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On Too Common Ground: Collective Circularity, the Sextus Mill Paradox, and a Problem of Infinite Regress

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ABSTRACT: circular reasoning, collective circularity, infinite regress Sextus Mill paradox.

KEYWORDS: On a broad conception of logic as the study of reasoning, circularity applies not only to individual arguments, but to sets of arguments. Looking at circularity this way is especially useful in analyzing something that I have termed “collective circularity.” This circularity is “collective” because it involves more than one argument, and often more than one reasoner. This presentation discusses collective circularity and a problem of infinite regress that arises from it.

INTRODUCTION

Put roughly, reasoning is circular\(^1\) when a conclusion is drawn in a way that assumes the conclusion itself. Take, for example, the following justification for Jones’ excellent scholarship: (a) Jones’ scholarship has been evaluated by Smith and the other members of the committee to be outstanding; and (b) Smith and the other members of the committee have an accurate view of the matter because they have each been previously evaluated, by Jones and each other, to be excellent scholars themselves. In this situation, one evaluation is taken to be of merit because the evaluators themselves were previously judged by the person evaluated, and each other, to be excellent scholars. While such reasoning may come in handy for promotion and tenure decisions, it is circular nonetheless. Jones, Smith, and the others might all be very poor scholars who merely think that their work is excellent. Or, they can know that their scholarship lacks merit, but vouch for each other nevertheless.

Today I will focus on what I have termed collective circularity. The example I just mentioned is a case of collective circularity because it involves more than one argument. There is the argument for Jones’ outstanding scholarship, which assumes that evaluators have given an accurate evaluation, and there is the argument for the

\(^1\) Circularity has sometimes been distinguished from the fallacy of begging the question. “Begging the Question” is sometimes taken to encompass the more general logical fallacy that includes, among other things, justifying a conclusion by appealing to an even more questionable premise (cf. Engel, *With Good Reason*, and Walton, Douglass, *Begging the Question*). To avoid confusion, I will stick to “circular” argumentation, i.e., argumentation in which a conclusion is drawn in a way which already assumes the conclusion.

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justification of the evaluators, which depends on Jones’s ability to discern excellent scholarship himself.

Perhaps because logic historically has been focused on individual arguments, circularity has often been described as a logical fallacy committed in individual arguments, as in,

1) Whatever the *Bible* says is true.
2) The *Bible* says that God exists.
3) Therefore, God exists.

Even in this argument, though, the circularity is only apparent when the justification for the first premise is questioned. The first premise is justified, typically, by the claim that the Bible is the revealed word of God. The circularity then is the result of the first premise being the conclusion of an (implicit) argument that takes the existence of God as an assumption. Today I will show that circularity is often something that is best exemplified by sets of arguments, not individual arguments. And while elaborate individual arguments can be constructed to illustrate this type of circularity, this is at the expense of the simplicity and clarity of using multiple arguments. In addition, representing some circularity as a feature of sets of arguments illustrates how circular reasoning can be realized over time by arguments from different people. It also can be used to show that an old logical paradox, the Sextus-Mill Paradox, can be strengthened to avoid the solutions that were posed for it during the 20th Century, and can be used to formulate a variant of the problem of infinite regress.

**COLLECTIVE CIRCULARITY DEFINED**

A set of two arguments is *collectively circular* if, and only if, each argument’s conclusion is assumed in at least one premise of the other argument. For example, consider:

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Whatever the Bible says is true.
The Bible says God exists.
God Exists
And,
All communications from God are true.
Whatever the Bible says is a communication of God.
Whatever the Bible says is true.
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In this case, the conclusion of the first argument, God exists, is assumed in the first premise of the second argument. And the conclusion of the second argument is identical to the first premise of the first argument. For sets of three or more arguments, one way to define collective circularity is that a set of *n* arguments is collectively circular if, and only if, at least one premise of each argument assumes the conclusions each argument in the set. Actually, this definition might need a little tweaking, since there might two

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2 For sets of three or more arguments, the same principle applies.
arguments that have conclusions that are assumed in the premise of a third. But, as rough definition, it works.

