# Truth-Maker Theory and the Stopped Clock:

## Why Heathcote Fails to Solve the Gettier Problem

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Adrian Heathcote has proposed a truth-making account of knowledge that combines traditional conditions of justified true belief with the truth-making condition, which would jointly provide us with the sufficient condition of knowledge, and this truth-maker account of knowledge in turn explains why a gettiered justified true belief fails to be regarded as a genuine instance of knowledge. In this paper, by the comparison of two different casual models that are illustrated by the thermometer and the clock respectively, however, it will be argued that Heathcote's truth-making account of knowledge fails to cope with the Gettier case of the stopped clock and therefore is called for some further remedy.

Heathcote composes his truth-maker necessary condition of knowledge as follows:

> **(TM) Clause:**
> If a person S knows that *p*, "the evidence that [S] has, which constitutes the justification, is evidence of the very state of affairs that makes [*p*] true" (cf. Heathcote 2006, p. 165; Heathcote 2012, p. 310).

Since Heathcote argues that, in the Gettier case, the state of affairs that constitutes the ground for the justification or leads the subject in question to accept the target

proposition is diverse from the state of affairs that makes the target proposition true, it seems to a reasonable strategy for us to investigate his diagnosis of the Gettier case in the first place so that it becomes clear how the theory is supposed to work. Let us consider a pair of the thermometer cases as follows[1]:

> **The Normal Reliable Thermometer Case (T-N):**
> Thea comes into a room with a reliable thermometer on the wall. The thermometer works perfectly well and reports the accurate inside temperature of the room. Thea looks at the thermometer and reads out that it is 20°C, based upon which he believes that the inside temperature of the room is 20°C.
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> **The Gettiered Thermometer Case (T-G):**
> Thea comes into a room with a thermometer on the wall. The thermometer normally works reliably and reports the accurate inside temperature of the room. But unbeknownst to Thea, the tube of the thermometer is blocked by something that makes the upper level of the column of mercury inside the tube stop exactly at the line of "20°C." Thea looks at the thermometer and reads out that it is 20°C, based upon which he believes that the inside temperature of the room is 20°C. But, fortunately enough, the inside temperature of the room is indeed 20°C.

It seems to be reasonable to suggest that Thea in (T-N) knows that the inside temperature of the room is 20°C, while Thea in (T-G) does not, since Thea in the latter case is positioned into a gettiered situation. According to Heathcote's theory, in (T-N), the state of affairs that justifies Thea's belief that the inside temperature of the room is 20°C is exactly identical with the one that make the target proposition true. On the other hand, however, when we take a scrutiny of (T-G), we are able to discriminate the state of affairs that justified Thea's belief from the truth-maker of the target

[1] Although Heathcote himself does not explicitly discuss the thermometer cases per se, some other proponents (for instance, Jacquette 1996) of the truth-maker theory of knowledge analysis do consider some similar cases (e.g., the case of the barometer). Since Heathcote thinks there is no significant difference between his theory and Jaquette's (cf. Heathcote 2012, p. 309), it seems plausible to use thermometer cases to illustrate Heathcote's truth-maker account of knowledge here.

proposition. At first glance Heathcote's theory seems to work well with the above two cases. But, I would like to suggest that there remains an important question that we should engage with: in the respective case, what does the term "the state of affairs that justifies Thea's belief" precisely refer to?

In (T-N), the immediate state of affairs that justifies Thea's belief of the target proposition seems to be that the upper level of the column of mercury inside the tube of the thermometer rests exactly at the line of "20°C." But, with this kind of phenomenological description of the state of affairs that justifies Thea's belief, Heathcote cannot plausibly suggest that this state of affairs is same with the one that makes the target proposition in (T-N) true, because the latter one is that the inside temperature of the room is 20°C. In this sense, Heathcote would not be satisfied if the state of affairs that justifies Thea's belief is identified with the one that is describe by the location of the upper level of the column of mercury inside the tube of the thermometer. Evidently, in (T-N), Heathcote has to suggest that the state of affairs that justifies Thea's belief is that the inside temperature of the room is 20°C as well. But what allows him to reasonably make such a suggestion, which transforms the immediate state of affairs concerning the location of the upper level of the mercury column into the truth-making state of affairs? It seems that the causal relation between the two states of affairs is able to play the required role.[2] As shown in (T-N),

