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STILL STUCK ON THE BACKWARD CLOCK: A REJOINDER TO CLARKE, ADAMS AND BARKER

John N. WILLIAMS

ABSTRACT: Neil Sinhababu and I presented *Backward Clock*, an original counterexample to Robert Nozick's truth-tracking analysis of propositional knowledge. In their latest defence of the truth-tracking theories, "Methods Matter: Beating the Backward Clock," Murray Clarke, Fred Adams and John A. Barker try again to defend Nozick's and Fred Dretske's early analysis of propositional knowledge against *Backward Clock*. They allege failure of truth-adherence, mistakes on my part about methods, and appeal to charity, 'equivocation,' reliable methods and unfair internalism. I argue that these objections all fail. They are still stuck with the fact that the tracking theories fall to *Backward Clock*, an even more useful test case for other analyses of knowledge than might have first appeared.

KEYWORDS: sensitive belief, extra-sensitive belief, sensitive methods, truth-adherence, reliable methods, Backward Clock

In a seminal paper, "Resurrecting the Tracking Theories," Fred Adams and Murray Clarke argued persuasively and ingeniously that a number of well-known examples that appear clearly fatal to Robert Nozick and Fred Dretske's truth-tracking analyses of knowledge are not really counterexamples at all.¹ These include Ray Martin's *Racetrack*, George Pappas and Marshall Swain's *Generator*, and Laurence Bonjour's *Clairvoyant*,² as well as Saul Kripke's *Red Barn*, his *Deceased Dictator*, and his *Sloppy Scientist*.³ So taken was I with this defence that I assumed that the truth-tracking analyses were impregnable. Until that is, Neil

¹ Fred Adams and Murray Clarke, "Resurrecting the Tracking Theories," *Australasian Journal of Philosophy* 83, 2 (2005): 207-221.

² See Raymond Martin, "Empirically Conclusive Reasons and Scepticism," *Philosophical Studies* 28, 3 (1975): 215-217; "Tracking Nozick's Sceptic: A Better Method," *Analysis* 43, 1 (1983): 28-33; George S. Pappas and Marshall Swain, "Some Conclusive Reasons against 'Conclusive Reasons'," *Australasian Journal of Philosophy* 51, 1 (1973): 72-76; and Laurence Bonjour, "Externalist Theories of Empirical Knowledge," *Midwest Studies in Philosophy* 5, 1 (1980): 53-74.

³ Kripke gave these widely known examples at a session of the American Philosophical Association in the 1980s.

John N. Williams

Sinhababu and I hit upon a counterexample with a special feature. In “The Backward Clock, Truth-Tracking, and Safety,” we presented *Backward Clock*, an original counterexample to Robert Nozick’s truth-tracking analysis of propositional knowledge.⁴ We showed that analyzing knowledge in terms of three formulations of safe belief cannot withstand *Backward Clock* either. In their reply, “Beat the (Backward) Clock,” Fred Adams, John A. Barker and Murray Clarke gave reasons why *Backward Clock* is not a counterexample.⁵ In my rejoinder, “There’s Nothing to Beat a Backward Clock: A Rejoinder to Adams, Barker and Clarke,” I argued that these reasons fail and argued that *Backward Clock* shows that Dretske’s early analysis of knowledge is too weak as well.⁶ In their latest defence of the truth-tracking theories, “Methods Matter: Beating the Backward Clock,” Clarke *et al* try again to extricate themselves from the failure of the truth-tracking analyses.⁷ I believe that this attempt fails. They are still stuck with the *Backward Clock* because they have got stuck on it. As Shakespeare might have said of it, “nothing ‘gainst Time’s scythe can make defence.”⁸

1. Nozick’s Analysis of Knowledge and the Backward Clock

Nozick’s analysis of propositional knowledge is as follows.

S knows that *p*, using method *M* of arriving at a belief whether *p*, just in case

- (1) *p*.
- (2) *S* believes, using *M*, that *p*.
- (3) In the closest (that is, most similar) worlds to the actual world in which not *p* (and in which *S* uses *M*), *S* does not believe that *p*.
- (4) In the closest (that is, most similar) worlds to the actual world in which *p* (and in which *S* uses *M*), *S* believes that *p*.⁹

⁴ John N. Williams and Neil Sinhababu, “The Backward Clock, Truth-Tracking, and Safety,” *Journal of Philosophy* 112, 1 (2015): 46-55.

⁵ Fred Adams, John A. Barker, and Murray Clarke, “Beat the (Backward) Clock,” *Logos & Episteme* VII, 3 (2016): 353-361.

⁶ John N. Williams, “There’s Nothing to Beat a Backward Clock: A Rejoinder to Adams, Barker and Clarke,” *Logos & Episteme* VII, 3 (2016): 363-378.

⁷ Murray Clarke, Fred Adams, and John A. Barker, “Methods Matter: Beating the Backward Clock,” *Logos & Episteme* VIII, 1 (2017): 99-112.

⁸ Sonnet 12.

⁹ This formulation is faithful to Nozick, although it is not *verbatim*. In *Philosophical Explanations* (Cambridge, MA: Harvard University Press, 1981), 179, he says the following.

Let us define a technical locution, *S* knows, via method (or way of believing) *M*, that *p*.

(3) is commonly known as the ‘sensitivity condition,’ meaning that *S*’s belief that *p* is sensitive to falsehood; roughly, she would not have that belief if it were false. (4) is commonly known as the ‘adherence condition,’ meaning that *S*’s belief that *p* adheres to the truth; roughly, were she to have that belief in slightly changed circumstances, then it would still be true. A belief that is both sensitive to falsehood and adherent to truth is said to be ‘truth-tracking.’

In my rejoinder to Adams *et al*, I showed that *S* does not know that *p* in *Backward Clock*, but that this example satisfies (1)-(4), thus showing that Nozick’s analysis, as given above, is too weak, predicting knowledge where there is ignorance. In order to support this claim, I first gave two other examples, *Normal Clock* and *Stopped Clock*.¹⁰ I *originally* described *Normal Clock* as follows.

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. 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.¹¹

In their latest defence, Clarke *et al* countenance this as claiming that your method is “looking at the clock and determining what it says.”¹² As I said in my rejoinder, this is not what I stipulated.¹³ Your method of ascertaining the time you wake is to observe, during the period from 4:00 pm to 5:00 pm (since that is the period during which you nap, not knowing when you will wake) the position of its hands. To try to make this perfectly clear, here is my *current* formulation of *Normal Clock*.

You habitually nap between 4:00 pm and 5:00 pm. Your method of ascertaining the time you wake is to observe, between 4:00 pm and 5:00 pm, the position of

(1) *p* is true.

(2) *S* believes, via method or way of coming to believe *M*, that *p*.

(3) If *p* weren’t true and *S* were to use *M* to arrive at a belief whether (or not) *p*, then *S* wouldn’t believe, via *M*, that *p*.

(4) If *p* were true and *S* were to use *M* to arrive at a belief whether (or not) *p*, then *S* would believe, via *M*, that *p*.

Although this formulation does not explicitly mention possible worlds, Nozick is clear that his subjunctives (3) and (4) can be expressed as mine and announces that he will sometimes use them that way (*Philosophical Explanations*, 173-174).

¹⁰ Williams, “Nothing to Beat,” 365-366.

¹¹ Williams, “Nothing to Beat,” 365.

¹² Clarke, Adams, and Barker, “Methods Matter,” 360.

¹³ Williams, “Nothing to Beat,” 376, note 39.

John N. Williams

the hands of your clock, one you know has always worked 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.

In what follows, by “*Normal Clock*” I denote this current formulation.

