

Phenomenal Space and the Unity of Conscious Experience

Douglas B. Meehan
Philosophy and Cognitive Science
City University of New York, Graduate Center
365 Fifth Avenue
New York, NY 10016-4309
U.S.A.

dbmeehan@yahoo.com

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ABSTRACT: One's contemporaneous conscious mental states seem bound in a single, unified experience. Dainton argues, against what he calls the S-Thesis, that we cannot explain such co-consciousness in terms of states' being located in a single phenomenal space, a functional space posited to explain our ability to locate ourselves relative to perceived stimuli. But Dainton's argument rests on a conflation of egocentric and allocentric self-localizing, and thus fails to undermine the S-Thesis. Nevertheless, experiments on visual neglect (Bertelson et al., 2000) suggest one can have unconscious mental states that are located in the same phenomenal field, so the S-Thesis fails after all. I examine a modified version of the S-Thesis according to which mental states are co-conscious when one is aware of them via a higher-order sensation that represents them as located in the same phenomenal field. But among other problems, this view fails to explain the co-consciousness of intentional states, which aren't located in phenomenal fields. Finally, I argue that a higher-order-thought model of consciousness (e.g., Rosenthal, 1997, forthcoming) best explains the apparent unity of experience in terms of one's tacit assumption that all the first-person thoughts in virtue of which one is conscious of one's mental states refer to the same individual.

1. Introduction

At any given waking moment, one consciously experiences an amalgam of diverse mental states. My current experience includes visual sensations of my computer screen, tactile sensations of the keyboard, auditory sensations of a truck, a feeling of tension in my back, and thoughts about what I will write next. These simultaneous mental states seem unified in one consciousness.

Barry Dainton (2000) dismisses a number of explanations of such simultaneous co-consciousness, concluding that it is a basic, but inexplicable relation. Among the accounts Dainton rejects is the view that two states are co-conscious in virtue of being located in the same phenomenal space. Though I will argue that Dainton's argument against this view fails, I offer other reasons for denying it. I then examine a modified version that attempts to explain co-consciousness in terms of a higher-order-sense view of consciousness. Finally, I argue that co-consciousness is better explained in terms of a higher-order-thought model of conscious, such as David M. Rosenthal's (1997).

2. Projectivism, Phenomenal Space, and the S-Thesis

Among the explanations of simultaneous co-consciousness Dainton rejects is the S-Thesis:

.. simultaneous experiences are co-conscious solely in virtue of occurring at the same time within a single unified three-dimensional phenomenal space; being thus spatially connected is both sufficient and necessary for co-consciousness. (p. 61)

Understanding this thesis requires an understanding of Dainton's theory of perception.

Dainton adopts a Lockean projectivist theory of perception, according to which the properties we perceive objects as having are actually properties of our perceptual states. We indirectly perceive the nonmental causes of sensations in virtue of being directly aware of the properties of the sensations (p. 18). For instance, when one sees a Coke can, one perceives it as being red. But it is one's visual sensation, not the can, that is red. It is in virtue of being aware of the redness of one's visual sensation that one perceives the can.

Projectivism is recommended by two familiar arguments. First, we see surfaces as uninterrupted expanses of color. The can's surface seems saturated with redness. But, according to physics, between the molecules composing the surface are pockets of empty space. Since the surface is full of empty spaces, but expanses of color are not, colors are not properties of these surfaces (p. 15).

Second, visual sensations of color occur in the brain at the end of causal chains usually beginning at photon-emitting surfaces. But sensations of color can occur in the absence of such stimuli, as hallucinations show. Since one can have the same kind of sensation with or without the normal stimulus, the color must be a property of the sensation, not the stimulus. Likewise for sounds, smells, textures, and the other so-called secondary qualities (p. 15-16).