[2] Even though he explicitly concedes that "[u]nder normal circumstance, … justificatory evidence will stand in a causal relation to the state of affairs which constitutes its ground" (Heathcote 2006, p. 165), Heathcote purposely denies that such causal relations are necessarily required in all situations (ibid, p. 162). But, it should be emphasized that Heathcote's denial of the necessity of the causal relations in question in every situation is due to his consideration of the mathematical knowledge that "can often be a matter of inference to the best explanation" where the so-called causal relations are hardly identifiable. In this sense, I would suggest that my causal analysis with regard to (T-N) and (T-G) remains cogent when we evaluate Heathcote's theory.

when the thermometer functions properly, the fluctuation of the mercury in the tube of the thermometer is caused by the inside temperature of the room.[3] In this sense, we can plausibly suggest that the state of affairs concerning the whereabouts of the upper level of the column of mercury inside the tube of the thermometer is causally affected by the state of affairs of the inside temperature of the room. Thus, in (T-N), we can regard the state of affairs that the inside temperature of the room is 20°C as the ultimate one that not only makes the target proposition in Thea's belief true, but also gives rise to and therefore justifies Thea's belief that the inside temperature of the room is 20°C.

If we sincerely stick to the terminologies that Heathcote uses in his (TM) clause, we may regard the state of affairs that the upper level of the column of mercury inside the tube of the thermometer rests exactly at the line of "20°C" as the element that constitutes the evidence that Thea possess and the term "the very state of affairs" in (TM) clause would refer to the state of affairs that the inside temperature of the room is 20°C in the case of (T-N). Under this clarification, it is evident that the condition specified by (TM) clause is satisfied in (T-N) and therefore Thea in (T-N) knows that the inside temperature of the room is 20°C.

The situation in (T-G) changes, on the other hand. It seems to be evident that, in (T-G), Thea's evidence that the upper level of the column of mercury inside the tube of the thermometer rests exactly at the line of "20°C" is brought about by the state of

[3] Admittedly, this kind of description of the causal relation between the fluctuation of the mercury and the temperature is rather a folk one, since the scientific mechanism should be cashed out in term of physical terminologies in thermodynamics. It would remain clear, however, that my analysis of Heathcote's theory here does not hinge upon the detailed description of the physical phenomenon of the causal interaction between the temperature and the mercury in the tube of the thermometer.

affairs that something blocked the tube of the thermometer, which is definitely different from the state of affairs that the inside temperature of the room is 20°C, even though the evidence that Thea possesses in (T-G) is exactly same with the one in (T-N). Since there is something that blocked the tube of the thermometer, which makes the column of mercury in the tube unable to freely float though the tube, the *normal causal relation* between the inside temperature of the room and the fluctuation of the mercury in the tube is intervened and cut off. It is the blocked tube that plays the *salient* (and essential) *causal role* in determining the location of the upper level of the column of mercury in the tube. The state of affairs that make the target proposition true in (T-G), however, remain that the inside temperature of the room is 20°C. This is precisely how the state of affairs that makes the target proposition diverges from the one that gives rise to Thea's evidence in (T-G). In this sense, the (TM) clause provides us with an explanation why Thea's justified true belief gets gettiered; thus, Thea in (T-G) does not knows that the inside temperature of the room is 20°C, for necessary condition specified in (TM) clause is unsatisfied in the case of (T-G).[4]

It seems that Heathcote's theory works well when the cases involve causal relations as their crucial components. In the following part of this paper, it will be scrutinized whether the same kind of diagnosis can be obtained when we consider the case of time reading.

