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TABLE OF CONTENTS

ARTICLES

HOW TO UNDERSTAND AND SOLVE THE LOTTERY PARADOX

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ABSTRACT: It has been claimed that there is a lottery paradox for justification and an analogous paradox for knowledge, and that these two paradoxes should have a common solution. I argue that there is in fact no lottery paradox for knowledge, since that version of the paradox has a demonstrably false premise. The solution to the justification paradox is to deny closure of justification under conjunction. I present a principle which allows us to deny closure of justification under conjunction in certain kinds of cases, but which still allows that belief in a conjunction on the basis of justified belief in its conjuncts can often be justified.

KEYWORDS: lottery paradox, knowledge, justification, closure

The purpose of this paper is to explain the correct way to understand the lottery paradox, and to show how to resolve it. Briefly, the lottery paradox goes as follows. In a fair lottery, there is a high probability that any given ticket will lose (say, 0.999, for a 1000-ticket lottery), and the same goes for every other ticket. If you buy a ticket in a fair lottery, you would therefore be justified in believing that your ticket is a loser, and you would be similarly justified in forming that belief of each other ticket as well. You would therefore also be justified in believing of *all* of the tickets that they will lose. But you are also justified in believing that one ticket will win, since you know that it is a fair lottery. So you are justified in believing both a proposition (all of the tickets will lose) and its negation (at least one ticket will not lose). And that certainly looks paradoxical.

This paper is divided into two parts. In the first, I explain how to properly understand the lottery paradox. In particular, I argue that although there does appear to be a paradox that needs to be resolved when we cast the problem in terms of justification, there is no paradox when we cast the problem in terms of knowledge. Contra Dana Nelkin[1] and Jonathan Sutton,[2] then, it is not a mark in favour of a solution to one formulation of the paradox, that it also offers us a solution to the other. In the second part of the paper, I argue that the correct

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[1] Dana Nelkin, "The Lottery Paradox, Knowledge, and Rationality," *Philosophical Review* 109 (2000): 373-409.

[2] Jonathan Sutton, *Without Justification* (Cambridge, Mass: MIT Press, 2007).

solution to the lottery paradox is to deny the closure of justification under conjunction.

1. How to understand the lottery paradox

Jonathan Sutton,[3] following Dana Nelkin,[4] sets out two versions of the lottery paradox, one for knowledge and one for justification. I will argue that the justification version is a serious problem which requires a solution, but the knowledge version is not a problem at all. The two versions are as follows:

The Knowledge Paradox

> 1. Jim knows that his ticket t_1 will lose.
>
> 2. If Jim knows that his ticket t_1 will lose, then he knows that t_2 will lose, he knows that t_3 will lose, ... and he knows that $t_{1,000,000}$ will lose.
>
> So,
>
> 3. Jim knows that t_1 will lose ... and Jim knows that $t_{1,000,000}$ will lose. (1,2)
>
> 4. Jim knows that either t_1 will not lose or t_2 will not lose ... or $t_{1,000,000}$ will not lose.
>
> 5. Propositions of the following form comprise an inconsistent set: (a) p1...(n) pn, (n+1) not p1 or ... not p(n).
>
> So,
>
> 6. Jim knows propositions that form an inconsistent set. (3,4,5)
>
> 7. It is not possible to know propositions that form an inconsistent set.
>
> So,
>
> 8. (1), (2), (4), (5), or (7) is false.

The Justification Paradox

> 1*. Jim could justifiably believe that his ticket t_1 will lose.
>
> 2*. If Jim could justifiably believe that his ticket t_1 will lose, then he could justifiably believe that t_2 will lose, he could justifiably believe that t_3 will lose ... and he could justifiably believe that $t_{1,000,000}$ will lose.
>
> So,

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[3] Sutton, *Without Justification*, 49-50.
[4] Nelkin, "The Lottery Paradox."

3*. Jim could justifiably believe that t_1 will lose ... and Jim could justifiably believe that $t_{1,000,000}$ will lose. (1*, 2*).

4*. Jim could justifiably believe that either t_1 will not lose or t_2 will not lose ... or $t_{1,000,000}$ will not lose.

5*. Propositions of the following form comprise an inconsistent set: (*a*) p1 ... (*n*) p*n*, (*n*+1) not p1 or ... not p*n*.

6*. Jim recognizes that the following propositions form an inconsistent set: (i) t_1 will lose ... (n) $t_{1,000,000}$ will lose, (n+1) either t_1 will not lose ... or $t_{1,000,000}$ will not lose.

So,

7*. Jim could justifiably believe inconsistent things that he recognizes are inconsistent. (3*, 4*, 5*, 6*)

8*. One cannot justifiably believe things that one recognizes are inconsistent.

So,

9*. (1*), (2*), (4*), (5*), (6*), or (8*) is false.

Both Nelkin and Sutton take it to be best if a theory is able to give parallel solutions to the two versions of the paradox. However, I will argue that it is quite clear that the two versions must be given different treatments.

The justification paradox appears to present a serious difficulty for theories of justification. One of the main solutions proposed in the literature is to deny premise (1*), and hold that however probable Jim's belief that his ticket will lose may be, he is not justified in believing it. Simon Evnine,[5] for example, defends this solution, on the grounds that beliefs that are members of "Indifferent Sets" – sets of beliefs one of which must be false but none of which has anything to recommend it over any other – are not rational to believe.

A second proposed solution is to deny premise (2*) and hold that, even if Jim is justified in believing of ticket t_1 that it will not win, he is not similarly justified with respect to (some of the) remaining tickets. Gilbert Harman[6] proposes such a solution. He argues that we are justified in believing that the first ticket will lose because the odds against its winning are 999,999 to 1. Likewise, we are justified in believing that the second ticket will lose. However, we are not justified in quite the same way for this second belief as we are for the first. For the second belief, we are justified in our belief that the ticket will lose because the odds against it are 999,998 to 1, rather than 999,999 to 1. This is because we must take

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[5] Simon Evnine, "Believing Conjunctions," *Synthese* 118 (1999): 201-227.
[6] Gilbert Harman, *Change in View* (Cambridge: MIT Press. 1986).

account of our prior justified belief that ticket t_1 will lose, which decreases the effective size of the lottery. This process continues for the beliefs we generate for each ticket in turn, and at some point in this process the odds become too uncertain to justify the belief of each remaining ticket that it will lose.

Another solution is to deny premise (8*), and claim that it is possible to justifiably believe things one knows to be inconsistent. Of course, defenders of this third solution have to come up with some weaker form of premise (8*) in order to avoid the lottery paradox without licensing wholesale inconsistency in our beliefs. Nelkin considers and rejects one such weaker principle, which she calls the Foley Principle (FP): it cannot be rational to believe a proposition that is internally inconsistent.[7] An example of an internally inconsistent belief would be a conjunction with conjuncts that cannot be jointly true. Thus, one might be justified in each of the individual beliefs that makes up the lottery paradox, but not justified in believing the (internally inconsistent) conjunction of these beliefs. This solution to the paradox amounts to a rejection of the closure of justification under conjunction.

None of these proposals is very tempting, on the face of them. In the version of the paradox discussed by Nelkin and Sutton, the odds that Jim's belief is true are 999,999 to 1; it is hard to imagine an empirical belief that one could be better justified in believing. The denial of premise (1*) therefore appears to lead directly to scepticism about empirical justification for our beliefs. The denial of premise (2*) also seems problematic. If we accept Harman's argument, then it seems that Jim learns new information about the lottery based on the order in which he forms his beliefs. For example, if he starts at ticket t_1, then it seems as if Jim can deduce that he ought to buy a ticket from the second half of the lottery, one of tickets $t_{500,000}$- $t_{1,000,000}$, since then he will be more likely to win. If Jim started his considerations on the odds of each ticket winning from ticket $t_{1,000,000}$, however, he would be justified in coming to exactly the opposite conclusion. This apparently absurd result illustrates the difficulty with denying premise (2*). Finally, to deny premise (8*) and replace it with some weaker principle such as (FP) is also apparently a hard pill to swallow: a conjunction is true just in case each of its conjuncts is true, so if Jim is justified in believing each of the conjuncts, he ought also to be justified in believing the conjunction. Rejecting (8*) puts us in the bizarre position of being blocked from performing normally innocuous logical operations on our body of justified beliefs. This is counterintuitive on the face of

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[7] Richard Foley argues in various places that a principle like this one ought to replace one like (8*). See, for example, his "Justified Inconsistent Beliefs," *American Philosophical Quarterly* 16 (1979): 247-257.

it, and presents the challenge of finding a principled distinction between cases where the conjunction of justified beliefs is permitted and cases where it is blocked.

The point here it not that none of these proposals can work; it is just that none of them are initially very appealing, so it is not immediately obvious how to respond to the justification version of the lottery paradox. However, a complete theory of epistemic justification that does not embrace scepticism with respect to empirical justification will have to adopt a solution along one of these lines.

The knowledge version of the paradox, on the other hand, has a clear solution; in fact, it is not really a paradox, because premise (2) is demonstrably false. Before going into the demonstration, though, notice that even if (2) were not demonstrably false, there would be an intuitively plausible solution to the puzzle, in the denial of (1). Many people have the intuition that one cannot know that one's lottery ticket is a loser before the winner has been drawn, so this solution is likely not a difficult one to sell. Furthermore, rejecting premise (1) provides a good explanation for why people ever buy lottery tickets at all. If people know in advance that their tickets will be losers, then the phenomenon of lottery-ticket-buying calls for explanation. Another reason to deny premise (1) might be that Jim has not ruled out, and cannot rule out, the relevant alternative that his ticket is a winner. That alternative is relevant here, because it is a very close possible world in which Jim wins the lottery – all that has to happen for that possibility to be actualized is that his ticket be drawn in the lottery. On top of those reasons, if the knowledge paradox was a real paradox, we would have yet another reason to reject premise (1), and deny knowledge in lottery cases.

However, we do not need to deny premise (1) in order to escape the paradox. We might want to reject it for those other reasons, but the knowledge paradox gives us no reason to do so, because premise (2) is demonstrably false. Premise (2), again, is that if Jim knows that his ticket t_1 is a loser, then he knows that t_2 is a loser, ... and he knows that $t_{1,000,000}$ is a loser. However, even if Jim knows that his ticket t_1 is a loser, it does not follow that he knows each of "t_2 is a loser," "t_3 is a loser,"... and "$t_{1,000,000}$ is a loser," even though he will have the same degree of epistemic justification for each of them, because one of them will be false. One of the tickets is, or will be, a winner, and Jim cannot know of *that* ticket that it will lose, since one cannot know a falsehood. Therefore, premise (2) is clearly false, for even if Jim does know that ticket t_1 will lose, he cannot know this of all the other tickets, but (at most) of all but one of the other tickets.[8]

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[8] A possible objection here is that premise (2) is a conditional, so it is true if its antecedent is false. Since I claim in this paper that it is possible that premise (1) is false, and Jim does not

This result will hold for any definition of knowledge that includes truth as one of its constituents. Since both Sutton and Nelkin accept that truth is part of knowledge, each will have to accept that premise (2) is false, for reasons independent of any attempt to resolve the supposed paradox. Without premise (2), the paradox cannot get going. In order to generate the paradox, Jim is required to know an inconsistent set of propositions, as stated in premise (6). But there is nothing inconsistent about knowing of all but one ticket that each will not win, and knowing that exactly one ticket will win. This is perfectly consistent, and just what we would expect. The knowledge paradox is therefore not a paradox at all.

There is no analogous solution to the justification paradox. Although the solution of the knowledge paradox is to deny premise (2), and one of the available solutions to the justification paradox is to deny the analogous premise (2*), we are not in a position to give a demonstration of the falsity of (2*) as we are of (2). The reason for wanting to deny (2*) in the justification paradox is just the desire to escape the paradox without rejecting premise (1*) or (8*). The reason for rejecting premise (2) in the knowledge paradox is that it can be independently demonstrated to be false: Jim cannot know of each ticket that it will lose, because one of them is a winner. The solution to the knowledge paradox therefore does not give us any indication about how we ought to try to resolve the justification paradox.

This should not be a surprising result. The justification paradox arises because Jim seems to be in an identical epistemic position with respect to each of the lottery tickets. Whatever he is justified in believing about one ticket, there seem to be no non-arbitrary grounds for denying that he is justified in believing precisely the same thing about every other ticket. This is why Harman's rejection of (2*) is so problematic; it allows Jim to arbitrarily treat some of the tickets differently from the others.

However, there is at least one sense in which the tickets are not all identical: one and only one ticket will win. This distinguishing feature is precisely

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know that his ticket will lose (i.e. the antecedent of (2) is false), I should therefore hold that (2) could be true. There are two points to note here. First, this objection requires that we treat the ordinary-language conditional as the material implication of traditional logic, and that analysis of the conditional is by no means uncontroversial. Second, even granting that analysis of the conditional, my argument can be recast without affecting the main point, as follows: it is demonstrably true that either premise (1) is false or premise (2) is false. Although there are reasons to reject (1), I do not take a stand regarding (1). My claim is that *if* (1) is true, then (2) is false. Putting the argument this way does not change the fact that the knowledge paradox necessarily has a false premise, nor does it change the fact that the reason to reject premise (1) or (2) has nothing at all to do with the desideratum of resolving a paradox.

what is made relevant by the switch from justification to knowledge. Knowledge, because it is factive, is able to take account of the difference between the winning ticket and all other tickets. This breaks the symmetry that holds between the beliefs about t_1, t_2, etc., upon which the lottery paradox depends. Justification, on the other hand, cannot differentiate the winning ticket from the other tickets by the sheer fact that it will win.

Sutton uses the supposed analogy between the knowledge and justification versions of the lottery paradox to argue for his claim that justification just is knowledge.[9] He endorses the rejection of premise (1) as a solution to the knowledge paradox, and then points out that his account of justification-as-knowledge entails the rejection of premise (1*) in the justification paradox as well. If justification is knowledge, and Jim does not know that his ticket is a loser, then he is not justified in believing that his ticket is a loser, either. Score one for the justification-as-knowledge thesis: it solves the two paradoxes in the same way.

A recent objection to this argument of Sutton's can be found in Coffman.[10] Coffman's own solution to the knowledge paradox is to deny Jim's knowledge that his ticket is a loser (that is, to reject (1)), and his solution to the justification paradox is to reject the closure of justification under conjunction (in effect, although Coffman sets up the paradox in a slightly different way, this solution is to reject (8*)).

In favour of Sutton's solution to the paradoxes is that it is elegant, since the two paradoxes are given a unified solution. Counting against it is the fact that it involves the counterintuitive denial of the justification of Jim's belief that his ticket will lose. Coffman's solution, on the other hand, is piecemeal, but it respects the intuition that Jim's belief that his ticket is a loser is justified. Coffman argues that being piecemeal is not a significant mark against a solution to the paradoxes, so his solution is at least as plausible as Sutton's.

Coffman's argument is fine as far as it goes, but it does not go far enough. He has argued that there is another solution to the two versions of the paradox that is at least as plausible as Sutton's, so the fact that Sutton's view of justification-as-knowledge gives a unified solution to the paradoxes does not count as a reason to accept that view. But what I have argued here goes much further than that: the way to deal with the knowledge paradox is to point out that it is not a paradox at all, because it has a clearly false premise. It is therefore not even a desideratum that a theory be able to offer a unified solution to the paradoxes.

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[9] Sutton, *Without Justification*, 51.

[10] E. J. Coffman, "Is Justified Belief Knowledge? Critical Notice of Jonathan Sutton, *Without Justification*," *Philosophical Books* 51 (2010): 16-17.

Patrick Bondy

2. How to solve the lottery paradox

The only way to formulate the lottery paradox, then, is in terms of justification, not knowledge. In fact, it seems to me that there is a perfectly good solution to the justification version of the paradox, but it does not mirror the solution to the knowledge version. The solution is to deny the closure of justification under conjunction, which, as I have said, amounts to a rejection of (8*). Coffman offers this same solution, but he only puts it forward as an equally plausible solution as Sutton's denial of premise (1*), without offering an argument in support of it. Richard Foley[11] also argues for denying the closure of justification under conjunction, but his strategy is to argue that closure of justification under conjunction has absurd consequences, and to argue that other solutions to the lottery paradox are simply worse.

Here, then, is the positive argument for this solution to the lottery paradox. To keep things simple in what follows, I reduce the number of tickets in the lottery to 100, but the point remains the same for a lottery of 1,000,000 tickets.

When Jim considers whether a given ticket t_1 is a loser, he knows that there is a probability of 0.99 that it is, since there are ninety-nine equally probable ways for t_1 ticket to lose, and only one way for it to win. He is therefore justified in believing that that ticket is a loser. He also knows that each other ticket has the very same probability of winning. He is therefore justified in believing of each one that it will lose. But when Jim considers whether *both* t_1 *and* t_2 will lose, we can see that there are ninety-eight ways for that proposition to turn out true (i.e. it is true just in case t_3 wins, or t_4 wins, … or t_{100} wins), and only two ways for it to turn out false (if either t_1 wins or t_2 wins). So the probability that the proposition that tickets t_1 and t_2 are losers is true is 98/100, or 0.98. And so on: as we increase the size of the set of tickets that we believe are losers, we lower the probability that our belief is true. Once we reach the end of the tickets, and we consider whether t_1 will lose, *and* t_2 will lose, *and* t_3 will lose… *and* t_{100} will lose, it is obvious that there are 0 ways for that conjunction to come out true. So there is no justification whatsoever for believing the conjunction that all of the lottery tickets will lose.

The solution to the lottery paradox, then, is to allow that there is very good justification for believing of each individual ticket that it will lose, and to allow that there is very good (albeit slightly less) justification for believing that a given set of two tickets will lose, but to insist that there comes a set of tickets that is

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[11] Foley, "Justified Inconsistent Beliefs."

sufficiently large that the probability that they are all losers is sufficiently low that the belief that they are all losers is not justified.

Trying to point out the exact point where a set of tickets is sufficiently large that we no longer have justification for believing that all of the tickets in that set are losers is rather like trying to point out the point at which a man goes from not bald to bald. But the difficulty of identifying that point is no reason to doubt that there is a boundary (perhaps a vague one) between the two types of case. Just as there are clear cases where a man is bald, and clear cases where he is not, there are also clear cases where the belief that a set of tickets are all losers is justified, and clear cases where such a belief is not.

Can this type of solution to the lottery paradox can be made to work in a straightforward way for other similar paradoxes, such as the preface paradox? Perhaps, but I am skeptical. Briefly, the preface paradox asks us to consider an author of a book who knows that she has done her research well, she is a careful writer, and so on, but she is not so bold as to believe that every single statement in the book is true. She therefore writes a modest preface in which she claims to be sure that she must have made at least a few mistakes. Nevertheless, she still believes, of each proposition in the book, that it is true.

The preface paradox is clearly structurally similar to the lottery paradox. In each case, we have an agent who holds a set of beliefs each of which is well justified, but who does not believe that the conjunction of those beliefs is true. It would therefore be nice to have a similar solution to both paradoxes. Perhaps a solution of the sort that I have offered to the lottery paradox can be made to work for the preface paradox. However, I doubt that it can be applied in a straightforward fashion, because in the preface paradox, the probabilities of each of the propositions in the book are not clear. We cannot simply count up the number of ways to be mistaken and the ways to be correct, and yield a definite judgment about the probability that a given set of propositions is true.

Still, it does at least look like denying closure of justification under conjunction is the way to solve the lottery paradox. As I point out above, however, denying closure in this way makes it incumbent upon me to put forward a way to block justified conjunction in the lottery case, while allowing it in ordinary cases that do not appear to be problematic. The principle that I propose is this:

Improbable Conjunctions (IC)

In cases where the justification of a belief is determined by its probability, and conjoining two or more beliefs that are independently probable yields a

conjunction which is sufficiently less probable than the belief in its conjuncts, the belief in that conjunction on the basis of its conjuncts is not justified.

