Is Memory Preservation?*

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I. How Does Memory Justify?

I want to know whether I consumed the Canada Health recommended portion of fruits and vegetables yesterday. I try to remember, and I conclude that I ate five servings of fruits and vegetables during the course of the day. Presumably, propositions like the following figure in my calculations:

1. For lunch yesterday, I ate a grilled tomato with my hamburger.

Usually, the remembered image of eating the tomato will figure in the provenance of remembering 1.

By what warrant does 1 figure in my reasoning? It seems to be provided to me by memory: I know that. Does this mean that some such proposition as the following must *also* figure in my calculations?

2. I seem to remember that for lunch yesterday, I ate a grilled tomato with my hamburger.

Or, recalling the episode:

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3. I seem to remember eating a grilled tomato with my hamburger at lunch yesterday.

If so, then 1 needs to be "detached" from 2 or 3, perhaps with the aid of:

4. If I seem to remember something, then probably it is true/accurate.

4 is highly contestable, for memory is known to be unreliable in many circumstances. So *if* 2 or 3 must figure in my calculations, it is contestable that I possess warrant for using 1 in empirical reasoning.

There is another possibility. It might be a fundamental rule of empirical reasoning that we are permitted to use propositions such as 1 when we seem to remember them. Such a rule of inference may govern empirical reasoning without being a premise in it, just as a rule of deduction such as Conditional Proof governs logical inference without figuring as a premise in it.

This point about 1 (and/or the image) playing solo derives from Tyler Burge (1993). Burge likens memory to the acquisition of beliefs by testimony. Both, he says, are governed by the following:

> *Acceptance Principle* A person is entitled to accept something as true something that is presented as true and that is intelligible to him, unless there are stronger reasons not to do so. (*ibid.* 467)

When something is so presented, Burge says, one is justified in using it in demonstrative or empirical reasoning without any further premise concerning the reliability of the source, when there is no additional circumstance that impugns the source. Indeed, one might be justified in using seemingly remembered facts even if one thinks memory to be unreliable overall.

I do not question one vital part of Burge's Acceptance Principle. When memory presents me with something like 1, I am justified in using it in empirical reasoning without the support of meta-cognitive premises such as 4. Burge, however, rests his

application of the Acceptance Principle on memory being simple preservation of content. According to him, memory is, like testimony, a conduit through which a proposition verified on a previous occasion (or by another person) is transmitted to the remembering subject. I shall try to show that this view of memory is too simple.

In this paper, I discuss how the extraction of content from memory depends in a number of ways on additional information-processing. My claim is that remembering such propositions as 1, and the episodes they describe, requires information additional to that available in the original incident. If I am right, I can agree with Burge that justification by memory does not generally demand meta-cognitive premises, while insisting that it nonetheless needs additional premises.

II. Memory and Preservation

What exactly is memory doing when it provides us with propositions such as 1? Reflecting on the unsupported role that such propositions play in reasoning, Burge claims that it must be "preserving the results of previous reasoning" (1993, 464), or more generally of previous cognition. "Theoretical and practical inference necessarily depend on a presupposition that a step invoked earlier can be reinvoked with unchanged warrant," he says in subsequent work (2003, 302). "Inference aimed at supporting a conclusion constitutively presupposes that the step's epistemic or practical warrant has not changed between initial instantiation and reinvocations. Purely preservative memory carries this presupposition." I knew yesterday that I was consuming a grilled tomato, Burge is saying: purely preservative memory preserves this cognition and its warrant.

The main purpose of this paper is to clarify the notion that memory is preservation. I hold that something is indeed preserved in memory. But what is preserved in memory, according to me, is a "trace" from which memorial belief and experience is constructed or inferred by the mind. (This construction is sometimes sub-personal, sometimes under the control of the subject – I shall not discuss this issue here.) Belief or experience itself is not preserved in memory, nor is "representational

content" (to use Burge's term). Nor does the warrant of my original belief survive intact.