[4] It would be deeply problematic if we take a literal reading of (TM) clause and ask, in the case of (T-G), of *what* state of affairs exactly is Thea's evidence, since it is no longer identical to the one that the inside temperature of the room is 20°C. I think the way in which Heathcote coins the term "being evidence of …" in his (TM) clause seems unduly naturalistic and externalistic, which does not save enough room for the normativity of the concept of evidence. Since I will come back to this issue in the last section of this paper, it would make no harms if we just side this issue aside temporarily.

According to Heathcote, the truth-maker theory of knowledge can be applied to the Gettier case of the stopped clock and some similar diagnosis of the case can be derived just like the one shown in the discussion of the cases of (T-N) and (T-G). So, let us consider the following pair of cases:

> **The Normal Reliable Clock Case (C-N):**
> One afternoon Tim comes into a room with a reliable clock on the wall. The clock works perfectly well and reports the accurate time. Tim looks at the clock and reads out that it is 2:00 p.m., based upon which he believes that it is 2:00 p.m.
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> **The Gettiered Stopped Clock Case (C-G):**
> One afternoon Tim comes into a room with a clock on the wall. The clock normally works reliably and reports the accurate time. But unbeknownst to Tim, the clock stopped at 2:00 a.m. with the minute arm pointing at "12" together with hour arm pointing at "2." Tim looks at the clock and reads out that it is 2:00 p.m., based upon which he believes that it is 2:00 p.m. But, by pure coincidence, it is 2:00 p.m.

By same pattern of analysis, Heathcote suggests that, in (C-N), it is the very state of affairs that it is 2:00 pm that not only makes Tim's belief true but also gives rise to the justification for his belief. But, in (C-G), the state of affairs that gives rise to the justification for Tim's belief is no longer identical to the one that makes his belief true. Here are Heathcote's remarks with respect to the type of the cases similar to (C-G):

> [T]he state of affairs that gives rise to the justification for [Tim's] belief that it is 2.00 o'clock is not the actual time, which is 2:00 p.m. Instead, another state of affairs has given rise to, and thus purports to justify, [Tim's] belief that it 2.00 o'clock— the time of 2.00 a.m. when the clock stopped. To put it simply, the clock is showing *a* 2.00 o'clock, but it is not showing *the* 2.00 o'clock. And thus the extra condition that the truthmaker solution to the Gettier counter-examples provides is not satisfied in this case. [Tim does not] know that it is 2.00 o'clock. (Heathcote 2012, p. 312, with original emphasis.)[5]

[5] The name of the epistemic agent is adapted here.

The crucial question here is: Is Heathcote's diagnosis in the above paragraph plausible?

I am suspicious of Heathcote's diagnosis in the above quote, since it does not seem to capture the actual mechanism of time reading that is performed by us. What crucial here is the constitutive differences that are associated with the time reading by using a clock and with the temperature reading by using a thermometer. Since there is a causal relation between the temperature and the fluctuation of the mercury in the tube of the thermometer, it is plausible for us to say that, in (T-N), Thea's belief about the inside temperature is (ultimately) caused by the state of affairs that the inside temperature of the room is 20°C and this causal connection explicitly lacks in the case of (T-G) because some other causal relation intervenes in the latter case. Although I am less comfortable to suggest that, in (T-G), it is the state of affairs that the tube is blocked by something that gives rise to Thea's belief about the inside temperature, it remains acceptable somehow to make such a claim, since the causal tracking can still be objectively obtained. What I want to reveal and emphasize here is the causal interaction or the causal chain from the epistemic agent's belief to its (ultimate) objective cause. But, as will be shown, there is no such kind of causation involved in the time reading when we look at a clock.