Your true belief that it is 4:30 pm is sensitive to falsehood. Were it to be any time other than 4:30 pm when you observe the position of the hands of your clock, then you would not believe that it is 4:30 pm. Your true belief that it is 4:30 pm is also truth-adherent. Were you to observe the position of the hands of your clock at 4:30 pm while being slightly closer to it, then you would still believe that it is 4:30 pm. So far so good for Nozick’s analysis, because surely you do know that it is 4:30 pm.

Then I *originally* described *Stopped Clock* as follows.

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.¹⁴

In order to maximise parity with *Normal Clock*, here is my *current* formulation of *Stopped Clock*.

You habitually nap between 4:00 pm and 5:00 pm. Your method of ascertaining the time you wake is to observe, between 4:00 pm and 5:00 pm, the position of the hands of your clock, one you know has always worked 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 exactly twenty-four hours ago a stray fleck of dust chanced to enter the clock’s mechanism, stopping it.

In what follows, by “*Stopped Clock*” I denote this current formulation.

Your belief that it is 4:30 pm is insensitive to falsehood. If it were not 4:30 pm but some other time, then by observing the position of the hands of your clock you would still believe—but then falsely—that it is 4:30 pm. This is more good news for Nozick’s analysis, since surely you do not know that it is 4:30 pm. One

¹⁴ Williams, “Nothing to Beat,” 365.

very plausible explanation of your ignorance is that your belief is luckily true. You were lucky to look at the clock exactly twenty-four hours after it stopped working, at the only instant during the hour when you nap at which its hands could have pointed to the correct time.

I then *originally* described *Backward Clock* as follows.

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. This clock is analogue so its hands sweep its face continuously, but it has no second hand so you cannot tell that it is running backwards from a quick glance. Awaking, you look at the clock at exactly 4:30 pm and observe that its hands point to 4:30 pm. Accordingly, you form the belief that it is 4:30 pm.¹⁵

In their reply, Adams *et al* mounted objections to my argument that this example shows that Nozick's analysis fails. One of these was premised upon assumptions about the intentions of the cult in designing the clock.¹⁶ In my rejoinder I pointed out that as a counterexample to Nozick's analysis, the intentions of its designers is an inessential feature.¹⁷ I observed that;

... we could dispense with the cult entirely and stipulate that a bug in the programming of the microchip circuit of your clock causes it run perfectly reliably backwards from 5:00 pm to 4:00 pm during a particular hour.¹⁸

In order to try to make this perfectly clear, and at the same time maximise parity with *Normal Clock* and with *Stopped Clock*, here is my *current* formulation of *Backward Clock*.

You habitually nap between 4:00 pm and 5:00 pm. Your method of ascertaining the time you wake is to observe, between 4:00 pm and 5:00 pm, the position of the hands of your clock, one you know has always worked 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 unbeknownst to you, the clock has continued to work perfectly reliably until 4.00 pm, when a bug in the programming of its microchip circuit caused its

¹⁵ Williams, "Nothing to Beat," 366-367.

¹⁶ Adams, Barker, and Clarke, "Beat the Clock," 357.

¹⁷ Williams, "Nothing to Beat," Section 3 "The Irrelevant Intentions of the Cult", 370-372.

¹⁸ Williams, "Nothing to Beat," 372.

John N. Williams

hands to jump to 5:00 pm and then run perfectly reliably backwards from 5:00 pm to 4:00 pm.

In what follows, by “*Backward Clock*” I denote this current formulation.

Your belief that it is 4:30 pm is luckily true, for you were lucky to observe the position of the hands of your clock at exactly 4:30 pm, at the only instant during the hour when you nap at which its hands could have pointed to the correct time. Thus you do not know that it is 4:30 pm any more than you do in *Stopped Clock*. Your belief also satisfies (4), in other words, is truth-adherent. If you were to observe the position of the hands of your clock at 4:30 pm while being slightly closer to it, then you would still believe that it is 4:30 pm.

But your belief that it is 4:30 pm is also sensitive to falsehood. If it were not 4:30 pm but some other time, then by observing the position of the hands of your clock you would not believe that it is 4:30 pm. Instead you would form *some other false belief* about what time it is. For example, if you were to observe the position of the hands of your clock at 4:31 pm, then you would not form the false belief that it is 4:30 pm. Instead you would form the false belief that it is 4:29 pm. Thus Nozick’s analysis, as formulated above, is too weak, predicting knowledge where there is ignorance.

2. No Failure of Adherence

I will now examine Clarke *et al*’s current objections, although not in any order they give them. This will prove to be a lengthy business. They now concede that your belief that it is 4:30 pm in *Backward Clock* is not sensitive to falsehood. Of your method of ascertaining the time that you wake, namely observing between 4:00 pm and 5:00 pm, the position of the hands of your clock (or as they more inaccurately put it “reading what the clock displays”¹⁹), they say the following.

... the method employed will generate false beliefs and so your *beliefs* will be *insensitive* to the truth-value of p for all values of p *other than 4:30*. (my italics)²⁰

Instead they attempt a new objection to my argument that *Backward Clock* counterexamples Nozick’s analysis. In their reply they conceded that “Nozick’s adherence condition ... is not relevant to the example.”²¹ Now they repudiate their concession and argue that your belief in *Backward Clock* that it is 4:30 pm is not truth-adherent. They say that

¹⁹ Clarke, Adams, and Barker, “Methods Matter,” 102.

²⁰ Clarke, Adams, and Barker, “Methods Matter,” 102.

²¹ Adams, Barker, and Clarke, “Beat the Clock,” 354, note 7.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

This is because satisfying the adherence condition requires something much stronger than mere true belief, it requires that if it were 4:30 (in other circumstances) then one would believe that it was 4:30 p.m.²²

So far so good. We would all agree. But now they immediately make the startling claim, “But this is exactly what is not the case with the Backward Clock.”²³

We would do well to remember how I described *Backward Clock*. This was—in parity with the other two clocks—that you counterfactually observe the position of its hands while being *slightly closer* to it. These other circumstances or worlds are pretty close to the actual world as we have imagined it. The logical and physical changes we would have to make to them seem minimal. These count as ‘slightly changed’ circumstances. In these you still believe that it is 4:30 pm. They continue as follows.

As we pointed out: “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.”²⁴

They did indeed claim this.²⁵ What they now ignore is the fact that in my rejoinder I showed that this claim is false. I pointed out that;

Your observation of the position of its hands, itself determined by their actual position, together with your understanding of how such positions represent time and your knowledge that your clock has always worked perfectly reliably, is what makes you believe that it is 4:30 pm.²⁶

To elaborate on this point, in slightly changed circumstances in which you observe the position of the hands of your clock while being slightly closer to it than you actually are, the fact that it is 4:30 pm, together with actual temporal processes still in operation and the mechanism of your clock, causes its hands to point to 4:30 pm. In turn, its hands pointing to 4:30 pm, together with your reliable visual perception of their position and your knowledge of how such positions represent the time, causes you to believe, at 4:30 pm, that it is 4:30 pm. The formation at 4:30 pm of your belief that it is 4:30 pm is indeed to be explained, albeit partly, by the fact that it is 4:30 pm. This is all equally true of *Normal Clock*.

²² Clarke, Adams, and Barker, “Methods Matter,” 102.

²³ Clarke, Adams, and Barker, “Methods Matter,” 102.

²⁴ Clarke, Adams, and Barker, “Methods Matter,” 102.

²⁵ Adams, Barker, and Clarke, “Beat the Clock,” 359.

²⁶ Williams, “Nothing to Beat,” 373.

Alvin Goldman would agree. For him, *S* knows that *p* just in case the fact that *p* is causally connected in an “appropriate” way with *S*’s believing that *p*. The simplest appropriate causal connection is that the fact that *p* (that it is 4:30 pm) initiates a chain of causes that terminate in *S*’s believing that *p*.²⁷

Besides, I fail to see what explanation has to do with the satisfaction of Nozick’s adherence condition. To decide whether the adherence condition is satisfied we are to imagine slightly changed circumstances in which the content of *S*’s belief remains true and then decide whether *S* would still have that belief in these close-to-actual circumstances. No appeal to explanation is required.

