BEAT THE (BACKWARD) CLOCK[1]

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ABSTRACT: In a recent very interesting and important challenge to tracking theories of knowledge, Williams & Sinhababu claim to have devised a counter-example to tracking theories of knowledge of a sort that escapes the defense of those theories by Adams & Clarke. In this paper we will explain why this is not true. Tracking theories are not undermined by the example of the backward clock, as interesting as the case is.

KEYWORDS: Dretske, backward clock, knowledge, Nozick, Sinhababu, tracking theories, Williams

I. Introduction

In a recent very interesting and important challenge to tracking theories of knowledge, Williams & Sinhababu[2] claim to have devised a counter-example to tracking theories of knowledge of a sort that escapes the defense of those theories by Adams & Clarke.[3] In this paper we will explain why this is not true. Tracking theories are not undermined by the example of the backward clock, as interesting as the case is.[4]

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[2] John Williams and Niel Sinhababu, "The Backward Clock, Truth-Tracking, and Safety," *Journal of Philosophy* 112, 1 (2015): 46-55.
[3] Fred Adams and Murray Clarke, "Resurrecting the Tracking Theories," *Australasian Journal of Philosophy* lxxxiii, 2 (2005): 207-21.
[4] Tracking theories are also not undermined by the examples of Tristan Haze as we've argued elsewhere (Fred Adams and Murray Clarke, "Two Non Counterexamples to Truth-Tracking Theories of Knowledge," *Logos & Episteme. An International Journal of Epistemology* VII, 1 (2016): 67-73). We think similar problems face both the attempted counter-examples by Williams & Sinhababu and Tristan Haze, "Two New Counterexamples to Truth-Tracking Theories of Knowledge," *Logos & Episteme. An International Journal of Epistemology* VI, 3 (2015): 309-11.

The counter-example of Williams & Sinhababu (hereafter W&S) is aimed at the sensitivity condition of tracking theories. Knowledge may be obtained, on tracking theories of knowledge, when p is true, one believes that p on the basis of a reason R or method M, and one's reason R (Dretske)[5] or method M (Nozick)[6] is *sensitive* to the truth – i.e. if p were not true one would not believe that p via R or M.[7] One would not believe the false p because one's reasons R or method M would be truth-tracking when knowledge-conducive and would not lead one astray. So for example, when you start your car and look to see if the oil pressure is fine, if the pressure gauge is working properly, it would not show the pressure normal unless it was normal. When the gauge satisfies this condition, it is sensitive to the truth about the pressure in the running engine. Your reason for believing the oil pressure is normal is that the gauge says it is normal. Your method of forming beliefs about the oil pressure in your running engine is reading the pressure gauge. So you know the pressure is normal because via this means you are tracking the truth. Thus, your method of forming your belief is the procedure you use to acquire your reason for believing, and your reason affords you knowledge only if it is sensitive to the truth – it wouldn't obtain unless your belief were true. This sensitivity condition is at the heart of tracking theories of knowledge. So it is here that W&S strike.

The plan of W&S is to devise an example that satisfies the conditions of tracking theories, the truth condition, the belief condition, and the sensitivity condition, but that still is not a case of knowledge. If their example were to succeed, it would show that tracking theories of knowledge are too weak because they permit cases of accidentally true (and sensitive) belief that meet the sufficiency conditions of the theory. As we say, we shall argue that they are not correct and that tracking theories of knowledge escape their attempt at finding a counter-example.

II. Normal Clock

W&S use a series of clock-examples to work up to their backward clock example. In their first example, a normal clock, all tracking conditions are met.

> You habitually nap between 4 pm and 5 pm. Your method of ascertaining the time you wake is to look at your clock, one you know has always worked

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[5] Fred Dretske, "Conclusive Reasons," *Australasian Journal of Philosophy* 49 (1971): 1-22.
[6] Robert Nozick, *Philosophical Explanations* (Cambridge, M.A. Harvard University Press, 1981).
[7] We will not discuss Nozick' s *adherence* condition, as it is not relevant to the example of W&S. Our formulation of the sensitivity condition is designed to emphasize the similarities between the formulations of Dretske and Nozick.

perfectly reliably. This clock is analogue so its hands sweep its face continuously. However, it has no second hand. Awaking at 4:30 pm, you see that its hands point to 4:30 pm. Accordingly, you form the belief that it is 4:30 pm. And it is indeed 4:30 pm because the clock has continued to work perfectly reliably.

Here you believe the truth and your belief-forming method is 'looking at the clock,' or, more precisely, 'looking at the clock and determining what it says.' This method is sensitive to the truth, for the clock wouldn't say what is says if the correct time weren't 4:30 p.m. Hence, all conditions of the tracking theories are met and there is no counter-example.[8]

III. Stopped Clock

In the second example, going back to Russell,[9] they use the example of the stopped clock.