When we read a time out of a clock, there is no such a causal chain that is able to keep us tracking along back to the (ultimate) state of affairs of the actual time, because there is no causal interaction between the clock by using which we report the time and the actual time, even granted that the clock functions reliably and accurately when we read the time out of it. In this sense, it sounds really odd that, in the case of (C-G),

it is the state of affairs that it is 2:00 a.m. that gives rise to Tim's belief that it is 2:00 p.m.— it sounds really mysterious because we cannot in principle present the supposed causal chain in (C-G). Confronted with this objection, Heathcote may reply that in (C-G), when the clock stooped, it is the state of affairs that the mechanical components (such as, the gears, bearing, etc.) of the clock are motionless that causes Tim's belief that it is 2:00 p.m. For the sake of the argument, let us just grant his reply temporarily, though once again I am reluctant about it. Given the above reply, we still wonder what we shall say about the causal interactions in the normal time reading cases similar to (C-N). By similar pattern of reasoning, we may suggest that, in (C-N), the state of affairs that the mechanical components of the clock are in the proper motion that causes Tim's belief that it is 2:00 p.m.; but such a state of affairs does not amount to the state of affairs that it is 2:00 p.m. and we fails to casually track the former state of affairs to the latter one. In this sense, we are not allowed to regard the latter state of affairs as the ultimate cause either. I think I agree with Heathcote on the remark that, in the case of (C-G), "the clock is showing *a* 2.00 o'clock, but it is not showing *the* 2.00 o'clock." My question here concerns, however, whether in the case of (C-N) the clock on its own sake is sufficient to indicate that it is 2:00 p.m. I think in (C-N), the reliable clock is merely synchronized (ultimately) with the authoritative clock and co-vary with it with the same rate; but there is still no causal connection or causal chain between the clock in (C-N) and the authoritative one. In this sense, I think, even in the normal time reading situations like (C-N), the time indicating function of the clock *by itself* is similar to an indexical, which is incapable of showing *the* 2:00 o'clock

(i.e., 2:00 p.m.). In other words, the time indicating function of the clock *by itself* is merely able to show *a* 2:00 o'clock, which leaves the information of those temporally contextual parameters (for instance, a.m., p.m., date, etc.) indexicalized. So, when we correctly read the time out of a reliably functioning clock, we saturate the time schema shown by the clock with those temporally contextual parameters.

It seems that Heathcote himself also recognizes the phenomena in regard to the time reading via using a clock, which is outlined in the above paragraph, since he correctly indicates that "[w]e check our watches, for example, frequently, … [by] using subtle cues such as the position of the sun, or the correlation with other clocks or even the amount of traffic on the roads" (Heathcote 2012, p. 312). But, rather than taking these as the ways to collect the information of those temporally contextual parameters, which is indispensable when we read a time out of a reliably functioning clock, Heathcote suggests that we have to do the checking because "[k]nowing the time by looking at a clock is a matter of confirming that it is still running" (ibid., p. 312). But it is a mis-diagnosis, which missed the target with respect to the nature of checking and time reading. If we want to know whether the clock in question is still running, the simplest way for us to do is not those acts listed as the "checking our watches" in Heathcote's term but rather to glare at the clock for a while until some visually identifiable spatial change about the comparative position between the hour arm and the minute arm of the clock. The implausibility in Heathcote's diagnosis can be furthermore illustrated by its theoretical conclusion that we are no longer able to have an immediate knowledge of the actual time since it is always necessary for us to take

some seconds to check whether the clock is running.

Probably, we shall provide a more charitable reading of Heathcote's suggestion here: Heathcote does not literally suggest that we are frequently checking whether the clock is running but rather that we are checking whether the clock is running *properly* and *accurately*. It seems quite evident that even this charitable interpretation of Heathcote's proposal makes those time checking acts much less effective, since in many (if not most) cases, the information that we gather from the "subtle cues" is not accurate enough for us to identify whether the clock is running *properly* and *accurately* unless there are some significant delay or revving of the clock.