This principle is different from the Foley Principle (FP) which Nelkin considers. FP says that it cannot be rational to believe internally inconsistent propositions. FP blocks justified inference to the belief: "one lottery ticket is a winner and all of the lottery tickets are losers," because that proposition is internally inconsistent, and so FP blocks the lottery paradox in its normal form. But FP does not block the inference to the belief: "one ticket is a winner and each of t_1 through t_{n-1} is a loser," in an n-ticket lottery, which it seems to me we should also want to say is an unjustified belief. By contrast, the principle IC blocks the inference to that further belief as well, since it is a highly improbable belief, despite the fact that it is a conjunction and each of its conjuncts is independently very probable.

Principle IC also allows that in a wide range of ordinary cases where we believe conjunctions on the basis of belief in the conjuncts, the resulting belief will be justified, which is another very important desideratum. IC allows such inferences in cases where a conjunction of probable propositions is itself still sufficiently probable. The principle admittedly does not specify a point at which the probability of a conjunction becomes too low for justified belief in it – but then, neither do typical accounts of justification specify probabilities for justified and unjustified beliefs. Specifying the threshold of probability for justification is not a requirement for holding that there is such a threshold, even if only a vague one.

Indeed, on reflection, it should not even be surprising that we have to deny closure of justification under conjunction. If it is because a belief is sufficiently probable that it counts as justified, as in the case of the lottery-beliefs, then of course there will be cases where belief in a conjunction is unjustified even though the belief in the conjuncts is justified, since a conjunction is usually less probable than its conjuncts taken independently. Sometimes a conjunction will be highly improbable, despite having independently plausible conjuncts. Now, I do not claim that it is always a belief's probability that determines its justification, but in the case of lottery beliefs, it makes good sense to think so, and in such cases, it is clear that we must deny closure of justification under conjunction.[12]

LEVELLING THE ANALYSIS OF KNOWLEDGE VIA METHODOLOGICAL SCEPTICISM

William A. BRANT

ABSTRACT: In this essay I provide one methodology that yields the level of analysis of an alleged knowledge-claim under investigation via its relations to varying gradations of scepticism. Each proposed knowledge-claim possesses a specified relationship with: (i) a globally sceptical argument; (ii) the least sceptical but successful argument that casts it into doubt; and (iii) the most sceptical yet unsuccessful argument, which is conceivably hypothesized to repudiate it but fails to do so. Yielding this specified set of relations, by means of proceeding from global scepticism to (ii) and (iii), increases the chances of identifying the highest evaluative relevancy of the levels of analysis and observation of an alleged knowledge-claim. I argue that the failure to analyse and derive a difference between (i) and (ii) with respect to an alleged knowledge-claim signifies that the claim is grounded within the theoretical framework itself, that the claim lacks specification with regard to content that is analysable via that framework, and the claim is dubious insofar as alternative theoretic frameworks may present greater relevancy to levels of observation.

KEYWORDS: knowledge, scepticism, perception, level of observation, magnification level, methodological scepticism

1. Gradations of Scepticism: from Global-types to Perceptual Scepticisms

Global scepticism is often considered a system of thought that utilises doubt so extensively that everything whatsoever is doubted, whereby the conclusion is formed that we do not and cannot know anything at all. Accordingly, we cannot even knowledgeably conclude that we do not know anything.

Contrarily, Ken Gemes[1] ascertains that it is generally presumed that "... it is logically possible that all one's experience-based beliefs are false. But for a typical agent this is simply not possible." For example, if one states both that "I have a left leg" and "It is not the case that my left leg is injured," then one of those statements must be true. Moreover, one may know that at least one of those statements is true, which appears to oppose global scepticism.

However, despite Gemes insight, global scepticism need not be defined more narrowly in order to express doubt with respect to any knowledge-claim or

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[1] Ken Gemes, "A refutation of global scepticism," *Analysis* 69, 2 (2009): 218-219.

even every one of these claims altogether because the sceptic may still doubt the memories, expressions, attributions of modes and interpretations of them. Knowledge-claims also require more necessary conditions than experienced-based beliefs since no mere experience-based belief amounts to propositional knowledge. Globally sceptical hypotheses require that more necessary conditions be fulfilled than knowledge-claims do, which are claims that such hypotheses cast into suspicion. For these reasons I shall presume that globally sceptical arguments are inescapable.

Other types of sceptical arguments, such as varieties of perceptual scepticism, lack the intensity and scope of global scepticism since less sceptical arguments do not produce the same type or overall amounts of doubt. For example, "visual perceptual scepticism" is less sceptical than "visual and auditory perceptual scepticism," which involves arguments that conclude that one cannot know anything on the basis of one's vision and hearing (i.e., with respect to the two sensory modalities in combination or individually). Different types of perceptual scepticism provide their frameworks, contexts and hypothetical examples at different levels of analysis than global scepticism, which requires the most stringent conditions under which one (or many) can know something.

Various types of perceptual scepticism also provide different relations of relevancies to the arguments and knowledge-claims undergoing the analyses than other forms of scepticism do. Perceptual scepticism includes a vast range of levels of analyses that consist of several types of subdivisions, such as individual or combinations of sensory modalities (e.g., types of perceptual scepticism concerning vision, olfaction, taste etc.). Perceptual scepticism also involves varying roles of magnification levels concerning each of the sensory modalities and certain technologies (e.g., perceptual scepticism regarding the auditory mode and magnification levels via microphones that increase different intensities and volumes of sounds). Thus, there are various levels of analysis that are interrelated with varying grades of perceptual scepticism on the basis of sensory modes and magnification levels concerning each of the sensory modalities.

For instance, visual perceptual scepticism applies to specific temporal intervals and microscopic levels of observation and analysis, which may involve doubting alleged knowledge-claims relevant to observational descriptions concerning specific magnification levels with microscopes. Consider the information obtained and recorded via describing visual observations made with a microscope and how one may apply versions of visual perceptual scepticism to specific ranges of magnification levels that are attainable via the usage of a microscope, i.e., without applying visual perceptual scepticism to other

observations that are presumably knowable via visual perceptions. One may reasonably doubt alleged knowledge-claims, concerning magnification levels of 500X or higher, for example, which were concluded after observations and analysis of a microscopic organism with a specific microscope at some laboratory.

Certain levels of magnification for observations by means of microscopes are required in order to properly analyse events, things or parts, which are only viewable at microscopic levels. Historical analyses demonstrate both the increase in sophistication of technological instruments for magnification that thereby increase the magnification levels for observing. The 19th century yielded less instruments for magnifying the intensity of sounds than the 20th century concerning microphones and speakers, including volume magnifications with hydrophones for auditory observations under water. Hence, the latter types of specified levels of visual or auditory perceptual scepticism are important for historical analyses, namely, with respect to the different sensory modalities for observation and different magnification levels of observation. Such levels of observation emerged as a result of the historical developments of technologies by pioneers, such as Antony van Leeuwenhoek who improved the microscope during the 17th century and helped found microbiology, and the father of nuclear physics, Ernest Rutherford, who improved and patented the hydrophone during World War I.

The amount of relevancy, concerning more sceptical arguments, increases in relation to more specified levels of analysis and specified levels of observations in the following ranking order: **(1)** globally sceptical arguments, concluding that nothing that is recorded or remembered is known; **(2)** sceptical arguments concerning all perceptions that conclude no one can know anything on the basis of perception (e.g., because one may be dreaming or merely making claims about a virtual world); **(3)** visual perceptual scepticism arguments, concluding that one cannot know anything solely on the basis of visual perceptions (e.g., because visual illusions and hallucinations cannot be controlled or realization requires the accompaniment of another sensory modality in order to account for non-veridical visual observations); **(4)** sceptical arguments concluding that one cannot know about some organism at magnification levels of 500X or higher; and **(5)** perceptual scepticism that is applied to magnification levels above 500X and a specific range of time periods during which observational descriptions could not be reliably made with particular microscopes at certain laboratories (e.g., since the era lacked the technology, the recorded and alleged claim is dubious).

(5) may very well enable us to distinguish between the propositional knowledge of Antony van Leeuwenhoek and his speculative postulations or conjectures concerning his observational descriptions of spermatozoa, bacteria etc.

2. Methodology of Scepticism: Analysing Knowledge-Claims

A methodological value subsists in globally sceptical arguments. Valid arguments for global scepticism provide upper limitations for comprehensive analytic frameworks concerning knowledge (i.e., the most stringent set of necessary or sufficient conditions for attaining knowledge), or else theoretic frameworks must account for their ineffectiveness. Theoretical frameworks contain multiple levels of analyses, with which proposed knowledge-claims are, demonstrably, more dubious as the amount of necessary and sufficient conditions for knowledge increase.

Moreover, any knowledge-claim may be evaluated in accordance with specified relations of relevancy concerning three crucial levels of analyses: **(i)** the level of analysis of the globally sceptical argument (i.e., the most sceptical type of argument); **(ii)** the level of analysis of less sceptical arguments that are still able to cast the claim into doubt and are most relevant to the context of significance or most appropriate level of analysis of the alleged knowledge-claim; and **(iii)** the level of analysis of the most sceptical argument that is nevertheless unable to repudiate the alleged knowledge-claim.

This approach of methodological scepticism requires the analyst to restrict herself to specific realms of knowledge for the purpose of analysing the alleged knowledge-claim in relation to domains of discourse that vary. One underlying principle supporting such an approach can be viewed in Barry Stroud's work when he states that:

> Scepticism is most illuminating when restricted to particular areas of knowledge … because it then rests on distinctive and problematic features of the alleged knowledge in question, not simply on some completely general conundrum in the notion of knowledge itself, or in the very idea of reasonable belief.[2]

An analysis yielding **(iii)** incorporates scepticism that is slightly less sceptical than **(ii)**. Thus, **(iii)** restricts itself to a more specified area of knowledge. **(iii)** involves the usage of scepticism that strongly supports the claim under investigation, demonstrating its validity at the highest level. Methodologies proceeding in order from **(i)** to **(iii)**, presuming that there are typically various

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[2] Barry Stroud, *Understanding Human Knowledge: Philosophical Essays* (New York: Oxford University Press, 2002), 291.

levels of analyses between **(i)** and **(ii),** allow an analyst to ascertain a degree of certainty at a level of analysis and observation in-between **(ii)** and **(iii)**.

One may well inquire why **(i)** is necessary for the proposed methodology of scepticism. I suggest that **(i)** is important for the same reason that a man with a large foot tends to find it comforting to purchase from a shoe store that also possesses the same models of shoes that are larger than those models he finds comfortable. If he buys the largest size of a model from a store without testing anything larger, he lacks an understanding of whether or not that particular model is best-suited for his wear. The same line of reasoning holds for that which fits into only the smallest models.

Where the abovementioned analogy differs, concerning the current proposal for methodological scepticism and an individual's method of testing shoes, is with respect to **(iii)** and the largest size of a model of shoes that nonetheless does not fit the potential customer. For there is generally no great obstacle with respect to finding a less sceptical argument than another one that is also unable to defeat the knowledge-claim undergoing the methodological analysis (i.e., something less sceptical than **(iii)**).

Although the "least sceptical argument," which casts a knowledge-claim into doubt, may not be definitively discoverable, the approximation of the level of analysis, from which the least sceptical argument can be derived, is applied specifically in order to provide a meta-analysis that analyses the analyses of the derivations of **(ii)** and **(iii)** in order to identify the highest levels of relevancy of the levels of observation and analysis.

2.1. Inability to Distinguish between Global Scepticism and Slightly Less Scepticisms

The distinction or lack of distinction drawn between **(i)** and **(ii)** with respect to a specific knowledge-claim is useful in relation to that claim's analysability and for illustrating how fundamental certain concepts and types of claims are with respect to any theoretical framework within which one works. The inability to ascertain a difference between **(i)** and **(ii)** with respect to some alleged knowledge-claim signifies constraints of the theoretic framework, within which one works, and indicates dubiousness (i.e., with respect to the claim's relevancy to other types of knowledge-claims) as well as the possibility for alternative systems or opposing theoretic frameworks.

For instance, according to Kris McDaniel:

> The epistemology of the possible and the actual is fundamentally different: for
> example, we can know a priori that there is a merely possible talking donkey, but

> we cannot know a priori that there is an actual talking donkey. The merely possible are governed by a principle of plentitude that does not govern the actual: at the very least, for every way that something actual could be, there is something possible that is that way. The hypothesis that these epistemological and metaphysical differences are grounded in different ways of existing is both viable and intellectually satisfying.[3]

McDaniel presents us with two different alleged knowledge-claims, which demonstrate an aspect of the expansiveness of his theoretic framework[4] in addition to upper and lower limitations that appear to be at least impervious to various degrees of high levels of scepticism, regarding knowing what is possible, but easily yield to lower levels of scepticism with regard to knowledge a priori about what is actual. For instance, his first claim entails that it is possible to know a priori that some "merely possible talking donkey" is somewhere. With such a claim McDaniel expands the potential realm of a priori knowledge to include perhaps disjunctive claims, such as "x is necessary, contingently real or unreal, but not impossible," i.e., where "x" is equivalent to "any merely possible thing or event."

McDaniel's second claim entails that it is impossible to know a priori that some actual talking donkey is somewhere. Of course, one reason why that might be considered impossible to know is that it is false that there is any talking donkey. However, McDaniel leaves the option available that it is true that perhaps donkeys secretively and actually talk, although we cannot know that they actually talk. The conjunction of the two propositions shows that McDaniel's concept of a donkey incorporates the "possibility or potential to talk" as well as the ability to have knowledge of that possibility a priori, but he argues for the inability to have knowledge a priori of an actual talking donkey.

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[3] See chapter 10 in David Chalmers, David Manley, and Ryan Wasserman, *Metametaphysics: New Essays on the Foundations of Ontology* (New York: Oxford University Press, 2009), 315-316.

[4] The greater expansiveness of a system of thought or theoretical framework presents difficulties with respect to critically evaluating that system's comprehensiveness. However, such systems become susceptible to criticisms concerning their lack of concision as well as their lack of internal and external consistency (i.e., evaluated on the basis of possessing internal contradictions or being inconsistent with other systems or with reality) and lack of practicality or application. McDaniel's two alleged knowledge-claims would be presumed false by David Lewis's theory within his *On the Plurality of Worlds* (Oxford: Blackwell Publishers, 1986), for instance, if McDaniel had attempted to distinguish between the ability to know about a merely possible talking donkey from the inability to know about a "real" talking donkey. So, his careful usage of terminology (i.e., stating "actual" instead of "real") allows him to maintain consistency within at least two theoretic frameworks.

What is problematic for McDaniel is for him to answer whether or not we can know a priori that there is an actual talking human because if we can or do indeed know this, then the very concept of a human (i.e., as opposed to a donkey) would seem to incorporate talkativeness on the basis of *actual talking* as opposed to *merely possible talking*, despite the fact that some humans are actually mute. Accordingly, one may claim to know a priori that there is no actual talking donkey since the concept of a donkey (i.e., derived from ethology, cladistics and evolutionary biology) excludes talkativeness. Of course, the latter alleged knowledge-claim is open to scepticism but so is McDaniel's entire epistemological distinction between knowing a priori what is possible and knowing a priori what is actual.

McDaniel's theoretical framework provides only one alternative system of thought with respect to describing the relations between knowledge, possibility, actuality and scepticism. For instance, an opposing system is viewable both within the ancient Megareans and Spinoza's philosophies, which maintain that there is nothing that is both possible and unreal, and anything that never occurs is also impossible.[5] So, according to Megaric philosophy, if there is (actually) never a talking donkey, then there cannot be "a merely possible talking donkey," which contradicts McDaniel's claims insofar as the epistemology of the possible and actual are closely intertwined. So, the merely possible need not be "governed by a principle of plentitude that does not govern the actual," i.e., in stark contrast to McDaniel's system.

The major difference between McDaniel's system and the Megaric one is that McDaniel misrecognizes something if it is originally considered to be possible but contingently unreal, and then it is later recognized as unreal but also impossible, whereas a Megarean misrecognizes something if it is originally considered to be possible, and then it is recognized as unreal. The Megaric system argues against there being any value in claims about "merely possible things" since the importance of something resides in it being real and substantial.

The addition of an alternative system, such as the Megaric system, illustrates that the level of analysis reached via global scepticism is fundamentally higher than any particular system of thought. System thinking produces fundamental parts of problem thinking, and problem thinking places each system in opposition with their alternatives without any favouritism toward any specific

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[5] More about the topic of the Megarean system can be found in Nicolai Hartmann,"Der Megarische Und Der Aristotelische Möglichkeitsbegriff. Ein Beiträg Zur Geschichte Des Ontologischen Modalitätsproblems," *Abhandlungen der Preussichen Akademie der Wissenschaften, Philosophisch-Historische Klasse* 10 (1937): 1-17.

system. The distinction drawn between (i) and (ii) demonstrates an attempt to reach more specified levels of observation and analysis regarding the alleged knowledge-claim, whereas the failure to draw a distinction between (i) and (ii) serves as an indicator that the claim presumes stricter conditions that are directly related to the ability to attain knowledge, for instance.

McDaniel's alleged knowledge-claim that "we can know a priori that there is a merely possible talking donkey" is one example of the failure to draw a distinction between (i) and (ii) partially because it undermines global scepticism. Therefore, the alleged knowledge-claim may best be characterised as a presumption of the theoretical framework or as a speculative assumption that outlines the expansiveness of that particular system, which is comparable with other systems and, thus, dubious in accordance with problem thinking.

2.2. Order of the Methodology of Scepticism

Figure 1 illustrates an aspect of the scheme of the proposed methodology for utilising different grades of scepticism with ordered steps that approach a discovery of the level of analysis, at which an alleged knowledge-claim is most relevant, and the degree of certainty, with which the claim is best ascertained. I suggest that the analyst apply scepticism methodologically, first, from the most sceptical and then proceed toward the least sceptical counter-arguments in order to discover the particular amount of reassurance that is ascertainable about knowledge-claims concerning observations. This entails the utilization of ordering the analysis from (1) to (5) concerning proposed knowledge-claims that incorporate visual descriptions of microscopic organisms, for example. Lastly, methodological scepticism and the production of a meta-analysis, concerning (i), (ii) and (iii), may prove most useful when hypotheses about the least sceptical but successful arguments (i.e., (ii)) and most sceptical but unsuccessful arguments (i.e., (iii)) are formed, concerning the attempts to repeatedly repudiate and then to reconfirm each claim undergoing the investigation.

An initial formation of hypotheses for (ii) and (iii) before the usage of methodological scepticism may allow hypotheses to undergo testing in a similar way to the scientific method, although the most highly relevant levels of analyses (i.e., concerning (ii)and (iii)) lack a direct relationship with observation that scientific methodology has. The analysis of knowledge is thereby approximated and balanced between (ii) and (iii), awaiting further relevant, observational data.

Fig. 1 Ranking Orders of Scepticism for Perceptual Claims: Levels and Types

Higher Levels of Analyses

Global-Type Scepticism

e.g., Descartes' evil genius argument, Russell's 5 min.[6] hypothesis, fallible memory etc.

General Perceptual Scepticism

e.g., Zhuangzi's dream argument, Arguments on living in computer simulations (e.g., The Matrix) etc.

Visual Perceptual Scepticism

e.g., scepticism about what is "seen" on the basis of visual hallucinations and illusions.

Visual Perceptual Scepticism at Higher Magnification Levels

e.g., scepticism about what can be known via technologies yielding higher magnification levels for visual observations, i.e., telescopes and microscopes etc.

Increasing Scepticism

The analysis approaches a conclusive degree of certainty of the knowledge-claim via the meta-analysis of multiple levels of sceptical analyses.