> You habitually nap between 4 pm and 5 pm. Your method of ascertaining the time you wake is to look at your clock, one you know has always worked perfectly reliably. Like Normal Clock, it has an analogue design so its hands are supposed to sweep its face continuously. However, it has no second hand. Awaking at 4:30 pm, you see that its hands point to 4:30 pm. Accordingly, you form the belief that it is 4:30 pm. And it is indeed 4:30 pm because exactly twenty-four hours ago a stray fleck of dust chanced to enter the clock's mechanism, stopping it.

This is not offered as a counter-example to tracking theories. W&S hold that you do not know that it is 4:30 p.m., and we agree with this assessment. Since the clock has stopped, it no longer *says* anything, even though it continues to *display* '4:30.' In this case your method cannot consist in 'looking at the clock and determining what it *says*,' for it says nothing. Rather, your method consists in 'looking at the clock and determining what it *displays*,' and this method isn't sensitive to the truth – the clock would display '4:30' even if the correct time weren't 4:30. Of course, you do not know that the clock has stopped or you would not form a belief about the time on the basis of what it displays.

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[8] Actually there is a bit of a problem here that will be important when we get to the backward-clock example. There is no second-hand. So one cannot use this clock to know when it is exactly 4:30. The best one could know is that it is approximately or nearly 4:30.

[9] Bertrand Russell, *Human Knowledge: Its Scope and Limits* (New York: Simon & Schuster, 1948).

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IV. Backward Clock

This is the example that W&S claim is a counter-example to tracking theories of knowledge. They argue that it satisfies the conditions of the theory but that the subject does not have knowledge. So the theory must be too weak.

> You habitually nap between 4 pm and 5 pm. Your method of ascertaining the time you wake is to look at your clock, one you know has always worked perfectly reliably. Unbeknownst to you, your clock is a special model designed by a cult that regards the hour starting from 4 pm today as cursed, and wants clocks not to run forwards during that hour. So your clock is designed to run perfectly reliably backwards during that hour. At 4 pm the hands of the clock jumped to 5 pm, and it has been running reliably backwards since then.

W&S believe that this example is a counter-example because they believe it fits all of the conditions of tracking theories. The belief that it is 4:30 p.m. is true. It is believed true. And the belief is sensitive to the truth because, given the way this clock works, even though it is running backwards from 4:00 p.m. to 5:00 p.m., since it starts running backward from '5:00' (at 4:00 p.m.), by 4:30 p.m. the clock will say it is '4:30' p.m. And given the way the clock works, it wouldn't say '4:30' unless it was 4:30.[10]

Now there are several reasons why we maintain that this is not a counter-example to tracking theories of knowledge. We shall now go through those reasons.

V. Not a Counter-Example

First, there is no second-hand on the clock. We suspect that they designed all the examples this way because they thought that if a subject observed the backward clock second-hand going backwards, the subject might not trust the clock. The subject might not believe what the clock says. But since the subject cannot see when the second-hand hits '12,' the subject could never use this clock to know that it is exactly 4:30 p.m. Hence, this is a serious defect in their example. At best one could know that it is approximately or nearly 4:30 p.m. (perhaps within one minute). But we agree with W&S that one will not even know this by using this clock.

Second, W&S say that the reason one lacks knowledge in the backward-clock example is: "We claim that Backward Clock is not a case of knowledge because (as in Stopped Clock) your belief that it is 4:30 pm is luckily true." We

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[10] Actually, it would. It would display '4:30' twice a day. So it would display it was 4:30 (p.m.) even if it were 4:30 a.m. It is totally ambiguous between a.m. and p.m. when it displays '4:30.'

will take this to mean that the belief is accidentally true. Now if true, where does the accident occur? There are two possibilities. It could happen between the time and the reading on the clock. Or it could happen between the reading on the clock and the truth of the belief of the believer. Actually, we believe there is accident on both sides of this causal chain, as we will now explain.

Our third point concerns W&S's description of the clock: "Unbeknownst to you, your clock is a special model designed by a cult that regards the hour starting from 4 pm today as cursed, and wants clocks not to run forwards during that hour. So your clock is designed to run perfectly reliably backwards during that hour." This rather vague description of the clock lends itself to at least two interpretations. The most plausible interpretation is that the clock was designed to deceive viewers during the cursed hour – the clock was, so to speak, designed to say something false, i.e., to *lie*, about the time during this hour. A second, less plausible, interpretation is that the clock was designed to be used by cult members as a 'countdown' clock for the period between 4:00 and 5:00. The clock enabled members to ascertain the correct time during the cursed hour, but wasn't intended to be viewed by the general public, and wasn't designed to deceive anyone. Perhaps cult members would have been chagrined to learn that one of their special clocks was in the possession of someone who didn't belong to the cult.

