cf. Black (1996) and Wieland (2012).

(2) For any person x, x is reliable only if there is a guardian y such that x is guarded by y and y is reliable.
(3) There is an infinity of reliable guardians where each is guarded by its successor. (1-2)
(4) ~(3): There is no such infinite regress.
(C) ~(2): There is at least one person who is reliable yet not guarded by a reliable guardian. (1-4)

Justification (Paradox instance)[6]

(1) At least one proposition is justified to a subject S.
(2) For any proposition x, x is justified to S only if S has a reason y for x and y is justified to S.
(3) There is an infinity of propositions which are justified to S (each being a reason for its predecessor). (1-2)
(4) ~(3): There is no such infinite regress.
(C) ~(2): There is at least one proposition which is justified to S yet S has no reason for it which is justified to S. (1-4)

As can easily be seen from these instances, infinite regress arguments which take this form refute universally quantified statements and, equivalently, demonstrate their existentially quantified counterparts. I have labelled this schema the ‘Paradox Schema’ as its instances very much resemble paradoxes. Paradoxes (or at any rate a large class of them) are such that a set of independently intuitive propositions together entail a contradiction such that, by reductio ad absurdum, at least one of them has to go. Something similar applies to instances of the Paradox Schema: the propositions (1) and (2) jointly entail, via an infinite regress, a contradiction (i.e. the conjunction of lines (3) and (4)) such that, by reductio ad absurdum, one of them has to go.[7]

It is worth noting that the justification case as just set out is a common argument for foundationalism. Opponents of foundationalism do not buy it, and on the basis of the Paradox reconstruction it is easy to explain how they try to resist it: coherentists deny the step from (1)-(2) to (3), and suggest that finite series of propositions can justify one another; infinitists

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[6] As the focus here is on the structure of infinite regress arguments, I will ignore some complications regarding the content of this instance, such as the difference between propositional and doxastic justification (cf. Klein 2007) and the difference between justification as a state and justification as an activity (cf. Rescorla 2012).

[7] Still, in case of regress arguments they are not always independently intuitive, cf. (2) of the guardians instance. For the term ‘paradox’ in this context, cf. Cling (2009).

deny (4), and suggest that there can be infinite regresses of reasons; and sceptics reject (1) rather than (2), and suggest that no item of type i is F: no proposition is justified to anyone, and no person is reliable (the latter was in fact Sextus' and Juvenal's own position, sceptics as they were).

So we have the first theory of infinite regress arguments: the Paradox Theory.

3. Failure Theory

Before considering Passmore's suggestions on the topic, let me introduce a second theory of infinite regress arguments. The second theory says that infinite regress arguments can be used to demonstrate that a certain solution fails to solve a given problem. Hence: the Failure Theory. What does an infinite regress argument look like if it is used to demonstrate this? Here is the second argument schema:

Failure Schema

(1) Problem: You have to φ at least one item of type i.
(2) Solution: For any item x of type i, if you have to φ x, you ψ x.
(3) Extra premise: For any item x of type i, if you ψ x, then there is a new item y of type i, and you φ x only if you φ y first.
(4) Infinite regress: For any item x of type i, you always have to φ a further item of type i first (i.e. before φ-ing x). (1-3)
(C) If you ψ any item of type i that you have to φ, then you never φ any item of type i. (1-4)

This schema has two premises, i.e. lines (1) and (3), one hypothesis, i.e. line (2), and two main inferences, i.e. lines (4) and (C). For details about the inferences, see Wieland (2012). To obtain instances of this schema, 'type i' is to be replaced with a specific domain, and the Greek letters 'φ' and 'ψ' with predicates which express actions involving the items in that domain. Let us consider the following, simple instances:

items of type i	*φ x*	*ψ x*
persons	to have x guarded	to hire a guardian for x
propositions	to justify x	to provide a reason for x

By following these filling instructions, we obtain the following instances:

Guardians (Failure instance)

(1) You should have your girlfriend guarded.
(2) For any person x, if you should have x guarded, you hire a guardian for x.
(3) For any person x, if you hire a guardian y for x, then you have x guarded only if you have y guarded first.
(4) For any person x, you always should have a further person guarded first (i.e. before having x guarded). (1-3)
(C) If you hire a guardian for any person that you should have guarded, then you never have anyone guarded. (1-4)

Justification (Failure instance)

(1) You have to justify at least one proposition.
(2) For any proposition x, if you have to justify x, you provide a reason for x.
(3) For any proposition x, if you provide a reason y for x, then you justify x only if you justify y first.
(4) For any proposition x, you always have to justify a further proposition first (i.e. before justifying x). (1-3)
(C) If you provide a reason for any proposition that you have to justify, then you never justify any proposition. (1-4)