Of course, I do not deny that there are facilities such as a "perceptual buffer" in which experience is, more or less literally, preserved for a period of time. Such facilities account for the unity of consciousness in temporally extended actions such as uttering a sentence, and (possibly) grasping a proof. When I say: "My name is Mohan Matthen", my state of awareness at the moment when I utter the final phoneme /n/ somehow includes the first /m/. Symmetrically, my state of awareness at the moment when I utter the first phoneme includes the final one. These temporally separate utterances form parts of a single act; my awareness of this act is a unity. Awareness is, as they say, of the "specious present".[1]

Putting the specious present aside, my claim is that my present act of remembering yesterday's lunch is constructed from an underlying "trace" preserved from yesterday's experience. It is not merely a preservation of that experience. Similarly my present memory that Paris is the capital of France is a construction from an underlying trace. It is not a preservation of the earlier-held belief that Paris is the capital of France.

III. Types of Memory

The question of memory and justification is best considered in connection with basic memories. My memory that last year's Christmas tree was a scotch pine derives from my memory of what last year's Christmas tree looked like – I only discovered later what scotch pines look like. My memory that Gödel's proof is difficult to understand derives

[1] Traditionally, the specious present has been taken to be a moving window that reveals a constant-length stretch of the stream of consciousness. My view is that the specious present is event- or act-based rather than time-based. The temporal duration of acts of awareness varies with the duration of the acts at which they are directed. And my awareness of saying my name is not unified with my awareness of other things going on at the same time.

from my memory of trying to learn the proof. It is an assessment I make now on the basis of the memory. Whether these derived memories provide me with reasons for belief is obviously relevant to the epistemology of memory. But it brings in issues other than just the reason-giving power of memory. Accordingly, I shall attempt here to examine justification by *basic* memories – memories that do not derive from other memories.

I shall consider three kinds of basic memory.

(a) *Episodic memories* are imagistic[2] and seem to recreate past sensory experience – this is the kind of memory that has been called "mental time travel". These memories are in some way self-referential; they are not merely memories of a past event, but of oneself in that event. Episodic memory plays a very important role in the formation of memorial beliefs, but its role has been wildly exaggerated. Meinong, for example, says: "Almost everybody would be willing to admit that I cannot remember something that I have not experienced" (quoted by Fernandez 2008a). Though obviously false, much traditional epistemology of memory and memorial belief relies on the conception Meinong thus articulates.

(b) Secondly, there are non-imagistic memories that I shall entitle *self-contained*. Here is an example: I remember that Paris is the capital of France, but I have no idea how I came to believe this. I am not, qua remembering subject, involved in what I remember; my memory gives me information about its source. Not only this but my memory does

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[2] Some philosophers, including Burge, suggest that imagistic content is non-propositional. I don't agree with this: in my view, images are one way to express propositional content; sentences are another. I would therefore prefer to contrast sentential, or linguistically coded, memory from imagistic, or qualia-coded, memory. The point is not important to my present concerns.

not, in any sense, trace back to sense-experience of Paris as the capital of France, whatever that might consist in. Moreover, non-imagistic memories can be of general facts, such as that the restaurants in Paris do not generally open for dinner until 8 pm, which cannot be experienced. Since the 1960s, most philosophical discussions have acknowledged such memories. They were of interest initially because they are counter-evidence against claims such as Meinong's, but now, they often occupy centre stage.

(c) Finally, there are memories that are imagistic, but not episodic because they are not autobiographical or self-involving. You remember what a Venn diagram and the Mona Lisa look like, how the minor scale sounds on a piano, and how the opening bars of Beethoven's Fifth Symphony go. As with your remembering that Paris is the capital of France, you probably do not remember how you came by this knowledge. These memories are of images, but they are not associated with memory of any previous experience of them.

IV. Belief Update

Consider the following example. I have been away from Vancouver for a while, and during this time I have held the persisting belief that:

5. Rob Feenie is the executive chef of Lumière.

A friend tells me that 5 is no longer true. He went to Lumière last night, and Daniel Boulud was listed as executive chef – no mention of Feenie. As it happens, Feenie was fired (though my friend and I know nothing of this).

