

## Consciousness as a HOT Addition

BROOKE BENTLEY

**W**hat makes a person conscious? Debates are raging: some argue that consciousness is merely phenomenal experience. Others say that consciousness must include an intentional aspect also. This paper will explore two requirements for the existence of state consciousness, both of which are necessary but not alone sufficient.<sup>1</sup> In fact, although one side argues that the only requirement for a conscious mental state is the sensing of a stimulus, we will see that what actually makes a state conscious is the addition of a higher-order thought (HOT) to that sense experience.

A simple thought experiment fleshes out this relationship between the HOT and the mental state sensing the stimulus. Suppose I have a nervous habit. Suppose that whenever I think intently about something, I bite my nails. Although I consistently bite my nails, the biting is not severe, so people have not commented on it. I therefore do not introspect my nail-biting habit. Suppose that I begin thinking intently about my future plans and I automatically bite my nails. Is my mental state conscious?

Of course, I am thinking about my plans, so the intentional mental state of thinking and planning (or worrying) is conscious. Technically, some people might argue that I am also having the experience of biting my nails, and so my sensory mental state is also conscious. But I do not consciously feel how the nail grates against my teeth, or the particular taste of the nail in my mouth; I am completely absorbed in my thinking. I am not aware of my nail-biting state. The nail-biting is not conscious. Therefore, the mental, or sensing, state of biting my nails is also not conscious.

<sup>1</sup>The inquiry of this paper is state consciousness, as opposed to creature consciousness. While creature consciousness is merely the ability of a creature to have conscious mental states, state consciousness will be those mental states in which the subject is conscious, or aware, of something.

However, suppose that in the midst of my worrying, I spontaneously notice, “I have been biting my nails again,” and think, “well, that’s okay; it’s not doing much damage.” At this point in time, my mental state has become conscious. I was previously oblivious to aspects of my experience in the physical world that are now conscious. How is it that this mental state has suddenly become conscious?

Rosenthal, the main representative of the higher-order thought (HOT) theory, presents an accommodating explanation. He argues that my higher-order thought “oh, I am biting my nails” makes my nail-biting mental state conscious. However, Browne, using Dretske’s distinction between object and fact awareness, argues that Rosenthal’s theory fails because the fact awareness of the HOT is not sufficient to make my state conscious. In other words, Browne argues that the addition of the HOT to the sense experience is not sufficient, and even unnecessary, for a mental state to be conscious. I will argue that fact awareness is insufficient to make a state conscious, but it is nevertheless necessary. Although Browne’s arguments lead to incorrect conclusions about what is necessary and sufficient for consciousness, I will show that both object and fact awareness are necessary, though not independently sufficient, to make a mental state conscious. Nevertheless, the addition of a HOT, or fact awareness, to a pre-existing object-aware state (which is the common case) is often the deciding factor for whether state consciousness obtains: consciousness is a HOT addition.

### 1. Rosenthal’s Higher-Order Thought Theory

Rosenthal would say that my nail-biting mental state becomes conscious when I become aware of it. In this case, I cannot become aware of the state perceptually, because the content of the state exists perceptually, although unconsciously, all along. I have the mental state that is entailed by my nail-biting the whole time, even though I am not aware of it. Instead, I become aware of the content of my mental state by virtue of the thought “I am biting my nails again.” This thought is a higher-order thought (HOT) about the lower-order mental state.

Because this HOT is about the current lower-order mental state, it makes me transitively *conscious* of that mental state. The HOT is being conscious of the state, thereby making me conscious of the state. The mental state, on the other hand, is what *is* conscious. I am made aware of the content, and therefore the mental state becomes intransitively conscious. Thus, according to Rosenthal, the mental state becomes conscious by virtue of the HOT.