To sum up, it is quite plausible to argue that Heathcote's remarks concerning what time is shown by the clock in case of (C-G), since there is no causal chain between the time scale indicated by the hour and minute arms of the clock and the actual time. An interesting observation reveals that Heathcote himself may also realize the problem and imply that it does not matter what precise time the stopped clock indicated when Tim reads it. In order to illustrate the point, Heathcote provides us with another case as follows:

> **(C-H) Case:**
> [Tim is] in a windowless cell and food is delivered to [him] completely randomly. [He is] wearing a watch that has been highly reliable up to now and for the beginning of [his] incarceration [he is] able to keep track of the days and nights by counting the number of times the hands show 12.00 o'clock. Then one 'night' [he falls] asleep for what feels like a long time, for what [he thinks] could have been more than 12 hours (it doesn't matter at all whether it was or not). When [he wakes] up [Tim's] watch is indicating 2.00 o'clock, and is still doing so a few minutes later. So [his] watch stopped at 2.00– but which 2.00 o'clock? (cf. Heathcote 2012, p. 312, with minor adaptions.)

Then, Heathcote goes on to remark on (C-H) as follows:

> Even if we suppose that at the first moment that [Tim] looked at [his] watch it was actually 2.00 o'clock, I think we'd agree that [Tim has] at that moment an unjustified true belief that it was 2.00. And that it *was* unjustified is revealed to [him] clearly a few moments later when [he notices] that [his] watch had stopped at 2.00 some unknown time earlier. [Tim does not] know what time it is, and won't know from that moment on. And this has nothing to do with Gettier-type problems. (cf. Heathcote 2012, pp. 312-313, with original emphasis and minor adaptions.)

In regard to (C-H), I am curious about what roles the details that Tim is shut down in a cell and that Tim thinks he falls asleep for more than 12 hours exactly play in this case. Evidently, this scenario reveals that Tim in the case of (C-H), *by himself*, fails to figure out which 2.00 o'clock his stopped watch indicated and therefore cannot in principle specify the exact time when his watch stopped. And this is crucial for Heathcote, since he wants to conclude that Tim in (C-H) is unjustified in believing (and hence does not know) what time it is. When we compare (C-H) with (C-G), however, an interesting observation suggests that Tim in (C-G) and Tim in (C-H) are positioned with a similar epistemic status, because Tim in (C-G), *by himself*, is unable to figure out which 2.00 o'clock his stopped watch really indicated when he reads the actual time by pure coincidence. I think the case of (C-H) actually reveals what I diagnose in the previous paragraph such that the clock, *by itself*, is incapable of indicating the actual time when the epistemic agent fails to collect and identify the values of those temporally contextual parameters, which in turn implies that whether Tim's watch is running is not as crucial as Heathcote originally conceives.

In order to see the point that I want to emphasize, consider the following case:

**(C-H)* Case:**

Tim is in a windowless cell and food is delivered to him completely randomly. He is wearing a watch that has been highly reliable up to now and for the beginning of his incarceration he is able to keep track of the days and nights by counting the number of times the hands show 12.00 o'clock. Then one 'night' he falls asleep for what feels like a long time, for what he thinks could have been about *24* hours (it doesn't matter at all whether it was or not). When he wakes up, his watch is indicating 2.00 o'clock, and it is still running when Tim has a check of his watch. *In despite of his feeling of being uncertain about how long he falls asleep*, Tim still forms a belief that it is 2:00 a.m. when he looks at his watch after he wakes up.

The problem for us is then: Does Tim in (C-H)* knows that it is 2:00 a.m.? I am inclined to say no! But, what is the reason for me not to ascribe the relevant knowledge of the time to Tim in (C-H)*? It cannot be the reason that is similar to what Heathcote suggests when he diagnoses the case of (C-H). I think, in (C-H)*, the information concerning Tim's feeling of being uncertain of how long he falls asleep becomes salient— since Tim in (C-H)* is isolated from the rest part of world by the windowless cell and is unable to efficiently collect the necessary information of the values of those temporally contextual parameters, it seems epistemic ally less responsible for Tim to form the belief in (C-H)*. It should also be noted that it is not the reliability of the watch in (C-H)* that is questioned here— the time scale schema that is indicated by his watch remains same and it seems that it is Tim *himself* that is unable to read the correct time out of his reliably running watch after he had a long-time sleep. The point can be instantiated from another perspective. Consider the following scenario that may sound somehow odd: Suppose I have a reliable watch that functions properly. I purposely set the watch in a way such that the time schema indicated by the watch delays exactly 15 minutes after the actual time. I know exactly the specific way in which