(ii)

(iii)

Increasing Relevancies

True and believable a priori knowledge-claims

True and believable a posteriori knowledge-claims

True and believable knowledge-claims about visual perceptions

True and believable knowledge-claims of visual observations of microscopic and distant entities

More Specified Levels of Observations

The methodological approach of scepticism I offer here requires the analyst to restrict herself to some particular area of knowledge or domain of discourse while utilising varying levels of scepticism in stages in order to produce a "meta-analysis," namely, an analysis of sceptical arguments both able and unable to refute the alleged knowledge-claim. The "higher levels of analyses" in **Fig. 1** are those that involve the most stringent and complex demarcation criteria for the

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[6] See Lecture IX Memory in Bertrand Russell, *The Analysis of Mind* (London: George Allen & Unwin LTD, 1921), 159.

possession of knowledge. The "more specified levels of observation" concern the precision of measurements, specific magnification levels, and specified units of time concerning the observation undergoing the investigation in relation to the alleged knowledge-claim.

This sceptical methodological approach aims to provide a meta-analysis of successfully sceptical arguments with their interrelationships to the analysis of unsuccessful sceptical arguments, which all directly concern the alleged knowledge under investigation. The meta-analysis provides higher levels of relevancy from which evaluations are made with grades of certainty in proportion to their identifiable localities in relation to global-type sceptical analyses. The relevant and localisable level, which is identified via the meta-analysis,is approximated via **(ii)** and **(iii)** (i.e., by means of "the least sceptical but successfully sceptical arguments and hypotheses" in combination with "the most sceptical but unsuccessfully sceptical arguments").

An analyst who is familiar with the effectiveness of methodological scepticism may begin by forming hypotheses for **(ii)** and **(iii)**. Methodological scepticism best begins the analysis of the alleged knowledge-claim from the most stringent and sceptical hypotheses and argumentative approach (i.e., global-types of scepticism) and proceeds step by step to ever less sceptical hypotheses, attempting to hallmark **(ii)** and **(iii)** in order to approximate the highest level of relevancy of the proposed claim. The methodology is applicable to numerous types of scepticism since types of scepticism generally involve gradations of greater and lesser amounts, including modal scepticism, ethical scepticism, religious scepticism etc., although this essay refrains from further addressing the latter types of scepticism.

3. Relations of Knowledge to Grades of Scepticism and Certainty

Many arguments, such as arguments that maintain that forgetfulness is both always possible and impedes knowledge at any point, demonstrate that scepticism is epistemically inescapable. So, in essence, there is no knowledge-claim that cannot be doubted to some degree. Even Descartes' famous claim "I think; therefore, I am" has been demonstrated to be dubious with respect to individuals inflicted with Cotard's delusion, under which condition individuals form consistent webs of beliefs that they are dead, brain-dead and decomposing.[7] Thus, thinking may be insufficient for one to knowledgably conclude that one exists.

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[7] A. W. Young and K. M. Leafhead, "Betwixt Life and Death: Case Studies of the Cotard Delusion," in *Method in Madness: Case studies in Cognitive Neuropsychiatry*, eds. P. W. Halligan and J. C. Marshall (Hove, Sussex: Psychology Press, 1996), 155.

The degree to which a proposed knowledge-claim is doubted is the level of analysis that extends beyond the realms from which the evidence and relevant claim are derived. That is, scepticism allows any claim to be doubted via extending further than the level of observation and analysis, from which the claim is decidedly concluded. A series of different types and lower grades of sceptical arguments allow us to determine the level of certainty with which we can evaluate some given statement and lines of argumentation as proposed knowledge-claims, specifically when lower gradations of sceptical arguments include (ii) and (iii).

Stephen Maitzen maintains that:

> ... if there are domains whose truths we cannot know, then there must be claims *outside* those domains that we cannot know even if they are true. ... Understood as a thesis, skepticism about a domain of discourse is the epistemological claim that no one knows any of the true propositions that the domain may contain.[8]

Maitzen argues that it is impossible to contain scepticism within a specific domain of discourse (i.e., localising scepticism), which is consistent with a methodological approach that attempts to describe alleged knowledge in relation to each of the domains of discourse in order to discover the domain of the highest relevance to the alleged knowledge.

I agree with Maitzen and emphasise that scepticism is required in order to form accurate analyses of knowledge-claims and ought to be unleashed upon each of the specific domains of discourse in order to provide the locations of knowledge-claims within analytic frameworks constructed via rational processes of grading types of scepticism and levels of scepticism in relation to one another. Levelling the analysis of knowledge via methodological scepticism is requisite in order to understand the relevant levels of observation (i.e., regarding magnification levels, sensory modalities, time intervals etc.), levels of analysis (i.e., critical, sceptical etc.) and degrees of certainty.

I also agree with Nicolai Hartmann who stated that:

> Everything in life that we call our knowledge is in actuality a bundle of knowledge and misapprehension. We do not have a direct criterion of truth; truth is not a graspable moment of content of the realization, but is rather a relation to something, which we do not recognize other than through our level of knowledge, as the subject matter. All verification proceeds in the circuitous way of the testing of the subject matter. The consciousness of the subject matter cannot generally, in life, temporise each verification, which it anticipates,

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[8] Stephen Maitzen, "The Impossibility of Local Skepticism," *Philosophia*. 34 (2006): 453-464. Maitzen makes these claims on page 453.

complements, combines and takes for truth the unexamined product. Also the sciences are not free from this, and every researcher knows it well and reckons with the source of misapprehension; but also the researcher must still reckon with the still vague chance of the encounter, letting the unproven and hypothetical apply, whereby the correct estimates of the grade of certainty of it can never be certain. It creates theories that become controversial and advocated and must become, once again, allowed to be abandoned. After all, they correct themselves within the course of time; the science advances, and that, which proves to be valid, subsists.[9]

Degrees of certainty ascertained via methodological scepticism are open to the same criticisms and additional scepticism since any analysis yielding a degree of certainty may be confronted with a meta-analysis that applies scepticism to it. However, the methodology of scepticism, which I have provided, presents a rigorous and critical method that utilises instruments from the philosopher's tool kit in addition to the observational descriptions of science, contributing with a specific order of steps from which we can work.

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[9] Nicolai Hartmann, *Der philosophische Gedanke und seine Geschichte* (Stuttgart: Reclam, 1936/1977), 4-5 (translation by William A. Brant).

THE CONFRONTATION BETWEEN QUALITATIVE AND QUANTITATIVE RESEARCHERS: A DIFFERENT ARTICLE, A DARING PUBLICATION

Caroline Alexandra MATHIEU

ABSTRACT: After reading chapter two of Russell's *In Praise of Idleness*, which discusses the history of the concept of knowledge, and the article by Ranjay Gulati who commented the wars of tribes ("Tent poles, tribalism, and boundary spanning: The rigor-relevant debate in management research"), this inspired me an image of gladiator battles between different groups in the scientific world. Inspired by Feyerabend's concept of fairy tales, I illustrate the struggle between quantitative and qualitative researchers that I witnessed in my research career...

The Confrontation

The sun finally rises and the gladiators are ready to fight. For decades, two groups confronted each other to gain control of and dominate villages but today, the price of victory is very important: the hand of Princess Recognition. This new alliance will allow the winner to set up its soldiers with it in Scientistcity, thus leaving the other group abandoned and without resource. On the left side, gladiator QualiJohn puts on its most beautiful blue armor to defend its place. On the right side, QuantiJohn proudly wears red to intimidate the opponent. The stands are filled with soldiers supporting their leader with the color of their clan. The two gladiators proceed into the arena and place themselves in front of Princess Recognition and her father King UniversiJohn. They then begin their battle of scathing words.

- Because words are my strength, I start the fight by saying that whatever happens, I'll still endorse my clan because we know that our way of exploring the world is the best.

- Words are precisely the problem because in Scientistcity, words are not as important as figures, as Porter[1] has so well said!

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[1] Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*

Caroline Mathieu

    - That is what your clan wants us to believe, but the important thing is to advance science by observing the events around you.

    - How can you advance science with observations? As Chalmers told us, a "fact" is subjective, so your way of doing science is not serious.[2] Observable "facts" must be objectified using procedures as was suggested by Chalmers, and this is how our clan works.

    - As Chalmers rightly said, you have to turn to PhysicsJohn to analyze the sociology because it is known to make good discoveries, but you forgot to ask whether this applies to our world of sociology.[3] We do not claim, like you, to move towards the truth; on the other hand, we can identify lots of interesting topics that you cannot measure with your instruments. Have you ever thought of the context when you collect data? This is not a priority, right? You prefer large quantities of numbers and forget to take into account the human aspect of these figures.

    While QualiJohn and QuantiJohn discuss their scientific position, they dodge the sword of their opponent by stepping right or left and block shots with their own sword. The crowd looks at the fight and cheers when their leader lunges toward the opponent. QuantiJohn says:

    - Ask Sir Porter, he will explain the process that could play a major role in the construction of the legitimacy of quantitative data.[4] We target generalization and universality. The figure has the power because it helps to build a standard.[5]

    - And you should go look at Sir Foucault's work. He will tell you that figures led people to be regarded as objects to be manipulated.[6] What are you doing on your people out of standards? We are interested in them and like to understand why they what they are, contrary to you who ignores individuality as Porter told us.[7] We try to advance science by discovering and analyzing people in their context. As Foucault said, it sometimes seeks to deconstruct the truth and is "taken for granted" within the society to dig further.[8] While, like Popper, you try to advance science through trial and error.[9] You are always caught up in your

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(Princeton: Princeton University Press, 1995).

[2] Alan Francis Chalmers, *What is this Thing Called Science?* (Indianapolis: Hackett Publishing Company, 1999).

[3] Chalmers, *What is this Thing*.

[4] Porter, *Trust in Numbers*.

[5] Porter, *Trust in Numbers.*

[6] Paul Rabinow, *The Foucault reader* (New-York: Pantheon, 1984).

[7] Porter, *Trust in Numbers.*

[8] Rabinow, *The Foucault reader.*

[9] Karl Popper, *Objective Knowledge* (Oxford: Oxford University Press, 1972).

black Latourian boxes as a starting point to your research.[10] You operate using assumptions that refer to previous research, but that makes you move so slowly. Latour tells us that we can have previous literature say what we want to so that it lends itself best to what it is meant to support.[11] Therefore, your way is no more objective than ours.

- Perhaps, but Latour tells us that the cost of dissent is not equal to our two clans.[12] Given that my clan currently receives more subsidies, we can do more research. Society supports us more, and where there is more research there is more progress.

- Kuhn told me one day that the role of the social in the constitution of knowledge creates an arbitrary element, resulting from personal and historical hazards. It is also a formative element of the beliefs adopted by a scientific group at any given time.[13] There is no evidence that your paradigm is better than mine.

- Kuhn also said that the current paradigms are better than the previous ones because they are held by the scientific community and there is no higher standard than the consent of the community.[14]

- While you follow the rules of your clan in your research, as anarchists like Feyerabend, we sometimes qualify it and contribute to progress because a science based on law and order succeeds only if anarchist movements occasionally have the right to manifest.[15] He explained that reasoning may delay science and that there are no objective conditions to guide research.

Tired of this debate running in circles for decades, the King's fool spoke, laughing at what people would think of what he said. He never thought like the others and was a peaceful person above all in this world of contradictions.

- My friends, Feyerabend once said to us: "Everything is good," no scientific method is better than another.[16] QualiJohn and QuantiJohn, what makes you think that you are superior to others? The scientific world often results from luck and not scientific rigor. There is not a particular method that can guarantee the success of a research. Plus, scientists often make errors and many of their solutions

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[10] Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge: Harvard University Press, 1989), chapter 2.
[11] Bruno Latour, *Science in Action* (Cambridge: Harvard University Press, 1987), chapters 1 and 2.
[12] Latour, *Science in Action.*
[13] Thomas S. Kuhn, *La structure des révolutions scientifiques* (Paris: Flammarion, 1983), chapter 12.
[14] Kuhn, *La structure des révolutions.*
[15] Paul Feyerabend, *Contre la méthode* (Paris: Éditions du Seuil, 1979).
[16] Feyerabend, *Contre la méthode.*

are often unnecessary. The world we want to explore is largely unknown but we must remain open to all options without limiting ourselves in advance. Uniformity weakens our critical power while the proliferation of theories benefits science. You performed a good discipline job, like Foucault explains.[17] You disciplined your descendants with your divisional ideas and they came to control our scientific world by receiving a good indoctrination from your part. Your clans follow your ideas without questioning them because you both work towards the survival of your clan. Those who do not think like you were excluded from your clan, making you more united, strong and powerful. You are worshiped for your knowledge, and your thoughts are legitimized and that gives you more power. You use this power at your leisure to gain even more power. As proof, you are here to conquer Princess Recognition and manage Scientistcity. Like Bourdieu,[18] emphasis the fact that you did recognize your paradigms such as being legitimate by performing symbolic violence to your clan. You played on the concept of habitus to inculcate a way of thinking to your members. You try to discuss the neutrality of your research but human sciences are not and cannot be neutral because they are part of a project meant to discipline and tame the human and produce significant effects in society. As Kuhn says, using violence to build boundaries between your two clans does not legitimize your knowledge on how the world works.[19] As Lyotard would say, you use different languages to play a game whose goal is the same: to advance science.[20] Never lose sight of that.

King UniversiJohn speaks in turn and explains to the two warriors that he is aware of the power that an advantageous position in the hierarchy of his family and Scientistcity means for the legitimization of their clan and that is why he has decided not to give the hand of his daughter to either gladiator.

- I know that if I give this position of dominance to one of you, as Bourdieu explains in Homo Academicus,[21] dominants will continue to dominate and create other dominants in their own image. This will be the death of the other clan because it will end up with no power in Scientistcity and the family of UniversiJohn. As Macintosh lived,[22] I am a key element of the reproduction of the scientific world at the dominant paradigm reproduction level and I have the

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[17] Rabinow, *The Foucault Reader.*

[18] Pierre Bourdieu, *Homo academicus* (Paris: Éditions de Minuit, 1984), chapters 1 and 2.

[19] Kuhn, *La structure des révolutions.*

[20] Jean-François Lyotard, *La condition postmoderne* (Paris: Éditions de Minuit, 1979), chapters 11 and 12.

[21] Bourdieu, *Homo academicus.*

[22] Norman B. Macintosh, "A ghostly CAR ride," *Critical Perspectives on Accounting* 15, 4/5 (2004): 675-695.

power to choose one of you to marginalize the other. If I give my daughter Recognition to one of you, you will become an important teach to my villagers and, as such, you will teach them only the skills that are attributed to your paradigm and no others ideals, as Lyotard[23] pointed out to me. You would provide for Scientistcity players who would properly ensure their role in pragmatic positions and who would perpetuate the power of your paradigm. And if all the research in the world came to be in the same paradigm, it would have an effect of isomorphism on the subjects of research and on the way of carrying them out, as Adler and Harzing[24] advised us. I do not need to be one of yours to understand your positions, as Vermeulen[25] already explained to me, but I know one thing though: you are two rigorous clans in your research but you do not have the same rigorous criteria. I do not pretend to know the truth on what paradigm is the best but I have to decide between your two approaches. Kind of like Foucault's concept of the self-discipline,[26] Russell told me last month that the cultural elements in the acquisition of knowledge, when they are well assimilated, form our character and our way of thinking as well as our desires.[27] I can see that you are looking for two things that are the most universally desired according to Russell: power and admiration.[28] You are two educated men and you therefore have access to some form of power. There are more commendable ways to admire you than to beat you today. As repeated me my friend Russell,[29] today's world is filled with groups enraged and focused on themselves, each unable to see human life as a whole and wanting to destroy civilization instead of stepping forward together and heading in the same direction. So, I'll listen to my King's fool and will let us continue to oppose one another. Let us see if one day you will understand the strength of teamwork.

The fool was perhaps not such fool after all…

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[23] Lyotard, *La condition postmoderne.*

[24] Nancy J. Adler and Anne-Wil Harzing, "When Knowledge Wins: Transcending the Sense and Nonsense of Academic Rankings," *Academy of Management Learning and Education* 8, 1 (2009): 72-95.

[25] Freek Vermeulen, "'I Shall Not Remain Insignificant': Adding a Second Loop to Matter More," *Academy of Management Journal* 50, 4 (2007): 754-761.

[26] Rabinow, *The Foucault Reader.*

[27] Bertrand Russell, *In Praise of Idleness* (New-York: Routledge, 2004).

[28] Russell, *In Praise of Idleness.*

[29] Russell, *In Praise of Idleness.*

ANOTHER BLOW TO KNOWLEDGE FROM KNOWLEDGE

Peter Murphy

ABSTRACT: A novel argument is offered against the following popular condition on inferential knowledge: a person inferentially knows a conclusion only if they know each of the claims from which they essentially inferred that conclusion. The epistemology of conditional proof reveals that we sometimes come to know conditionals by inferring them from assumptions rather than beliefs. Since knowledge requires belief, cases of knowing via conditional proof refute the popular knowledge from knowledge condition. It also suggests more radical cases against the condition and it brings to light the under-recognized category of inferential basic knowledge.

KEYWORDS: conditional proof, inference, knowledge, Peter Klein, Federico Luzzi, Ted Warfield

Alongside perceptual, testimonial, memorial, and other kinds of knowledge is inferential knowledge. According to a simple and popular view, a person inferentially knows a conclusion only if they know each of the claims from which they essentially inferred that conclusion. This is the knowledge from knowledge, or KFK, principle.[1] Intuitive though it might be, KFK has recently come under attack. This paper adds to that attack by striking another blow to KFK.

On the assumption that knowledge is true warranted belief, KFK entails that a person inferentially knows some conclusion only if each claim that they essentially inferred their conclusion from is (i) true, (ii) they believe it, and (iii) that belief is warranted.[2] Ted Warfield and Peter Klein have taken aim at (i) with cases

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[1] For just a few of the many endorsements of KFK in the literature, see Robert Audi, *Epistemology: A Contemporary Introduction to the Theory of Knowledge* (New York: Routledge, 2003), 164, Michael Bergmann, *Justification Without Awareness* (New York: Oxford University Press, 2006), 185 and 228, Laurence Bonjour, *The Structure of Empirical Knowledge* (Cambridge, Mass: Harvard University Press, 1985), 18, Alvin Goldman, "Immediate Justification and Process Reliabilism," in *Epistemology: New Essays*, ed. Quentin Smith (New York: Oxford University Press, 2008), 64, Hillary Kornblith, "Beyond Foundationalism and the Coherence Theory," *Journal of Philosophy* 72 (1980): 603.

[2] If knowledge is not analyzable, as Timothy Williamson argues in *Knowledge and Its Limits* (New York: Oxford University Press, 2000), KFK has to be evaluated differently. There are two possibilities here. If there is one or more necessary condition on knowledge, but knowledge is not fully analyzable, KFK can be refuted by a case in which a conclusion is known, but some

of inferential knowledge that are essentially inferred from a false belief.[3] Federico Luzzi has taken aim at (iii) with a case of inferential knowledge that is essentially inferred from a belief that is unwarranted because it is Gettiered.[4] This paper completes the medley by taking aim at (ii) with a case of inferential knowledge that is essentially inferred from a claim that is not believed.

1. The Epistemology of a Conditional Proof

Consider a simple conditional proof. A person begins by assuming some claim; then they make an inference; then they end by drawing as their conclusion, a conditional statement that features the initial assumption in its antecedent position. Here are two simple examples.

LOGIC STUDENT: A logic student is asked whether (p & q) ➔ (p v r) is true. She works her way through a conditional proof: she first assumes p & q; from this, she infers p by conjunction elimination; then from p, she infers p v r by disjunction introduction. She then concludes, and comes to believe, (p & q) ➔ (p v r).

DANA'S BIRTHDAY: Having no idea what day of the week Dana was born on, I assume that she was born on a Tuesday; I then infer that on this assumption, she was born on a weekday; then I end by concluding, and coming to believe, that if Dana was born on a Tuesday then she was born on a weekday.