The general rule for state consciousness may be stated as the following: mental state M is conscious if and only if 1) subject S is in M, and 2) S has a suitable HOT about M. This rule, however, says nothing about the consciousness of the HOT. Because the HOT makes the subject transitively conscious of something else, and not the HOT itself, it follows that S will not become aware of the HOT itself. S will only become aware of that which the HOT is about, the content of the mental state. Because the HOT, itself, is unconscious, S will seem directly conscious of the mental state. The relation between the HOT and the mental state is non-inferential and nonobservational. Therefore, although consciousness is conferred by the HOT, it is direct and immediate. Such consciousness consists in such a relation explains the transparency of consciousness.

However, if S introspects, then she becomes aware of her HOT, because a third-order thought makes her transitively conscious of her second-order thought. The mental state of her initial HOT would then become an intransitively conscious state. In the nervous habit example, I would thus become aware that I was aware that I was biting my nails, in that I recognize that I had before been oblivious to the state. Nevertheless, the third-order thought remains unconscious, because it is what makes me conscious of the second-order HOT, thus conferring consciousness upon the second-order mental state of the HOT.

That HOTs can relationally confer consciousness does not entail that all HOTs are transitively conscious. That is, the presence of a HOT and the presence of a certain mental state do not entail each other. I could spontaneously think, “I am biting my nails,” but not be biting my nails at all. In such a case, the thought would not have content. It would not make me transitively conscious or make any particular state intransitively conscious. Also, I could bite my nails and never have a HOT, never realizing that I was doing it. But my mental state would not be conscious.

## 2. Browne's Criticism (from Dretske)

Browne, using a distinction of Dretske, argues that HOT theory does not sufficiently explain how a state becomes conscious. Dretske makes the distinction of the two kinds of awareness: object awareness and fact awareness. One is object-aware when one is directly *conscious of* something. Object awareness demands that the subject be aware of the mental state's content by direct acquaintance. According to Browne, the moment I bite my nails, I am conscious of them. I feel them in my teeth, I hear the crunch, and I taste the peculiar texture. I am immediately aware of those sensations, which are the content of my mental state, and am

therefore conscious of them. For Dretske and Browne, if I am thus directly acquainted with the content of my mental state, then the mental state is conscious. Therefore, object awareness is sufficient to confer consciousness upon a mental state.

In this way, Browne contradicts Rosenthal's claim that a mental state is made conscious by virtue of a HOT. According to Browne, a subject is naturally aware of her mental states, and thus acquainted with the content of those states; they are inherently intransitively conscious. Object awareness is sufficient for consciousness, and therefore states for which the subject is object-aware do not need anything extra in order to make them conscious.

Browne explains that fact awareness, on the other hand, is when one is *conscious that* something is such and such a way. Fact awareness is not the awareness of actual acquaintance, but the awareness *that* a certain experience exists. It does not make the subject acquainted with the content of the mental state, but only points to the fact that there is a particular state. For example, one might imagine an instance in which someone informed me that I was indeed biting my nails (and that there was a certain experience associated with the biting), at a time in which I was completely unaware of my upper body. Then I would only be fact-aware that I was biting my nails. Browne argues that this knowledge would not be sufficient to make my mental state conscious. Indeed, this information would not be sufficient to make me aware of the content of the associated mental state, because I would not be acquainted with that content. I would only know intellectually that the state existed, albeit unconsciously. I would not have any more access to it.

Book knowledge, or fact awareness, has a different epistemological virtue than experience, or object awareness. They are two different ways of conferring consciousness. Browne argues that fact awareness cannot confer the same kind of consciousness as object awareness because of their different epistemological access. Where object awareness is awareness of the content of a mental state, Browne wants to assert that fact awareness is only awareness that a state exists. While object awareness is directly and immediately associated with the content, fact awareness can only point to it.

Browne argues that in Rosenthal's theory, HOTs only make the subject fact-aware. Because they lack the directness and content of object awareness, they cannot sufficiently inform the subject about the content of the mental state. The fact awareness of HOTs makes a subject only artificially transitively conscious; they cannot make the subject sufficiently aware of the mental state to make the mental state intransitively conscious. Consciousness that a certain mental state exists can never inform the

subject of the content of that state. Therefore, fact awareness that a mental state exists is not sufficient to make the mental state conscious, but only informs the subject about the existence of some unconscious state.