Those familiar with David Lewis’ work on convention (1969) may notice some similarities between his work and the present discussion. For Lewis, the acceptance of social conventions is justified in circular ways. If I accept convention C, I do so because others accept C. But others accept C because everyone else, including me, accepts C. For example, in the US, it is a social convention that handshakes should be made with the right hand. But my reason for accepting this is because others accept the convention, and others accept the convention because everyone else (including me) accepts it. If we apply the present discussion of collective circularity to Lewis’ account of convention, we have a set of arguments, a1, a2, …an in which a1 is justified by appeal to a2…an, a2 is justified by appeal to a1, a3,…an, a3 is justified by appeal to a1, a2, a4,…an, and so on. Each argument represents the justification for a corresponding individual (p1…pn) to follow the convention. So, there are a series of arguments, starting with a1:

1. p1 will obey a convention if, and only if, most or all others (p2 through pn) will obey it.
2. Most or all others (p2 through pn) will obey convention C.
3. p1 will obey convention C.

And continuing with a2,

1. p2 will obey a convention if, and only if, most or all others (p1, p3,…, pn) will obey it.
2. Most or all others (p1, p3, …, pn) will obey convention C.
3. p2 will obey convention C.

And so on. Each argument’s second premise assumes the conclusion of all the other arguments. This is a fairly straightforward case of collective circularity. If there’s time at the end of the talk, I’ll discuss some less standard cases.

EXAMPLES FROM NATURAL AND COMPUTER SCIENCE

Representing circularity as a fallacy involving more than one argument allows for circularity to be realized over time and by different people, as in the Jones/Smith case. In another work3, I examined a type of collective circularity in some studies of animal sexuality. These studies were constructed in a way that assumed that there was little or no nonheterosexual behavior in the animals. For example, the behavior-based method of determining sex behavior used in a study of a certain type of gulls determined the sex of the birds in the following way: birds on top during sex were male and birds on the bottom were female. On this way of determining sex, there is no possibility of any combination of sexual activity other than one with a male (on top) and a female (on bottom). By definition, the birds on top were male, and by definition, the birds on bottom were

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identified as female. Later, however, the study was used by others to conclude that there were no instances of nonheterosexual behavior in these gulls. But this was assumed already in the way the first study was done. Interestingly, when other studies were done using other methods, instances of nonheterosexual behavior were indeed observed.

Anyway, the first researchers had no intention of showing that there were no nonheterosexual behaviors in the gulls. They simply assumed that this was the case, and then drew some different conclusions about the mating practices of the gulls. However, at some later point in time, others took the conclusions drawn by the first researchers as reason for concluding that there were no instances of nonheterosexual behavior in the gulls. Here we have two arguments, one that assumes that there is no such behavior and then describes all the interactions as being between only male and female birds. Another which takes the described activity among the “males” and “females” as evidence for the claim that there is no nonheterosexual behavior among the gulls.

Also, in expert systems, it is possible for a set of commands to be circular. While not arguments, sometimes there are so many instructions in the system, and different programmers, that the circularity does not go detected until the program is run. For example, there could be a set of rules such as, “If A, then B; If B, then C, If C, then D,…If Z, then A.” The circularity might not be easy to detect when writing the program. However, when the program is run, the commands form an infinite loop until the problem is corrected. On the present definition, this would not count as collective circularity, because we defined collective circularity as being a feature of arguments. However, there is something very similar to collective circularity going on here. The set of commands, when taken together, form a loop, even though each individual command is not, in and of itself, circular. Indeed the person who wrote one command may not even be aware of the other command.

COLLECTIVE CIRCULARITY AND A BRIEF SECOND LOOK AT THE SEXTUS MILL PARADOX

Both Sextus Empiricus and John Stuart Mill claimed that syllogistic reasoning is ultimately circular\(^4\). They claimed that in syllogisms such as:

1. All men are mortal.
2. Socrates is a man.
3. Therefore, Socrates is mortal.

the first premise is justified through induction from the instances of men. And since Socrates is one such instance, the justification of the first premise depends on his being mortal, too. So, the first premise is justified, in part, by appeal to the conclusion. In the 20\(^{th}\) Century, Nagel and Cohen dismissed this criticism of syllogistic reasoning as being founded on a false conception of inductive justification. They claimed that the flaw in the Sextus/Mill line of reasoning lies in the assumption that in order to justify a generalization, it is necessary to appeal to all instances. To expect generalizations to be founded on this type of justification is unnecessary and contrary to the way science can

\(^4\) For a discussion of this, see Walton, *Begging the Question*. Walton seems to agree with Cohen and Nagel in their response to the Sextus-Mill paradox.
and should be done. Generalizations such as “All men are mortal” are not compendiums of particular cases, but statements that are inferred from an adequate number of cases.