I set up my watch, which is totally unbeknownst to my friend. Now when I and my friend look at my watch (that is running) in one afternoon and both of us see that the hour arm of the watch is pointing to a position near the point "2" and the minute arm of the watch is pointing to the position of "9" on the watch scale. By reading the same watch, I report that it is 2:00 p.m. now and simultaneously my friend reports that it is 1:45 p.m. Since it is indeed 2:00 p.m., I make a correct time report but my friend does not. The interesting question about this case is: what actual time does my watch indicate when we both look at it? It seems to be no single correct answer to the question. Neither my friend nor I make any mistakes about the time reading by looking at a watch, although the strategies that we apply respectively are indeed different. I bring and saturate the time schema indicated by my watch with the values of temporally contextual parameters, which differ from the ones that my friend uses to read the time out of my watch, even granted that the basic information that we get from the time schema indicated by the watch remains the same. Thus, from a physical point of view, a reliable watch, when it is running properly and indicate 2 o'clock, *by itself*, just indicates *a* (rather than *the*) 2 o'clock, if there is no person who bring the sufficient contextual information together to read *the* 2 o'clock the out of it.

If my analysis presented in above is correct, I have to conclude that the mechanism of time reading is more perplex than the one of the temperature reading, which in turn implies that Heathcote's truth-maker solution to the Gettier-type of the stopped clock cases is inadequate. It is essentially unclear when we consider what state of affair gives rise to an epistemic agent's belief of the time, because there is no explicit causal

chain from the time schema indicated by a reliable clock that is running properly to the state of affairs that makes the target proposition in the agent's belief true. In the remainder of this paper, I will make two brief remarks on the general strategy that is embedded in Heathcote's truth-maker theory.

The first remark concerns whether Heathcote may reply to my objection by appealing to the causal chains or the causal interactions. Heathcote may somehow retreat by conceding that his theory is insufficient to solve the gettiered stopped clock problem, while insisting on the cogency in his theory when the cases involving intrinsic causal chain in which the state of affairs that makes the target proposition true normally gives rise to the agent's belief in question. At first glance, it appears to be promising. I doubt, however, whether the proponents of the truth-maker theory of knowledge would wholeheartedly embrace this causal approach. When being pressed to place emphasis on the causal chains or the causal interaction, the proponents of the truth maker theory of knowledge seem to advocate the so-called causal theory of knowing that was once proposed by Alvin I. Goldman (1967). Against this kind of background, it seems not only that the distinction between the truth-maker theory of knowledge and the causal theory of knowing is blurred, but also that the truth-maker theory of knowledge becomes an abbreviated variant of the causal theory of knowing, which simply requires that the state of affairs that ultimately (if not immediately) causes the agent's belief is also simultaneously the truth maker for the target proposition. If the insight revealed by Goldman (1976) is correct, it turns out that merely causal mechanism, *by itself*, is inadequate for the plausible theorization of the