According to Dainton, projectivism suggests that conscious experience has a spatial character. One ordinarily mistakes colors, sounds, and smells as properties of perceptible stimuli, but these immediate objects of experience are actually phenomenal properties of sensations. So though secondary qualities seem to us to be located in perceptible space, they are actually located in a three-dimensional mental, or phenomenal, space.

The plausibility of phenomenal space is strengthened by Dainton's account of hallucination. When one hallucinates a vase one presumably has the same kind of experience one has when one actually sees a vase; the difference is that only seeing is veridical. One sees the vase as being in a particular location and as having a particular shape and size. Since the vase is absent in the case of hallucination, the apparent shape, size, and location must be properties of the hallucinated vase, a phenomenal object. If there are phenomenal spatial properties of such phenomenal objects, it makes sense to speak of phenomenal space.

Phenomenal space is, then, a three-dimensional mental replica of perceptible space in which secondary qualities such as colors and sounds are phenomenally located. Since all of one's sensations seem to be phenomenally located, perhaps being so located is what makes them co-conscious. Dainton calls this claim the S-Thesis.

But there are problems with projectivism that may seem to undercut the S-Thesis. After raising these problems, I will show that, in fact, the S-Thesis does not rest on projectivism.

The first problem is that projectivism seems to preclude unconscious perception. According to projectivism, we indirectly perceive nonmental causes of our experiences in virtue of being directly aware of our experiences. So we cannot perceive stimuli without being aware of our perceptions of them. This seems to preclude unconscious perception, since arguably an experience is conscious when, and only when, one is conscious of it. [1](#) But there is good evidence for the distinction between conscious and unconscious perception. For example, masked-priming experiments show that subjects see stimuli they are unaware of seeing. Though the subjects deny seeing the masked prime, it affects their subsequent behavior and reasoning. Studies on blindsight (Weiskrantz 1986), visual-form agnosia (Milner & Goodale 1995), and change detection (Fernandez-Duque & Thornton 2000; Simons et al. 2002) provide similar examples.

Second, according to projectivism secondary qualities, such as colors, are mental properties not stimulus properties. So our ascriptions of color to stimuli are always false. But both perceptual experiences and stimuli have spatial properties, though the former

have phenomenal spatial properties and the latter have perceptible spatial properties. So our ascriptions of location, shape, and size to stimuli are not systematically false. Given that we can explain the spatial character of sensory experience without concluding that our ascriptions of spatial properties to stimuli are systematically false, we should be able to do the same for ascriptions of colors, sounds, and smells. This is important in light of the highly counterintuitive nature of the claim that ascriptions of colors to stimuli are always false. And, though sometimes unavoidable, such counterintuitive claims should be avoided when possible. A theory that avoids attributing systematic error will be better off for it.

3. The S-Thesis and the Homomorphism View of Sensory Quality

Projectivism claims both that we are mistaken in our ascriptions of colors, sounds, and textures to perceptible stimuli and that we perceive stimuli in virtue of being directly aware of our sensations. The latter claim seems false because we can perceive stimuli without being conscious of perceiving them. And a theory that maintains the truth of our everyday ascriptions of colors, sounds, smells, and textures to stimuli is preferable on commonsense grounds.

But even if these projectivist claims are false, perception still requires mental properties similar to those posited by projectivism.

One can only perceive the difference in color between red and green stimuli if one's visual sensations differ in some way corresponding to the difference between red and green. For every color discrimination one makes, one's visual states must have a corresponding mental color. But one need not be conscious of a state's mental color in order for it to enable the perception of a color. It is in virtue of having these properties that sensations perform their perceptual roles.

Likewise, that one can visually perceive differences in stimulus shape, size, and location suggests that one's visual sensations differ in ways corresponding to these perceptible spatial differences. So there must be mental shapes, sizes, and locations. Such properties constitute a mental visual field, a functional space that enables one to perceive spatial differences among colored stimuli. As such, mental spatial properties are higher-order properties of mental colors. And like mental colors, one need not be conscious of mental spatial properties for them to enable perception of stimulus shape, size, or location.