Browne offers two examples as support. First, subject S is told she has an unconscious desire. This thought does not make her mental state conscious. Second, thinking about technical brain processes does not make the corresponding mental states conscious. In both cases, fact awareness is not sufficient to confer consciousness on a mental state.

Browne rightly recognizes that fact awareness can never give a subject object awareness. Fact awareness alone is not sufficient to confer consciousness upon a mental state. However, Browne wants to take this claim one step further. He claims that fact awareness is not even necessary for a mental state to be conscious. He argues that my knowing that you have a sore knee does not make your pain conscious. Similarly, my knowing that I have a sore knee does not make mine conscious. What makes me conscious is my object awareness, my immediate acquaintance with my sore knee. Thus, fact awareness is not necessary.

Browne thus presents two points in opposition to Rosenthal. He argues that object awareness is sufficient for consciousness and that fact awareness is not necessary. However, both of these claims are inaccurate. I will argue that while object awareness is necessary to make a mental state conscious, it is not sufficient. I will also argue that fact awareness is necessary but not sufficient to make a state conscious. Both of these claims are consistent with Rosenthal's theory.

### 3. Object Awareness is Necessary but Not Sufficient.

As Browne has shown, object awareness is necessary in order for a mental state to be conscious. A mental state cannot be conscious without object awareness because the mental state would lack content. The content of the object awareness is the mental state. Without it, there would be nothing for us to be conscious of. By saying that the mental state is conscious, we are essentially saying that we are object-aware of the content of that state. Thus, object awareness is necessary for a state to exist, and for a state to be conscious.

Granted that object awareness is necessary, is it also sufficient to make a state conscious? Sufficiency does not follow logically from necessity, but in this case, Browne argues that it does. He argues that "object awareness, not fact awareness, is what makes the difference" about whether I am conscious of the pain in my knee. He argues that, to make a state conscious, only object awareness is capable of placing me in the

required relation to that state. Only the object awareness of the mental state, the awareness of having the sore knee, can make the state conscious, and it does. My object awareness of the sore knee makes the corresponding mental state conscious. Therefore, Browne concludes that object awareness is sufficient to make a mental state conscious.

However, two counter examples show that Browne's conclusion cannot be right—object awareness is not sufficient to make a state conscious. These two counter examples present instances in which the subject is object-aware, but the corresponding mental state is not conscious. First, consider subliminal perceptions and blindsight cases. For example, blindsight patient P cannot see in a certain visual field: she is blind in that field. In an experiment, she is shown vertical and horizontal mail slots in the blind field and then asked to deposit an imaginary letter in an imaginary slot. The remarkable result is that she often posts the letter in a slot that is vertical or horizontal, corresponding to the slot that she did not see in her blind field. Similar results from many experiments clearly show that subjects process information from their unconscious or blind fields.

In these cases, subject S processes information, which entails the involvement of some mental state. She is even able to access the information of these mental states, although unconsciously, for related activities. In each case, S is acquainted with the content of the mental state, and therefore object-aware of the state. But S is not aware of her acquaintance with the content of the state because the *state* itself is unconscious. So, S is object-aware of the content of mental state, although the state is unconscious. Therefore, object awareness does not entail that a mental state is conscious; it is not sufficient to make a mental state conscious.

Second, consider an instance in which a person drives to a destination completely absorbed in his thoughts. Upon arrival, he wakes up and realizes that he cannot recall anything about the trip. He completed the process unconsciously, but he must have had some awareness in order to successfully maneuver the car to his destination. During the drive, he must have had rather extensive object awareness. He must have been aware of his car, the road, the way to get to the destination, unexpected or unusual elements along the way, etc. The content of his mental state must have been extensive and quite complex, and yet he cannot recall anything about it. He was object-aware of the content of the mental state, and yet completely unconscious of that state. Therefore, the object awareness was not sufficient to make the mental state conscious.