In arguments such as these, the conclusion is that a solution (to provide a reason, to hire a guardian) fails to solve a given problem (to have your girlfriend guarded, to justify a proposition). Such conclusions are interesting in at least the following two scenarios. First, suppose that there is an alternative regress-free solution to the given problem (perhaps there are other solutions to have your girlfriend guarded, or to justify a proposition). In such cases, the infinite regress argument can be used to favour that alternative solution. Second, suppose that there is no such alternative solution to a given problem. In that case, the infinite regress argument can be used to demonstrate that the problem cannot be solved (that girlfriends cannot be guarded, or propositions not justified).[8]

This was the second theory of infinite regress arguments: the Failure Theory.

[8] The latter would again be Juvenal's and Sextus' position, but in this case it requires further argumentation, i.e. a demonstration that any alternative solution fails as well.

4. Difference

The two theories appear different. The rationale of the Paradox Schema is that some claims cannot hold together because jointly they entail a contradiction, via an infinite regress. The rationale of the Failure Schema is that a certain solution never solves the problem it is meant to solve because it gets stuck in a regress (i.e. of problems which are to be solved before the initial one is solved). However, one may wonder: what, exactly, accounts for this difference? In the following I shall specify some structural differences, and then show that their difference has at one point been anticipated in the literature. The main structural differences are three-fold: the theories differ regarding what infinite regresses consist of, regarding whether an extra premise is needed to draw a conclusion from an infinite regress, and finally regarding their conclusion.

According to both theories, infinite regresses are entailed by the premises and hypotheses of the given schemas. Is there any significant difference? According to the Paradox Theory, infinite regresses consist of steps where each step is a necessary condition for the previous step. Consider for example the justification case (where p_n is a name for a proposition):

(a) p_1 is justified to S;
(b) S has a reason p_2 for p_1 and p_2 is justified to S;
(c) S has a reason p_3 for p_2 and p_3 is justified to S;
(d) S has a reason p_4 for p_3 and p_4 is justified to S;
etc.

In this series, (b) is a necessary condition for (a), (c) a necessary condition for (b), and so on. According to the Failure Theory, by contrast, infinite regresses consist of steps where each step is either a problem, or a solution for the previous step (cf. Schlesinger 1983: 221). For example:

(a) you have to justify p_1;
(b) you provide a reason p_2 for p_1;
(c) you have to justify p_2;
(d) you provide a reason p_3 for p_2;
etc.

In this series, (a) is a problem, (b) is a solution for (a), (c) is a problem, (d) is solution for (c), and so on. Hence these are two different views on infinite regresses.

The second main difference between the Paradox and Failure Theories is that the former requires an extra premise after the infinite regress, while the latter does not. Specifically, the Paradox Theory requires that the infinite regress conflict with something else (i.e. the premise that the infinite regress does not exist) such that we obtain a contradiction, and can reach a rejection by reductio. The Failure Theory does not require this: it follows immediately from an infinite regress of problems and solutions that the initial problem (i.e. specified in line (1)) is never solved by the solution (i.e. specified in line (2)).[9]

Given these two differences, it is no surprise that the final lines, i.e. the conclusions of the two sorts of infinite regress arguments, have a different form as well:

PARA For at least one item x of type i, x if F and it is not so that there is a new item y of type i such that x stands in R to y and y is F.

FAIL If you ψ any item of type i that you have to φ, then you never φ any item of type i.

As noted, PARA is equivalent to the negation of line (2) of the Paradox Schema. Importantly, FAIL is not equivalent to the negation of any of the lines of the Failure Schema. In this sense, the Failure Theory denies (where the Paradox Theory accepts) that infinite regress arguments demonstrate negations.[10]

Such are the structural differences. In the remainder of this section, I briefly show that the distinction may be found at a few places besides the Black/Passmore debate. First, compare the following two different dictionary entries on infinite regress arguments:

> Since the existence of this regress is inconsistent with an obvious truth, we may conclude that the regress is vicious and consequently that the principle that generates it is false. (Tolhurst, *Cambridge Dictionary of Philosophy*)

> A strategy gives rise to a vicious regress if whatever problem it was designed to solve remains as much in need of the same treatment after its use as before. (Blackburn, *Oxford Dictionary of Philosophy*)

[9] The Failure Schema does make use of a suppressed premise (cf. Wieland 2012). Yet, this line is rather different from the kind of premise required by the Paradox Schema.

[10] To be sure: FAIL is incompatible with 'If you ψ any item of type i that you have to φ, then you φ at least one item of type i' (cf. Johnstone 1996). Yet this line is not part of the Failure Schema.