In addition to perceiving differences and similarities between stimuli, one can perceive degrees of difference and similarity. For instance, we see red as more similar to orange than it is to green. This suggests that, not only are there mental counterparts to perceptible differences, but those mental counterparts resemble and differ from one another in ways parallel to the ways their perceptible counterparts resemble and differ

from one another. So mental red is more similar to mental orange than it is to mental green. The similarities and differences among mental colors are homomorphic to the similarities and differences among perceptible colors. This view applies equally well to the other so-called secondary qualities, such as sounds, smells, and textures.

It also applies to spatial sensory qualities. One can see spatial similarities and differences between colored stimuli. For instance, a red patch off to the far left and a red patch slightly off to the left are more similar to one another than either is to a red patch off to the right. Being off to the far left is more similar to being slightly off to the left than either is to being off to the right. One perceives these similarities and differences in virtue of having visual sensations with properties that resemble and differ from one another in parallel ways. Being mentally off to the far left is more similar to being mentally slightly off to the left than either is to being mentally off to the right. <2>

According to this view, there are both perceptible properties and corresponding mental properties in virtue of which we perceive them. Perceptible colors are properties of light-reflecting surfaces and mental colors are properties of visual sensations. Likewise, perceptible shapes are properties of physical stimuli and mental shapes are properties of sensations. But we refer to both a perceptible property and its mental counterpart with the same predicate. Stop signs are red and sensations of them are mentally red. We use 'red' to refer to the perceptible color when we utter the sentence 'Stop signs are red'. And we use 'red' to refer to the mental color when we utter 'When I see a stop sign I have a sensation of red'. Since there are perceptible colors, ascriptions of colors to surfaces are not systematically false. So we avoid the inevitable systematic error to which Dainton's projectivism is committed.

This view has the added benefit of explaining the counterpart relation between mental properties and their perceptible counterparts independently of their resembling or being identical to them. A visual sensation does not enable the perception of red in virtue of being red. It merely resembles and differs from other mentally colored sensations in ways parallel to the ways that red stimuli resemble and differ from other colored stimuli. And visual sensations need not be next to one another in order for one to see two stimuli as next to one another. They merely need to relate to one another in a way that corresponds to the way stimuli that are next to one another in the field of view relate to one another.

Since spatial sensory qualities are posited to explain how we perceive spatial properties of stimuli, we might posit a cross-modal family of spatial qualities, or cross-modal sensory field, to explain cross-modal perception, e.g., when one perceives a sound as coming from where one sees a bird. Since all of our sensory experiences seem to correspond to some location of a stimulus, suggesting their mental location in a sensory field, maybe being mentally located in such a field is what makes simultaneous mental states co-conscious. This is, in effect, the S-Thesis.

4. Dainton's Objections to the S-Thesis

Dainton claims, however, that we can imagine co-conscious mental states located in different phenomenal spaces. This, he argues, suggests that the S-Thesis is false.

Dainton offers the following thought experiment. Imagine your brain is removed from your body and placed in a vat. Though your brain is separated from your body, it remains connected to it by radio transmitters. In addition, it is connected via radio to artificial eyes and ears that are separated from your body.

With your new eyes and ears turned off, your body is dropped in the ocean. You feel the water around you and realize where you are but you see and hear nothing. You locate yourself just by your bodily sensations.

Your eyes and ears are then placed on top of a mountain and activated. You see a bird and hear its call. Meanwhile, your body remains underwater.

According to Dainton, it might seem to you that you are in two places at once; your body feels like it is underwater and your eyes and ears make it seem that you are on a mountain. Since you seem to be in two places, your bodily and audio-visual sensations must be located in different phenomenal spaces. Nonetheless, they are co-conscious. Since, Dainton argues, the states are co-conscious without being present in the same phenomenal field the S-Thesis is false.