These two examples are representative of all the mental states that object awareness does not make conscious. Therefore, object awareness cannot be sufficient to make another mental state conscious. Object

awareness is thus necessary, but not sufficient, to make a mental state conscious.

#### 4. Fact Awareness is Necessary but Not Sufficient.

As Browne has shown, fact awareness is not sufficient. A mental state with only fact awareness is not conscious. For example, Browne argues that if someone tells subject S that she has an unconscious desire, S would not thereby become conscious of that mental state. The thought, or being only fact-aware about her desire, does not make her mental state conscious. Therefore, fact awareness cannot make mental states conscious. Similarly, Browne argues that thinking about technical brain processes does not make the corresponding mental states conscious. Being fact-aware of the physical processes does not make conscious the mental state that has those processes as content. Therefore, fact awareness is not sufficient to make a mental state conscious.

However, Browne then makes an invalid inference, and concludes that since HOTs are not sufficient for consciousness, they are also not necessary. He argues that they are not needed in any way to make a mental state conscious. Fact awareness alone of a sore knee, or only knowing that I have a sore knee by virtue of a HOT, does not make the mental state of having the sore knee conscious. He argues that only the sore knee itself is sufficient to make the state conscious.

Nevertheless, Browne does not argue for this conclusion, he merely asserts the claim. Rosenthal's theory conceptually proves why this claim is false. As previously discussed, when we become aware of a mental state, then the state is intransitively conscious. Something is required to make us thus aware of the mental state; we are not inherently aware. This is demonstrated by the examples in which the subject is object-aware, but the states are nevertheless unconscious. In such cases, the subject is acquainted with the content of the mental state, but unaware that she has the state. Therefore, object awareness is not sufficient to make a state conscious. Something else is required to put the subject in the necessary relation to the mental state to make her thus aware.

That something, in Rosenthal's theory, that is required to make the subject aware, is the HOT. Intransitive state consciousness comes from a relation between the subject and the HOT that makes the subject aware of the state. Only through the relation of the HOT to the mental state, can the state become conscious. So, while fact awareness is not sufficient, it is necessary to make the mental state conscious. Consciousness, or sufficient awareness of the state, is not possible otherwise.

So, for Rosenthal, object awareness of the sore knee is not sufficient to make the mental state conscious. The soreness could exist without it being conscious. But, when I have a HOT that “my knee is sore,” and am thus fact-aware of the knee’s condition, then I am sufficiently aware of the mental state associated with having a sore knee—the mental state is conscious.

Similarly, when I unconsciously bite my nails, I am directly acquainted with the content of that mental state, even though I am not consciously aware of it. However, when I spontaneously have the HOT, “I am biting my nails again,” then this fact awareness makes the mental state conscious. Therefore, in both examples, the fact awareness is necessary to make the mental state conscious. In both cases, the state would not have otherwise been conscious. Fact awareness is thus not sufficient, but necessary, to make a mental state conscious.

### 5. A Rosenthalian Defense

Object awareness and fact awareness are each necessary to make a mental state conscious. Without either one, the state cannot be conscious. Rosenthal’s theory is consistent with this claim. It specifically points out the necessity of fact awareness. But Browne misinterprets Rosenthal when he assumes that Rosenthal denies that object awareness is necessary to make a state conscious. Rosenthal assumes the necessity of object awareness. Only when the subject is object-aware does the possibility exist for the state to become conscious. Only a HOT that is an addition to a mental state that already has object awareness can sufficiently make the state conscious. So, Rosenthal grants the necessity of object awareness, along with the necessity of fact awareness.

One might argue against the necessity of either object or fact awareness by arguing that one or the other is sufficient in itself. Upon examination, however, every such claim ignores the actual presence of the other awareness. As shown, when Browne claims that object awareness is sufficient, he ignores the essential role of fact awareness that makes the state conscious. The necessity of fact awareness to make the state conscious proves that object awareness is not sufficient.