While I think both of these cases disprove KFK, I will focus on the second. It refutes KFK if each of the following is true: I end up inferentially knowing the concluding conditional claim; I essentially inferred that claim from my assumption that Dana was born on a Tuesday; and I don't believe that Dana was born on a Tuesday. I devote a paragraph to supporting each of these.

All but radical skeptics can easily fill in this case so that I end up with inferential knowledge of the concluding conditional. Take the knowledge part first. Different theorists will fill in the case in different ways. Some will want to ensure that the cognitive processes that I utilized were reliable; some will want to ensure that I was in other mental states as well, like various seeming states; others will want to ensure that my belief in the conditional adheres to the truth; and yet others

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necessary condition on knowledge was not met at a premise from which the person essentially inferred this conclusion. If there are no necessary conditions on knowledge, some other heuristic will have to be used to assess the person's standing with respect to each of her premises. See footnote 7 for one such heuristic and reason to think that Williamson will go along with my counterexample to KFK.

[3] Ted Warfield, "Knowledge from Falsehood," *Philosophical Perspectives* 19 (2005): 405-416, Peter Klein, "Useful Falsehoods," in *Epistemology: New Essays*, ed. Quentin Smith, 25-61.

[4] Federico Luzzi, "Counter-Closure," *Australasian Journal of Philosophy* 88 (2010): 673-683.

will want to ensure that my belief could not easily have been mistaken.[5] All though can supplement the case in some way or other so that I end up with knowledge of the conditional. What about the further claim that I have inferential knowledge of the conditional? Since I arrive at my belief in the conditional by just one route, inference, it is known inferentially. Further support for this comes from noticing that this piece of knowledge cannot be plausibly subsumed under any other kind of knowledge: it is clearly not an instance of perceptual knowledge, testimonial knoweldge, memorial knowledge, etc.

Next I essentially inferred the conditional from my assumption that Dana was born on Tuesday. Let's first see why proponents of the basic idea behind KFK should formulate their principle so that it only covers cases in which a conclusion-belief is *essentially inferred* from other claims. This requirement is needed to handle cases that involve an important kind of overdetermination. Suppose for example that my belief in the same conditional was also arrived at by another route, say someone's testimony, and suppose that each of these routes was sufficient on its own to have caused me to believe the conditional. In this variant on Dana's Birthday, my belief in the conditional would not have been essentially inferred from my assumption that Dana was born on a Tuesday. Proponents of KFK can allow that in this case, I would know the conditional even though I inferred it from one, or more, failures to know since they can allow that the testimonial route was sufficient to yield knowledge.[6] None of this is germane to our original case though since that case does not involve this kind of overdetermination.

Last it is obvious that I do not believe, but instead merely assume that Dana was born on a Tuesday. It is easy to fill out the case by imagining that I have no evidence about what day of the week Dana was born on, and that I suspend judgment about this rather than form a belief about it.[7]

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[5] Any theory that does not allow for a way to flesh out the case so that I end up with knowledge of the conditional claim seems too strong and therefore vulnerable to a reductio ad absurdum argument that uses this case.

[6] Proponents of KFK do not have to allow this since it is an independent issue whether beliefs can amount to knowledge when they are based on one pedigree route that meets muster and another that does not.

[7] On Williamson's approach, warranted assertion is an important heuristic for determining whether someone knows. So there is some reason to think that on Williamson's approach, my case is a successful counterexample to KFK since it is a case in which I am warranted in asserting that if Dana was born on a Tuesday then she was born on a weekday, but I am not warranted in asserting that Dana was born on a Tuesday.

Peter Murphy

2. Objection 1: Significance and Epistemic Credentials

A defender of KFK might respond by challenging the significance of my case. This might be done by claiming that the key issue concerning KFK is whether a conclusion can be inferentially known on the basis of an inference from one or more beliefs that lack some epistemic credential. The defender of KFK might then assert that for this reason, we should limit ourselves to cases in which all the starting points of a person's inference are claims that the person believes and then focus on whether those beliefs must have various epistemic credentials.

I offer three points in response. First we need to distinguish between two exercises. One involves limiting ourselves to a narrow range of cases. For example, we can do what the defender of KFK recommends, and limit ourselves to cases in which someone believes some claims and goes on to inferentially know something on that basis. We can then ask whether their beliefs in those premises must have various epistemic credentials. A similar sort of exercise involves limiting ourselves to cases in which all of the starting claims are true and someone goes on to inferentially know something on their basis. Here we ask whether the starting claims in these cases must always be claims that the person is justified in believing. The key point though is this: KFK is not limited in this way. Since it is a thesis about the broader genus that subsumes all of these previous cases, testing it involves carrying out a different exercise. This is because KFK says something about all cases in which we start from consideration of some claims (not just the subcases in which we believe those claims, not just the subcases in which those claims are true, etc.), we perform some inferences from those claims, and the result is inferential knowledge of a conclusion. In doing so, it imposes a requirement on the psychological attitude that one must have toward the starting claims of one's inferential reasoning. For this reason, the case I offered is a genuine testcase for KFK.

Second the class of epistemic credentials is not clear, nor is its significance. Consider truth. Often it is not classified as an epistemic credential. After all, false beliefs can be just fine from the epistemic point of view. They can be epistemically justified, epistemically rational, etc. Against this, it might be argued that false beliefs cannot be warranted. But that is contentious.[8] And even if we grant that false beliefs cannot be warranted, Klein and Warfield do not appeal to the unwarranted nature of the premise-beliefs in their cases. They appeal to the falsity of those beliefs. Importantly this doesn't make their cases any less probative or less interesting. This

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[8] There is a significant literature on this. A good place to start is Michael Huemer, "Logical Properties of Warrant," *Philosophical Studies* 122 (2005): 171-182.

tells against the defender of KFK's view that the only interesting counterexamples to KFK involve premise-beliefs that lack epistemic credentials.

Third, we should ask ourselves whether failing to believe the starting claims in one's inferential reasoning can amount to lacking an epistemic credential that might then explain a failure to know a conclusion that one has deduced. I have suggested that at least when one reasons via conditional proof, it need not. But arguably in other cases it does. Consider someone who competently deduces q in modus ponens fashion, but does so from assuming, rather than believing, p and if p then q. Does this yield inferential knowledge of q? To keep the focus on belief, suppose the person is warranted in believing p and warranted in believing if p then q (though they don't believe either of these claims) and that each of p and if p then q are true. While things are not entirely clear here, it seems plausible that this person does not end up inferentially knowing q, and that this is so because the person fails to have the right attitude to p and if p then q. If that is correct, then failing to believe one's starting claims might in some cases explain a failure to know an inferred claim. This undercuts the objector's assumption that failing to believe can never itself be a lack of an epistemic credential that might explain a failure to know a competently deduced conclusion.

It is important to notice that the verdict that I just suggested in this last modus ponens case is consistent with the verdict that I am urging in the Dana's Birthday case. A simple picture that delivers both of these verdicts is one on which different combinations of inference patterns and attitudes to one's premises have different results. So the combination of assuming some claims and then reasoning in modus ponens fashion might bar one from knowing a conclusion, while the combination of assuming a claim and then reasoning via conditional proof might not bar one from knowing a conclusion.

3. Objection 2: Smuggled Belief

According to a second objection, I can inferentially know my conclusion only if among my starting points is the belief that all Tuesdays are weekdays. And so my set of starting points includes a belief after all.

There is a simple reply: KFK requires that *all* of the starting points of my inference be claims that I believe. So if I have two starting points, one that I assume and one that I believe, the case can still be a successful counterexample to KFK.

Still it might be proposed that if the belief that all Tuesdays are weekdays is a second starting point, it makes my assumption that Dana was born on a Tuesday superfluous in my coming to know the conditional. It is superfluous, someone might reason, because if I dropped my assumption that Dana was born on a

Tuesday, I would still infer from just my belief that all Tuesdays are weekdays to the same conditional claim that if Dana was born on a Tuesday then she was born on a weekday. It now looks like my belief in the conditional is overdetermined. But if that is right, my belief in the conditional is not essentially inferred from my assumption, and so the case is not covered by, and therefore cannot be a successful counterexample to, the KFK principle.

However, there is a crucial difference between the earlier case that I used to illustrate the need for the essentially inferred clause and the Dana's Birthday case. In the earlier case, my belief in the conditional was based on two separate actual sequences: one involved reasoning via a conditional proof, and the other involved someone's testimony. But even if it is true that in the Dana's Birthday case, I must believe that all Tuesdays are weekdays, and it is true that this belief must play a premise role in my conditional proof, there are not two separate actual sequences that lead me to believe the conditional. There is only one. This is so even if – as I am presently conceding – that route must involve both my assumption that Dana was born on a Tuesday and my belief that all Tuesdays are weekdays. For this reason, it is not an overdetermination case. The Dana's Birthday case can therefore be used to test KFK after all.

4. Two Corollaries

My original Dana's Birthday case is just two short steps away from a supercase against KFK. Add two things to it: that it is false that Dana was born on a Tuesday and that I possess no justification or warrant for believing that Dana was born on a Tuesday. Now consider again my assumption that Dana was born on a Tuesday and imagine that I go through the same conditional proof. Now the starting point for my inference does not meet any of the usual conditions on knowledge: I don't believe it is, it is false, and I have no justification or warrant for believing it. Despite all of this, I know the conditional conclusion that I deduce from it.

Here is a second interesting result. Should a foundationalist classify my knowledge of my concluding conditional as basic knowledge or as non-basic knowledge? Basic knowledge is knowledge that is not based on any other knowledge, while non-basic knowledge is based on other knowledge. Is my knowledge of the conditional based on any other knowledge? This takes us back to the smuggling objection. Recall the charge made there was that I must also believe that all Tuesdays are weekdays, and that this belief must function as an additional starting point in my inferential reasoning. While this went unchallenged in my reply to the smuggling objection, there is good reason to think that I need not believe that all Tuesdays are weekdays. That reason comes from the usual lesson

drawn regarding Lewis Carroll's famous regress.[9] The lesson there is that competent deductive reasoning from some set of claims to a conclusion does not require as a premise in one's reasoning, belief in the linking conditional that features the conjunction of the other premises in one's reasoning in antecedent position and features the conclusion in one's reasoning in consequent position.[10] If this is right, my knowledge of the conditional can proceed from just the assumption that Dana was born on a Tuesday. So it need not be based on any beliefs, and thus on any knowledge, whatsoever. This makes my knowledge of the conditional, basic knowledge. But nonetheless it is inferential knowledge since its source is inference, and not perception, memory, testimony, etc. This makes it an instance of inferential basic knowledge.

I end with a contrast between two big pictures. KFK portrays inference as always in need of serious epistemic help if it is to generate knowledge. This is because KFK claims that all of the starting claims of one's inference must be instances of knowledge, and that the original starting claims back at the origins of one's inference must be known by some other source like perception, memory, testimony, etc. Rejecting KFK results in a very different picture of inference, one that promotes inference to the class of sources that can autonomously generate knowledge without any such help from other sources.

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[9] Lewis Carroll, "What the Tortoise Said to Achilles," *Mind* 4 (1895): 278-280.

[10] This is a bit abbreviated. We need to add that if belief in the linking conditional, if Dana was born on a Tuesday, then Dana was born on a weekday, is not needed then belief in the very closely related claim that all Tuesdays are weekdays is not needed either.

ZENO'S PARADOXES REVISITED

Anguel S. STEFANOV

ABSTRACT: My aim in this paper is to suggest a new outlook concerning the nature of Zeno's paradoxes. The attention is directed towards the three famous paradoxes known as "Dichotomy," "Achilles and the Tortoise," and "The Arrow." An analysis of the paradigmatic proposals for a solution shows that an adequate solution has not yet been reached. An answer is provided instead to the question "How Zeno's paradoxes emerge in their quality of aporiae?," that is to say in their quality of impasses, of problem situations without an exit, what is the original meaning of the Greek word "aporia." It is my claim that this is the correct rational approach for solving these conceptual puzzles. In other words, I am not proposing formal solutions by criticizing and/or altering their premises assuming the continuous or discrete nature of space *and* time, but I try to draw the philosophical attention to the way we possess the phenomenon of motion as a result of the perception of *space-time* in human experience.

KEYWORDS: Zeno's paradoxes, motion, perception of space-time

1. Introductory Words

Zeno's paradoxes, or aporiae, are permanently attracting the philosophers' interest, resulting in hundreds of research works, as well as of popular essays in textbooks and websites. There is no point to this effect any new effort to be made that repeats and summarizes familiar attitudes to their proposed solutions, if it does not suggest some original outlook connected with these paradoxes.

My aim here is to suggest such an original outlook. It starts with a brief and modest hypothesis about the debated motives for the formulation of the paradoxes. But its essential part is that, after an analysis of the paradigmatic solutions known so far, and of their criticism, *an answer is outlined to the question how Zeno's paradoxes emerge in their quality of aporiae*, that is to say of impasses, of problem situations without an exit, what is the original meaning of the Greek word "aporia." It is my claim that this is the correct rational approach for 'solving' the most popular three conceptual puzzles known as "Dichotomy," "Achilles and the Tortoise," and "The Arrow." In other words, I am not proposing here formal solutions by criticizing and/or altering their premises assuming the continuous or discrete nature of space *and* time, but I try to draw the philosophical attention to the way we possess the phenomenon of motion as a result of the perception of *space-time* in human experience.

2. A Brief Reconstruction of Zeno's Conceptual Motives

There is no unanimous opinion why Zeno formulated his paradoxes of motion. According to the standard and, as it seems, most popular view, he wanted to reject the belief that motion is a genuine process of spatial change through time, since its logical analysis leads to contradictions, and thus he wanted to present the perception of motion as a phenomenal illusion. But not all concerned with Zeno's paradoxes share this standard interpretation.

> Traditionally, most agree that Zeno attempted to build upon Parmenides work. However, some suggest he sought to discredit Parmenides' work; others claim he criticized the traditionally held Greek views on motion; and more recently, interpreters propound that he was combatting Pythagorean thinkers.[1]

There are also authors who contend that Zeno was "a mere ingenious juggler, and his arguments to be one and all sophisms."[2] This lack of agreement comes from the fact that Zeno's writings have not survived, and one has to reconstruct his conceptual motives out of the comments of Aristotle, Simplicus, and Proclus, and by a shortly presented, but important evidence of Plato to be found in the beginning of one of the most philosophically profound dialogues of him, *Parmenides*. Asked by Socrates about the motives of his early writings, Zeno provides the following elucidation of them:

> The truth is, that these writings of mine were meant to protect the arguments of Parmenides against those who make fun of him and seek to show the many ridiculous and contradictory results which they suppose to follow from the affirmation of the one. My answer is addressed to the partisans of the many, whose attack I return with interest by retorting upon them that their hypothesis of the being of many, if carried out, appears to be still more ridiculous than the hypothesis of the being of one. Zeal for my master led me to write the book in the days of my youth, but some one stole the copy; and therefore I had no choice whether it should be published or not; the motive, however, of writing, was not the ambition of an older man, but the pugnacity of a young one.[3]

Being a Parmenides' disciple, Zeno supported with great certainty the main principle of eleatic philosophy, positing that the existing world is one indivisible and unchanging reality, i.e. postulating "the being of one." I am not going to enter any historical and philosophical details here. What is important for my purposes is

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[1] David Von Valland, "Zeno's Paradoxes, Part I – The Problematic Nature of Infinity and Motion." Article source: http://EzineArticles.com/?expert=David_Von_Walland.

[2] Bertrand Russel, *The Principles of Mathematics* (New York: Norton, 1996), 347. Russel himself does not subscribe to this extreme opinion.

[3] Plato, *Parmenides,* 128c-e.

the fact contained in the just adduced quotation, that opponents of Parmenides ridiculed his attempts at rejecting plurality and the reality of change, if the world were really singular and unchangeable. And the cunning young disciple of Parmenides contrived retaliation as "pugnacious," as hard to be logically surmounted. But why Zeno's paradoxes can be conspicuously taken to attack the reality of motion?

If the real world is one, then no plurality of things has an authentic existence. This implies the idea that motion is illusionary in its phenomenal character. This is so, because motion results in different spatial positions of things within the world, which means different pictures of the world at different moments of time. Different pictures mean many different states of this same world, otherwise taken to be one and unchangeable. Thus the avowal of the reality of motion leads to a clear anti-eleatic view, and so the unreality of motion must be somehow demonstrated. And Zeno produced not one, but several logical arguments demonstrating the contradictory nature of motion, in spite of its illusionary visibility. This is the briefly stated background of the standard interpretation that by the formulation of his paradoxes *Zeno intended to prove the unreality of motion*. I subscribe to this standard interpretation.

Moreover, there are two camps of thinkers. The shared opinion within the first camp is that Zeno's paradoxes have obtained their solutions, either by mathematical means, or by corrections in their premises. Thinkers within the other camp reject this optimistic opinion. In what follows I'll try to show that the optimistic opinion does not hold water.

3. Criticism of the Paradigmatic Solutions

3.1. Dichotomy

This paradox of Zeno has two versions. According to the first one a runner, starting her quick movement from point A, can never reach a final goal point B. The reason for this conviction is that the runner must firstly reach the middle of the way between A and B, then the middle point of the remaining half of the way, then the middle point of the remaining quarter of the distance to point B, and so on, and so forth. Since space is infinitely divisible, the runner has to pass through infinite number of points in a finite interval of time; and in so far as this is impossible, she will never reach the end point B.

The second version of "Dichotomy" states that the runner can never be set in motion, because before reaching the middle point between A and B, she must have passed through the middle point of the first half of the intended distance, but

before that she must have reached the middle point of the first quarter of the distance, and so on. Thus there is no possibility for the runner to start her running process, which means that a movement from A to B is impossible.

Authors like Nicholas Fearn, for instance, see no difficulty in resolving the first version of "Dichotomy." In the times of Zeno, he contends, people had the false impression that a distance, composed of infinite parts, though diminishing in size, must be infinitely long. But it is known now that the sum S

$$S = 1/2 + 1/4 + \ldots + 1/2^n + \ldots$$

of the dichotomized segments of any distance included between two different points A and B is finite, and equals 1. Thus our runner covers a finite distance in a finite interval of time, and this is all.[4]

The first version of "Dichotomy" cannot be resolved, however, in the suggested way. What Zeno seems to have adduced as an aporetical argument is not the claim about the infinite magnitude of the sum S, notwithstanding whether he believed in that, or not. His argument is that the runner is not able to *actually* pass through an *infinite* number of spatial points in a finite interval of time. And exactly this impossibility implies the impossibility of motion, and hence, its non-reality.

The same reasoning is valid for the second version of "Dichotomy."

As it seems, the paradox could not be obviated by leaving its ontological background intact. Its central assumption is that space is a dense set of points, i.e. it is a continuum. A negation of this assumption is the claim that space is a discrete set of elements, or in other words, that its deep structure is a grain structure, that it is comprised of specific and further indivisible spatial atoms. If this speculation were true, even space as a whole be accepted as infinite, each segment within it should consist of a finite set of spatial atoms. Such an ontological premise, in combination with additional presuppositions, could probably lead to a solution of "Dichotomy." Well, but if we take this speculation seriously, then we have to know what such spatial atoms are by nature and in size. And we still lack such knowledge. Spatial atoms could not be the well known physical atoms, since they also have a spatial structure, expressed by the distances between their nuclei and the orbiting electrons. There are also authors who attract the ontology of quantum mechanics. But this step can hardly be of any help either, since the quantum world exhibits complexities of its own. For example, we have no evidence, and can have no evidence in principle, how a free quantum particle 'moves' from point A

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[4] See the third essay, "Zeno and the Tortoise," in Nicholas Fearn, *Zeno and the Tortoise. How to think like a Philosopher* (New York: Grove Press, 2001).

to point B, and for all we know, it could realize its 'motion' in many different ways, each bearing its own probability for realization.