The Cambridge entry can be spelled out in terms of the Paradox Theory: infinite regresses conflict with the premise that they do not exist, and hence one of the propositions which generates the infinite regress is to be rejected. By contrast, the Oxford entry can better be spelled out in terms of the Failure Theory: if a solution entails an infinite regress, then it does not solve the problem it is meant to solve.

As can be seen from the two entries, the term 'vicious' often occurs in connection with infinite regresses. Some of them are vicious, others merely harmless. Black does not incorporate this distinction into his discussion (as he assumes that infinite regresses are always vicious, cf. 1996: 122), yet basically it means the following. There is, again, a difference between the two theories. According to the Paradox Theory, an infinite regress is vicious iff the infinite regress leads to a contradiction, i.e. iff the premise that the infinite regress in question does not exist is true. Only in that case is one of the propositions which generates the infinite regress to be rejected. According to the Failure Theory, an infinite regress is vicious iff it entails a failure, i.e. iff it demonstrates that the solution which generates the regress never solves the given problem.[11]

The difference I am emphasizing here has been anticipated at one point in the literature: in Day (1986: ch. 2). Specifically, Day draws a distinction between product vs. process regress arguments, which runs partly parallel to the distinction between Paradox vs. Failure arguments. According to Day, product regress arguments demonstrate that a given set of premises entail an infinity of items. These arguments correspond to the first lines of the Paradox Schema (i.e. up to the infinite regress). By contrast, process regress arguments demonstrate that a given procedure (analysis, explanation, definition, etc.) can be iterated endlessly. If this means that a solution can be iterated endlessly without any prospect of solving the initial problem, then these arguments correspond to instances of the Failure Schema.

Although Day does not make the distinction explicit in terms of argument schemas (as we did in the previous sections), he does link process regress arguments (and so instances of the Failure Schema) to Passmore's account (1986: 49-53). It is precisely this latter account which has been subjected to criticism by Black. In the following section I will show that Black's objections miss their target as long as Passmore's account is understood within the context of the Failure Theory, rather than in that of Black's own theory (i.e. what I have called the Paradox Theory).

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[11] As there is no extra premise that can fail to be false, infinite regresses generated within the context of the Failure Schema are virtually always vicious. Yet, in some selected cases they may still be non-vicious if the inferences fail, cf. Peijnenburg (2010) and Wieland (2012) for examples.

5. Three objections countered

Black presents three objections to Passmore's account (1996: §4). They are briefly the following:

(1) Passmore's reason for why infinite regress arguments demonstrate that an explanation is inadequate fails.
(2) Infinite regresses are not mere rhetorical tools, as Passmore assumes them to be.
(3) Infinite regress arguments do not prove that an explanation is inadequate, as Passmore suggests, but that a proposition is false.

I partly agree with these objections, so long as Passmore's account is read within the context of the Paradox Theory. Yet, in the following I will demonstrate that none of the three objections applies if Passmore's account is situated within the Failure Theory. It will be useful to counter Black's objections in some detail in order to clarify further the two theories and their difference.

5.1. First objection

Black's first point is that Passmore's reason for why infinite regress arguments demonstrate that an explanation is inadequate fails. Here is the relevant text by Passmore:

> Philosophical regresses, on the contrary, demonstrate only that a supposed way of explaining something […] in fact fails to explain, not because the explanation is self-contradictory, but only because it is, in the crucial respect, of the same form as what it explains. (1961: 33)

So Passmore contends that explanations fail if they are, in some crucial aspect, similar to what they explain (and that infinite regresses would demonstrate this). According to Black, Passmore's contention is false as it allows of counterexamples. His example is the following: one has blue eyes because one's parents have blue eyes.[12] In this case, the explanans and explanandum are similar, but the explanation is not inadequate (or at any rate

[12] This explanation is to be classified as non-causal: the colour of one's eyes and one's parents' eyes are both effects of a common cause: the parents' genotype.

need not be so). Hence: Passmore's reason why infinite regresses demonstrate that an explanation is inadequate fails.

Reply. I reject Black's objection, not because I think that his counterexample is no good explanation, but because I do not regard it as a successful counterexample against Passmore. To see this, let us consider the example in terms of the Failure Schema:

Eyes (Failure instance)

(1) You have to explain why at least someone has blue eyes.

(2) For any person x, if you have to explain why x has blue eyes, you appeal to the fact that x's parents have blue eyes.

(3) For any person x, if you appeal to the fact that x's parents y and z have blue eyes, then you explain why x has blue eyes only if you explain why y and z have blue eyes.