One might also argue that fact awareness is sufficient to make a state conscious. For example, one might argue that fact awareness can make one conscious of a difference or change in mental states, thereby making the mental state conscious. Even though a subject is not directly acquainted with the content of a state, she detects that a change has occurred; she is

fact-aware that the content of the state is different. Therefore, the state is conscious, and fact awareness is sufficient to make the state conscious.

However, this cannot be completely accurate. Fact awareness seems sufficient because one ignores the implicit object awareness. In order for the subject to be fact-aware that a change has taken place in the mental state, she must have had some awareness of the content of that state. Therefore, she must have also had object awareness, no matter how unspecified, in order to discern the change. Thus, although fact awareness appears to be sufficient, this case presupposes object awareness, which is also necessary.

Browne interprets Rosenthal as making this kind of incorrect claim. He argues that, in the special case of introspection, Rosenthal claims that the third-order, pure fact awareness of the second-order HOT makes the second-order HOT conscious. According to Browne, the consciousness appears to arise from only fact awareness and no object awareness. Browne says that this is like the invalid claim that because I have a thought about the moons of Jupiter (thus being fact-aware about the moons) I *am* conscious of the moons (thus being object-aware of the moons). However, both Browne's interpretation and analogy of Rosenthal's argument are inaccurate.

Rosenthal argues that when a second-order HOT becomes conscious by virtue of a third-order thought, the second-order thought becomes the content of the intransitively conscious mental state. So, the third-order thought makes the subject fact-aware that there is a mental state with the content of the specific second-order thought. But the second-order thought is the content of this mental state in a special way: knowing that the second-order thought exists is knowing the second-order thought by acquaintance, because the thought is so specific. In introspection, the subject becomes object-aware of the second-order thought because the third-order thought necessarily gives the subject fact and object awareness of that mental state. Therefore, although fact awareness seems to be sufficient to make a mental state conscious, the fact awareness also entails (and produces) an object awareness in the subject. Both awarenesses make the state conscious. Fact awareness is not sufficient, because object awareness is also necessary.

Browne argues that Rosenthal claims that introspection (misinterpreted to be a third-order thought that produces only fact awareness) makes the second-order HOT conscious. We have seen how this is inaccurate in two respects: 1) the third-order thought also makes the subject object-aware, so Rosenthal is not claiming that fact awareness is sufficient for the state to be conscious, and 2) it is the mental state which contains the HOT, not the HOT itself, that is conscious. Browne argues that this (misinterpreted) argument is like saying that thinking about the moons of

Jupiter makes me object-aware of them (and therefore conscious of them). This analogy fails in two ways.

First, Rosenthal's introspection argument is not analogous to Browne's example. The introspection instance is qualitatively different from any other instance; the content of the second-order state is qualitatively different from the content of the third-order state. Second-order states can have a wide variety of contents, but third-order states can only have the highly specified mental states that contain only a HOT that makes another state conscious. This distinction is not maintained in Browne's analogy because the second-order state does not contain a HOT that makes another state conscious. It merely contains thoughts about the moons of Jupiter.

Second, Rosenthal would not even claim that the mere fact awareness of thinking about Jupiter's moons would confer object awareness about them. The thoughts are not suitable HOTs, only thoughts. However, while the content of this kind of thought cannot make a person object-aware, the thought itself is the content of some other mental state. The subject is automatically object-aware of having the thought. So, if the subject had a thought about having the thought, thereby becoming fact-aware of the second mental state (the object awareness already existing), then the mental state about the thought would become conscious. The thought about the moons of Jupiter is not conscious, but the mental state of having the thought would be conscious. The mental state of the thoughts is independent of the subject's actual experience of the moons.

Rosenthal argues that fact awareness is not sufficient for a mental state to become intransitively conscious, because object awareness is also necessary. A subject becomes conscious of a mental state when she has both fact and object awareness.