The ancient Aristotelian solution, making difference between actual and potential infinity, has certainly a heuristical merit (to be elaborated further by Henri Bergson, as we shall see in 3.3), but offers no clear solution, too. This is the reason for Hegel to agree with Bayle's judgment that Aristotle's answer to "Dichotomy" is, uttered in French, "*pitoyable*."[5]

3.2. Achilles and the Tortoise

Let us imagine now that our hero is the legendary Achilles, who starts his quick run in a race with a slowly moving tortoise to be found 10 meters ahead of him. The curious conclusion in this paradox of Zeno is that the fleet-footed Achilles will never be able to overtake the tortoise in the running race – a fact that obviously contradicts our everyday experience. And it is just through this curious conclusion that the illusionary phenomenon of motion was meant to be proved once again. How this conclusion is made?

If we accept that our hero runs with a speed $v = 1$ m/s (one meter per second), and the tortoise moves ahead with a speed $u = 0, 01$ m/s (one centimeter per second), after the first second from the beginning of the race Achilles is to be found one meter after the starting point, and 9, 01 m behind the tortoise. After two seconds he shall be 8, 02 m behind the tortoise, then 7, 03 m behind it, etc. Although the distance between the two competitors is constantly diminishing, Achilles shall always be *behind* the tortoise, because during each interval of time in which he manages to reach the point where the tortoise was found in front of him, the slow animal will manage to pass a new distance ahead of him. Thus Achilles will never be able to catch up with the tortoise.

It is worth noticing that this paradox could be transformed into the first one, i.e. into "Dichotomy." If our coordinate system is not attached to the earth, but to the moving tortoise, then Achilles ought to cover the distance between his starting point and the immovable tortoise, a distance between two fixed points, A and B. This transformation is possible, because of the equivalent character of the two coordinate systems attached to two inertial frames of reference. This dodge provides no solution to "Achilles and the tortoise," however, unless we possessed a plausible solution to "Dichotomy," and this is not the case.

A "strides solution" is often put to the fore. In our case this suggestion for a solution takes into account that Achilles' stride per second is hundred times longer

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[5] Georg Wilhelm Friedrich Hegel, *Lectures on the History of Philosophy, Vol. I.* (London: Kegan Paul, Trench, Trübner & Co., 1892), 269.

than that of the tortoise. So, ten seconds after the beginning of the race, Achilles shall be 10 m after his starting point, while the tortoise – 10, 1 m after it. After one more second the slow animal shall be 10, 11 m after Achilles' starting point, but Achilles himself – 11 m after it, which would mean that he has overtaken his competitor, and is already 0, 89 m ahead of her. This commonsensical 'solution,' however, walks past the gist of the paradox, that in order to cover the 11 centimeters distance to the tortoise moving ahead of him, Achilles must accomplish infinite acts of crossing over the always remaining spatial intervals separating his body from that of the moving tortoise for a finite interval of time, less than a second.

It could be also contended that the considered paradox has a mathematical solution, resembling the analogous 'solution' to "Dichotomy." Let the initial distance between Achilles and the tortoise is indicated by d, the speed of the running Achilles by v, and that of the tortoise by u. The time needed for the swift-footed hero to reach the first position of the tortoise is $t_1 = d/v$. The time needed for him to reach the second position of the animal, which in the meantime has moved a distance ut_1, is $t_2 = ut_1/v$, the next third time for reaching the third position of the tortoise is $t_3 = ut_2/v = t_1u^2/v^2$, and so on, and so forth. Thus the time needed for Achilles to reach the n-th position of the tortoise is $t_n = (u/v)^{n-1}t_1$. The expression for the sum of the infinite row of time intervals for reaching the ever shifting ahead tortoise's positions is

$$T = \sum_{n=1-\infty} t_n = \sum_{n=1-\infty} (u/v)^{n-1} t_1.$$

This infinite row is a geometrical progression with a multiplier $u/v < 1$, and it is easily obtained that

$$T = d/(v - u).$$

This result means that our running hero can come up with his slow competitor in a finite interval of time that is as close to t_1, as v is greater than u. This result completely agrees with everyday experience, but still can hardly be taken to be a solution of the paradox under consideration. And this is so, because, as it seems, Zeno's intention was not to deny that Achilles is able to catch up with the tortoise in a finite period of time, but that just within this finite period of time he can never actualize an infinite number of crossings of the spatial segments that separate him from the moving tortoise, no matter how a slow 'runner' she is.

3.3. The Arrow

Probably, by this paradox Zeno wanted to show the contradictory nature of motion, not only when it is thought to be a process of transition through

continuous space during the time flow of a finite time interval, but also when it is accepted to be a consecutive change of spatial places, which a moving body occupies in different fixed moments of time. By contrast with the former two cases, "The Arrow" is a paradox accepting motion to be realized not by virtue of the hypothesis about continuous time, but on the basis of the assumption that time is a sequence of discrete moments.

Let us imagine the flight of a swift arrow, and let us also accept that time is a sequence of constantly changing indivisible moments, a permanent sequence of 'nows' (of present moments). Within an arbitrary moment 'now,' the arrow has to be immovable, since if it were in motion, the fixed moment 'now' should be divisible into parts, each corresponding to the places in space, occupied by the arrow. But this conclusion contradicts our premise that the moment 'now' is further indivisible, being the smallest discrete interval of time. So, the time of the flight of the arrow is comprised just by such 'nows,' it is a sequence of discrete time intervals, and within every such 'atom' of time the arrow occupies a fixed spatial volume, which is the place of the arrow corresponding to each specific 'now.' But it follows from here that the arrow is not flying at all, because it is at rest within each 'atom' of time, and a sequence of states of rest can never produce a state of motion.

In order an exit from this aporia to be found, that saves motion as a real phenomenon, some philosophers seek a refuge in dialectics. A dialectical solution to "The Arrow" is expected to be even universal to all paradoxes of motion as well, since this solution turns the paradoxical conclusions, traditionally taken to be a weak point in the philosophical defense of the reality of motion, into an argument in its favour. This transformation is based on evaluative change of the logical contradiction, from a negative into a positive feature explicated by the phenomenon of motion. And it was just "The Arrow" paradox that has given rise to the dialectical paradigmatic solution, or DPS for short, prompted by dialectical reasoning:

(DPS) In every instant the flying arrow *is* found, *and is not* found in a definite place.

The dialectical view accepts the truth of the phenomenon of motion together with its contradictory character. And if motion has to be treated in this way, it should be also claimed that it is *something more* than its standard trajectory presentation through a mathematical function of the spatial position of a moving body defined on the time variable. This is so, because the standard mathematical presentation of motion, being formal and thus a non-contradictory one, presupposes that a moving body has always a strict position in space

corresponding to every instant from the duration of the process of motion. In this way, the standard mathematical presentation describes only *the effect of motion, but is not a presentation of its nature.* According to the dialectical treatment motion is *contradictory in itself.*

> In order to get movement into the picture, according to dialectic, we must recognize *both* that the body is at that place *and* that, in the same instant, it is also ceasing to be so. For our description needs to capture the fact not only that the body *is* where it is, but also that it is *moving* – hence in a process of change and becoming. For this contradiction is essential. As Hegel (…) says, something moves not because at one moment it is here and at another there, but because at one and the same moment it is here and not here.[6]

So, for a genuine (Hegelian and Marxist) dialectician motion (and more generally every change) is, in Hegel's words, an "existent contradiction," and this is the nature of motion, which in no way could be captured by pure mathematical or formal logical presentations. But can the dialectical approach, resulting in its paradigmatic claim that at every instant the flying arrow occupies and does not occupy a definite volume of space, be accepted as a resolution to Zeno's paradoxes?

I pose this question seriously, so I don't expect the probably correct, but trivial answer that dialecticians would reply with "yes," and non-dialecticians – with "no." What a philosopher cherishes above all in accepting a claim as a solution to a paradox is that claim to be grounded on a sound argumentation. This means that if behind the DPS stands a consistent argumentation produced in a proper dialectical pattern, then one must accept DPS as (at least a feasible) solution to Zeno's paradoxes, even if she is not an adherent to dialectics. But is this the case with DPS?

My answer is "no." Although DPS rests on a dialectical formulation, it still lacks an appropriate dialectical argumentation. The notion of contradiction is central for dialectics. It results in the unity and the struggle of opposites. Moreover, the gist of the dialectical approach is the explanation of the dynamical phenomena in nature and the development of social processes through *solutions of the contradictions leading to some new state of affairs*. The latter is always an outcome from the struggle of the former opposites, and is expressed by a claim about *synthesis of a thesis and an anti-thesis*. But this well elaborated dialectical scheme is hardly applicable to the "Arrow paradox," i.e. to the paradox of mechanical motion. Within the phenomenon of mechanical motion the combating opposites are not clearly differentiated. The involvement of the abstract concepts of continuity and discontinuity for this purpose is still

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[6] Sean Sayers, "Contradiction and Dialectic," *Science & Society* 55, 1 (1991): 87.

insufficient for a clear picture of opposites in a struggle, and the realization of a synthesis as a solution to the alleged contradiction is still more unclear.

DPS remains a very general statement, dependant on how the paradigmatic dialectical formula "A *and* non-A" is being interpreted, while there is no unanimously accepted interpretation among philosophers and logicians. Thus DPS can pretend for the most to be some conceptual framework for understanding the "Arrow paradox," but not a proper solution to it.

In his *Creative Evolution*, Henri Bergson declares to have surmounted Zeno's paradoxes of motion.

> Take the flying arrow. At every moment, says Zeno, it is motionless… Yes, if we suppose that the arrow can ever be in a point of its course. Yes again, if the arrow, which is moving, ever coincides with a position, which is motionless. *But the arrow never is in any point of its course.* The most we can say is that it might be there, in this sense, that it passes there and might stop there. It is true that if it did stop there, it would be at rest there, and at this point it is no longer movement that we should have to do with. The truth is that if the arrow leaves the point A to fall down at the point B, its movement AB is as simple, as indecomposable, in so far as it is movement, as the tension of the bow that shoots it… Suppose an elastic stretched from A to B, could you divide its extension? The course of the arrow is this very extension; it is equally simple and equally undivided. It is a single and unique bound. You fix a point C in the interval passed, and say that at a certain moment the arrow was in C. If it had been there, it would have been stopped there, and you would no longer have had a flight from A to B, but two flights, one from A to C and the other from C to B, with an interval of rest. A single movement is entirely, by the hypothesis, a movement between two stops; if there are intermediate stops, it is no longer a single movement.[7]

The key point in this quotation is the bold claim that "the arrow never is in any point of its course." If this claim was not taken seriously, then the other metaphorical contentions of Henri Bergson to the effect that the course of the arrow is an "extension" resembling that of stretched elastic from point A to point B, and that the motion of the arrow represents a simple and indivisible act, would sound no more than curious assertions. Probably Bergson has learned well the Aristotle's lesson that in considering Zeno's paradoxes one must give up operating with actual infinity and thus must not direct her attention at the trajectory of a body that has already ceased its motion, since the line of the trajectory is a dense and actually infinite set of spatial points. The phenomenon of motion should not be explained through its result, when a moving body has already stopped to move,

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[7] Henri Bergson, *Creative Evolution* (New York: Henry Holt and Company, 1911), 308-309. My italics.

but should be construed as an "extension," as an indivisible bound through space. So, the claim that an arrow starting from point A and ending its flight at point B has passed through point C as well, has no proper meaning, unless the arrow has stopped in C, is motionless in C, and then has resumed its flight from C to B. Otherwise we cannot meaningfully assert for a body in motion that it is in point C at a definite moment of time.

Bergson pretends also that his conception about the phenomenon of motion provides a simple solution to "Achilles and the tortoise" paradox.

> When Achilles pursues the tortoise, each of his steps must be treated as indivisible, and so must each step of the tortoise. After a certain number of steps, Achilles will have overtaken the tortoise. There is nothing more simple.[8]

Can we accept Bergson's exhortation that "there is nothing more simple"? I think that the answer is "no," at least for two reasons. His suggested solution is but the already considered in 3.2 "strides solution," and we saw that it does not meat the conceptual challenge of the paradox. At that, his "simple" solution is not quite consistent with his own view of the nature of motion. Indeed, if Achilles has undertaken a swift run, then, as Bergson clearly insists, his body should be involved in an indivisible act of motion. But why then Achilles' steps should be considered separately from one another, as if the fleet-footed hero stops and resumes his dash with every step of him?

Let us turn back to the central idea of Bergson's conception of motion. It is expressed by the claim that a flying arrow is never found in any point of its course at any instant of the duration of its flight.

What does this claim mean, and what is its explanatory import for the solution of "The arrow" paradox?

At first glance, Bergson's central claim resembles the dialectical solution expressed by the DPS. For in both attempts at solving the paradox it is asserted that at every instant the arrow does not occupy a definite place in space. We have come to the conclusion that DPS is not a proper solution to "The arrow" paradox, but a general conceptual framework for its construal. The case with Bergson's central claim is even worse, since Bergson does not even have the potential of the dialectical scheme at his disposal.

As for the explanatory import of Bergson's claim one may say that in its quality of a general assumption it could have the only pretension "to save the phenomenon" of motion, and not to explain its possibility and hence its reality. So,

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[8] Bergson, *Creative Evolution*, 311.

the proposed solution by Bergson to Zeno's paradoxes can attract, on its part, the old Bayle's qualification: "pitoyable" (see 3.1).

4. Back to Parmenides' World

If we agree together with eleatic philosophers that, because of the explicated paradoxes, motion is a phenomenal illusion and is thus deprived of reality, we shall face no need to really solve the paradoxes. However, this agreement would be a conceptual victory over the opponents to eleatic philosophy, but not over Zeno's paradoxes. Once taken out of Pandora's philosophical box, Zeno's paradoxes may not require proper solutions within the context of Parmenides' ontological view, *but they still require some serious philosophical answer*. This is the answer to the following problem:

> (P) If the real world is one and unchangeable, how various changes, and motions among them, are permanently present in human experience?

Even an ardent proponent to eleatic philosophy cannot merely say, "don't worry, they all are illusions," because she will beg the question. If visible motions are inextirpable from human experience one should either say that we perceive an illusionary world, or give an explanation how motion is possible to be perceived in an unchangeable world. The first option seems to be unacceptable within the framework of rational philosophy, being probably in harmony with some eastern worldviews. So, I shall direct my attention to the second option. And this clearly means an answer to (P) to be provided.

The other way round is to accept together with Zeno's critics that visible motions are quite real phenomena, so doubting their possibility is a ridiculous philosophical fashion. Motions are present in human experience merely because of their real existence which is adequately perceived. However, we must provide then a plausible solution to Zeno's paradoxes. This is the enterprise we have considered so far, and as we have seen, it has not come to a successful end.

Ancient heuristic ideas underlie theoretical thinking for centuries. Thus the atomistic idea about the structure of material bodies has been transformed (by changing a variety of theoretical garments) into the contemporary quantum mechanical picture of the world. But what about the eleatic idea of the one and unchangeable world, does it have a contemporary theoretical counterpart? The answer to this question is positive. The contemporary theoretical elaboration of this ancient idea is the conception usually known under the name "block universe." This conception bears rather a psychologically repelling name. I shall not use this name in what follows for this reason. But let us firstly see in a brief comment how the conception has come into being.

329

The contemporary conception of the "unchangeable world" is a theoretically elaborated consequence from the special theory of relativity. It is well known that, according to this theory, the plain notion of simultaneity has a relative status. This means that events that are simultaneous for one observer do not take place simultaneously for another observer whose inertial system is in motion with respect to the first one. A given event that will take place in a future moment (or has already taken place in a past moment) with respect to the first observer might be an event belonging to the present moment with respect to the second observer.

Let me give an example. Imagine that Mary is sitting at a table while she is accidentally pushing her glass of water over the edge of the table. Whether the glass *will be* broken or not when it reaches the floor after two seconds, is a *future* event for her. But it might be the case that for John, a second observer, being in a relative motion (with a great enough velocity) with respect to Mary, the non-broken glass, already lying on the floor, is an event belonging to the three dimensional space of his *present* events. Thus *one and the same event* – a glass on the floor with spilt water around it – belongs to a future moment for Mary *and* to the present moment for John.[9]

The considered event belongs to Mary's future. She does not yet know whether the glass will be broken, or not, when it will reach the floor, and so the event has not yet come into being for her. But for John this same event really exists, since it belongs to his present. We thus see that due to the relativity of simultaneity different events, being past or future events for some observers may also appear to be present events for other observers. None of the observers, however, has a privileged position in the four-dimensional world of the special theory of relativity; there is no 'absolute' three-dimensional space within the four-dimensional *space-time* from the relativistic picture of the world. Past and future events for some observers are present, and to this effect existent events, for other observers. There is no absolute past, present, and future, these tense divisions are meaningful only with respect to concrete observers. And since none of them is privileged with respect to the others, we come to the conclusion that all events in the four-dimensional space-time have one and the same ontological status, they are equally real. But if so, the four-dimensional space-time is actually given with all its events. This further means that it is a 'static' world, a world that does not change, because *the time dimension is actually present as a constituent of this*

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[9] For a lucid explanation why such things happen in the world of Minkowski, represented in the special theory of relativity by a four-dimensional pseudo-Euclidean space, see for example Roger Penrose, *The Emperor's New Mind* (New York: Oxford University Press, 1989), ch.5.

same world, and it itself cannot undergo any changes, for the realization of which an additional (and global) time dimension would be needed. We thus see that the *actual presence* (one cannot say 'existence,' since this concept presupposes some time duration outside the time dimension within the four-dimensional world) *of the space-time* could be interpreted as a contemporary theoretical renovation of the ancient eleatic idea of one and unchangeable world.

In case that the if-clause of (P) is taken to be valid, then how visible motions are possible? In other words, why do we permanently perceive the phenomenon of motion, if the world is unchangeable 'as a whole'?

In order an answer of (P) to be outlined, attention must be paid to the fact that the concept of motion is totally dependant on the concept of time. Motion is change of spatial positions through time. Spatial positions are directly perceivable, but what about time? Time was taken to be a dimension constituting, together with the other three spatial dimensions, a four-dimensional world. Approaching a solution to (P) presupposes then an answer to the following puzzle:

(F) Why do we perceive that time flows, if it does not do so?

As Paul Davies puts it:

Elucidating the mysterious flux would, more than anything else, help unravel the deepest of all scientific enigmas – the nature of the human self. Until we have a firm understanding of the flow of time, or incontrovertible evidence that it is indeed an illusion, then we will not know who we are, or what part we are playing in the great cosmic drama.[10]

One should not assess this avowal of Paul Davies as a pathetic ornament to his theoretical reflections. (F) is really a puzzle about the phenomenal flow of time, which has no generally accepted answer. Philosophers and physicists are divided as to whether the flow of time is a specific process within the universe bestowed with some kind of objectivity, or it is mind-dependent, and emerging because of the nature of our consciousness. (A putative objectivity of the time flux must not be confused with the arrow of time, since time can have a direction without any process of flowing.) Anyhow, accepting the validity of the conception about an unchangeable world leads undoubtedly to the claim that *the flow of time is mind-dependent*. There is no "mysterious time flux," because every observer feels and measures time by himself within a given system of reference. In other words, according to relativity theory, each observer has his own time; time intervals coincide only for subjects which are in rest with respect to each other.

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[10] Paul Davies, *About Time. Einstein's Unfinished Revolution* (London: Penguin Books, 1995), 278.

The so called twin paradox (or clocks paradox) is a convincing example for the relativity of time intervals measured by observers found to be in relative motion.

The contemporary resurrection of the Parmenidean world leads to a variety of deep theoretical problems concerning the nature of time and of human consciousness. Thus the consideration of (P) in the context of unveiling the puzzle (F) leads to the claim about the mind-dependency of the flow of time. This claim is in harmony with *the B-theory, or the static conception of time*.