Clarke *et al* now continue as follows.

The signal is too equivocal to be reliable in other circumstances since the clock might have been made not to read 4:30 even if it was 4:30 and so one would not believe that *P* though *P* is true.²⁸

Again they talk of a signal as being ‘equivocal’, as they did in their reply.²⁹ Let us postpone examination of what this might mean until Section 5. A new idea has now appeared in their latest defence of Nozick, namely reliability. I will show in Section 6 that a reliabilist treatment of the truth-tracking analysis does them more harm than good. This leaves us with their claim that “the clock might have been *made* not to read 4:30 even if it was 4:30” (my italics). They now continue as follows.

Suppose, for instance, the *clock shuts off* at 4:30 for one minute but otherwise reliably runs backwards from 5 until 4. You wake up, look up, see no time *on display*, and suspend judgement on the time for that minute. In such a possible world, *P* is true but you don’t believe that *P* and so condition 4 is not satisfied. We deny, therefore, that condition four is satisfied concerning the Backward Clock Case (my italics).³⁰

But these do not count as ‘slight changes’ to the circumstances that we were supposed to imagine as actual. The *actual* circumstances that we were supposed to imagine are those in which you *habitually* nap between 4:00 pm and 5:00 pm and observe the position of the hands of your *analogue* clock in order to ascertain the time you wake. So the circumstances that we are supposed to imagine as actual are those in which you habitually observe the positions of the hands of an *analogue* clock. You actually wake at 4:30 pm and observe the position of the hands. Clarke

²⁷ Alvin I. Goldman, “A Causal Theory of Knowing,” *Journal of Philosophy* 64, 12 (1967), 369.

²⁸ Clarke, Adams, and Barker, “Methods Matter,” 102.

²⁹ For example, “...the clock’s display is equivocal even if the clock wouldn’t display ‘4:30’ unless the time were 4:30” (Adams, Barker, and Clarke, “Beat the Clock,” 358-359).

³⁰ Clarke, Adams, and Barker, “Methods Matter,” 102.

et al now invite us to suppose that counterfactually, you wake at 4:30 pm and observe a *digital* clock that displays nothing at all. This is a pretty far out change of circumstances! You would be very surprised to discover that the analogue clock that you habitually use has suddenly changed to a digital clock. You would ask yourself what had happened to the hands. You might be well advised under such circumstances to down a stiff whiskey and then resume your nap—or if that does not help, to call a 24-hour horologist or even a psychiatrist. Who knows what you would believe or not believe?

Moreover, the actual circumstances we were supposed to imagine are those in which a bug in the programming of the microchip circuit of your clock caused its hands to jump to 5:00 pm and then run perfectly reliably backwards from 5:00 pm to 4:00 pm. Clarke *et al* invite us to suppose that these actual circumstances are changed to those in which your clock was *made* such that at 4:00 pm it displays 5:00 pm and then runs perfectly reliably backwards from 5:00 pm until 4.30 pm when it stops until 4:31 pm, when it recommences running perfectly reliably backwards to 4:00 pm. These do not count as ‘slight changes’ to the circumstances that we were supposed to imagine as actual either. In the circumstances that we were supposed to imagine as actual, the clock is not *made* or *designed* to run backwards, but runs backwards due to a *bug* in the programming of its microchip circuit. To make this point more salient, I am free to stipulate that in all three clocks, the mechanism was designed to operate as *Normal Clock*, but that in *Backward Clock*, exactly twenty-four hours before you wake at 4:30 pm, a stray fleck of dust chanced to enter the clock’s mechanism initiating corrosion to its microchip circuit that created a bug in its programming that caused its hands to jump to 5:00 pm and then run perfectly reliably backwards from 5:00 pm to 4:00 pm. On this stipulation, the mechanisms of both *Backward Clock* and *Stopped Clock* actually operate the way that they do, *not by design but by luck*. Talk of design or intentions of designers is simply irrelevant.

I asked you to suppose that instead of observing the position of the hands of your clock while being close to it with its *Backward Clock* mechanism unchanged, you are counterfactually slightly closer to it. In stark contrast, Clarke *et al* invite you to suppose that that instead of observing the position of the hands of your clock while being close to it with its *Backward Clock* mechanism unchanged, its mechanism is counterfactually changed. The mechanism is to be changed to a combination of the mechanisms of *Backward Clock* and *Stopped Clock* with *Stopped Clock* sandwiched for a minute at 4.30 pm inside *Backward Clock*. Let us call a clock with this mechanism *Stopped Clock Sandwiched in Backward Clock*. But this is not changing the mechanism of *Backward Clock* but changing

John N. Williams

Backward Clock to a different clock, namely *Stopped Clock Sandwiched in Backward Clock*. After all, a clock is essentially its mechanism. This is why they bear names such as “*Normal Clock*,” “*Stopped Clock*” and “*Backward Clock*” rather than say, “*Red Clock*,” “*Blue Clock*” or “*Green Clock*.” Clarke *et al* are inviting us to change the *actual* case we were supposed to imagine. But to test adherence we need only make *counterfactual* changes to the case we were supposed to imagine as actual. Clarke *et al* do not have the luxury to change my examples to suit them.

Another way to look at this is that Clarke *et al* invite us to start with the actual circumstances of *Backward Clock*, but in deciding whether the adherence condition is satisfied, change *Backward Clock* to *Stopped Clock Sandwiched in Backward Clock* while still calling it “*Backward Clock*.” While calling them by their original names, they shuffle different clocks under those names. This is reminiscent of the trick with three upside-down cups. The trickster shows these as empty and then places one over a coin and shuffles the cups, invariably leading his dupe to guess incorrectly which cup covers the coin.

Besides, if Clarke *et al* are allowed to change the mechanism in testing adherence in *Backward Clock*, then I should be allowed to do the same in *Normal Clock*. I originally invited you to suppose that instead of observing at 4:30 pm the position of the hands of your clock while being close to it with its forward-running mechanism unchanged, you are counterfactually slightly closer to it. But now it seems, I am allowed to suppose that instead of observing at 4:30 pm the position of the hands of your clock while being close to it with its forward-running mechanism unchanged, you observe at 4:30 pm the position of the hands of your clock with its mechanism counterfactually changed. In these ‘slightly changed’ circumstances it might have a mechanism that stopped at 4:15 pm or a mechanism that at 4:00 pm made the hands of your clock jump to 5:00 pm and then run backwards more slowly so that its hands never point to the correct time during the hour that you nap. In these circumstances the hands do not point to 4:30 pm when at 4:30 pm you observe the position of its hands. So you do not believe that it is 4:30 pm. Adherence fails. This predicts ignorance where there is knowledge. Two can play at the three-cup trick! As Sinhababu and I said in our original paper:

Of course the closeness of possible worlds to actuality is vague, but close possible worlds cannot include those in which the *mechanism* of the clock differs from its *actual* mechanism. This is because the truth-adherence of your belief that it is 4:30 pm in *Normal Clock* resides in the fact that you would still have that belief in slightly changed circumstances in which the mechanism of the clock continues to work perfectly reliably. Likewise, the worlds close to the actual

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

circumstances of *Stopped Clock* surely include those in which the mechanism of the clock is stopped.³¹

We are now in a position to recap. Clarke *et al* admit that you do not know that it is 4:30 pm in *Backward Clock*.³² They admit that your belief that it is 4:30 pm is true.³³ As just shown, they now concede that it is sensitive to falsehood. As just shown, their objection that it is not truth-adherent fails. It is indeed truth-adherent. This is enough to show that Nozick's analysis, as formulated above, is too weak. Nonetheless, let us examine their remaining objections.