## 6. Consciousness is Often a HOT Addition.

The addition of a suitable HOT is often what makes conscious the state that has object awareness. The positive existence of the HOT, and not the existence of object-awareness, is the determining factor of whether a state becomes conscious. The presence of the HOT reflects a difference between fact and object awareness. While a subject is acquainted with the content of a mental state, the state is nevertheless often unconscious. The deciding relation that makes the state conscious is lacking. But, with the addition of a HOT to an already existing object awareness, the state becomes conscious.

However, the HOT must be a suitable one. Browne argues that thinking about one's physical brain processes does not make one's mental state conscious. Although one has fact awareness that the processes do exist, one lacks object awareness or direct acquaintance with them. However, Browne is once again missing the point. If one is thinking about physical brain processes (or the moons of Jupiter), then one's mental state does not contain the information about the processes but contains the thoughts. So, no HOT is going to make one directly conscious of, or acquainted with, the brain processes. But, a HOT *about* the thinking about the processes would be sufficient to make the mental state conscious. One is already directly acquainted with the thoughts. The addition of a suitable HOT would make the state conscious.

Similarly, Browne argues that my knowing that you have a sore knee, or my being fact-aware that you have a sore knee, does not make my mental state conscious. This is true, not because fact awareness cannot make a person's mental state conscious, but because that knowledge is not the content of my mental state. Again, the content of my mental state would be the thinking or knowing. To make that state conscious, I would need a HOT about that thinking or knowing. The HOT (if it is one) that your knee is sore is not sufficient to make my mental state conscious.

Browne also argues that my knowing that *I* have a sore knee is not sufficient to make conscious my mental state of having a sore knee. Again, this is also true, not because fact awareness is not necessary, but because object awareness is also required. If someone were to tell me that I had a sore knee, but I did not feel pain, the mental state of feeling pain would not be conscious (or perhaps even existent). However, if someone informed me that my knee was sore and then punched it really hard, the mental state of that pain would immediately become conscious. If I am object-aware of the soreness, then the additional HOT makes my mental state conscious. Otherwise, the possibility still remains that I would not notice the soreness, because the object awareness is not sufficient to make a state conscious. In both of these instances, the addition of the suitable HOT is the final requirement needed to make the mental state conscious.<sup>2</sup>

While cases exist where object awareness is added to an already existing HOT to make a state conscious, they are unusual. For example, in

<sup>2</sup>One might object that a suitable HOT might not exist for every mental state, even if the subject is already object-aware. For example, even though the blindsight patient is object-aware of the content of her mental state, no HOT might make that state conscious. This only means that while object and fact awareness seem to be generally sufficient to make a mental state conscious when they are combined, they are not always sufficient.

a case of mental illness, a person could have a genuine HOT about a mental state but not have the mental state. A hypochondriac might think that he has a serious illness but have none of the physical symptoms. Nevertheless, in his mental illness, he might physically feel that he has the actual illness. From his false fact awareness, he creates the mental state associated with his nonexistent sickness and is thus object-aware (although falsely so) of that state. The mental state associated with his sickness thereby becomes conscious, although not genuine. Therefore, object awareness that is added to fact awareness can make a mental state conscious, although in a peculiar way.

The far more common occurrence in making a mental state conscious is the addition of a HOT. So, contrary to Browne's claim, consciousness is, in part, derivable from a HOT. That is, consciousness is often the result of adding a HOT to a mental state. While object or fact awareness alone is not sufficient to make a mental state conscious, they are both necessary. So, when I am absorbed in my thoughts, chewing on my nails, I am truly oblivious to the world. But, given my object awareness, albeit unconscious, of my nail-biting state, when the fact awareness of the HOT comes along, informing me that I am biting my nails, my state is made conscious. Then maybe I can do something about it—consciousness is a HOT addition.

## Works Cited

- Browne, Derek. "Consciousness is not HOT." [http://www.phil.canterbury.ac.nz/derek\\_browne/hot.html](http://www.phil.canterbury.ac.nz/derek_browne/hot.html).
- Rosenthal, David. "A Theory of Consciousness." In *The Nature of Consciousness: Philosophical Debates*, edited by Ned Block, et al., MIT Press, 1997.