(4) For any person x, you always have to explain why a further person has blue eyes first (i.e. before explaining why x has them). (1-3)

(C) If you appeal to the fact that x's parents have blue eyes anytime you have to explain why x has blue eyes, then you never explain why at least someone has blue eyes. (1-4)

Hence the explanatory failure. Of course, it is not difficult to resist the conclusion by rejecting (3), as the latter is a rather strict requirement on explanation (Do we really want to require an explanation for the colour of the parents' eyes in order to have an explanation for the colour of the child's?). However, the point is that the conclusion follows validly, and so infinite regresses can demonstrate that an explanation is inadequate (i.e. if the premises are true).

By this reconstruction, Passmore would be right in claiming that the explanation does not fail due to a contradiction. The explanation which appeals to x's parents does not conflict with anything else we assume. Also, the explanation which appeals to x's parents does not fail because it is similar to the explanatory problem described in line (1) (i.e. to explain why x has blue eyes), but it fails because it gives rise to an explanatory problem which is similar to the initial one (i.e. to explain why x's parents have blue eyes) and which, given premise (3), needs to be solved in order to solve the initial problem.

Hence, if Passmore's reason for why an explanation may be inadequate due to an infinite regress is cashed out thus, it does not fail as Black's first objection has it.

5.2. Second objection

Black's second objection: Infinite regresses are not mere rhetorical tools, as Passmore assumes them to be. According to Black, infinite regress arguments do not work, logically, if the relevant regresses are not infinite. For if a regress in line (3) was not infinite, then it does not conflict with the premise in line (4) that the regress in its infinite format does not exist (and if these lines do not form a contradiction, nothing need be rejected). Passmore writes in contrast:

> It is the first step of the regress that counts, for we at once, in taking it, draw attention to the fact that the alleged explanation or justification has failed to advance matters; that if there was any difficulty in the original situation, it breaks out in exactly the same form in the alleged explanation. (1961: 31)

Reply. It should be said that Passmore does not say that infinite regresses are mere rhetorical tools, though he does say that the first step of a regress is the important one and that its further steps (indeed its infinity of further steps) merely bring out the very same worry. The same idea has been repeated several times elsewhere in the literature:

> The real trouble arises already at the first step: if it is rightly diagnosed there, we can forget about the regress. (Geach 1979: 100)[13]

> The real trouble arising already at the first step is that of making no progress. We should see this straight away. (Sanford 1984: 96)

Hence, it is not unfair to ask: Is everyone here really mistaken, as Black claims? Again, I shall show that Passmore's claim can be made sense of in the context of the Failure Theory. As an illustration, consider the guardians' regress as generated within the Failure Schema:

(a) you should have your girlfriend guarded;
(b) you hire guardian no. 1 for your girlfriend;
(c) you should have guardian no. 1 guarded;
(d) you hire guardian no. 2 for guardian no. 1;
etc.

[13] Geach seems to refer to a somewhat obscure remark by Wittgenstein (1967: §693).

The argument is that you never have your girlfriend guarded by this procedure as there is always a further unreliable person to be guarded. If Passmore claims that the beginning of the regress is the crucial part, he might mean that it is already clear from line (c) onwards that similar solutions (i.e. hiring guardians) shall always entail further problems (i.e. that you should have them guarded as well) which must be solved in order to solve the initial problem and to have your girlfriend guarded. Or, put simply: If hiring one guardian does not work, why suppose that hiring more of them will work any better? The same holds for the justification case: it is clear from line (c) onwards that similar solutions (i.e. providing reasons) will never fail to entail further problems (i.e. that you should justify them as well), which themselves must be solved in order to solve the initial problem and so justify the initial proposition.

Still, it would be wrong to regard the remainder of the regress as mere rhetoric, as its infinity has a logical function in establishing the conclusion that you *never* have your girlfriend guarded or *never* justify any proposition by the given procedure (cf. Wieland 2012).

It is also possible to show that Passmore's claims hold within the context of the Paradox Theory (even though this is strictly speaking not needed to block Black's argument). In case of the Paradox Schema, if the first step of the regress is the crucial step, then it is already in conflict with something else. For example, suppose that in the guardian case there is only one guardian available. In that case, the fact that the regress requires more than one guardian is already unacceptable such that something has to be rejected. (If the steps are the same as the lines in the argument, then this is strictly speaking not the first step, but at any rate the beginning of the regress.)

5.3. Third objection

Black's last objection is that infinite regress arguments do not prove that an explanation is inadequate, as Passmore suggests, but rather that a proposition is false. This is, I take it, the most important objection, as it challenges the heart of Passmore's account.