3. No Mistake About Methods

Next is a set of objections that I have made various mistakes about methods. Before examining these, some clarification is helpful. In our original paper Sinhababu and I took sensitivity (and indeed adherence and truth-tracking) to be a condition on *S's belief* that *p*, not on her *method M* of arriving at that belief. In so doing we followed Nozick and his commentators.³⁴ In their reply, Adams *et al* talked of *sensitive methods* and *truth-tracking methods*, insisting that your method of ascertaining the time you wake is not sensitive or truth-tracking. But a careful reading of *Philosophical Explanations* reveals that every time that Nozick talks of sensitivity, he talks of *beliefs* or *belief states* as being sensitive.³⁵ He does

³¹ Williams and Sinhababu, "The Backward Clock," 49.

³² "... we think that the method, i.e., 'looking at the clock and determining what it says,' is too equivocal to yield knowledge" (Clarke, Adams, and Barker, "Methods Matter," 101).

³³ "...the person awaking from the nap happens to acquire a true belief that it is 4:30" (Adams, Barker, and Clarke, "Beat the Clock," 359).

³⁴ Williams, "Nothing to Beat," 365, note 5.

³⁵ As far as I can tell, here is an *exhaustive* list of the passages in which Nozick talks of sensitivity in *Philosophical Explanations*. Italics are my own. "The person in the tank does not know he is there, because his *belief* is not sensitive to the truth." (175); "The subjunctive condition (3) ... tells us only half the story about how his *belief* is sensitive to the truth-value of *p*. It tells us how his *belief state* is sensitive to *p's* falsity, but not how it is sensitive to *p's* truth; it tells us what his *belief state* would be if *p* were false, but not what it would be if it were true." (176); "To be sure, conditions 1 and 2 tell us that *p* is true and he does believe it, but it does not follow that his *believing p* is sensitive to *p's* being true." (176); "His *belief* is not sensitively tuned to the truth, he doesn't satisfy the condition that if it were true he would believe it." (177); "We do not mean such a person to easily satisfy 4, and in any case we want his *belief-state*, sensitive to the truth of *p*, to focus upon *p*." (178); "Once we have the notion of a *belief* varying with or being sensitive to the truth-value of what is believed, we see there are differing degrees of such sensitivity or covariation." (283); "It makes their beliefs (sometimes) vary somehow with the truth of what is believed; it makes their *beliefs* somehow sensitive to the facts." (285).

not talk of *methods* as the sort of things that can be sensitive. Every time that he talks of truth-tracking, he talks of *beliefs* that are truth-tracking.³⁶ He does not talk of *methods* as the sort of things that can be truth-tracking.

In my rejoinder, I pointed out that Adams *et al* owe us an analysis of 'sensitive methods.' I offered them a trilemma; a sensitive method is one that sometimes, mostly or always produces sensitive beliefs. I then demonstrated that accepting any option leads to disaster.³⁷ In their latest defence of the tracking theories they fail to mention this objection. Instead, they drop talk of 'sensitive

³⁶ As far as I can tell, here is an *exhaustive* list of the passages in which Nozick talks of tracking in *Philosophical Explanations*. Italics are my own. "A closest relative version of this last theory, as we shall see, holds that a person knows, via method M, that *p*, if his *belief*, via M, that *p* tracks the fact that *p*, and if there is no other method M' outweighing M but not tracking the truth, via which also he believes that *p*." (49); "*Belief* that *p* tracks truth that *p*" (52); "What we have when our beliefs vary subjunctively with the truth is knowledge, but if there were beings whose beliefs varied more closely and extensively with the truth of what they believed, beings whose *beliefs* did more than track, in that case our beliefs which are knowledge would not be knowledge." (54). I admit that the passage at p.49 suggests that there could be a method M' outweighing M but not tracking the truth. This in turn suggests that M' is the sort of thing that can be truth-tracking. On the other hand, to achieve coherence with the body of his other remarks above, the last conjunct of this outlier could be charitably read as "... and if there is no other method M' outweighing M *that does not produce beliefs that track the truth*, via which also he believes that *p*." Besides, if talk of truth-tracking methods is allowed to peep into the picture in the special case in which *outweighing* methods are involved, it does not follow that they have any place in the more straightforward cases where *single* methods are involved, which as Clarke *et al* admit, constitute the arena of our controversy (Clarke, Adams, and Barker, "Methods Matter," 100).

³⁷ Williams, "Nothing to Beat," Section 6 "What Are Truth-tracking Methods?" 375-378. Formulating a sensitive method as one that *sometimes* produces sensitive beliefs does not help them because the method you use in *Backward Clock*, namely observing the positions of its hands during the hour you nap, produces a sensitive belief when you use it at 4:30 pm. Formulating it as one that *mostly* produces sensitive beliefs succumbs to *Recently Stopped Clock* as follows. You habitually nap between 4 pm and 5 pm. Your method of ascertaining the time you wake is to observe the position of the hands of your clock, one you know has always worked perfectly reliably. This clock is analogue so its hands sweep its face continuously. However, it has no second hand. Awaking at 4:55 pm, you see that its hands point to 4:55 pm. Accordingly, you form the belief that it is 4:55 pm. And it is indeed 4:55 pm because the clock has continued to work perfectly reliably until 4:50 pm, when a bug in the programming of its microchip circuit caused its hands to jump to 4:55 pm and then stop. *Most* of the beliefs that you might form by observing the positions of the hands of your clock during the hour that you nap are sensitive. But you do not know that it is 4:55 pm. Now suppose instead, that waking at 4:30 pm, you see that its hands point to 4:30 pm. Accordingly, you form the true belief that it is 4:30 pm. Surely you know that it is 4:30 pm, but not *all* of the beliefs that you might form by observing the positions of the hands of your clock during the hour that you nap are sensitive.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke methods,' allowing it to slip in just once at the end of their paper.³⁸ Instead they start to talk of methods as being 'reliable.'³⁹

Of course, the fact that for Nozick, sensitivity is a property of belief, and not methods is perfectly compatible with the fact that for him, beliefs are sensitive because they are formed *via* a method. That *X* has property *F* because *X* is formed *via M*, does not entail that *M* is *F*. Your alert appearance, formed because you methodically sleep early, does not mean that your sleeping early enjoys alert appearance.

Two other clarifications are in order. First, Nozick's analysis, as formulated above, takes as its *definiendum*, "*S* knows that *p*, using method *M* of arriving at a belief whether *p*." Clarke *et al* now pose the following rhetorical question.

... how could condition (4) be satisfied by anyone, if methods aren't the means? Truths don't just pop into heads. It often takes hard work (science, detectives) to discover them. We take it as an obvious fact about tracking theories (Nozick's or Dretske's) that beliefs only track in virtue of reasons or methods. Otherwise, such theories would make no sense.⁴⁰

I am not so sure that truths don't sometimes just pop into our heads. Why can't you hit on a truth as the result of accidental discovery, divine enlightenment, insight or the agency of Sherrilyn Roush's *Fairy Godmother* who ensures that all your beliefs are true?⁴¹ Fortunately I may enjoy neutrality on the question of whether there can be knowledge involving beliefs that are not formed using *any* methods, pre-reflective, unconscious, applied un-methodically, incapable of articulation, formed from the inside or whatever. But if there can be such knowledge, then that means, not that Nozick's analysis is senseless, but merely that it is incomplete.

Second, it is transparently obvious that the same method *M* reappears in (3) and (4) of the *definiens*. So for Nozick, *S*'s belief is sensitive to falsehood just in case by using the *same* method of belief-formation that she *actually* uses, she would not have that belief if it were false. And for him, her belief is truth-adherent just in case by using the *same* method of belief-formation that she

³⁸ "Those *methods M* or reasons *R* must be *sensitive* for both Dretske and Nozick and additionally adherent for Nozick in order to track the truth" (Clarke, Adams, and Barker, "Methods Matter," 112, my italics).