Before focusing on the first interpretation, we pause to note that on the second interpretation, the Backward Clock case is basically a 'non-starter.' The ordinary person, call her Betty, would be unable to determine what the clock is saying during the hour between 4:00 and 5:00. When the clock displays '4:35,' it is saying that the correct time is 4:25, and when it displays '4:25,' it is saying that the correct time is 4:35. It so happens that when the clock displays '4:30,' it is saying that the correct time is 4:30, but Betty would have no way of telling that this is what it is saying. She would form the belief that it is 4:30, but in virtue of the fact that she wouldn't understand what the clock is saying, it would be merely a chronometric accident or a coincidence that this belief would be true.

In the remainder of this paper we'll focus on the most plausible interpretation, that is, that the clock was designed by the cult clockmakers to deceive viewers during the cursed hour. Unlike an ordinary clock, which is designed to say what the correct time is, the cult clock was designed to say something false about the time, i.e., to 'lie' about the time. The scheme that the lying clockmaker – call him Ted – adopted to achieve this aim was making the clock run backwards from 4:00 to 5:00. But his scheme was flawed, for it failed to say something false about the time at 4:30. He could easily have eliminated this flaw, say, by making the clock run more slowly to ensure that it wouldn't display

the correct time at any point during the hour. Granted, Ted wasn't a perfect liar. But his mistake wouldn't enable you to learn the correct time at 4:30. As Dretske pointed out, "If your reasons for believing P are such that you might have them when P is false, then they aren't good enough to know that P is true. You need something more... That is why you can't learn – can't come to know – that P is true if all you have to go on is the word of a person who might lie about whether or not P is so. This is just another way of saying that knowledge requires reasons or evidence (in this case, testimony) you wouldn't have if what you end up believing were false. You can learn things from people, yes, but only from people who wouldn't say it unless it were true."[11] The clock in the Normal Clock case wouldn't have said that the time was 4:30 by displaying '4:30' if it hadn't been 4:30. Ted's clock, however, might have done this even if it hadn't been 4:30.

Fourth, there is an accidental connection between the clock display and the belief of the subject awakening from the nap. For any time other than exactly 4:30, the subject's belief during that hour-long period will be false. Why? Because the clock lies for all but one moment during that hour-long period. And worst of all, there is nothing in the signal sent by the clock to differentiate when it is telling the false time from when it is telling a true time.

This should remind one of the "little boy who cried 'wolf.'" The boy cries 'wolf' over and over when there is no wolf. Then on the one occasion when there is a wolf and he cries 'wolf,' his cry has become so equivocal, no one can tell from his cry that a wolf is actually there on that one occasion. His cry of 'wolf' still means wolf, but it does not carry the information that there is a wolf.[12] Similarly, the clock's face emits false testimony for 59 minutes during that hour from 4:00 to 5:00. There is no way that one could tell from this equivocal messenger which clock display (if any) expresses a truth rather than a falsity.

Now W&S will no doubt insist "but at 4:30, it is still true that it would not display '4:30' unless it were actually 4:30." Consider the following. Suppose the boy who cried 'wolf' figured out that if he keeps saying 'wolf' when there is no wolf, then if ever there actually is a wolf, no one will come when he cries 'wolf.' So after his last prank cry he adopts the new policy that he won't cry wolf again unless there actually is a wolf. Then the wolf shows and he cries 'wolf.'

The problem is that although the conditions have now changed and now, as opposed to before, he would not cry 'wolf' unless there was a wolf, no one hearing

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[11] Fred Dretske, "Reply to Hawthorne," in *Contemporary Debates in Epistemology*, ed. Matthias Steup and Ernest Sosa (Malden: Blackwell, 2005), 43-46.

[12] Fred Dretske, *Knowledge and the Flow of Information* (Cambridge, M.A.: MIT/Bradford, 1981).

his cry could discriminate the change of circumstances. His new cry will be just as equivocal now as it was before. Perhaps if his cries changed in tone or pitch or frequency, this would carry information that it was *for real*, but barring that there would be no way to tell.

On the clock face there is nothing to distinguish its '4:30' display from the other displays between 4:00 and 5:00. So even if it is true that it would not display '4:30' unless it were 4:30, there is no way on earth for a naïve subject viewing its face to discriminate the difference of contexts. The clock-viewer is getting just as equivocal a message from the clock as those hearing the little boy cry 'wolf' *after his decision not to cry unless there really is a wolf.* So even if a shepherd for some reason only heard the cry after the boy changed his *modus operandi*, the shepherd would not know there was a wolf precisely because there was nothing in the signal to differentiate the change in contexts (that the boy changed his *modus operandi*).