But even if we can imagine Dainton's scenario, it does not establish that the S-Thesis is false. It merely establishes that our conception of co-consciousness, or what we take that conception to be, is different from the S-Thesis. Our imagination is not a reliable enough gauge of reality for it to establish anything more.

Also, it is unclear that in this situation you would seem to be in two places at once. It is likely that you would seem to be on the mountain having hallucinatory bodily sensations of water, or visa versa. One can hallucinate without thinking one's sensations are veridical. For instance, one can hallucinate an elephant in the refrigerator while thinking that there is no elephant there. One thinks one is just "seeing things."

In fact, there is further reason to think that even if you did seem to be in two places, your so-seeming would be due to something other than your bodily and audio-visual experiences' being located in separate phenomenal fields. You would, no doubt, maintain cross-modal integration, such as hand-eye coordination. When asked to point at the bird, you would point even though your finger would feel like it was underwater. Your kinesthetic sensations would still be calibrated to your visual sensations even though you would not successfully point at the bird. This suggests your bodily sensations would be located in the same phenomenal field as your audio-visual sensations. So, if you did seem to be in two places at once, this must be due to some other factor involved in your locating yourself, not the phenomenal locations of your sensations.

Dainton anticipates this objection. He claims this maintained cross-modal integration would indicate only that the sensations are located in the same *imagined* phenomenal space, not the actual one (p. 83).

But the only factor that could be cited to distinguish imagined from actual phenomenal space is the connection between phenomenal and perceptible space; imagined space inaccurately represents perceptible space, as indicated by your pointing at the seabed when trying to point at the bird. But phenomenal space often inaccurately represents perceptible space, as cases of illusion show. So, again, your seeming to be in two places at once does not entail that your sensations would be co-conscious without being located in the same phenomenal field.

In addition, the thought experiment rests on the assumption that since it would seem to you that you are in two different places, your bodily and audio-visual sensations would be located in two distinct phenomenal fields. And this rests upon the assumption that it is one's sensations alone that enable one to locate oneself.

But we locate ourselves in two different ways: relative to perceived objects and relative to unperceived landmarks. Only the first is enabled by sensations alone.

One can locate oneself relative to the entities one currently perceives. One is in front of a blue sign, on a hard sidewalk, below the sound of a jet. Such localization involves perceiving these stimuli. And one does this in virtue of having sensations with mental colors, sounds, and pressures located in a phenomenal field. One has a sensation of blue mentally ahead, a sensation of a hard sidewalk mentally below, and a sensation of a jet's noise mentally above. To locate oneself in this way, one just needs to have sensations with these mental locations.

But sensations are insufficient for locating oneself allocentrically. If one is lost in a library, one can locate oneself relative to the books one sees, but one cannot find the exit. Locating oneself relative to perceived entities isn't enough to locate oneself relative to unperceived ones, such as an unseen door. Likewise, standing in a movie set of Times Square one might think one is in New York, when one is actually in Hollywood. One correctly determines that one is in front of the Sony sign and beside a subway entrance, but wrongly localizes oneself in New York. One cannot allocentrically localize oneself simply based on what one perceives in one's immediate surroundings because two differently located environments can be perceptibly identical.

That one cannot distinguish between a replica of Times Square and Times Square itself based on one's sensations alone indicates that locating oneself relative to entities one is not currently perceiving requires more than just one's sensations.

Nonetheless, to someone who makes this mistake it seems like they are in Times Square. One will accurately localize oneself relative to perceived landmarks, such as the Sony display, but not to unperceived landmarks, such as the Mississippi River. So where one seems to be allocentrically depends on more than just the mental locations of one's

sensations in virtue of which one perceives the locations of colors and sounds in one's immediate surroundings.