³⁹ For example, "That method must be absolutely reliable with respect to a variety of input beliefs in near possible worlds for *S* to know that *p*." (Clarke, Adams, and Barker, "Methods Matter," 102).

⁴⁰ Clarke, Adams, and Barker, "Methods Matter," 106.

⁴¹ Sherrilyn Roush, *Tracking Truth* (Oxford: Oxford University Press, 2005), 122-123.

actually uses, she would still have that belief if it were true under slightly changed circumstances. This means that in deciding whether her belief—one she actually forms by a method—tracks the truth, we must hold that method *fixed* across close possible worlds. That is agreed on all sides. Nonetheless, for Nozick, it is still the belief that is sensitive, truth-adherent or truth-tracking, not the method.

With these clarifications in place, we may now turn to Clarke *et al*'s objections that I am mistaken about methods. They say the following.

Our mistake, on William's view, is mistaking Nozick's sensitivity condition as a constraint on **METHOD** rather than **BELIEF**. But it is Williams who misunderstands Nozick's theory, not us. This is because it is exactly the method that ensures that the correct connection between belief and fact obtains when we know some factual belief, that the belief is both sensitive and adherent.⁴²

I have already shown why this gets things wrong. Even if it is true that a belief is sensitive only in virtue of being produced by a method, it does not follow that it is the method that is sensitive. Nozick never talks of sensitive methods. He only talks of sensitive beliefs. If Clarke *et al* wish to introduce the notion of sensitive methods then they part company with Nozick. And at that point of departure they owe us an analysis of what a sensitive method is supposed to be, one that avoids my trilemma.

Later in their current defence, they say the following.

By proudly announcing his intention to focus only upon beliefs, Williams guarantees non-success at responding to our reply to his Backward Clock Case. In this context, Williams' claim that we are defending a different theory than Nozick's because we talk about **METHOD** fails.⁴³

I announced no such thing, proudly or otherwise. For Nozick, *S*'s belief is sensitive to falsehood just in case by using the same method of belief-formation that she actually uses, then she would not have that belief if it were false. This does not put the focus only on beliefs. It mentions methods as well. Nonetheless, for Nozick, it is the *belief* that is sensitive, not the *method*. Nor did I claim that Adams *et al* are defending a different theory than Nozick's because they talked about *methods*. I claimed that they are defending a different theory than Nozick's because they talked about *sensitive methods*.⁴⁴ Why can't they tell us what these are supposed to be?

⁴² Clarke, Adams, and Barker, "Methods Matter," 102.

⁴³ Clarke, Adams, and Barker, "Methods Matter," 106.

⁴⁴ "This might make us suspect that Adams, Barker and Clarke are defending a different tracking theory from Nozick's. This is further confirmed by the fact that they argue that you do not have a truth-tracking method of forming the belief that it is 4:30 pm. But Nozick's analysis is not

Their final objection that I have made a mistake about methods proceeds as follows.

What is crucial then, for Williams, is that the mechanism of the clock is held fixed across close possible worlds when considering subjunctive conditionals of the sort that Nozick imposes on knowledge. Unfortunately for Williams and Sinhababu, what needs to be held fixed across possible worlds is not **mechanisms** but the **method M** for Nozick, or, for Dretske, the **circumstances C** relative to the reasons or evidence R.⁴⁵

Clarke *et al* appear to commit the fallacy of false dichotomy. They seem to reason that either methods or mechanisms are to be held fixed, and since methods are to be held fixed, mechanisms are not to be held fixed. That is like arguing that Trump is either in Saudi Arabia or in a meeting with Russian intelligence, and since he is in Saudi Arabia, he is not in a meeting with Russian intelligence. He could easily be in a meeting with Russian intelligence in Saudi Arabia. As I have just shown, in deciding whether *S*'s belief tracks the truth, one she actually forms by a method, we must hold that method *fixed* across close possible worlds. That is not in dispute. It never was. And as I have already shown in Section 2, in deciding whether your belief that it is 4:30 pm tracks the truth in *Normal Clock*, *Stopped Clock* or *Backward Clock*, we must *also* hold the actual mechanism of the clock fixed across close possible worlds.

4. The Appeal to Charity and Extra-Sensitivity

One of Clarke *et al*'s more interesting objections to my rejoinder is an appeal to charity. This goes as follows.

The Backward Clock Case would have led to a quick death for Nozick's theory within minutes of his thinking of the theory if he had understood his own theory as Williams does. Why? Because Nozick himself would have understood that the theory, understood in that way, was bankrupt! But, says Williams, mightn't Nozick not have noticed that the theory has this very odd consequence that even false 'not *p*' beliefs can serve to confirm condition three of the theory for a particular *p*? The correct answer to this objection is: No, only an extremely uncharitable reading of the theory could possibly interpret Nozick as intending, or leaving open, or suggesting, or not noticing, this interpretation of the theory. The principle of charity counsels us to avoid implausible and unlikely

elucidated in terms of a truth-tracking method, but in terms of a truth-tracking belief" (Williams, "Nothing to Beat," 368).

⁴⁵ Clarke, Adams, and Barker, "Methods Matter," 108.

interpretations of the words of an author. If ever there was an implausible and unlikely reading of a theory, Williams' reading of Nozick is it.⁴⁶

Before examining this objection, we first need to clarify the rather obscure locution “not p beliefs.” We should not read this as referring to a belief that not p , which in *Backward Clock* would be your belief that it is not 4:30 pm. Rather, we should read it as referring to beliefs *other than* the belief that p , which would be your beliefs other than that it is 4:30 pm, such as your belief that it is 4:29 pm. This is corroborated by earlier passage that runs as follows.

After all, the very idea of ‘not p ’ includes, among other things, the entire universe of visual perception beliefs other than p !⁴⁷

Now the “very odd consequence” becomes as follows. If it were not 4:30 pm when you observe the position of the hands of *Backward Clock* but say 4:31 pm, then your false belief that it is 4:29 pm, formed at 4:31 pm, “serves to confirm” the sensitivity of your belief that it is 4:30 pm formed at 4:30 pm. That however, is not an entirely accurate thing to say of *Backward Clock*. Rather, what makes your actual belief that it is 4:30 pm sensitive is that if it were not 4:30 pm when you observe the position of the hands, but say 4:31 pm, then you would not believe that it is 4:30 pm. It is also true that you would form some other false belief, in this case, the false belief that it is 4:29 pm. But that is not the source of sensitivity. This is how I properly understand matters.

Now we can address the appeal to charity. I agree that if Nozick had understood matters in the same way when presented with *Backward Clock*, then he would have seen that his theory is bankrupt. But we should not forget that Nozick was *not* presented with it. Even he had been, it might have taken him a while to recognize that your belief that it is 4:30 pm is sensitive in exactly his own sense of ‘sensitive.’ After all, Clarke *et al* have taken a very long time to reluctantly concede this point. There are plenty of theories that were seen to be untenable only once the right objection was made and reflected on.⁴⁸ Who is to say that *Backward Clock* is not such an objection? It took me quite a while myself to see that it refutes Nozick! Charity goes both ways. In fact we should be even more charitable to our opponents than those we support.

⁴⁶ Clarke, Adams, and Barker, “Methods Matter,” 104.

⁴⁷ Clarke, Adams, and Barker, “Methods Matter,” 104.

⁴⁸ One apposite case is Gettier’s counterexamples to the analysis of knowledge as justified true belief. Others include Russell’s paradox and the inconsistency of Frege’s Axiom V, Gödel’s incompleteness theorem and Hilbert’s program or Lewis’ triviality proof and Stalnaker’s thesis.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

I freely admit that I may have misunderstood Clarke *et al.* Maybe by “reading of the theory” they do not refer to sensitivity as formulated by Nozick in condition (3). Before their appeal to charity they say the following.