Now, assuming that I take my friend's word for it, what changes in me? Of course, I abandon the belief that Feenie cooks at Lumière. Yet, there must be a continuation of some relevant internal state in me. Surely, my new information didn't

make me *forget* anything. This is made evident by my new belief state: for other things being equal, I now believe:

6. Feenie does not cook at Lumière, but he used to.

Where did this new belief come from? In particular, how did I arrive at the second conjunct? Presumably, by the following argument:

7. Feenie was the executive chef at Lumière

8. Now, he isn't.

9. Therefore, Feenie used to be executive chef at Lumière.

How do I know 7? It is not in any obvious sense a *continuation* or preservation of 5 – it is different in meaning. Rather, it is a transformation of 5. Some have held that 7 is a preservation of the *content* of 5, adjusted for tense. This is true. But in order to preserve the content of 5, one has to adjust the sentence that expresses it. This generally requires additional information. In this case, the information is minimal – that time has passed since when 5 was known to be true. But the fact remains that such information is required, and as we shall see, many cases of adjustment demand more substantial information.

Memory is the preservation of something in me. But it cannot be the preservation of belief in sentences such as 5. Whether or not Feenie had been fired, the same thing would have been preserved in me. What is preserved is something that can lead to 5 or 7 or 9 depending on what else I believe.

Call the continuing state that is preserved in me a *memory trace* – I conceive of this as a generalization of Richard Semon's notion of an *engram* (Schacter 1996, 56-60, Bernecker 2008, section 3.3) in that it covers semantic memory as well as episodic memory. (Engrams encode *experiences*, according to Semon.) The continuing memory trace is (or is part of) the categorical basis for my changing disposition to assent to propositions such as 5 and 6, and the proximate cause of the occurrent beliefs when

they arise. As such, the memory trace is continuously occurrent and present, whereas the beliefs in question are dispositional, and only intermittently occurrent.

The literature on the preservation of non-imagistic memories often cites stable propositions like "Paris is the capital of France", propositions about the settled past, such as "Hitler committed suicide" (where this is meant to be about the mode of his demise, rather than about when it occurred[3]) and "7 + 5 = 12" (eternal propositions). But what about propositions such as the following, each of which I once believed?

10. Will Smith is the highest grossing Hollywood actor.

11. The capital of the Federal Republic of Germany is Bonn.

12. One pound sterling = 2.2 dollars Canadian.

13. The unemployment rate is about six percent.

These sentences are temporally indexed (cf. Kaplan 1989). They expressed certain propositions at the time I believed them. They express different propositions now. With the exception of 11, I am not at all sure whether the propositions they express now are true or false. The reasons for which I believed the propositions they once expressed are not adequate for believing the propositions they now express. Moreover, the propositions must now be expressed by different sentences, with different meanings. This is why my one-time belief in 5 must now be expressed in the past-tense 7. The present tense form is appropriate now only if things have not changed – that they have not changed has to be a premise in assenting to 5, or that

[3] Construed in the latter way, this sentence expresses different propositions at different times, for as G. E. Moore remarks: "if I say twice over "Caesar was murdered," the proposition which I express on each occasion is a different one – the first being a proposition with regard to the earlier of the two times at which I use the words, to the effect that Caesar was murdered before *that* time, and the second a proposition with regard to the latter of the two, to the effect that he was murdered before *that* time" (quoted by Nathan Salmon 1989, 344).

Paris is the capital of France. For these reasons, any use of a tensed proposition in reasoning depends not only on its original warrant, but on update.

What of eternal propositions? It could be held of them that they are not tensed or temporally indexed, and that they express the same proposition whenever they are uttered. If this is so, is it plausible to say that the role of memory with regard to them is purely preservative? I am sceptical – not because I think that such statements are tensed, but because I doubt that memory plays a special and different role for them. When I remember '7 + 5 = 12', I have to update, just as with the tensed sentences mentioned above – the difference is that the update takes into account that arithmetical sentences always express the same proposition.

V. Episodic Memory and the Feeling of Pastness

The points made in the foregoing section are pretty simple, and they would probably be acknowledged by Burge, but their application to episodic memories reveals interesting problems. Endel Tulving (who in [1972] proposed the distinction between episodic and semantic memory) says that episodic memory is a "replica" of past experience, accompanied by a "belief that the event is part of [the rememberer's] own past". He summarizes the thought this way: "Remembering, for the rememberer, is mental time travel," (1983, 127: quoted by Schacter 1996, 17).