So, in Dainton's scenario, that you seem to be in two places does not entail that your bodily and audio-visual sensations are located in different phenomenal fields. It would entail this only if it were in virtue of one's sensations alone that one located oneself allocentrically. Since this is not the case, something other than the mental locations of your sensations makes it seem to you that you are in two places at once. Locating oneself allocentrically may involve one's beliefs, not just one's sensations. Perhaps you know that scientists can put your body and eyes and ears in different places and, since you also know that sensations of water and sensations of bird-calls never coincide, you infer that they have done this to you.

Nonetheless, the S-Thesis is false. Sensations can be spatially integrated without being co-conscious. Paul Bertelson et al. (2000) show that visual stimuli presented in neglected fields of subjects with unilateral visual neglect induce visual biasing of auditory perception. Though the subjects are unaware of seeing visual stimuli presented in their neglected fields, when they are asked to point to auditory stimuli, they do so inaccurately. Moreover, the inaccuracy indicates a strong influence from the visual stimuli.

This explanation relies on subjects' actually seeing the visual stimuli and on the spatial integration of visual and auditory sensations. Since the subjects see the stimuli without consciously seeing them, and since seeing them affects their pointing at auditory stimuli, their visual and auditory sensations must be co-present in the same phenomenal field without being co-conscious. So co-presence in a phenomenal space is insufficient for making two states co-conscious. The S-Thesis is false.

But the S-Thesis is not the only way to explain co-consciousness in terms of phenomenal space. I will examine an inner-sense view of consciousness that provides a modified version of the S-Thesis.

5. The Higher-Order S-Thesis

The S-Thesis is false because mental states can be co-present in a phenomenal space without being co-conscious. However, a different phenomenal space might be responsible for their being co-conscious. Such a space is suggested by inner-sense, or higher-order-sense, theories of consciousness.

According to higher-order-sense theories of consciousness (e.g., Armstrong 1980; Locke 1975/1700; Lycan 1996), mental states are conscious in virtue of being detected by an internal sense. Sensing one's mental states would make one conscious of them just as seeing visual stimuli makes one conscious of the stimuli.

Such a view could explain co-consciousness in terms of the higher-order sensory field needed to explain detection of first-order mental states.

Two visual stimuli are spatially unified in virtue of being located in one perceptible field of view, the space in front of one's open, functioning eyes. The stimuli are seen simultaneously because they are both located in that field. And one sees the stimuli in virtue of one's visual sensations' having mental locations corresponding to the perceived locations of the stimuli. So one is conscious of the stimuli as unified in virtue of the mental spatial relations between one's sensations of them.

To explain the co-consciousness of mental states in a similar way, those states must be unified in a mental space detectable by the higher-order sense. And to enable perception of the first-order states as spatially unified, the higher-order sensations of those states must have their own higher-order space corresponding to the first-order space of those target mental states.

Perhaps the first-order states one senses are mentally located in the cross-modal space needed to explain cross-modal perception. Then higher-order sensations will have mental locations corresponding to the mental locations in this cross-modal space. And these higher-order mental locations correspond to the cross-modal locations of first-order states in virtue of homomorphisms, like those that explain first-order sensing.

But Dainton objects to higher-order-sensing views of consciousness (p. 45). He claims that if one is conscious of one's mental states in virtue of having a higher-order sensation of them, then the first-order states will be absent from consciousness. Only the higher-order sensation will be conscious. Since this is absurd, the higher-order-sensation view of consciousness fails.

But this *reductio* rests on the assumption that a higher-order sensation would have to be conscious itself in order to make a first-order sensation conscious. If it were in virtue of the higher-order sensation's being conscious that one were conscious of one's first-order state, then one would be conscious of the first-order state only when one were conscious of the higher-order sensation. So, it would seem, one is only indirectly conscious of the first-order state in virtue of being directly conscious of the higher-order one; only the higher-order sensation is present to consciousness.

But one need not be conscious of one's mental states for them to make one conscious of stimuli. So one's higher-order sensation need not be conscious to make one conscious of a first-order state. The first-order state itself is conscious in virtue of one's having a higher-order sensation of it.