Hence, the idea that one must track the truth of ‘not p ’ veridically demonstrates that the method must be absolutely reliable for beliefs of that type ...When Nozick asserts condition three his point is that, given your method, you would track the truth of ‘not p ’ veridically, whether the resulting belief be q , r , or s One must not believe that p and veridically track the truth such that you don’t believe that, say, q falsely.⁴⁹

Given our clarification of “‘not p ’ beliefs,” this appears to attribute to Nozick the view that to know that p by a method of forming the belief that p , you would not believe that p if it were false that p , *nor would you form any other false belief of the same type*. Clarke *et al* could now accuse me of uncharitably not reading Nozick this way. The idea behind the proposed reading is that not only must your belief be sensitive to its falsehood, but must also be resistant to producing other false beliefs of the same type in the neighbourhood as well. To coin a term, it must be *extra-sensitive* to falsehood, as follows.

*S*s belief that p is extra-sensitive just in case were it false that p , then *S* would not believe that p and would not acquire a false belief of the same type other than the belief that p .

It follows that extra-sensitive beliefs are sensitive but not necessarily conversely.

I see no textual basis for attributing this to Nozick. But if it is his view, so much the worse for him. Of course, requiring extra-sensitivity for knowledge blocks *Backward Clock*. It also explains why you do not know that it is 4:30 pm in *Stopped Clock*, since your belief that it is 4:30 pm is not sensitive. Extra-sensitivity also accommodates *Normal Clock*. Were it any time other than 4:30 pm when you observe the position of its hands, then you would not believe that it is 4:30 pm. Nor would you form another false belief about the time. Alas, substituting extra-sensitivity for sensitivity proves too much, as shown by *Fake Dog Occluded by Sheep*.

Directly in front of you where you are looking is a sheep and directly behind it, occluded from your vision by the sheep, is a fake dog that looks just like a dog. Using your reliable vision and memory in ordinary circumstances, you believe that what is directly in front of you is a sheep.

⁴⁹ Clarke, Adams, and Barker, “Methods Matter,” 104.

John N. Williams

Your belief that what is directly in front of you is a sheep, is sensitive but not extra-sensitive. Were there to be no sheep directly in front of you, then you would not believe that what is directly in front of you is a sheep. Instead you would acquire the *false* belief that what is directly in front of you is a dog. That false belief is of the same type as your belief that what is directly in front of you is a sheep, being visual-cum-memorial as well as about the species of the animal directly in front of you. But surely you know that what is directly in front of you is a sheep. So now the analysis is too strong, predicting ignorance where there is knowledge.

5. 'Equivocation' and the Boy Who Cried "Wolf!"

In their reply, Adams *et al* made the following objection.

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 *to 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. Similarly, the clock's face emits false testimony for 59 minutes during that hour from 4:00 to 5:00 (my italics).⁵⁰

Now they lodge the following complaint.

The 'Boy who cried Wolf' Case, which we developed at length in our reply, was expressly devised to make the point that equivocal signals will not generate knowledge. Conveniently, Williams ignores this argument from our response.⁵¹

I confess that I did indeed ignore this response. Dealing with it was in a sense inconvenient, because I could not see its relevance to the status of *Backward Clock* as a counterexample to the tracking analysis. Very well, here is why it is irrelevant.

First, if you were to observe the position of the hands of your clock at any time other than 4:30 pm, say 4:31 pm, it would not tell you a lie. The clock has no intention to deceive you into believing falsely that it is 4:29 pm. Clocks are not the

⁵⁰ Adams, Barker, and Clarke, "Beat the Clock," 358.

⁵¹ Clarke, Adams, and Barker, "Methods Matter," 104-105.

sort of things that have intentions. Nor would its designers have deceitful intentions, since its mechanism actually operates the way that it does, not by design but by luck. Moreover, now Clarke *et al* claim that *Backward Clock* and *Stopped Clock*:

... don't really **SAY** anything about the time, even though they continue to **DISPLAY** the time and appear to **SAY** something about it.⁵²

But if your clock doesn't say anything, then it doesn't tell you anything and so does not tell you a lie. Clarke *et al* can't have their cake and eat it.

Second, it is true that there is nothing *in the signal*, in other words, the position of the hands of *Backward Clock*, to differentiate when it is telling the correct time from when it is not. Although you are justified in believing that the hands of *Backward Clock* point to the correct time (because you know that it has always worked perfectly reliably), you cannot be absolutely sure, *just by observing the position of the hands*, when these point to the correct time. To know that, you would have to use induction from its unfailing past accuracy or an independent check of its accuracy, such as another clock that you know is accurate. But this is equally true of *Normal Clock*. You cannot be absolutely sure, *just by observing the position of the hands*, when these point to the correct time. So if this is an impediment to knowledge in *Backward Clock*, then it is equally an impediment to knowledge in *Normal Clock*. It isn't.

Third, Clarke *et al* appear to use the term 'equivocal' in a deviant way. The normal understanding of equivocation is that it takes place just in case the *same* bearer of meaning, such as the *same* word, phrase, or signal occurs at different times with different meanings. If the boy were to call "Bank!" at one time and mean "There is the side of a river!" and call "Bank!" at another time and mean "There is a financial institution!," then that would be equivocation. But in *Backward Clock*, *different* positions of its hands, in other words *different* signals, represent different times, or roughly, have different meanings. Moreover, as Adams *et al* themselves admit, the different times at which the boy cries "Wolf!" are those at which his cry means the *same* thing, roughly "There's a wolf!" Since Adams *et al* rest their objection on an appeal to 'equivocation,' they owe us an explanation of what this is supposed to be. Otherwise we are in no position to properly assess the objection.

Fourth, their analogy between *Backward Clock* and the story of the boy who cried "Wolf," is weak. In the story, the boy cries "Wolf!" a series of times. Each time you wait a while and confirm that there is no wolf. So you know, after

⁵² Clarke, Adams, and Barker, "Methods Matter," 110.

each time, that what the boy cries is *false*. Then the boy again cries “Wolf!” and there is a wolf although you have yet to confirm or disconfirm this. At that juncture you are justified in believing that what boy cries is *false*, although it is true. You have sensibly used induction using the evidence available to you. This is a significant disanalogy with *Backward Clock*. Because you know that it has always worked perfectly reliably, you know after all past times at which you observed the position of its hands that these pointed to the *correct* time. Then you wake during the particular hour that its hands run backwards and observe its hands pointing to 4:30 pm. At that juncture, you have no idea that it is running backwards. You are justified in believing that its hands point to the *correct* time,⁵³ and they do point to the correct time. You have sensibly used induction using the evidence available to you. You should not trust the boy, but you should trust your clock!

Finally, even if it is true that “equivocal signals will not generate knowledge,” or in other words that your method of ascertaining the time you wake in *Backward Clock* is ‘equivocal’ in such a way that prevents you from knowing at 4:30 pm that it is 4:30 pm, then that is grist to my mill. The fact remains that your belief that it is 4:30 pm is both sensitive to falsehood and truth-adherent. In their reply, Adams *et al* tried to evade this result by claiming that your method of ascertaining the time you wake, is ‘equivocal’ in such a way that prevents your *method* from being truth-tracking, and knowledge requires truth-tracking *methods*.⁵⁴ As we saw above in Section 3, here they part company with Nozick, and here they owe us an analysis of knowledge in terms of truth-tracking *methods*, first elucidating these while avoiding my trilemma. Now they have dropped talk of *truth-tracking* methods in favour of talk of *reliable* methods. So

⁵³ It might be objected that in *Backward Clock* you are not justified in forming any belief about what time it is by observing the position of its hands during its backward-running hour, because to be so justified you would have to check that its hands are still moving forwards. As Adrian Heathcote formulates this claim, “Knowing the time by looking at a clock is a matter of confirming that it is still running” (“Gettier and the Stopped Clock,” *Analysis* 62, 2 (2012): 309-314, 312). I think that this puts the bar too high in most cases, although it is plausible that to be justified in believing that the time is what the hands of the clock point to, you need to be justified in believing that the clock is still working reliably. In fact we only occasionally confirm that our clocks are still working reliably. These occasions sustain our justified confidence that they have continued to work reliably on the much more frequent occasions on which we only glance at them and hence normally tell the time, in other words, gain both knowledge and justified belief of what time it is.