Reply. This objection fails, simply because it mistakenly assumes that all infinite regress arguments take the form of the Paradox Schema, and none the form of the Failure Schema (which of course has been presented only here, in Sect. 3 above). Still, I would make three more precise points.

First, I agree that not all infinite regress arguments show that an explanation is inadequate. Instances of the Paradox Schema do not show this, and neither even do all instances of the Failure Schema.

Consider the guardian case in its paradox format. In this case, the line which could convey an explanation is the second one: a person x is reliable only if there is a guardian y for x and y is reliable. Yet, as Black (1996: 114-5) maintains, this line just states a necessary condition, and it would be controversial to assume that all necessary conditions for something are involved in the explanation of that thing.[14]

Black does not explain this, but the idea might be the following (cf. Schnieder 2010: 298). Explanations usually involve epistemic goals, i.e. they may be used to improve our understanding. So, if A explains B, then A somehow contributes to our understanding of B. But in this case it is unclear how 'person x has a guardian y and y is reliable' contributes to our understanding of 'x is reliable'. At any rate, the point is that if A is an explanatory condition for B in addition to being a necessary condition, then one needs a separate story as to why the explanatory relation obtains. Furthermore, if infinite regresses generated in the context of the Paradox Schema are not usually explanatory chains, then it is not plausible to think that any conclusion about explanation will follow from them.

Next consider the justification case in its failure format. This argument is not about inadequate explanations either, rather about inadequate justifications (i.e. it concludes that you never justify any proposition if you provide a reason for any proposition that you have to justify).

However, sometimes infinite regress arguments can be about inadequate explanations, namely if (i) they are taken as an instance of the Failure Schema, (ii) the problem in line (1) is an explanatory problem, and (iii) the solution considered in line (2) fails due to an infinite regress. All three conditions hold for the blue eyes example spelled out above, and apply to Passmore's own example as well, if understood along the lines of the Failure Schema:[15]

Causes (Failure instance)

(1) You have to explain why at least one event exists.
(2) For any event x, if you have to explain why x exists, you appeal to another event which is the cause of x.

[14] Cf. the same point in a different context: "Why should we believe that there is any explanation going on?" (Schnieder 2010: 296) Cf. also Klein (2003: 722).

[15] For interesting further criticism of this case, cf. Gettier (1965). Unsurprisingly perhaps, my position is that Gettier's worries can be dealt with once the Failure Schema is at our disposal.

(3) For any event x, if you appeal to an event y which is the cause of x, then you explain why x exists only if you explain why y exists first.

(4) For any event x, you always have to explain why a further event exists first (i.e. before explaining why x exists). (1-3)

(C) If you appeal to a cause for x anytime you have to explain why an event x exists, then you never explain why any event exists. (1-4)

Second point: I disagree with Black that all infinite regress arguments are about rejections and show that a proposition is false. I already explained this in Sect. 4: instances of the Failure Schema do not prove that a solution is false (i.e. they do not prove ~(2)), but rather that it is no good for solving a given problem and, therefore, that another solution must be found.

Third, Passmore himself is not committed either to the claim that all infinite regress arguments are about inadequate explanations. For he speaks about procedures (1961: 29), and 'procedures' is just another term for the 'solutions' of the Failure Theory. Examples of procedures/solutions mentioned by Passmore include: to provide a criterion, a justification, an explanation, a definition.

In summary, in this section I have shown that Black's objections against Passmore misfire. This does not mean, of course, that Passmore's hypotheses apply to infinite regress arguments across the board. They do apply, however, to an important class of infinite regress arguments: the instances of the Failure Schema.

6. Conclusion

Infinite regresses play a role in many philosophical debates, and the metaphilosophical issue is how exactly they can be used to establish anything. My contribution in the foregoing has been to show that they can be used to establish two different sorts of conclusions, contrary to what Black assumed.[16] Either they can be used to refute universally quantified statements (on the Paradox Theory, supported by Black). Or they can be used to show that a certain solution fails to solve a given problem (on the Failure Theory, supported by Passmore and explained further in this paper). Indeed, both are strong conclusions, and so it is no mistake to say that infinite regress

[16] Are there more kinds? Surely the Paradox and Failure Schema admit of variations, but I have found no regress argument that takes a substantially different form (see Wieland 2012).

arguments have their proper place among the most powerful tools at a philosopher's disposal.*

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* Thanks to: Anna-Sofia Maurin, Jon Sozek, Maarten Van Dyck, Erik Weber and the referees of the journal for advice. The author is a PhD fellow of the Research Foundation Flanders at Ghent University. Email: Jan.Wieland@UGent.be.

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