However, there are two problems for the higher-order-sensation view of co-consciousness. First, the cross-modal sensory field needed to explain cross-modal perception is different, in important ways, from the sensory fields needed to explain modality-specific perception. The mental visual field is posited to explain how we can discriminate between colored surfaces based on their spatial properties. Two identically

colored stimuli can differ with respect to location, shape, and size. Visual spatial qualities are the mental analogs of these properties. But we posit them only because we can perceive colored surfaces. Visual spatial qualities are the mental boundaries of mental colors corresponding to the perceptible boundaries of perceptible colors. Those perceptible boundaries, however, are fixed by the physical limits of our visual system, e.g., the eyes can only detect the colors of stimuli in front of them.

Since each sensory modality differs in its physical limits, the perceptible boundaries of modality-specific properties and, thus, their mental counterparts, are distinct. No mental visual locations are identical to any mental auditory locations, nor are they identical to any mental tactile locations.<3> So the cross-modal mental space must be constructed by calibrating modality-specific spaces; it is not, itself, a family of mental properties homomorphic to the spatial properties of cross-modally perceptible stimuli.<4>

Without a cross-modal family of mental spatial properties, we have nothing for the similarities and differences among higher-order spatial sensory qualities to correspond to, so no reason to posit them. So we have no reason to think that simultaneous mental states are co-conscious in virtue of being perceived by an inner-sense.

Also, the higher-order-sense view of co-consciousness does not explain how an intentional state is co-conscious with a sensation. Even if there was a cross-modal mental space, there is no reason to locate thoughts there. The space would be posited to explain cross-modal perception of the spatial properties of stimuli. But thoughts need not even refer to spatial entities. The thought that Sundays are melancholy isn't about anything spatial. So it has no properties corresponding to the spatial properties of its referents. But that thought can be co-conscious with a visual sensation of a square at the center of one's visual field. The higher-order-sensation view will have to explain what properties bind these two states, such that the higher-order sensation will correctly represent them as bound.<5>

Indeed, some mental states involve both sensory and intentional aspects. When one visually perceives a Coke can, one has a visual sensation of the color, shape, and size of the can. But one also perceives *that* there is a can there. Emotions also involve both sensory and intentional aspects. For instance, when chased by a bear, one has a sensation of horror and one is afraid *that* the bear will tear one to shreds. If the mechanism that makes states co-conscious is what makes states conscious, higher-order sensing fails to make perceptual and emotional states conscious because intentional states are not located in any mental field.

In fact, since one can have a thought about something completely void of perceptible, sensible, or emotional qualities--e.g., the thought that the law aims at justice--one might wonder what qualities, akin to mental colors, shapes, or sounds an internal sense would detect. A higher-order-sensing view of co-consciousness must explain the properties in virtue of which one is conscious of one's conscious thoughts. Without such an explanation, the higher-order-sense modification of the S-Thesis is untenable.

6. An Alternative to the Modified S-Thesis: Higher-Order Thoughts

Nonetheless, we need not conclude that co-consciousness is basic and inexplicable.

Though one cannot see two entities at the same time unless they are both present in the same space, i.e., the field of view, one can think about two things regardless of their spatial relations. For instance, one can think that Sundays are melancholy and Toledo is in Spain. Likewise, one can think about both another thought and a perceptual experience at the same time even if they are not both located in a mental space. Perhaps if one were conscious of one's mental states in virtue of having higher-order thoughts about them, those conscious mental states would be co-conscious in virtue of being targets of the same higher-order thought.

Rosenthal (1997) has argued for a higher-order-thought view of consciousness according to which a mental state is conscious when one has a suitable first-person thought that one is in the state in question. Two mental states could be co-conscious in virtue of one's ascribing them to oneself in the same higher-order thought. My thought that Sundays are melancholy and my sensation of blue are co-conscious because I have the higher-order thought that I both think that Sundays are melancholy and have a sensation of blue.