nature of knowing. This also provides us with another perspective, from which the disagreement between Heathcote (2006, 2012) and Goldman (1976) concerning whether the fake barn case envisioned by Goldman (1976) should be regarded as a Gettier case or not. Heathcote thinks that the fake barn case is not a Gettier case at all, since, according to Heathcote, the possibility embodied by the fake barn case that undermines the agent's relevant knowledge is similar to the skeptical ones, which in turn becomes epistemically irrelevant when we hold a fallibilistic concept of knowing. But Heathcote's argument by appealing to the fallibilism is rather weak. By being a fallibilist, an epistemologist would agree that in order for an agent to know something, the agent in question are not required to be in a position to rule out every error possibility. But the general fallibilistic doctrine by itself does not prescribe what error possibility other than the explicit skeptical ones (such as, the possibilities of being a brain in a vat, being deceived by an evil demon, etc.) need not be considered when a knowledge ascription is made. In this sense, fallibilism does not in principle imply that the possibility embodied in Goldman's fake barn case stands closely to the skeptical ones. Without providing us with a convincing argument, Heathcote's truth maker theory of knowledge would be considered as the one that is suffering from exactly the same problem that revealed by Goldman (1976) for the pure causal theory of knowing, which also illustrates my point that the truth maker theory would be a variant of the causal theory of knowing when the causal mechanism receives more weight in the truth maker theory of knowledge.

The last remark is about the locution of "A is the evidence of B" that is used in

Heathcote's (TM) clause. According to Heathcote, when S knows that *p*, the evidence that S has is the evidence of the state of affairs that makes *p* true. The application of (TM) clause to the normal situations that are similar to (T-N) seems to be acceptable. It turns out to be bothering and problematic when we consider the cases such as (T-G). In (T-G), what does the terms "A" and "B" in the locution of "A is the evidence of B" respectively refer to? It seems that, in (T-G), "A" refers to the state of affairs that the upper level of the column of mercury in the tube of the thermometer. How about "B" then? If we take an internalistic perspective, "B" may still refers to the state of affairs that the inside temperature of the room is 20°C, since Thea in (T-N), who does not recognize the fact the thermometer is broken, thinks that the upper level of the column of mercury in the tube of the thermometer remains indicating the inside temperature of the room. But this kind of explanation is forestalled explicitly by Heathcote's truth maker theory. If, according to the truth maker theory, "B" is forbidden to refer to the very state of affair that makes the target proposition embedded in Thea's belief true, then, what else can "B" refer to? When Heathcote uses the locution that "A is the evidence of B," it seems that he takes an externalistic stance and regards the relation of "… being the evidence of…" as a matter of fact from the naturalistic perspective. I think our puzzle about the locution in question is actually similar to the one that Kim (1988) identifies in the naturalized epistemology. Since there is a normative dimension involved in the relation of "… being the evidence of…," there is no such a matter of fact that determines in each given case what is the evidence of what. Without the specification of the normative criterion of evidence,

which cannot be coined purely by naturalistic, externalistic terms, Heathcote's (TM) clause is indeed ambiguous. Heathcote may object that this criticism does not do justice to his truth maker theory, for the main theoretical goal of his theoretic construction is to solve the Gettier problem by the truth maker of knowledge rather than to engage with the normativity problem of the criterion of evidence. For the sake of argument, we can just grant this reply and go on to see whether this approach really rescue Heathcote's theory from the doomed failure. It is convenient for us to suppose that, in (T-G), the state of affairs that Tim has the evidence for differs from the one that the inside temperature of the room is 20°C. Let us just use the name *B* to designate this state of affairs that Thea in (T-G) has evidence for. Then, from now on, we should bear in our minds that *B* is distinct from the state of affairs that the inside temperature of the room is 20°C. As will be shown soon, it seems that Heathcote's truth maker theory is confronted with a dilemma as such: on the one hand, since *B* is different from the state of affairs that is the truth maker of Thea's belief in (T-G), it becomes mysterious that the evidence of *B* is allowed to play the crucial justificatory role for the belief that the inside temperature of the room is 20°C. On the other hand, if the evidence of *B* cannot justify Thea's belief in question, then, Thea in (T-G) would have an unjustified true belief, which in turn makes (T-G) no longer a Gettier case, because a Gettier case is devised to show how a justified true belief fails to be knowledge. It seems that either horn of the above dilemma is considered as a welcome consequence for Heathcote's truth maker theory of knowledge.

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