⁵⁴ “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” (Adams, Barker, and Clarke, “Beat the Clock,” 359).

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke perhaps they wish to argue that your method of ascertaining the time you wake is 'equivocal' in such a way that prevents your method from being *reliable*, and knowledge requires reliable methods. Let us now examine this line of thought.

6. The Appeal to Reliable Methods

The term 'reliable' does not appear in Nozick's analysis, as formulated above. In what sense does knowledge require reliable methods for Clarke *et al*? An answer is found in their discussion of Nozick's *Grandmother*.⁵⁵ They say the following.

... all visual perception beliefs, *all* beliefs of that type about her Grandson, must be reliably produced by that method for the Grandmother under those circumstances in order for her to know that *p*. (my italics)⁵⁶

This commits them to the following condition on knowledge, which I dub '*ABC reliability*.'

S knows that *p*, using method *M* of arriving at a belief whether *p* of type *T*, only if all beliefs of type *T* are reliably produced by *M*.

By 'under those circumstances' they envision slightly changed circumstances or close possible worlds. They also say the following.

Tracking the truth presupposes the **reliability** of the **method** for producing truth. Reading his account in any other way is simply a misreading of Nozick.⁵⁷

Presumably Clarke *et al* do not propose to add *ABC reliability* as an extra condition in Nozick's analysis of knowledge, since they suppose it to be already entailed by conditions (3) and (4).

But there is no textual evidence that Nozick embraces *ABC reliability*. Indeed there is textual evidence that he does not. Long after Nozick has finished elucidating his truth-tracking analysis of knowledge,⁵⁸ he turns to a different

⁵⁵ A grandmother sees her grandson is well when he comes to visit but if he were too unwell to visit, then relatives would tell her that he is well to spare her upset. She arrives at the true belief that he is well *via* the method of looking at him, yet if he were unwell then she would still believe that he is well *via* the different method of testimony. So without mention of methods, (3) is false, but nonetheless she knows that he is well (*Philosophical Explanations*, 179). Hence the need in such 'multiple methods' cases to hold the method fixed from actuality across close possible worlds when testing for sensitivity or adherence, as reflected in Nozick's analysis as formulated above.

⁵⁶ Clarke, Adams, and Barker, "Methods Matter," 103.

⁵⁷ Clarke, Adams, and Barker, "Methods Matter," 104.

⁵⁸ Nozick, *Philosophical Explanations*, 172-185.

topic, namely evidence and justification.⁵⁹ Here he mentions reliability for the very first time, not as part of an analysis of *knowledge*, but as part of an analysis of *justified belief*. He holds that *S*'s belief that *p*, using method *M*, is justified if *M* is reliable, in other words, "is likely to produce mostly true beliefs."⁶⁰ Let us call this condition '*Nozick reliability*' as follows.

S's belief that *p*, using *M*, is justified if *M* is reliable, that is, is likely to produce mostly true beliefs.

For Nozick, truth-tracking is a property of belief, while reliability is a property of methods. In passing, he ponders "a stronger notion of reliability, one wherein the application of a method reliably yields knowledge (tracking) rather than simply truth."⁶¹ He never pursues this notion. Indeed it is difficult to see how we are supposed to derive *ABC reliability* from *Nozick reliability*.

Nozick also tells us the following.

When tracking holds, if it is true (false) you would (not) believe it-when reliability holds, if it is believed (by the method) then it (probably) would be true. It is important to keep these directions distinct.⁶²

It is far from clear that either direction entails the other. In *Backward Clock*, your method of forming beliefs about the time is unreliable; since you can wake at any time during the hour that you nap, it is not likely to produce *mostly* true beliefs. Nonetheless by using that method at 4:30 pm you form a belief that tracks the truth.

Second, *ABC reliability* falls prey to much the same example that defeats an appeal to truth-tracking methods. This is a clock that combines *Normal Clock* with *Stopped Clock*, namely *Recently Stopped Clock*, as follows.

You habitually nap between 4:00 pm and 5:00 pm. Your method of ascertaining the time you wake is to observe, between 4:00 pm and 5:00 pm, the position of the hands of your clock, one you know has always worked perfectly reliably. This clock is analogue so its hands sweep its face continuously. Awaking at 4:30 pm, you observe 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 until 4:50 pm, when a bug in the programming of its microchip circuit caused its hands to jump to 4:55 pm and then stop.

⁵⁹ Nozick, *Philosophical Explanations*, 264-268.

⁶⁰ Nozick, *Philosophical Explanations*, 264. Nozick adds "without holding that some particular degree of reliability is either sufficient or necessary for the beliefs being justified." (265).

⁶¹ Nozick, *Philosophical Explanations*, 264, note *.

⁶² Nozick, *Philosophical Explanations*, 266.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

Not *all* of the beliefs that you might form by the method of observing the positions of the hands of your clock during the hour that you nap are reliable. These are those that you would form during the period from 4:50 pm to 5:00 pm when it functions as *Stopped Clock*. During that period your method is unlikely to produce mostly true beliefs and so does not reliably produce them. You use the very same method at 4:30 pm to arrive at the belief that it is 4:30 pm. As with all the other beliefs, you form it by observing the position of the hands of the clock, remembering how such positions represent time, recalling that the clock has always worked perfectly reliably, and inducing from all this what time it is. Thus *ABC reliability* predicts that you do not know that it is 4:30 pm. Surely you do, because that is what you know in *Normal Clock*—which from 4:00 pm to 4:49 pm is essentially the same as your clock. So now the analysis is too strong, predicting ignorance where there is knowledge.

Finally, Clarke *et al* are now ensnared by the generality problem.⁶³ For example, they tell us the following.

It is exactly because the Grandmother's method, i.e., visual perception, is absolutely reliable for close distances to her in near possible worlds, that she can confidently say that her Grandson is well.

But what is her method of forming the belief that her grandson is well? That of perception, visual perception, visual perception at close distances, visual perception at close distances using spectacles, visual perception of people at close distances using spectacles, visual perception of relatives at close distances using spectacles, keen observation of possible symptoms of illness in grandsons at close distances using spectacles, keen observation of possible symptoms of illness in grandsons at close distances using spectacles after a stiff whiskey and a nap, or some other type of method? The problem is that the reliability of the method may vary with how narrowly or broadly its type is described. How do we decide which repeatable type of method to select in a way that is not *ad hoc* in order to determine the reliability of the method that she actually uses?

7. Why Dretske's Early Analysis Remains Clocked Out

I *originally* formulated Dretske's early analysis of knowledge as follows.

S knows that *p* just in case

(1) *S* believes that *p* (without doubt, reservation or question) on the basis of *R*.

⁶³ See Earl Conee and Richard Feldman, "The Generality Problem for Reliabilism," *Philosophical Studies*, 89, 1, (1998): 1-29.

John N. Williams

- (2) R would not be the case unless p were the case.
- (3) Either S knows that R , or R is some experiential state of S .⁶⁴

This formulation should be made more precise. Dretske tells us the following.

The circumstances which are assumed constant, which are tacitly held fixed, in conditionals such as (2), are those circumstances prevailing on the occasion in question (the occasion on and between which the particular states R and P obtain) which are logically and causally independent of the state of affairs expressed by P .⁶⁵

To reflect this, here is my *current* formulation.