Curious as it might seem, long before this claim (as a corollary of special relativity) to be given meaning to, St. Augustine has come to a similar conclusion in his *Confessions*:

> From this it appears to me that time is nothing other than extendedness; but extendedness of what I do not know. This is a marvel to me. The extendedness may be of the mind itself[11]... It is in you, O mind of mine, that I measure the periods of time.[12]

Now we come to the question how further to construe the claim that the flow of time is mind-dependent. The flow of time is associated with the continuous 'passage' of the present moment, the moment 'now,' in human experience. This is the plain feeling of an evolving three-dimensional world around us together with the conviction that only the present, being directly perceivable, possesses a real existence, while the past does not already exist and the future does not still exist. Let us recall, however, that in a Parmenidean world (or according to the B-theory of time) past, present, and future events are equally real. How then we experience the feeling that time flows, if the moment 'now' has no privileged ontological status?

This key question has not yet obtained a plausible answer. But a general path to it may be cut. Let me use for this purpose the following metaphorical picture drawn by Barry Dainton:

> Imagine walking up to find yourself in a strange place. You are sitting in a field of grass, next to a lamp that illuminates the surrounding area. There is complete silence. As you look around, you can see nothing whatsoever. Apart from the small patch of grass illuminated by the lamp there is darkness everywhere. Not surprisingly, you conclude that you are alone. You could not be more wrong. A few yards to your right there is another lamp, and another person waking up to find themselves surrounded by total darkness; likewise to your left. In fact, you are in a line of people stretching for many miles in either direction, all of whom

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[11] Aurelius Augustine, *Confessions*, Book 11, ch.26, 33.
[12] Augustine, *Confessions*, ch.27, 36.

are sitting in their own small pools of light, all of whom are alarmed to find themselves alone in a strange place.

Why is it that nobody can see anyone else? The answer lies with the strange form of light emitted by the lamps, which only extends a few feet before dying away. According to the B-theorist, *we find ourselves in an analogous position in time. What stretches only a short distance is not light through space but consciousness over time: the temporal span of direct awareness is very brief. And as in the analogous spatial case, the fact that at any given time we are not aware of experiences occurring at other times does not mean that these experiences are not there.*[13]

"The temporal span of direct awareness" is the brief span of the instant 'now.' Within this instant we are aware of our present. Thus Barry Dainton draws a substantial analogy between a process of passage from a small patch of illuminated area to another one, and the process of change of the instance 'now' in our perception of the present state of the world. As if our consciousness sheds 'a moving ray of light' over our own world-line within space-time, i.e. over very small fragments of our history. These illuminated fragments constantly supersede one another, as if the thin ray of our consciousness 'is constantly moving' along our world-line in space-time, and thus is constantly extracting the 'now' instances out of it, making us to be aware of our three-dimensional presents. The non-physical 'motion' of the 'illuminating ray' is a yet unknown process lying deep in the nature of human consciousness (probably due to specific quantum features, restricting the scope of phenomenal appearances). This is why Paul Davies declares, as we have seen, that "elucidating the mysterious [time] flux would, more than anything else, help unravel the deepest of all scientific enigmas – the nature of the human self" and would help us know "who we are, or what part we are playing in the great cosmic drama."

We can thus say that the human mode of being in the world is the consecutive grasping of three-dimensional space slices from the four-dimensional space-time, corresponding to the 'now' moments from the world line (more exactly from the world-tube) of every conscious observer. And it is exactly this perceptual splitting of the unified space-time continuum into space *and* time, or, in other words, the way in which space-time is presented to our sensuous intuition as *space* and *time*, which is responsible for the metrical and topological qualities of space and time *as they appear to us*, as if they are objectively and

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[13] Barry Dainton, *Time and Space* (Durham: Acumen Publishing Limited, 2001), 29-30. My italics.

separately existing entities. Thus we experience the continuous character of space and time, and further speculate about their probable discontinuous character.

This is the explanation for the appearance of Zeno's paradoxes. *They stem out as a result of the classical ontological picture about the existence of space and time as separate ontological entities that can be either continuous or discrete together, or separately.* Each of these formal assumptions results in a paradox of motion to be viewed as a change of spatial positions through time. So, they appear in their form of *aporiae*, of paradoxical consequences without an exit. They have either no proper ontological solution, or inspire dialectical attempts that are mostly promises for a solution without further clarification (see 3.3).

It can be easily seen that Zeno's paradoxes are precursors of Sextus Empiricus *aporiae* of the non-existence of time, since it is neither divisible, nor indivisible,[14] and also of St. Augustine's paradox expressed by the question "how do we measure present time since it has no extension?"[15] The origin of these paradoxes, as well as of Zeno's paradoxes, is one and the same: the classical ontological picture of space and time, drawn by imposing our phenomenal intuitions of space and time onto the world as being separately existing objective entities.

5. Conclusion

An easy way to get rid of Zeno's paradoxes is to agree with his critics that visible motions are quite real phenomena, and doubting their possibility is a ridiculous sophistical fashion. But if so, Zeno's paradoxes are in need of a plausible solution. There is no unanimous agreement among philosophers whether such a solution has been attained. It could be added, moreover, that their attempted paradigmatic solutions walk past their goal, which was demonstrated in section 3.

If we agree with Parmenides' disciples that the world is one and unchangeable and so motions are phenomenal illusions, as Zeno himself seems to do, then we need not propose direct solutions to Zeno's paradoxes. In this case, however, the problem arises how motions are permanently present in human experience, provided we live in a Parmenidean world (see (P) in section 4). Motion is a consecutive change of spatial positions through time, so the concept of motion is strongly dependent on the concept of time. But there is no absolute time in the contemporary relativistic picture of the world, drawn over the scheme of a four-dimensional space-time. Thus (P) is reduced to the puzzle (F) asking why do we perceive that time flows, if it does not do so.

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[14] Sextus Empiricus, *Against the Professors*, ch.10, 169-247.

[15] Augustine, *Confessions*, Book 11, ch. 21, 27.

In the end, an interpretation for the emergence of Zeno's paradoxes is provided, based on the ascribed properties of continuity and/or discontinuity to space and time, as if they are separate ontological entities, which could possess such features.

DEBATE

DISSECTING THE SUICIDE MACHINE ARGUMENT:
INSIGHTS FROM THE HALES – LICON DEBATE

Jimmy Alfonso LICON

ABSTRACT: I assess the debate over the Suicide Machine Argument. There are several lessons to be learned from this debate. First, there is a fruitful distinction to be made, between *tensed* and *tenseless* versions of presentism, despite the temptation to suppose that presentism is a *tensed* theory of time. Second, once we've made the distinction between different kinds of presentism, it is clear that Licon's objection protects the tenseless version of presentism from the Suicide Machine Argument; however, the argument is still effective against the tensed version. Finally, I argue that if the presentist wants to remain a card carrying presentist, in the face of the challenge posed by Hales, then she must abandon her commitment to tense.

KEYWORDS: Suicide Machine Argument, presentism, Steven Hales

1.

1.1. Introduction

There is a novel argument in the literature that purports to explain why it is that a presentist theory of time lacks the theoretical resources to accommodate the possibility of time travel. This is called the 'Suicide Machine Argument.'[1] The argument has been challenged in the literature:[2] Licon objects that a time machine, with the capacity to reconfigure the universe, such that it resembles a previously non-present moment, *in the right sort of way*, is able to defuse the challenge posed by the Suicide Machine Argument. Hales, who proposed the Suicide Machine Argument, argues that Licon's challenge to his argument fails; with a few clarifications, Licon responds that his objection is actually effective against Hales' argument.

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[1] Steven Hales, "No Time Travel for Presentists," *Logos & Episteme* I, 2 (2010): 353-360; and Steven Hales, "Reply to Licon on Time Travel," *Logos & Episteme* II, 4 (2011): 633-636.
[2] Jimmy Licon, "No Suicide for Presentists: A Response to Hales," *Logos & Episteme* II, 3 (2011): 455-464; and Jimmy Licon, "Still No Suicide for Presentists: Why Hales' Response Fails," *Logos & Episteme* III, 1 (2012): 149-155.

Jimmy Alfonso Licon

1.2. An Overview of the Paper

In this paper, I survey the debate between Hales and Licon, as it has played out so far. There are two important lessons to be drawn. First, the debate highlights the neglected distinction between *tensed* and *tenseless* versions of presentism.[3] Second, if this distinction is respected, it is clear that Licon's objection only serves to shield the *tenseless* version of presentism from Suicide Machine Argument, while failing to salvage the *tensed* version. Next, I argue that this is a vindication of Hales in the following sense: the *tensed* version of presentism, against which his argument is so effective, is the version accepted by a number of card carrying presentists. Finally, I conclude by arguing that the Suicide Machine Argument is a good reason for them to abandon tense, if they want to remain loyal presentists, capable of accommodating the possibility of time travel.

2.

2.1. Reviewing the Hales-Licon Debate

There is a relatively novel argument, in the philosophical literature, which purports to challenge the ability of presentism to accommodate the bare possibility of time travel; incidentally, the presumption at play, in the background of this debate is that any viable theory of time must have the theoretical resources to accommodate the possibility of time travel.

Crudely sketched, the Suicide Machine Argument amounts to this:

> The presentist[4] claims that *whatever exists in time, must reside in the present moment if they are to exist at all*. So, for instance, on the presentist conception of time, there are no *actually* existing dinosaurs, despite the fact that dinosaurs existed *at some point in the past*. (While, in contrast, eternalism[5] is the view the moments in which the dinosaurs exist is on metaphysical par with the present moment, except that happened *before* the present moment). If presentism is the right story to tell about the nature of time, then it is difficult to see *how* someone

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[3] Cf. M. Oreste Fiocco, "A Defense of Transient Presentism," *American Philosophical Quarterly* 44, 3 (2007): 191-212 and Joshua Rasmussen, "Presentists may say goodbye to A-properties," *Analysis* 72, 2 (2012): 270-276. There are philosophers who think that presentism is fundamentally a tensed theory of time (cf. Paul Daniels, "Back to the Present: Defending Presentist Time Travel," *Disputatio* IV, 33 (2012): 469-484).

[4] Ben Caplan and David Sanson, "Presentism and Truthmaking," *Philosophy Compass* 6, 3 (2011): 196-208 and Ned Markosian, "A Defence of Presentism," *Oxford Studies in Metaphysics* 1 (2004): 47-82.

[5] Michael Rea, "Four-Dimensionalism," in The Oxford Handbook of Metaphysics, eds. Michael. J. Loux and Dean. W. Zimmerman (Oxford: Oxford University Press, 2003).

> could travel to a non-present moment, without ceasing to exist. If you can only exist in the present, and you leave the present, you cease to exist. Thus, on the presentist conception of time, traveling in time results in a kind of suicide. Call this the *Suicide Machine Argument*.

Suppose that Jones enters the time machine; programs the machine to take him into the distance past. The machine whirls, and disappears. This explanation for this is simple: anything that exists in time must reside in the present, on the presentist conception of time. The time machine, used by Jones, relocates itself to a moment in the past. Thus, it must have ceased to exist, resulting in the annihilation of its passenger. Consider an argument from elimination:

> Either there is a (e.g.) past moment, *over and above* the present moment, for Jones to arrive at, or there is not. If there is a past moment, in addition to the present, then presentism must be false; after all, presentism claims that the present exists to the exclusion of all other moments. On the other hand, if there is no past moment in addition to the present, for Jones to occupy, then by leaving the present, Jones dies. If you think that a viable theory of time should be able to accommodate the possibility of time travel, Suicide Machine Argument is a serious challenge to presentism.

Consider what Hales writes:

> For presentists, getting into a time machine is suicide – the occupant goes out of existence. Recall that presentists are committed to a purely objective present; the events and objects at this objective present alone are real, even if other things have been or will be real. After entering the time machine, Dr. Who no longer exists in the objective present, and therefore he is no longer in reality. Which is just to say that Dr. Who ought to view the time machine with considerable trepidation – after all, it means his annihilation.[6]

This argument rests on a questionable assumption: the time-traveling-options afforded to the time traveler must include the present moment existing *along with* the destination moment. But the existence of other moments is prohibited by the exclusive privilege; this because the presentist is committed to the claim that the present moment exhausts the inventory of *actual* moments. To help clarify the nature of presentism, consider the difference between presentism and eternalism: while presentism says that the present moment exists to the *exclusion* of every other moment, eternalism holds that the present moment exists to the *inclusion* of every other moment; in short, eternalism is the view that every moment is metaphysically on par with every other moment. So, just like there are

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[6] Hales, "No Time Travel," 357.

multi, co-existing points in space, even if unoccupied, on the eternalist theory of time, there are moments, other than the present, in the past, and future.

2.2. The Transform Option

If we approach the issue like so, it seems to gloss over a third possibility: the time traveler always has the option of transforming the present moment such that it is a destination, rather than departure moment. Call this the *transform option*. This is the option defended by Licon in the literature.[7] Licon argues that the presentist can appeal to the sort of time machine capable of rearranging the universe so that it resembles the destination moment, in the precise way in which its matter and energy is arranged, while disassembling the departure moment, and doing the same, where the in-between moments that connect the destination and departure moments are concerned. Call this an *L-style time machine*.

> The possibility of this machine illustrates how the presentist can accommodate the possibility of time travel, while staying faithful to their presentist commitments.

> For instance, Licon writes:

> The possibility of presentist time travel does not entail that the time traveler ceases to exist, but rather that it is possible for the present moment to accommodate the time traveler. Of course such a process must preserve the objective temporal exclusivity of the present. For example, consider a fighter jet F that is confined to taking off from and landing on a particular aircraft carrier C. It does not follow that if F leaves C, then F will have no place to land. It just means that F must take off from and land on C. Suppose that F needs to travel several miles away from its current position. The landing constraint does not entail that F cannot land, but rather that: *if F can land in in a location other than the location that F took off from, then C must have moved from the departure to the arrival location*.[8]

With the transform option in hand, consider the following example. Suppose that Jones gets into her *presentist*-friendly time machine, sets the dial for a past moment, and activates the machine. We should expect the machine to rearrange all the matter and energy in the universe, so that it resembles each moment, in succession, from the departure moment to the arrival moment, until Jones reaches the destination time; the machine does this by arranging all of the matter and energy in the universe, until it is identical to the next moment in the

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[7] Cf. Licon, "No Suicide," and "Still No Suicide."
[8] Licon, "No Suicide," 460 – emphasis in original.

timeline. This process continues until the machine has actualized the destination moment.

2.3. A Humean Aside

We should clarify that the transform solution is Humean in nature; that is, it assumes that in order to bring about a particular moment, all you need to do is arrange the totality of the energy and matter in the universe, in the right way, such that it is arranged past-moment-wise. The final condition states that the order in which the moments that occur in between the departure and destination moments, up to and including those moments, must remain true to the order in which the moments *actually* occurred. It seems that we could not have a viable presentist theory of time, if a Humean-style approach to the identity conditions of moments didn't work out; this is because, unlike eternalism (i.e. the view that the present exists to the *inclusion* of all other moments), presentism holds that the present exists to the *exclusion* of all other moments. There are still earlier-than and later-than facts that even a presentist theory of time must contend with; e.g. it is a fact that Lincoln was assassinated *later-than* the dinosaurs roamed the Earth. Denying such facts would make any theory of time, presentism included, untenable.

We might imagine applying the transport option, to a presentist universe, where the following moments exhaust the universes' timeline: *Alpha, Beta, and Gamma*. If we wanted to travel from Alpha to Gamma, via Beta, the transport option says that our time machine must deconstruct Alpha, while constructing Beta; then it would have to deconstruct Beta, while constructing Gamma. Thus, the transform option says that if we use this process, then we could successfully time travel, from Alpha to Gamma, in a presentist universe.

3.

3.1. Presentism as a Tensed Theory of Time

As a brief aside from the Suicide Machine Argument, I want to briefly discuss the tensed (or tenseless) nature of the presentism, as a theory of the nature of time. It is widely supposed that presentism is a *tensed* theory of time. This simply means that moments have temporal properties *over and above* the order in which moments occur, on a given timeline. For instance, if a moment progresses from the future, to the present, and then recedes into the past, it exemplifies temporal properties, e.g. present-ness, which are entirely distinct from temporal relations, such as ordering (e.g. Alpha stands in an earlier-than relation to Beta; without

anything metaphysically special about the moments *themselves*). There is something metaphysically distinct about moments that reside in the future, compared to a moment in the past; there is a 'flow' to time, so to speak, whereby future moments eventually exemplify past-ness, once they recede into the past, although these moments once exemplified future-ness.[9]

3.2. Clarifying the Difference between Tensed and Tenseless

It might help to think of the difference between tensed and tenseless theories of time in how they deal with the apparent privilege of the present moment. One the one hand, on the tensed theory of time, there is something about the present moment *itself* which makes it metaphysically different from past and future moments, while on the other hand, on a tenseless theory of time, the present moment only *seems to be* metaphysically different from past and future moments, but this is just a figment of the way we are temporally placed with respect to the present, past, and future moments – just like, for instance, the notion 'here' has meaning that is indexed relative to the person using the term (and their location and the time of their utterance), the notion of the present simply captures that moment to which an agent has the right kind of epistemic access, rather than capturing anything about the moment *itself*.

3.3. Different Kinds of Privilege

You might suppose that presentism is obviously a tensed theory of time simply because *there is* a metaphysical difference between the present moment, on the one hand, and past and future moments, on the other hand, in the sense that the present moment exists, while past and future moments do not. This is, no doubt, a kind of metaphysical privilege. For our purposes, however, I call that a kind of *existential* privilege. This kind of privilege is secured merely by existing, on the part of the present moment, to the exclusion of other moments.. Every species of presentism requires that the present moment has existential privileged in that it exists to the exclusion of all other moments.

Other than existential privilege, there is also a tense privilege; I alluded to this, briefly, earlier in this paper. This kind of privilege has to do with the nature of the moment *itself*, rather than its relationship to other moments. Take note that the existential privilege, which is common to all species of presentism, has to do with how the present moment relates to other moments. Tense privilege, on the other hand, has to do with nature of the moment itself. So, for instance, if a

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[9] Ted Sider, "Travelling in A- and B- Time," *The Monist* 88, 3 (2005): 329-335.

moment that used to exemplify present-ness, then recedes into the past, loses its present-ness such that it can take on the tensed property of past-ness.

The easiest way I can think of to explain tense privilege is to appeal to our experience of what it is like to reside in the present moment. There just seems to be something different about the present moment *itself*, compared to past and future moments; whatever the intrinsic difference amounts to, it is simply a matter of tense privilege. This is because, in part, tense and existential privilege, though they often travel together on some theories of time, they sometimes come apart. For instance, a moment might be privileged in a tensed sense (e.g. it exemplifies the property of *past-ness*), without an existential privilege (i.e. it does *not* exist to the exclusion of all other moments).

3.4. Distinguishing between Tensed and Tenseless Presentism

The fact that every species of presentism has a built-in existential privilege is not sufficient to make presentism a *tensed* theory of time, all by itself; this should be clear from what I've already said. Although tense is a kind of metaphysical privilege, the reserve fails to hold: a moment with tensed privilege is a moment that is *ipso facto* privileged; however, it is false that each privileged moment is *ipso facto* a tensed moment. This is because there are numerous kinds of metaphysical privilege that can be had, by moments, other than tense (e.g.) existential privilege.

As a way to bring out the relevant intuitions, consider an eternalist timeline made-up exclusively of the following three moments: *AA, BB, and CC*. Call this timeline TIME. This means that TIME is a tenseless temporal series, because eternalism is usually construed as a tenseless theory of time. There is nothing privileged about any of the moments *themselves* in TIME. First, there is nothing existentially privileged about any of the moments in TIME. Second, there is nothing privileged about any of the moments, in terms of tense. Suppose that from our perspective, AA resides in the past, while CC resides in the future; it is from our perspective that BB is the present. Suppose that a time manipulation machine destroys moments AA and CC, leaving BB as the *solitary* moment comprising our timeline. Call this approach *Destroy*. We could approach it from the opposite direction: there are no moments in an eternalist-friendly timeline, until the time manipulation machine creates *one*.[10] Call this approach *Create*.