A moment's reflection shows that this cannot be exactly correct. Certainly, when I remember eating lunch yesterday, I have an experience that duplicates some of the imagistic features and affective accompaniments of that lunch experience. However, the memory-experience presents *itself* as about the past – it has, so to say, a "feeling of pastness". It is phenomenologically inaccurate to claim, as Tulving (perhaps inadvertently) does, that the memory either presents itself as about the present, or presents itself timelessly, and must therefore be referred to the past by an accompanying belief. Yet that is the implication of the supposition that episodic memory presents itself in just the same way as the original experience. In an important respect, episodic memory is nothing like "time travel." If I literally travelled back in time

to yesterday's lunch, I would not only have an experience that felt that it is about the present: in fact, it would be about the present. As in the previous section, we find here an insufficiently firm grasp of the indexical character of what is presented in memory.[4]

Tulving's remarks are recapitulated in an apparently incautious remark made by Burge (2003, 290): "*De se* elements in vision indicate the perceiver at the origin of vision's spatial and temporal representational frameworks . . . Experiential memories retain *de se* elements of the representations from which they derive." Clearly, an experiential memory is *de se* in that it preserves the first-person perspective; that is, it marks the earlier experience as the subject's own – and this is Burge's main point. Equally clearly, such a memory does *not* place the subject at the origin of the spatiotemporal framework of the recalled experience. I do not experience yesterday's lunch as occurring here or now. Rather, the episodic memory presents the subject with an image that she experienced as occurring here and now *when she first experienced it*. But the experience is no longer experienced in this way. Now it is experienced as having occurred before.

With this in mind, the question arises: how do I date an episodic memory? The answer comes in two parts. First, with regard to recent memories – yesterday's lunch again – I retain a fairly complete chronology. I can retrace my steps, so to speak, from that lunch to what I am doing now. This chronology enables me to date the event confidently, and to assent to propositions such as 1. But as time goes by, the memory of accompanying and intervening events gets erased. I no longer remember the time sequence, and I cannot date the remembered event by it. All I remember is that this event occurred at some time past, and this allows me much less specific transformations, such as that from 5 to 7.

I learned a few years ago that an election was taking place in Iran. By now I don't remember the date of the election, but I remember that I was aware of it

[4] Alex Byrne, this issue, makes a similar point.

happening. Today, in response to somebody's misinformed assertion that Iran hadn't had an election for close to a decade before the 2009 elections, I respond: "No, I am sure there was an election there only four or five years previous." How do I know this?

Suppose that I don't have a pre-existing date-tag ready to mind – e.g., "the 2005 election". I have somehow to retrieve the date from my memory. (Contrast: I have a "flash-bulb memory" of 9/11/2001, but it is not the memory but rather the popular-culture branding of this event by its date that provides me with a tag by which to remember it. Not only this: the tag helps me date a visit to Australia, since my flash-bulb memory puts me there when I learned of the 9/11 event.) To date the Iranian election, I need to remember not just that the election took place, but also my awareness that the election was taking place. Dating demands that an event be associated with other things that I can date more directly. For instance, I might think: "I remember reading about the election while thinking about my move to Toronto, so it must have been shortly before 2006, when I moved." Of course, my current belief is not simply the preservation of the awareness of reading about the election: it is again the result of a more complex evidential process. The point is that in order to date it, I have to recall some such date-tagged event.

VI. More About Pastness

Episodic memory and perception are both imagistically presented. The difference between them is that the former is experienced as a time-adjusted presentation of past events, while the latter seems to happen *now*.[5] How is this difference expressed in an imagistic presentation?

Recall two episodes from your past. For example, try to recall your mother reading you a story (M) and your father taking you on an outing (F). Clearly M and F have very different contents, but they have this in common: they are both experiences

[5] Alex Byrne seems to disagree with this in his contribution to this symposium: he does not think that pastness is a part of the experience of episodic memory.

of events as having been experienced before, and therefore as past. What marks these events as past? It cannot be anything in the image, for they have no shared content relevant to their being past. Each of these images derives from earlier perceptual images. What in those perceptual images was subtracted when they ceased to be present? What was added when they became past? What does an image of pastness look or sound like? Husserl was right when he said, "in the case of memory, the appearance has a modified character, by virtue of which the object stands out not as present but as having been present" (quoted by Fernandez 2008a). However, the modification that Husserl rightly demands cannot consist in changes in the imagistic content of the original perception. For any image could equally be of a present or a past occurrence.