So, returning to the clock, while the person waking from the nap happens to acquire a true belief that it is 4:30, the clock's display is equivocal even if the clock wouldn't display '4:30' unless the time were 4:30. No naïve reader could differentiate the true from the false clock displays during that hour. So if the subject acquires a true belief it is doubly lucky/accidental. For there is luck/accident in the link from the actual time to the clock's displaying 4:30, and there is luck/accident in the link from the clock's displaying 4:30 to the subject's belief. Hence, the reason the subject lacks knowledge is that neither the clock nor his belief is tracking the truth. His belief is that it is 4:30, and it happens to be 4:30. But it is not the case that he believes it is 4:30 *because* it is 4:30 – his believing it to be 4:30 is not explained by the fact that it is 4:30. For all 'X' between '4:00' and '5:00,' it is false the clock would not display 'X' unless the time were X. So the method (or reason) that gives rise to the subject's belief is not a truth-tracking method (or reason), for it is too equivocal to yield knowledge.

VI. Possible Reply by Williams & Sinhababu

When Adams & Clarke[13] defended tracking theories of knowledge, we pointed out that the sensitivity condition is relativized to a reason R or a belief-forming method M and these are also relativized to one's environmental circumstances C. So a functioning compass can tell you where geomagnetic north is, but not down in a mineshaft. A mercury thermometer can tell you your child's temperature, but

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[13] Fred Adams and Murray Clarke, "Resurrecting the Tracking Theories," *Australasian Journal of Philosophy* 83, 2 (2005): 207-221.

only if you shake it down before re-use. Reasons and methods work in some circumstances and under some conditions, but not under others.

In our defense of tracking theories against the example of the backward clock, we have presupposed that one's method for forming the belief that it is 4:30 is looking at the clock and determining what it says, and one's reason for believing that it is 4:30 is the clock's saying that it is 4:30.

Now we suspect that W&S will respond that the method was not that. They may insist that the method was 'looking at the clock at 4:30.'[14] The reason the nap-taker believed it was 4:30 p.m. is that he looked at the clock at 4:30 p.m. However, we maintain that this may be the cause of the nap-taker's belief, but it is hardly the evidential reason why he believes it is 4:30.[15]

First, the only way he comes to believe it is 4:30 is by looking at the clock and determining what it says. He evidentially does not believe it is 4:30 by looking at the clock at 4:30 and determining what it says. That is evidentially circular. If he knew to look at the clock at 4:30, he would not need the clock.

Second, if one asked, "why did you believe it was 4:30?" he would answer "because the clock said so." He would not answer, "because at 4:30 the clock said so." Clearly, his reason or method of belief-formation was "looking at the clock, and determining what it said, period," and as we have pointed out, that method is not a truth-tracking method in the backward-clock case. Using that method, it is sheer accident/luck that one's belief comes out true, even at 4:30. This is why tracking theories would say that one does not know in the case of the backward clock, and it is why the example is not a counter-example to tracking theories.

VII. Conclusion

We have examined the purported counter-example to tracking theories offered by W&S. The backward-clock example is clever, interesting, and important. We have argued that the example is not a counter-example because on tracking theories themselves the belief is too accidentally true to count as an example of knowledge. We have explained why the sensitivity condition is not met in the example, despite the arguments of W&S to the contrary. The belief-forming method in the

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[14] When Adams presented our reply to them in person in March 2016, they gave this response.

[15] Independently, we realized that if one restricts the method to reading the clock at precisely 4:30 in order to make the counterfactual true, then W&S would appear to have trouble rejecting that one knows in the case of stopped clock. Peter Baumann in correspondence confirmed our suspicion saying: "W&S would have to argue, by parity of reasons, that the subject in the stopped clock case also knows the time according to Sensitivity (don't they use the method of looking at the clock at THAT time?). But this would be based on a caricature of Sensitivity."

example is not a truth-tracking method. The evidence upon which the belief is formed is equivocal. There is not enough information in the evidence to differentiate the true from the false clock readings. One's belief is not formed on the basis of a sensitive method or reason – hence one's belief (though true) does not track the truth.[16] For this reason, one does not know that it is 4:30 p.m. and tracking theories of knowledge agree that one does not know. Thus, there is no counter-example.

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[16] Again we thank Peter Baumann for pointing out: "It seems to me that W&S are working with a conception of belief-sensitivity (this belief would not be tokened if it were false) while you're working with a conception of method-sensitivity (no (or almost no, etc.) beliefs from set X would be tokened if false). I think Sosa and Pritchard have, under pressure from counter-examples, made a similar move for their safety theories."