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[10] The time manipulation machine, in the Create scenario, might be housed in a different timeline. I want to set the issue of how multiple timelines are consistent with presentism aside, for the sake of brevity.

There is something that Destroy and Create share: each process produces a single moment (the present moment, relative to us) that exists to the exclusion of all other moments; that is, the solitary moment in Destroy and Create enjoys existential privilege, even though it does *not* enjoy tense privilege. The Destroy and Create moments comprise part of an eternalist-friendly timeline. These moments, in their respective timelines, do not exemplify tensed properties like past-ness; they do not enjoy tensed privilege, just like the moments in eternalist timeliness, but they do still enjoy existential privilege *unlike* their eternalist counterparts. Consider the remaining piece of the puzzle required, if we are to nail down a quick and dirty tenseless version of presentism: *the flow of time*. If we suppose that there is a flow of time, in a presentist-friendly way, it seems we have the makings of a tenseless presentist universe. We have a universe in which the present moment enjoys existential privilege (i.e. it exists to the exclusion of all other moments), but lacks any sort of tensed privilege (i.e. it does not exemplify present-ness).

3.5. Approaching the Distinction Differently

Consider that presentism is automatically committed to existential privilege; this is because, on presentism, the present moment is privilege to exist to the exclusion of all other moments (i.e. if something exists, in time, then it must reside in the present moment). But, it is a different matter entirely, whether the present moment, in a presentist universe, exemplifies tensed properties; a commitment to tensed privilege doesn't seem as fundamental, to the nature of presentism, as a commitment to the existential privilege. It is *at least possible* that there is a presentist universe, where the present moment has only existential privilege.[11]

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[11] I am implicitly appealing to a simple principle: if it is conceivable that p, then the possibility of p gets the benefit of the doubt (cf. William Lycan, "Free Will and the Burden of Proof," in *Minds and Persons*, ed. Anthony O'Hear (Cambridge: Cambridge University Press, 2003), 107-122 and Keith DeRose, "Plantinga, Presumption, Possibility, and the Problem of Evil," *Canadian Journal of Philosophy* 21, 4 (1991): 501). The conceivability of p is *defeasible* evidence for the possibility that p.
Consider what Lycan writes:

> I begin with a general methodological point about modality: compatibilism, not just about free will but generally, on any topic, is the default. For any modal claim to the effect that some statement is a necessary truth, I would say that the burden of proof is on the claim's proponent. A theorist who maintains of something that is not obviously impossible that nonetheless that thing *is* impossible owes us an argument (Lycan, "Free Will," 109).

We could secure the distinction, between tensed and tenseless versions of presentism, by stipulation: it is just the case that there could be a presentist universe where the present moment only enjoys existential privilege, without any sort of tense privilege. This seems like a reasonable move, in part, because it seems as though there could be a moment that exists to the exclusion of all other moments, but without exemplifying tensed properties like present-ness.

This might not convince everyone that there is a fruitful distinction to be made between present moments which *merely* enjoy existential privilege, and those which enjoy existential and tensed privilege. However, there doesn't seem to be any reason to suppose that this *could not* be so. This is some reason to think that there is nothing which forbids making such a distinction. Think about the matter like so: it seems that we can imagine the present moment, under presentism, lacking the property of *present-ness* in a way that we could never have the present moment, *under presentism*, lacking existential privilege.

4.

4.1. Getting Back to the Debate

The distinction between tensed and tenseless presentism permits an explanation for how it is that the possibility of L-style time machines allows the tenseless version of presentism to avoid the bite of the Suicide Machine Argument, despite its failure to shield the tensed version of presentism from Hales' argument. My first task is to explain why it is that L-style time machines lack the capacity to bring about past moments specifically in a tensed presentist universe; then in the next part of this section, I explain why the L-style time machine blocks the Suicide Machine Argument. After explaining why it is that an L-style time machine succeeds, in response to the Suicide Machine Argument, I argue that this distinction permits another way to highlight the distinction between tensed and tenseless presentism.

The claim that p is possible (whereas the claim that p is impossible, just means that necessarily not-p, where bivalence holds), is a far more modest, especially if the matter is not obvious either way, than the claim that p is *never* possible; and, because of the immodesty of the latter claim, compared to the modesty of the former, the latter claim requires a good argument in its favor, if we are to accept it.

4.2. The Contradictory Argument

Consider a crudely sketched argument that an L-style time machine cannot successfully operate in a *tensed* presentist universe. The argument amounts to the following:

> If the moment is from the past, then it exemplifies past-ness, as a past moment; but, since it's the only moment, it has existential privilege, as the present moment. So, the moment counts as both past and present. However, this cannot be so. Thus, there cannot be a successful L time machine, operating in a tensed presentist universe.[12]

Call this the contradictory argument.

Let me explain the contradictory argument in detail, by way of an example.

Suppose that Mary travels to the past, in an L-style time machine, in a tensed presentist universe. So, the time machine creates, and then destroys, all the moments connecting the departure and destination moments. But it's not clear how the L-style time machine is supposed to proceed. If it brings about the destination moment, it will count as the present moment in an existential sense: *the moment exists to the exclusion of every other moment.* If time traveling took place in a tenseless presentist universe, then there is nothing to fear from the contradictory argument. However, this time traveling is supposed to take place in a *tensed* presentist universe; there is the remaining matter of tense to accommodate. Surely, Mary is traveling to a moment in the *past*; the fact that she resides in that moment, doesn't thereby transform that moment into the present.

In tensed terms, the destination moment is a *past* moment; the destination moment exemplifies the property of past-ness. Consider that the destination moment that counts as the present moment because of its existential privilege, while, on tensed privilege, the same moment counts as a past moment. This should illustrate that while, on the tensed presentist conception of time travel, a moment is supposed to co-instantiate properties like being-the-past-moment and being-the-present-moment *in a metaphysical sense*,[13] it should be clear that this cannot be done. This is, in part, because the presentist conception of time denies that

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[12] This is not a problem for a *tensed eternalism*. This is because, in part, eternalism does not insist on the present moment exists to the exclusion of all other moments; that is, eternalism denies that the present moment *must* enjoy existential privilege. This is, in part, because privilege, whether tensed or existential, on the eternalist view of time, is not a metaphysical matter, but rather subjective and perspectival.

[13] Eternalism has the theoretical resources to permit this sort of co-instantiation *in a subjective sense*; I could travel to a past moment, in an eternalist universe, which would count as the present moment, *relative to my perspective*.

there are, *or could be* past moments; so, for instance, it is not clear how the present moment could exemplify past-ness, on the presentist picture of time, given the presentist denial that there are any moments *whatsoever* that exemplify past-ness. This position, it should be added, is different from denying that there *were* moments, and were once present, and have since passed away.

Surely, the following is too hefty a bullet to bite:

> Whenever you time travel, in a tensed presentist universe, the striking result is the following you both leave the present moment, and you don't. Call this *the co-instantiation problem*.

Clearly, an L-style time machine could not operate in a tensed presentist universe.

4.3. Understanding the Co-Instantiation Problem

The first thing to notice about the contradictory argument is just that is gets off the ground by creating a tension between existential and tensed privilege that is supposedly had by the present moment. If the present moment solely enjoyed tense privilege (or, alternatively, it solely enjoyed existential privilege), there wouldn't be different kinds of privilege to conflict with each other. For instance, eternalism as a theory of time, denies that there is anything like existential privilege. All moments (past, present, and future) are metaphysically equal; they are equally real, regardless of their location on the timeline; if there were an eternalist universe, in which every moment existed to the inclusion of every other moment, but with differing tensed properties, we would lack the resources to produce the co-instantiation problem.

Suppose that Smith travels in time to a past moment. This moment exemplifies the property of past-ness. But there is no requirement that this moment must exemplify existential privilege; it is not that the moment occupied by Smith exists to the exclusion of all other moments; rather, the present exists to the *inclusion* of all other moments. As such, if we start with a tensed version of eternalism (i.e. theory of time that all moments exist to the *inclusion* of every other moments, *and* that each moment exemplifies the appropriate tensed property), we cannot create a situation in which a single moment *both* counts as the present and past moment; there is no obvious way to produce the co-instantiation problem assuming that tensed privilege is the only kind of privilege available. The conclusion we should draw is that on a tensed version of eternalism, we do not have the necessary conditions to produce the co-instantiation problem.

4.4. Understanding Tenseless Presentism

Consider a timeline that only has existential privilege: the present moment exists to the exclusion of all other moments. This is a *tenseless* version of presentism simply because only the present moment and its occupants exist, to the exclusion of all other moments, but the present moment doesn't exemplify any tensed properties like present-ness. But, without combining the tensed and existential privileges, we cannot bring about the co-instantiation problem. There could not be a moment it exemplifies conflicting tensed and existential privilege simply because in the relevant universe, there is no tense privilege to be had.

It might clarify, if we consider a passage from Licon:

> Suppose that in a presentist universe, Sally enters a time machine, twirls the knobs to a time in the past and activates the machine. The time machine then proceeds to instantiate each moment between the departure moment and arrival moment (all of which meet the indiscernibility of identity), each to the exclusion of all other moments. Sally eventually arrives at her destination, and exits the time machine.[14]

This passage is meant to clarify that an L-style time machine has the capacity to transform the present moment from, on the one hand, instantiating the departure moment, to, on the other hand, instantiating the destination moment, while taking the right steps in-between; an L-style time machine can do all of this, without producing the co-instantiation problem that plaques the tensed version of presentism. If the time machine respects the existential privilege of the present moment, then without tensed privilege, there is no way to produce the co-instantiation problem. There are no obvious impediments to an L-style time machine, operating properly in a *tenseless* presentist universe. The Suicide Machine Argument fails to motivate a reasonable worry as to the supposed suicidal nature of time travel, in a tenseless presentist universe.

5.

5.1. Some Final Assessments

Finally, in the last section, I want to explain why the Suicide Machine Argument is still a serious challenge to the prospect of time travel, in a *tensed* presentist universe; part of the explanation is that time travel, in a tensed presentist universe, is subject to the co-instantiation problem; as we have seen, there cannot be a time machine that is capable of traveling through time, operating in a *tensed* presentist

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[14] Licon, "Still No Suicide," 150.

universe. The tensed presentist is vulnerable to the main thrust of the Suicide Machine Argument.

Recall that the Suicide Machine Argument amounts to this:

First, (i) if anything exists in time, on the presentist conception, then it must exist in the present moment; second, (ii) time travelers relocate themselves in a moment, other than the present, if they are actually traveling in time[15]; hence, (iii), the time traveler, ceases to exist, just in virtue of her leaving the present moment, to travel to a past/future moment.

5.2. Comparing Tensed and Tenseless Presentism

Licon's strategy, to defuse this argument, is to deny the plausibility of the second premise of the argument. He accomplishes this by conceiving of a possible time machine that is capable of rearranging the present moment, and all the energy and matter which occupies the present, such that the present goes from instantiating the departure moment to instantiating the destination moment, along with all of the appropriate in-between steps. But, if we are dealing with time travel, in a tensed presentist universe, the Licon strategy fails. The Suicide Machine Argument is still effective obstacle, when it comes to time travel in a *tensed* presentist universe; this is because the tensed presentist cannot explain why it is that she rejects that leaving the present moment would result in the annihilation of the time traveler; but, the prospect of time travel in a *tenseless* presentist universe remains unscathed by the Suicide Machine Argument.

5.3. Summing Up

There are several quick points I want to make before concluding.

First, it should be clear that Hales' argument, barring other plausible objections, succeeds in that it gives us good reason to think that leaving the present, in a time machine, is tantamount to suicide, if we reside in a tensed, presentist universe; in that sense, Hales' argument is a success. This is good reason to suppose that tensed presentism is in serious trouble. Second, the lesson that the presentist should draw from all this is the following: if you want to avoid the Suicide Machine Argument, while remaining a faithful presentist, you should

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[15] The following is central to the Suicide Machine Argument: *if a moment is different, from the departure moment, it must be a non-present moment.* This is false (cf. Licon, "No Suicide"); if the present moment changes from exemplifying the departure moment, to exemplifying the destination moment, without introducing a second, co-existing moment, then the present moment can exemplify a different moment, to the one it previously exemplified, without having to introduce a non-present moment.

abandon your commitment to *tense*; whatever advantage is had by adopting tensed presentism, it is had at the price of biting a large bullet: *time travel, in a tensed presentist universe, is a form of suicide*.

　　If you accept a tenseless version of presentism, then you can successfully travel in time in an L-style time machine;[16] but, if you hold tensed presentism, either you are stuck with a kind of time travel which is, basically, just like a kind of suicide; or, the suicidal nature of time travel pressures you to abandon your commitment to tense.

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[16] For the sake of this paper, I assume toy physics.

ARE EPISTEMIC REASONS EVER REASONS TO PROMOTE?

Clayton LITTLEJOHN

ABSTRACT: In trying to distinguish the right kinds of reasons from the wrong, epistemologists often appeal to the connection to truth to explain why practical considerations cannot constitute reasons. The view they typically opt for is one on which only evidence can constitute a reason to believe. Brian Talbot has shown that these approaches don't exclude the possibility that there are non-evidential reasons for belief that can justify a belief without being evidence for that belief. He thinks that there are indeed such reasons and that they are the right kind of reasons to justify belief. The existence of such truth promoting non-epistemic reasons is said to follow from the fact that we have an epistemic end that involves the attainment of true belief. I shall argue that there are no such reasons precisely because there is an epistemic end that has normative authority.

KEYWORDS: epistemic consequentialism, epistemic reasons, evidence, epistemic norms, epistemic ought, wrong kind of reason problem, Brian Talbot

There is a commonly held view that says that all epistemic reasons are pieces of evidence.[1] This view is mistaken and Talbot[2] (forthcoming) is right to reject it.[3] Unfortunately, he rejects the view for the wrong reasons because the non-evidential reasons he discusses are the wrong kind of reasons to justify belief.

1.

Everyone seems to agree that there are evidential reasons (i.e., things that constitute evidence) that can justify belief. Talbot argues that a second kind of

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[1] See Joseph Raz, *From Normativity to Responsibility* (New York: Oxford University Press, 2011), 36.

[2] Brian Talbot, "Truth-promoting non-evidential reasons for belief," *Philosophical Studies*, forthcoming.

[3] The right reason to reject this identification has to do with reasons associated with norms (e.g., a norm that enjoins one to believe only on sufficient evidence). As David Owens (*Reason Without Freedom* (London: Routledge, 2000)) reminds us, the fact that one lacks sufficient evidence to believe p is a decisive reason to refrain and is not itself a further piece of evidence. John Gibbons (*The Norm of Belief* (New York: Oxford University Press, 2013)) offers a similar point having to do with undercutting defeaters. Thus, Raz might be right that any reason *to* believe is a piece of evidence, but mistaken to think that any reason *against* believing p is thereby a reason *to* believe the negation.

reason that can justify belief, *truth promoting non-evidential reasons* ('TPRs' henceforth). A TPR will (objectively) support believing p if it believing p promotes having (other) true beliefs. It will support believing p even if it is not itself evidence that indicates that p is true. The central thesis of his paper is that the fact that one's belief that p would promote having (other) true beliefs can constitute a reason to believe p that either epistemically justifies one in believing p or epistemically obliges one to do so. It is this thesis that I shall argue is false.

To show that there are TPRs, Talbot appeals to three widely accepted claims about epistemic normativity. These theses are supposed to show that there are TPRs:

> T1: Epistemic oughts have a source.
>
> T2: The source of epistemic oughts is an end in which true belief plays a necessary role.
>
> T3: Epistemic oughts are normative.

The thought behind T1 is that epistemic oughts cannot be brute, so they have to be grounded in something more basic. Talbot suggests (not implausibly) that this source will be an end or a goal. As various authors have argued, it is because belief is governed by the aim of truth, say, that considerations that have to do with the desirability of believing p cannot constitute a genuine reason *to* believe p.[4] While these authors have concluded that practical considerations wholly unconnected to the truth or the pursuit of it cannot constitute a genuine reason to believe, Talbot thinks (rightly) that their arguments do not rule out TPRs. TPRs are, after all, connected to the truth and the pursuit of it. Insofar as we have an end or aim that involves having true beliefs and believing on TPRs is one perfectly good way of promoting that end or aim, it seems that these reasons should have genuine normative significance so long as the end-grounded or aim-generated oughts are normative. That is precisely what T3 tells us. So, it seems there are genuine normative reasons that bear on whether we ought to believe that are constituted by TPRs.

If there are indeed TPRs, Talbot thinks that it should be possible for one's beliefs to be justified even if one does not have sufficient evidence for this belief. For example, circumstances should arise in which the epistemic benefits (understood in terms of, say, truths one would believe if one believed p but would

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[4] See Jonathan Adler, *Belief's Own Ethics* (Cambridge: MIT Press, 2002), Pamela Hieronymi, "Believing at Will," *Canadian Journal of Philosophy Supplementary Volume* 35 (2009): 149-87, Owens, *Reason Without Freedom*, Nishi Shah, "A New Argument for Evidentialism," *The Philosophical Quarterly* 56 (2006): 481-98, and Raz, *From Normativity to Responsibility*.

not believe otherwise) of believing p justify that belief even if it isn't itself terribly well supported by the evidence.[5] Some of us would be tempted to cite this implication as a reason for rejecting his proposal. Intuitively, this seems like the wrong kind of reason to justify belief. Unfortunately, we often appeal to (T2) to try to show that some putative reason is the wrong kind of reason to justify a belief, so this dismissive response will not do.

2.

In this section, I shall try to do two things. I shall try to show that (T1)-(T3) do not lend support to Talbot's thesis that there are TPRs. I shall also point to considerations that seem to show that there are no TPRs.

To show that one cannot establish the existence of TPRs simply by appeal to (T1)-(T3), I shall describe a view that incorporates (T1)-(T3) that suggests that a belief would never be justified by a TPR. It is consistent with (T1)-(T3) that our epistemic aim is not simply to believe truths or avoid believing falsehoods, but to acquire knowledge. On such a view, if one ought not believe lottery propositions but is justified in believing that one has hands, there is a source for these oughts. These oughts are grounded by a knowledge norm. According to one view (which undoubtedly needs refinement, but for issues unrelated to those that matter here), one is justified in believing p if one's belief constitutes knowledge but most not believe p if one's belief does not constitute knowledge. Suppose one knows (never mind how) that by believing p, one will thereby acquire ten pieces of knowledge that one could not acquire otherwise. (Some eccentric character with a polygraph, a belief-in-p-inducing pill, an envelope containing ten secrets, and a lighter for burning this envelope makes an offer, say, that one can read the contents of the envelope and so acquire ten new truths but only if one takes the pill and passes a polygraph that confirms that one does indeed believe p.) Whether there are TPRs that support believing p in these circumstances is neither here nor there. The view says quite clearly that such reasons cannot possibly justify believing p because the only way to have a justified belief about p is to form a belief in such a way that one comes to know p. Whether there are objections to this view is neither here nor there. It cannot be that (T1)-(T3) shows that there are TPRs that can justify belief if there are consistent views that incorporate these theses and imply that TPRs can never justify a belief. Thus, any argument that purports to show that there are TPRs that can justify belief have to exclude the view just described and

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[5] Brian Talbot, "Truth-promoting non-evidential reasons," 6.

every similar view that would rule out TPRs. I have not argued that no such argument can be given (yet), but have shown that such an argument is needed.