This argument shows why a metacognitive account of episodic memory cannot explain the feeling of pastness. On such an account, what one recalls in episodic memory are not merely past events, but also one's experiencing those events. But as Jordi Fernandez (2008a) has argued, this won't account for the felt pastness of the remembered events. For even if the pastness of the events remembered is inherited from the pastness of experiencing them, the question arises what marks our experience of past experience as such, as opposed to an experience of presently perceiving the same thing (or just imagining it).

Some have proposed *descriptive* theories of the feeling of pastness. These theories associate pastness with some description allegedly built into the content of episodic memory. Fernandez (2008b) proposes such a theory: he claims that memory images present themselves as causally descended from earlier perceptual states. My objection to this is that it is impossible for such a property to be imagistically represented. Can something *look* as if it stands in a causal relationship to something past? What in a memorial image represents that it is the causal ancestor of the image itself? What is the look of a causal descendant? Where in the image is the causal relation? Such questions have no satisfactory answer; such a condition can only be represented discursively; it cannot be represented imagistically. I would contend

therefore that there is no such thing as an image looking as if it is descended from prior experience. Since the content of episodic memory is imagistic, this assertion of causal ancestry cannot be part of the content of episodic memory.

Now, here is my own view about the feeling of pastness. The difference between *believing* p and *believing* (past p) finds its way into belief *content*. For in the case of belief or semantic memory, we can present a past tense belief equivalently in one of two ways:

14. *X* believes that it was true that S $is_{UNTENSED}$ F.

15. *X* believes that S was F.

In both cases, the past tense is indicated within the scope of the belief operator. But things are necessarily different with episodic memory. For the content of episodic memory is an *image*, and, as just argued, images are not differentiable by tense. Thus, both styles of presentation shown above are ruled out. The system's solution is to incorporate pastness right into the attitude itself. Thus:

X $experiences_{PASTLY}$: S $is_{UNTENSED}$ F.

The feeling of pastness is not an element of an image; images are necessarily untensed. Rather, it is a mode of entertaining an image. My claim is that the feeling of pastness is generated sub-personally. Episodic memory is, in and of itself, an experience of an image as in the past.

Let's define a cognitive feeling as a subpersonally generated, phenomenologically accessible feature of a mental state *S* that imparts to *S* semantic or practical import different from that of another state *S'*, though *S* and *S'* have the same *content*. I want to propose that episodic memory is differentiated from the perceptual experiences from which they derive because they possess a cognitive feeling of pastness, while the perceptual experiences possess a cognitive feeling of present-ness. The feeling of pastness is immediately felt; it is phenomenologically apparent. When you contemplate a past event, the image of that event is recalled as past. The feeling of

pastness has, of course, been invoked by many philosophers. Here I am suggesting that it is a way of entertaining a memorial image, a tense operator added to an untensed image. The operator is subpersonally added: it is a signature of the memory system. This explains why the image entertained in episodic memory can be ever so similar to the one entertained in the originating perceptual experience, and yet indicate different truth-conditions.

This account of cognitive feelings points to what is and what is not the same between an original experience and an episodic memory that recalls it. The episodic memory may be directed towards a duplicate of the original image, but in episodic memory a different assertoric operator attaches to this image. This new operator decentres the observer: the image is not experienced as here and now, though it does feel as if it were "owned" by the observer. To make the appropriate temporal adjustment requires additional premises; any memorial belief based on the image needs supplementation if it is to figure in empirical reasoning.

VII. Reconstructing Memory Images

I have argued that the indexical character of both semantic and episodic memories is different from that of the original belief or experience. But I have also argued that the image entertained in episodic memory may be similar to that of the original experience. Thus, it may be natural to think that in the case of episodic memory, the perceptual image once enjoyed is preserved (often with some decay, of course). But there are compelling reasons to think that even this is this is not quite right.

Visual images in memory may be presented in either what is known as the *field* perspective or the *observer* perspective. From the *field* perspective, your memory of a past event such as your first day in school presents itself as things looked through your own eyes. From the *observer* perspective, however, things look as they would have looked to a third-party observer – from this perspective, you yourself are one of the things in the image, and you view yourself doing things in the way somebody else would. Despite this detached perspective, "ownership" is part of the memory-

experience: it presents itself as *your* experience, and you immediately know which of the people in the scene is yourself.