But Dainton raises an objection that may seem to apply to this view. According to Dainton (p. 49-50), co-consciousness cannot result from an awareness that simply reveals, without adding anything to, the nature of one's phenomenal states. Those states would already have phenomenal qualities; they are experiences independent of any act of awareness directed upon them.

This would apply to the higher-order-thought view if the states Dainton refers to as phenomenal states were conscious in virtue of having phenomenal properties. For instance, if phenomenal properties were intrinsically conscious, as many people think, then a revealing act of awareness would be superfluous. And Dainton's projectivism, as I've suggested, may commit him to the intrinsicness of consciousness to sensations in virtue of holding that one is indirectly aware of stimuli in virtue of being directly aware of one's sensations. But phenomena such as masked priming and blindsight suggest that one can have visual sensations without being conscious of them. And arguably a mental state is conscious only when one is conscious of it. So phenomenal properties are either conferred by higher-order thoughts or they do not, by themselves, make states conscious.

But the homomorphism view of perception avoids this problem. According to this view, mental colors and sounds are simply the properties that enable the perception of stimulus colors and sounds. These are the properties that resemble and differ from one another in ways parallel to the ways their perceptible counterparts resemble and differ from one another. These states can have these properties without one's being conscious of them.

When one has a higher-order thought to the effect that one is seeing red, one is conscious of one's visual sensation in virtue of its being mentally red; having that property makes the state a token of that particular type. The higher-order thought does not alter the state's intrinsic character to make it conscious; it merely represents to one the kind of state one is in.

One might object that, except in cases of introspection, there simply is no such higher-order thought about one's conscious experiences. We have conscious experiences without thinking about them.

No doubt, this is how things seem to us. But it would only seem to one that one had a higher-order thought about one's current experience if that higher-order thought was itself conscious. But, just as an unconscious thought about an apple makes one conscious of an apple, an unconscious higher-order thought about a current mental state can make one conscious of that state. In this case, it would not seem to one that one has a higher-order thought about the mental state because one would not be conscious of having that higher-order thought.

But another problem arises for the higher-order-thought model of co-consciousness I've proposed. One can have any number of thoughts at a given time. So there is no reason to think that one cannot have more than one higher-order thought at a time. According to the view I have proposed, this would result in simultaneous conscious states that don't seem co-conscious. And, even if this never happened, an account of diachronic co-consciousness must explain how higher-order thoughts at different times can unify mental states in one stream of consciousness.

We can explain this in terms of the subject to which a higher-order thought ascribes mental states (Rosenthal, forthcoming). The mental analog of 'I' functions like the first-person pronoun; it is an essential indexical. When one says, "I am hungry," one ascribes hunger to oneself in virtue of 'I' referring automatically to the speaker of the sentence. Likewise for first-person thoughts. When one thinks, 'I am in pain,' one simply ascribes pain to the thinker of that very thought. The mental analog of 'I' automatically refers to the thinker of that thought. A higher-order thought, inasmuch as it is a first-person thought, thus attributes a mental state S to the thinker of the thought 'I am in S'.

One might object that this does not guarantee that mental states ascribed to oneself in different higher-order thoughts will be unified in one conscious experience. To guarantee that, one's distinct higher-order thoughts would have to identify the same thinker; 'I' would have to refer to the same thing in all of one's higher-order thoughts.

One way of avoiding this problem is to claim that there is a self to which all of one's higher-order thoughts refer. Perhaps then any mental state attributed to this self will be co-conscious in virtue of that self's being conscious of them all.

Nevertheless, we need not commit to such a Cartesian self to explain the unity of conscious experience. If one implicitly assumed that all of one's first-person thoughts

referred to the same thinker, one would have a sense of the co-consciousness of all states ascribed to that thinker in distinct higher-order thoughts. It would seem to one that all of the states attributed in those higher-order thoughts were unified though perhaps there is no single self that is conscious of all of them.