Indeed the Nagel/Cohen response is correct in claiming that generalizations should not be expected to be based on all cases. Yet, the Sextus/Mill paradox can be strengthened in such a way as to be immune to the Nagel/Cohen response.

THE STRENGTHENED SEXTUS-MILL PARADOX

Consider a syllogism of the form:

1. All S is P.
2. x is S.
3. Therefore, x is P

Now assume that the set of all cases of S is finite. Let’s say there are a million cases. Also assume that of the million cases of S, all of them are cases of P. Now you are confronted with x, but don’t know whether it is P, though you do know it’s S. It seems that you are justified in claiming that All S is P if, and only if, you have enough inductive support for All S is P. Assume you have observed many, many cases (999,999) of S and have seen that all of them are P. So you make the generalization that All S is P, and then conclude that x is P, as well.

Now let’s take y, which is also a case of S. Suppose we go through the same procedure with y. In this case x is one of the observed instances of S being P. And again for z, and so on until we do this a million times. The justification for x being P in this case depends on all the other cases that were observed. And the justification of y depends on all the other cases as well. So the reason we conclude that y is P is because x is P is used in the generalization and then applied to y. And the reason we conclude that x is P is because y is used in the generalization and then applied to x. So, the set of syllogisms for x, y, z, and so on are collectively circular.

Intuitively, there seems to be nothing wrong in each of the individual instances. How much better an inductive generalization can there be than inferring from 999,999 similar cases to one more? Yet, when taken collectively, the set of arguments is circular. Perhaps this is what Sextus and Mill were getting at when they claimed that syllogistic reasoning was circular. If not, perhaps this is what they should have claimed.

Here Nagel/Cohen might respond that this too is a misunderstanding of scientific inference. You don’t need to go through all those cases to get a generalization that All S is P. But this misses the point, namely, that you could and this would be better than getting a few cases and a drawing a generalization. The stronger your justification for a generalization is, the less the number of cases there are that can be non-circularly applied.

COLLECTIVE CIRCULARITY AND A PROBLEM OF INFINITE REGRESS

Lastly, there is a more popular problem that collective circularity is helpful in analyzing. In addition to the raising an early version of the problem discussed above, Sextus is also responsible for originating a more well-known problem, the problem of infinite regress. It seems that in order to count as knowledge our true beliefs need to be justified. Yet, the
justification of our beliefs can only count as acceptable justifications if they, too, are justified. This will lead us to either foundational beliefs, result in an infinite regress, or loop back in a circle.

As you might think, it’s the looping back in a circle of the justification that is of interest here. Because there is a form of circularity that is collective in nature, a question here is raised as to whether we can ever be completely sure that any of our arguments is not part of collectively circular set. If the premises of an argument are justified by appeal to something external to the argument itself, and this external justification must be itself be justified, then it seems that there is no guarantee that the justifications won’t loop back together in a circle. And, it seems that bigger our set of arguments, the bigger the possibility that some subset of them is collectively circular.

A coherentist might here deny that this is a major concern. Some have claimed, for example, that our beliefs are to be evaluated in terms of how well they “fit” with the other beliefs we have. On the coherentist account, beliefs are justified on the basis of other beliefs we hold. This justification, though circular, is unavoidable, on this view. I have, until now, not explicitly argued that collectively circular arguments are fallacious. There is, however, good reason for thinking this so. First, the parallels in natural and computer science suggest that at least some collective circularity is to be avoided. Second, nothing in coherentism precludes there being subsets of collectively circular beliefs, with each set being inconsistent with the other. Finally, the burden of proof, it seems lies with the coherentist to show that collective circularity on such a grand scale is not “vicious.”

We are left, then with a troubling consequence of the existence of collective circularity, namely, the possibility that any of our arguments are part of a collectively circular set. And while coherentists might think this much of a concern, circularity on such a grand scale calls into question our ability to know whether our arguments are sound.

CONCLUSION

So, what’s the moral of the story? It is, I hope, this: there is a type of circularity that is best understood as a feature of sets of arguments and not individual arguments. It is to be defined as occurring when at least one premise of each argument in the set assumes the conclusion of the other arguments. Also, the Sextus Mill paradox has been shown to be not as easily dismissed as Nagel and Cohen thought. And, unfortunately, the skeptic’s worry that we may not be able to tell if any of our arguments are part of a collectively circular set or not remains to be addressed.

REFERENCES