S knows that p in circumstances C just in case

- (1) S believes that p (without doubt, reservation or question) on the basis of R .
- (2) In C , R would not be the case unless p were the case.
- (3) Either S knows that R , or R is some experiential state of S .

Dretske's *Thermometer* illustrates this nicely.

In circumstances in which you have shaken your mercury thermometer down, and in which it does not stick, you place it in your child's mouth, extract it after several minutes and observe a reading of 98.6 F. You know that the thermometer reads 98.6 F. On this basis you believe without doubt, reservation or question, that the temperature is 98.6 F.⁶⁶

This is supposed to explain why you know that the temperature is 98.6 F in circumstances in which you have shaken your mercury thermometer down and in which it does not stick. In these circumstances, the thermometer would not read 98.6 F unless the temperature was 98.6 F. In these circumstances, the thermometer is *reliable as an indicator of actual temperature*. The rise and fall of its column of mercury is deterministically and predictably correlated with the temperature it indicates. So it is also *reliable in the way its mechanism operates*. These circumstances are logically and causally independent from the temperature being 98.6 F. The fact that your thermometer is shaken-and-not-sticky neither entails nor causes the actual temperature to be 98.6 F. Conversely, the actual

⁶⁴ Fred Dretske, "Conclusive Reasons," *Australasian Journal of Philosophy* 49, 1 (1971): 12–13. I gave this formulation in Williams, "Nothing to Beat," 374.

⁶⁵ Dretske, "Conclusive Reasons," 7–8.

⁶⁶ This is a slight embellishment, entirely in his spirit, of Dretske's example in "Conclusive Reasons," 2.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

temperature being 98.6 F neither entails nor causes your thermometer to be shaken-and-not-sticky. So far so good for Dretske.

But now let us modify *Backward Clock* slightly. Suppose that as you observe the position of its hands, you believe that it is 4:30 pm without doubt, reservation or question, because you know that your clock has always worked perfectly reliably. You base that belief upon your conjunctive reason that the hands point to 4:30 pm and your clock has always worked perfectly reliably. But this conjunction would not be true unless it were 4:30 pm, because the hands would not point to 4:30 pm unless it was 4:30 pm. This is because the circumstances in which you find yourself include those in which the clock runs perfectly reliably backwards from 5:00 pm to 4:00 pm. Finally, we may stipulate that you know the conjunction that the hands point to 4:30 pm and your clock has always worked perfectly reliably. (1)-(3) are all true, but you do not know that it is 4:30 pm any more than you know this in *Stopped Clock*. So Dretske's early analysis is also too weak, predicting knowledge where there is ignorance.

Clarke *et al* now object as follows.

In the case of the Backward Clock, then, one cannot hold the mechanism of the clock fixed in near possible worlds because that circumstance is something that is dependent on the fact that p: that it is 4:30 p.m. That is, there is a dependency relationship between the fact that it is 4:30 p.m. and that the mechanism works the way that it does. Change the mechanism, and you change the time.⁶⁷

This is false. If you wake at 4:30 pm and observe the position of the hands of *Normal Clock*, *Stopped Clock* or *Backward Clock* pointing to 4:30 pm, then the time is still 4:30 pm, despite the fact that mechanisms operate differently. If you wake at 4:15 pm and observe the position of the hands of *Normal Clock*, then you would observe them pointing to 4:15 pm and so would believe that it is 4:15 pm. If you wake at 4:15 pm and observe the position of the hands of *Stopped Clock*, then you would observe them pointing to 4:30 pm and so would believe that it is 4:30 pm. If you wake at 4:15 pm and observe the position of the hands of *Backward Clock*, then you would observe them pointing to 4:45 pm and so would believe that it is 4:45 pm. Nonetheless the time in all three cases would still be 4:15 pm. Indeed it is difficult to even make sense of the idea of changing the time. The time steadily *changes* implacably according to time's arrow. But that cannot *be changed*, unless Clarke *et al* countenance time travel.

In my slight modification of *Backward Clock*, you believe that it is 4:30 pm in circumstances in which its mechanism drives its hands reliably backwards from

⁶⁷ Clarke, Adams, and Barker, "Methods Matter," 109.

John N. Williams

5:00 pm to 4:00 pm. In these circumstances, your clock is *unreliable as an indicator of actual time*. Nonetheless, the position of its hands is deterministically and predictably correlated with the time it indicates. So like *Thermometer*, it is also *reliable in the way its mechanism operates*. These circumstances are logically and causally independent of the fact that it is 4:30 pm. The fact that your clock is running backwards neither entails nor causes it to be 4:30 pm. Conversely, the fact that it is 4:30 pm neither entails nor causes your clock to run backwards.

8. The Appeal to Unfair Internalism

There remain a few other objections to mop up. One of these is as follows

Williams is not sensitive to the distinction between what the clock DISPLAYS, i.e., the position of its hands, and what the clock SAYS, i.e., what it designedly indicates about the current time, and how that distinction functions in Nozick's account of method and Dretske's account of reasons (in his broad notion of reason as including evidence).⁶⁸

I remain neutral on the question of what *Backward Clock* displays, if anything, and what it says, if anything. All I need to stipulate is that you observe the position of its hands.

Clarke *et al* also complain that I am unfairly internalist. They say the following.

Williams makes his first mistake here by construing Dretske's notion of a reason as referring only to a premise in an argument from an internalist perspective. Dretske does not restrict the idea of a reason in that way, but includes one's evidence, i.e., facts one knows to obtain, even if one is not aware of what one's evidence is.⁶⁹

I did not restrict it that way either. The fact is that the hands of *Backward Clock*, one that has always worked perfectly reliably as *Normal Clock*, now point to 4:30 pm. You might use this fact as a premise in an argument. On the other hand, it might constitute evidence that you use pre-reflectively and unconsciously.

Clarke *et al* also say the following.

It should also be noted that Williams talks about your **knowing** that the clock has always been reliable in the Backward Clock case, but that is the kind of **internalist** talk that externalists eschew.⁷⁰

⁶⁸ Clarke, Adams, and Barker, "Methods Matter," 110-111.

⁶⁹ Clarke, Adams, and Barker, "Methods Matter," 106-107.

⁷⁰ Clarke, Adams, and Barker, "Methods Matter," 111.

Still Stuck on the Backward Clock: A Rejoinder to Adams, Barker and Clarke

If we follow Timothy Williamson in holding that “knowledge, and only knowledge, constitutes evidence,”⁷¹ then Clarke *et al* already have what they want. But in any case my stipulation that you know that your clock has always been reliable appears in my example as part of a *challenge* to a particular variety of externalism. In so far as that stipulation is internalist and helps to derail the tracking theories, it contributes to a victory for internalism over externalism. That is not grounds for complaint.

We should also note that your method of ascertaining the time, namely by observing the position of the hands of your clock during the hour that you nap, is one that you may use pre-reflectively and unconsciously. You may use it, as Nozick puts it, “from the inside.”⁷² From your point of view, things are exactly the same at 4:30 pm whether you are in *Normal Clock*, *Stopped Clock* or *Backward Clock*.

9. Concluding Remarks

In their landmark 2005 paper, Adams and Clarke mounted an impressive defence of the tracking theories against putative counterexamples. Clarke, Adams and Barker have now put up a staunch defence of the tracking theories against *Backward Clock*. This fails. Appeals to sensitive or reliable methods or to extra-sensitivity do not help them. They are still stuck with the fact that the tracking theories fall to *Backward Clock*, an even more useful test case for other analyses of knowledge than might have first appeared⁷³.

⁷¹ Timothy Williamson, *Knowledge and its Limits* (Oxford: Oxford University Press, 2000), 185.

⁷² Nozick, *Philosophical Explanations*, 185.

⁷³ I am grateful to David Blaxton for suggesting the title of this paper.