Talbot argues that those who think that there is an end, aim, or goal of acquiring true beliefs are committed to TPRs because they are committed to the view that there are reasons to 'promote' the acquisition of true belief.[6] Why should we think that there are epistemic reasons that justify belief by virtue of the fact that these beliefs promote the acquisition of true belief (or prevent one from acquiring false belief, perhaps)? Talbot seems to think that it doesn't take much more to show that they exist than to remind us that we think that epistemic oughts have a source that has normative authority. It cannot be *that* easy to argue for the existence of reasons to promote attaining an end. There are perfectly consistent normative frameworks that identify a source for, say, moral oughts that tell us that there are not reasons that promote attaining an end. Kantians think that moral oughts have a source. The categorical imperative will tell us what our obligations are and it has its grounding in the value of autonomous agents. At no point, however, do the Kantians think that there are reasons to promote conforming to the categorical imperative that would justify, say, telling lies or enslaving people. Kantians consistently reject the idea that the value that autonomous agents have calls for promotion. It might call for some response, such as honouring or respecting, but one can honour or respect without promoting.[7]

Now, someone might say in response that these views are implausible perhaps because they deny that reasons to promote will often determine overall obligation.[8] This misses the point of the objection. I have not yet offered an alternative view, say, one inspired by Kant. If Talbot's point is that we're committed to TPRs simply by virtue of accepting (T1)-(T3), we can test *that* claim by asking whether there is any coherent view that accepts (T1)-(T3) whilst rejecting the possibility of TPRs. The possibility of such views shows that the case for TPRs cannot rest on these three theses alone but on some further unspecified thesis. The plausibility of the case for TPRs would have to rest on this unspecified

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[6] Talbot, "Truth-promoting non-evidential reasons," 6. There may well be people who are committed to such a view. Richard Foley (*When is True Belief Knowledge?* (Princeton: Princeton University Press, 2012), 128) links the rationality of a belief to the attainment of epistemic goals in such a way that he's not principally opposed to thinking that something can be a reason to believe p simply by virtue of the benefits of believing that proposition. I think that his position is unusual in this regard and not one forced upon us by accepting (T1)-(T3).

[7] See Marcia Baron, *Kantian Ethics Almost Without Apology* (Ithaca: Cornell University Press, 1995) and Christine Swanton, *Virtue Ethics: A Pluralistic View* (Oxford: Oxford University Press, 2003) for helpful discussion.

[8] A referee raised this worry.

thesis. Those sceptical of the suggestion that there are TPRs can then point to potential counterexamples to that view and invite defenders of TPRs to address them. Advocates of TPRs cannot avoid dealing with such counterexamples by saying that the existence of TPRs is indicated by (T1)-(T3).

As Talbot sees it, TPRs are reasons to promote attaining some epistemic end and Perhaps one has to think of the normativity of the end as having to do with that end serving as a source of reasons, but reasons to promote are only one sort of reason. There are also reasons to honour, respect, and to conform to a norm, and none of this involves promoting. Of course, these points are all perfectly consistent with Talbot's thesis. Nothing I have said thus far shows that there are not TPRs. I shall now argue for that point.

There are two perfectly good counterexamples to the claim that there are TPRs that can justify belief:

> (i) One considers whether the number of stars is even and realizes that one's evidence supports this hypothesis and the negation of this hypothesis equally. One knows (never mind how) that if one did believe that the number of stars was even, a number of unrelated truths would be revealed. One also knows (never mind how) that these truths would only be revealed if one had this belief. Still, one should not believe that the number of stars is even in the circumstances described. There is a decisive reason not to.

> (ii) One considers whether one knows that one knows that one has hands. One judges correctly and quite reasonably (never mind how) that one knows that one knows this. One also knows (never mind how) that if one were to abandon this belief, a great many truths would be revealed. These truths would only be revealed, however, if one abandoned one's belief that one has hands. Still, one may continue to believe that one has hands. In general, one has no obligation to refrain from believing what one knows one knows.

In (i), one ought to refrain in spite of the wonderful benefits of believing. In (ii), one is permitted to maintain a belief in spite of the wonderful benefits of abandoning it. If TPRs ever explain why one ought or ought not believe, they should do so in these circumstances. They don't.

Talbot has to contest these intuitions. To contest this intuition, he presumably has to say that TPRs give us overriding reason to believe without evidence or abandon belief that constitutes knowledge. Once we appreciate this, we can see why there cannot be TPRs. There cannot be TPRs because they could only get their work done, so to speak, by figuring in a kind of weighing

explanation of an epistemic ought. Cases like this vividly illustrate, however, that there are no weighing explanations of epistemic oughts.[9]

If there were weighing explanations of epistemic oughts, there would have to be situations in which (a) the relevant oughts were not settled until the weights of further reasons were taken into account or (b) the oughts would have been settled one way or another but the reasons one had to believe or refrain were overridden by the weights of the additional reasons. These would be situations in which one ought to believe *because* there were weightier/stronger reasons for believing than for suspending judgment or disbelieving. I don't think there could be situations like (a) or (b).

There seem to be two approaches to the epistemic end mentioned in (T2). Some think that this end should be specified in terms of aims rather than oughts and some think that this end should be specified in terms of oughts so as to cash out the metaphor of the aim. For reasons discussed by David Owens,[10] Nishi Shah,[11] and Ralph Wedgwood,[12] I think that the best way to think about the epistemic end is in normative terms. According to Wedgwood,[13] for example, the right way to think about the metaphor of the aim of belief is in terms of a standard of correctness according to which:

> T: S ought to believe p iff p.

Assuming bivalence and that belief is governed by (T), we know that (a) is ruled out. Thus, the only way for TPRs to do any normative work is to override the reasons associated with (T). We know that situations like (b) cannot arise because the norm states an overall epistemic obligation. If it provides us with an absolute reason, it is not weighed against any other epistemic reason.

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[9] For a discussion of weighing explanations of oughts, see John Broome, "Reasons," in *Reason and Value. Themes from the Moral Philosophy of Joseph Raz*, eds. R. Jay Wallace, Philip Pettit, Samuel Scheffler, and Michael Smith (Oxford: Oxford University Press, 2004), 28-56. As he sees it, one reason outweighing another is one way amongst many that the reasons might determine what ought to be done. See Joseph Raz, *Practical Reason and Norms* (New York: Oxford University Press, 1975) for a helpful discussion of reasons, oughts, and norms and for reasons to think that the reasons associated with norms do not invariably enter into weighing explanations. For critical discussion of weighing explanations of epistemic oughts, see Carrie Jenkins, "Entitlement and Rationality," *Synthese* 157 (2007): 25-45 and Clayton Littlejohn, *Justification and the Truth-Connection* (Cambridge: Cambridge University Press, 2012), Chp. 2.

[10] David Owens, „Does Belief Have an Aim?" *Philosophical Studies* 115 (2003): 283-305.

[11] Shah, "A New Argument."

[12] Ralph Wedgwood, "The Aim of Belief," *Philosophical Perspectives* 16 (2002): 267-97.

[13] Wedgwood, "The Aim of Belief."

Some would argue that the fundamental epistemic norm has to do with knowledge rather than truth:

> K: S ought to believe p iff S's belief that p constitutes knowledge.

Assuming that belief is governed by (K), we know that (a) is ruled out on the grounds that there will not be situations in which a belief is neither knowledge nor non-knowledge. We know that situations like (b) cannot arise because the norm states an overall obligation, one that is not overridden by further epistemic reasons. If one says that one has sufficient *epistemic* reason to violate (K) or (T), what one seems to be saying is that (T) or (K) is *not* the source of our epistemic oughts. Since we are assuming that a norm like (T) or (K) *is* the source of our epistemic oughts (e.g., one that explains why one should not believe that Jimmy Hoffa is alive and well and explains why one ought not believe lottery propositions), it seems that one must conclude that there are no weighing explanations of epistemic oughts.

The force of the point comes to this. Talbot wants to argue for TPRs by appeal to a claim about the source of reasons, one that's stated like T or perhaps K. Properly understood, these norms rule out in advance the possibility of weighing explanations of the sort required for TPRs to explain any epistemic ought. If, say, there were sufficient TPRs to believe a falsehood, there would be cases in which a subject ought not believe what's true or ought to believe what she doesn't know. Such cases would be counterexamples to K or to T. So, there is no sound route of reasoning from K or T to TPRs if the existence of such reasons points to counterexamples to K or T.

3.

Once we see why an approach to epistemic normativity that starts from the idea of a fundamental epistemic end which has to do with truth or knowledge generates certain sorts of epistemic oughts, we can see why epistemic reasons have to do with conforming to norms, not promoting the attainment of some end. To think of epistemic reasons as reasons to promote the attaining of an end, one must think that there is 'room' to explain an epistemic ought in terms of a kind of weighing explanation that's common from the practical case. There is no room for that sort of reasoning in the theoretical sphere because unlike action, belief serves a single master. As Adler rightly put it:

> What is best to do is that act which is better than all the alternatives on the available reasons. But what one or should believe is only what is genuinely worthy of belief, not what is currently better than the alternatives. (Think here

of the difference between poker, where the best hand wins, and rummy, where only the right or proper hand can win).[14]

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[14] Jonathan Adler, „Akratic Believing?" *Philosophical Studies* 110 (2002): 4.

REPLY TO PALMIRA

Nicolás LO GUERCIO

ABSTRACT: In "Philosophical Peer Disagreement" I argued that in order to properly account for the phenomenon of philosophical peer disagreement it is necessary to drop the 'same evidence' condition from the definition of epistemic peerage. The reason is the following: different philosophical perspectives might come with different commitments concerning the evidential role of the same piece of data, and it would be wrong to deny the status of epistemic peer to someone that is acquainted with the same data, even if he does not consider it plays an evidential role. However, on "On the Necessity of the Evidential Equality Condition For Epistemic Peerage," Michele Palmira has developed some criticisms to these ideas. Here I defend my view from Palmira's objections.

KEYWORDS: philosophical peer disagreement, 'same evidence' condition, Michele Palmira

In "Philosophical Peer disagreement," I defended some ideas concerning the nature of peer disagreement within philosophy.[1] Back then, I contended that the notion of 'epistemic peer' commonly found in the literature should be modified in order to properly account for the phenomenon of *philosophical* peer disagreement. I suggested the following definitions:

> **Strong Epistemic Peer** Two agents are strong epistemic peers when (1) they have approximately the same epistemic virtues, (2) acknowledge the same facts and (3) their epistemic perspectives are sufficiently alike.

> **Weak Epistemic Peer** Two agents are weak epistemic peers when (1) they have approximately the same epistemic virtues, (2) acknowledge the same facts but (3) their epistemic perspectives relevantly diverge.[2]

The main idea is that we should drop the 'same evidence' condition from the definition, because whether an item counts as (philosophical) evidence -as much as the epistemic weight it has, in the case that it does count as evidence- depends ultimately on the subject's epistemic perspective, that is, on the epistemic policies and methodological commitments endorsed by the subject. Now, these two notions of epistemic peerage give rise to two different kinds of disagreement. A Strong (peer) Disagreement is a disagreement between weak epistemic peers,

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[1] Nicolás Lo Guercio, "Philosophical Peer Disagreement," *Logos & Episteme* III, 3 (2012): 459-467.

[2] Lo Guercio, "Philosophical Peer Disagreement," 462.

namely, a disagreement between subjects with relevantly different epistemic perspectives. A Weak (peer) Disagreement, in turn, is a disagreement between strong epistemic peers, namely, a disagreement between subjects with a sufficiently similar epistemic perspective. Finally, I claimed that different doxastic reactions are required in each case: Strong (peer) Disagreement does not require a significant doxastic revision; in turn, Weak (peer) Disagreement requires a conciliatory response.

In a paper recently published in *Logos & Episteme*, Michele Palmira has presented some criticisms to these ideas.[3] Palmira begins by pointing out that in cases of peer disagreement it is relevant whether the agent involved in the disagreement believes that the other is an epistemic peer, and moreover, whether she has good reasons to do so. I cannot but grant the point here. I agree that whether an agent ought to incur in a doxastic revision in the face of peer disagreement partly depends on whether she believes (and has good reasons to believe) that the other is an epistemic peer, either a weak peer or a strong one. Having this in mind, I can reformulate my view. If an agent believes (and has good reasons to do so) that the party in the disagreement is a weak epistemic peer – namely, someone with a rather different epistemic perspective –, she ought not to significantly revise her beliefs. In turn, if the agent believes (and has good reasons to do so) that the party in the disagreement is a strong peer – namely, someone with a relevantly similar epistemic perspective – she ought to be conciliatory, that is, she ought to incur in a doxastic revision.

Now, that being said, let's move to what I take to be Palmira's main argument against my view. Consider Jennifer and Lucille. Jennifer is a professional philosopher and Lucille is a professional computer scientist. They are discussing what it takes to know a certain proposition. Faced with a Gettier example, they both have the intuition that the subject does not know the proposition in question. According to Palmira's interpretation of my view, this is enough to satisfy condition (2) of epistemic peerage, namely, that the subjects share the facts. Besides, Jennifer and Lucille consider each other equally thoughtful, intelligent, careful and honest. This means that condition (1) is also satisfied – i.e. they have (roughly) the same epistemic virtues. Finally, Jennifer takes intuitions to be philosophical evidence while Lucille does not. So, according to my view, they have different epistemic perspectives. Here the example goes a little more complex. Suppose now that Jennifer and Lucille are aware that a good conception of knowledge has to avoid the problem of skepticism. Lucille is familiar with

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[3] Michele Palmira, "On the Necessity of the Evidential Equality Condition For Epistemic Peerage," *Logos & Episteme* IV, 1 (2013): 113-123.

several arguments concerning skepticism. In particular, she is familiar with Putnam's 'Brain in a vat' scenario. Lucille also happens to be persuaded by Putnam's semantic solution to that problem. However, she isn't aware that Putnam's semantic solution does not affect certain versions of the 'Brain in a vat' scenario.[4] In turn, Jennifer is aware of this fact.

In light of this example, Palmira claims:

> ... I think that it would be too bald a contention to say that Jennifer takes Lucille to be her epistemic peer on the issue of knowledge. Indeed there is a clear epistemic difference between two subjects that seem to matter once we have to establish whether Jennifer shouldn't change her doxastic attitude after the discovery of disagreement with Jennifer. The epistemic difference lays in a different familiarity with the evidence about the problem of knowledge. Jennifer could (and should) maintain that her friend has underestimated the force of the skeptical challenge since she isn't aware of some crucial evidence, i.e. semantic externalism can't rule out some skeptical scenarios.[5]

The point of the example is that even if Jennifer and Lucille have different epistemic perspectives it still seems to be relevant whether they are acquainted with the same evidence. In the case at hand, the fact that Jennifer is aware that Lucille ignores some information relevant to assess the merits of certain conception of knowledge constitutes a good reason to deny the status of peer to Lucille.

The first point in my answer is the following. I do not claim that the only thing that counts in order to satisfy condition (2) – namely, that the agents share the facts – is that they have the same intuitions concerning the relevant issue. The debate over the evidential role of intuitions is a convenient example for illustrating the point that two philosophers may be acquainted with the same data while assigning a different evidential role to it, but of course intuitions seldom exhaust the data that the philosopher has in mind when forming a philosophical belief. In particular, the existence of 'Brain in a vat' scenarios where Putnam's semantic solution fails constitutes one of those facts (that if we assume, as Palmira seems to do, that intuitions have nothing to do with the relevance of 'Brain in a vat' scenarios for assessing a certain conception of knowledge – more on this below). Thus, according to my view, even if they share the intuitions concerning Gettier examples, Jennifer and Lucille do not share the whole facts, for Lucille is not acquainted with some piece information. Hence, if Jennifer is aware that

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[4] Crispin Wright, "On Putnam's Proof that We Are Not Brains In a Vat," *Proceedings of the Aristotelian society* 92 (1992): 67-94.

[5] Palmira, "On the Necessity of the Evidential Equality Condition," 118.

Lucille ignores the relevant 'Brain in a vat' scenarios, she will not take Lucille to be a peer, as Palmira contends. However, this is expected under my view, for condition (2) of epistemic peerage is not fully satisfied.

The second part of my answer concerns the difference in epistemic perspective between Jennifer and Lucille. Palmira affirms that under my view Jennifer and Lucille have relevantly different epistemic perspectives. This is because Jennifer takes intuitions to have an evidential role while Lucille denies intuitions such a status. However, it seems to be implicit in the example that both Jennifer and Lucille take 'Brain in a vat' scenarios to be evidence concerning the issue of skepticism and knowledge as well as for the merits of semantic externalism. Now, the 'Brain in a vat' scenario is a mental experiment. The way mental experiments work is the following: we take intuitions concerning counterfactual situations as relevant evidence in order to assess the merits of a certain concept, in this case, the concept of knowledge. So Palmira's example presupposes that both Jennifer and Lucille agree that intuitions concerning mental experiments as 'Brain in a vat' scenarios provide evidence relevant to assess the merits of a certain conception of knowledge. That means that Palmira's example presupposes that Jennifer and Lucille share the epistemic perspective as far as the role of intuitions is concerned, contrary to what Palmira himself claims-that is, that Jennifer and Lucille does not share the idea that intuitions provide evidence.

But let's ignore this problem for a moment. Let's assume that the relevance of mental experiments such as 'Brain in a vat' scenarios does not have to do with the intuitions raised by them. Even then, granting that Jennifer and Lucille's epistemic perspectives relevantly differ with regard to the evidential role they assign to intuitions does not mean that their perspectives are not similar concerning other features, for example, the evidential role of 'Brain in a vat' scenarios.[6] This fact provides us a good explanation of why Jennifer would probably deny Lucille the status of epistemic peer. Jennifer assumes that, were Lucille aware of the existence of the relevant 'Brain in a vat' scenario, she would consider it relevant evidence. Thus, Lucille lacks a significant piece of evidence (even from Lucille's perspective), and Jennifer knows it. Jennifer believes that, were Lucille acquainted with this datum, she would change her mind-or at least she would take it to have an evidential import. Jennifer denies Lucille the status of epistemic peer because she believes that Lucille does not currently believe what she would were she aware of all the relevant data.

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[6] It seems sufficiently clear to me that two philosophers can disagree concerning the evidential role of intuitions while agreeing concerning the evidential role of other kinds of data, for example, scientific theories.

Things would be different if Lucille had a different assessment of the evidential import of mental experiments such as 'Brain in a vat' scenarios in relation to the conception of knowledge. If Lucille believed that results of mental experiments are hardly determinant in assessing the merits of a certain conception of knowledge, and Jennifer were aware of this, it is not clear that Jennifer would deny Lucille even the status of weak epistemic peer. The reason is that, in that case, Jennifer knows that Lucille ignores an argument that she would not see as determinant evidence regarding the relevant issue. Thus, Jennifer knows that Lucille's doxastic state is not significantly different from what it would be if she was aware of the additional data. That is, Lucille does not ignore any significant argument (significant from Lucille's perspective).

Finally, consider now the following passage from Palmira's paper:

> As far as I can see, Jennifer has good reasons for not taking Lucille to be her epistemic peer at all. More generally, considerations about possession of evidence or lack thereof seem to be good candidates for playing the role of those epistemic reasons one can appeal to in order to adjudicate one's opponent's epistemic credentials.[7]

To be sure, my view does not entirely preclude considerations about the possession of evidence from playing a role in attributions of epistemic peerage. As long as I believe that my opponent takes certain datum to be evidence, the lack thereof becomes relevant as to whether I take him to be an epistemic peer. If the result of mental experiments constitutes determinant evidence both from my perspective and from my opponent's, I will not consider my opponent a peer if she is not aware of the relevant mental experiments. My point is just that, if the result of mental experiments does not constitute determinant evidence from my opponent's perspective, that she is not aware of some mental experiments is not sufficient for entirely denying her the status of epistemic peer. She would still be a weak epistemic peer.

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[7] Palmira, "On the Necessity of the Evidential Equality Condition," 118.

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