Here is Freud's (1899) description of a memory from observer perspective:

> I see a rectangular, rather steeply sloping piece of meadow-land, green and thickly grown; in the green there are a great number of yellow flowers – evidently common dandelions. At the top end of the meadow there is a cottage, and in front of the cottage door two women are chatting busily, a peasant woman with a handkerchief on her head and a children's nurse. Three children are playing in the grass. *One of them is myself* (between the age of two and three); the two others are my boy cousin, who is a year older than me, and his sister, who is almost exactly the same age as I am. (311; emphasis added)

Obviously, such an observer-perspective image is not one that Freud ever experienced in vision, or ever could have – he never looked at himself from across a meadow.[6] Thus, it follows that at least some memorial images are not preserved images.

What about images in field perspective? Could they at least be preserved images? It might seem so, but the supposition presents this difficulty. Memorial images, especially those from the distant past, can be switched quite easily from one perspective to the other. That is, if you call up a memorial image, it may spontaneously come up in one format or in the other – but then you can switch it. But this is not true of visual perception. There is therefore at least this difference between present visual perceptions and episodic memories – the latter, but not the former, are encoded in such a way that one can switch between field and observer perspectives.

What is the relationship between images in field and observer forms? Plausibly, they have the same content, but different form. That is, they present exactly the same scene, but they present it differently. The relationship between them is akin to that between spatial representations in egocentric and allocentric forms. Spatial

[6] You may think that in observer-perspective memories don't *centre* the self, that the child seems distinct from the person who is remembering. This is not correct. The remembering Freud effortlessly and immediately identifies the child as himself.

representations in egocentric form use relations like "to the left of" or "closer" to represent relations between objects, relations that make sense only from a viewpoint – in this case, the observer's viewpoint. Allocentric relations use such object-relative relations as '*x* and *y* are *n* metres apart' and '*z* is 60° displaced from the line that runs from *x* to *y*'. Field-perspective memory presents scenes in egocentric terms – how they look through the eyes of the observer. Observer-perspective memory is in allocentric terms: it is an expression of observer independent spatial relations in the remembered scene. Typically, you can enjoy many different angles of view in observer perspective: from above yourself, from behind, from far away, from close up, and so on.

Now, we know that visual perception incorporates both forms simultaneously. When you walk around a table set for dinner, things change in their relative position in egocentric terms. Certain things were to the left; now they are to the right. Some things were closer to you; now they are further away. And you can easily see this. So visual content obviously contains egocentric information. At the same time, when you walk around to the other side of the table, you can also tell that everything has stayed in the same position relative to everything else. The forks and knifes and napkins are all in the correct position, just as they were before. You can tell this even if things were occluded in between your two views of them, or if you closed your eyes or turned away. In view of this, many cognitive scientists hypothesize that visual content contains allocentric information as well – perhaps we have a map or model stored away in visual memory.

The point to take from easy switching between field and observer perspectives is that in episodic memory, the egocentric and allocentric forms are somehow separated out and expressed in two different, alternating perspectives.[7] It is certainly possible, then, that a memory in field perspective *could* be the same as one that was earlier

[7] I don't mean to suggest that episodic memory doesn't also have both forms of spatial coding simultaneously. I don't know whether they do or not. But they are so coded that the egocentric and the allocentric are not experienced together.

experienced (subject to a degree of decay) – but it does not follow that it is a preserved image. Here, as with declarative memory, there is a process first of encoding and later of decoding or retrieval. What is encoded and stored can be retrieved in either form.

There are differences between immediate experience and recalled image in other modalities too. Consider auditory images. Auditory experience is both spatial and temporal: when you hear something, you can usually locate it in space. Auditory memory is hardly ever spatial: usually when you recall a tune, you don't hear it as coming from anywhere. This means that immediate auditory experience incorporates binaural information, while the stored trace discards this. The idea of preservation is simply misguided. The endpoints of the memory process may be similar to one another. But this should not lead us to think that there is a single process of preservation in which the interior points are the same as the endpoints.

Conclusion It is commonly held that memory is preservation, and surely it is. But it is wrong to think that memory is a preservation of what is experienced or represented in the memory-experience – an image or a belief. What is preserved is a trace from which it is possible to reconstruct an image or belief. Perhaps, this thesis yields only a small correction to Burge's view about preservation and justification – but it raises interesting problems of its own.

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