Such implicit assumptions are not unique to first-person ascriptions. For instance, when one thinks, 'My keys were here a minute ago,' it seems to one that the place 'here' refers to is the same place it referred to a minute ago when one thought, 'Here is a good place to leave my keys.' Of course, the mental analog of 'here' need not actually refer to the same place at two different times for it to seem to do so. And this is usually the case when one cannot find one's keys. It seems to one that 'here' referred to the same place at both times simply because one implicitly assumes that it did.

The unity of conscious experience could be apparent in the same way that the identity of the referent of 'here' is only apparent in the above case. If one assumes that the two places referred to at different times by 'here' are identical it will seem to be the same place. Likewise, if one implicitly assumed that 'I' refers to the same thinker at different times, or at the same time, the mental states one attributes to the thinker of each thought would seem to be attributed to the same thinker. This sense of unity explains the apparent co-consciousness of mental states ascribed to one in distinct higher-order thoughts.<6>

Notes

<1>. Dainton seems to recognize this distinction. He claims that there are phenomenal experiences one fails to notice. However, his account is not clear on the distinction between being directly aware of and noticing an experience.

<2>. This view was pioneered by Wilfrid Sellars (1956) and has been more recently argued for by David Rosenthal (1999) and Douglas Meehan (2002).

<3>. One might object that though an auditory sensation can represent locations that visual sensations cannot, e.g., a location behind one's head, both sensations can represent the same locations as well, e.g., when one hears a sound coming from a bird one sees. Since a visual sensation and an auditory sensation can represent the same location, there must be mental visual locations that are identical to mental auditory locations.

But even though auditory sensations and visual sensations can represent the same perceptible locations, they do so in different ways. One can locate a stimulus only relative to a frame of reference. Consider the case of an object between two people facing each other. If one person sees the object as off to the left, the other person will see it as off to the right. This is because the object is off to the left in the first person's perceptible visual field--the space visible at a particular moment--whereas it is off to the right in the other's. And since one sees objects as located in virtue of having sensations with mental locations that correspond to the objects' locations, and the objects' locations are relative to the

perceptible visual field, the mental locations must be relative to the mental visual field that corresponds to that perceptible visual field.

The same applies to auditory perception. A sound is heard as being at a particular location within a perceiver's auditory field. And one hears it there in virtue of having an auditory sensation with a particular mental location that is, itself, relative to the mental auditory field.

Mental visual locations correspond to visible locations, which are relative to one's perceptible visual field. And mental auditory locations correspond to audible locations, which are relative to one's perceptible auditory field. And one's perceptible auditory field and one's perceptible visual field have distinct boundaries. So one's mental visual field and one's mental auditory field will be distinct. Therefore, mental visual locations are distinct from mental auditory locations.

Thanks to Barry Dainton for pressing me on this point.

<4>. George Berkeley (1975/1732) thought that modality-specific mental spatial qualities were calibrated by inferences. According to this view, one perceives that a visual stimulus is located at the same place as an auditory stimulus in virtue of having learned that visual sensations of that type and auditory sensations of that type represent the same locations. This view, however, may pose a problem for simple organisms that exhibit cross-modal behavior but lack thought.

<5>. The higher-order-sense theorist could invoke an error theory here. It could be that the first-order states are not really bound. But if the higher-order sensation is modeled on first-order sensations, this is not an option. Though we misperceive things, e.g., a car as being red when it's actually orange, we only perceive them as having perceptible properties that other objects of their kind do have. This is because the sensory counterparts of sensations are posited to explain our relations to the properties we can, in fact, sense. But for a higher-order sensation to represent first-order states as bound would be for it to represent them as having a relation that diverse mental states simply do not bear to one another. This is, in effect, another reason for adopting a higher-order thought model of co-consciousness, as I do below.

<6>. Thanks to Barry Dainton and David Rosenthal for comments on an earlier draft of this paper, and to the editors of *Psyche*, especially Tim Bayne.

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