

## Memory

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In the general project of trying to reconcile the subjective view of the world (how things seem from the perspective of the embedded agent) with the objective view (the view of the world from the outside, as represented, for example, in our best physics), analytic philosophy, especially in recent years, has been almost solely focused on sensory phenomenology.<sup>1</sup> There are two very salient features of the subjective view that haven't been explored even on the descriptive side but that present *prima facie* problems at least as great as sensory phenomenology. One is agential phenomenology (the experience of ourselves as agents in the world), and the other is temporal phenomenology.<sup>2</sup> The problems presented by these cases are very different. I want to focus on temporal phenomenology, by which I mean the felt character of a life lived in time. And my goal here is mostly descriptive; I'll be exploring the question of what it is like to be the kind of being that has a history, that experiences that history in stages, and that keeps a running record of that history as it unfolds.<sup>3</sup> My suggestion is going to be that there is a special phenomenology, not supervenient on the sensory phenomenology, that arises only in the representational setting created by autobiographical memory and that is central to the felt character of a life lived in time.<sup>4</sup> (by autobiographical memory here, I mean not simply what is sometimes referred to as episodic memory - mental images of past experiences - I mean an explicit, account of one's own history, rendered in explicitly first-personal form. (the difference here is the difference between a perspectival representation centered on the self of the sort that visual experience gives us and an explicit representation of self, of the sort you have, for example when you translate visual experience into a first personal belief like "I am such and such a place, seeing such and such").

### The plan:

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<sup>1</sup> There are exceptions (e.g., Poidevin).

<sup>2</sup> There is a curious asymmetry in people's attitudes to the cases; there are few who are willing to eliminate sensory phenomenology from the world, but many happy to dismiss either temporal or agential phenomenology as somehow illusory.

<sup>3</sup> Caution that the Lockean Self, for Velleman, is not the person. Same-self relatedness is not, in his view, personal identity. The difference will not arise here.

<sup>4</sup> We'll see how the phenomenology arises from autobiographical memory - in the specific form of reflexive, historical, self-representation (what Velleman means when he talks about self-sameness through time, and almost everything I say is going to be a development and interpolation of the discussion in the last few pages of "Self to Self") - and (hence) why it is not available either to a mind without (this sort of) memory or to an all-knowing god.

I'll begin with a schematic description of what the history of an historically extended consciousness looks like when its parts are plotted in a temporal sequence, and then switch to a temporally embedded point of view, asking what things look like from the perspective of moments in that history and how do they change as we move from one perspective to the next?

The shift between these two ways of looking at a psychological history - i.e., from the outside and from the inside, or from a point of view that spans perspectives and from the point of view of the various perspectives embedded in it - corresponds quite precisely to the shift from the view of space presented in a map to the view presented in the visual field or in a coordinate-dependent description of space. They represent the same facts (or present the same information; for our purposes, we can ignore the difference between these), but the latter in a manner that is relativized to a position in it.<sup>5</sup> Each position (characterized fully enough to provide a frame of reference<sup>6</sup>) corresponds to a (distinct) perspective and *shifts* in perspective induce shifts in how things seem (using this generically to characterize the view from a perspective) even though nothing in the *field* of representation is actually changing. The visual field changes as you walk around an object - say a table, sitting motionless in the center of a room - even though the object itself remains the same. Here the part of space in which the object is located constitutes the field of representation, and the perspective is given by the position and orientation of the viewer.<sup>7</sup> Part of knowing how to *interpret* the visual field (how to distil out its objective content, how to separate what it's telling you about the world from what it is telling you about your position in it) is knowing to anticipate and account for changes due to perspective. The representational content of a non-perspectival representation, by contrast, is invariant.<sup>8</sup> What I'll be examining in what follows is transitions in one's view of time that occur with shifts in perspective as one moves up the temporal dimension in the psychological history of an extended self.<sup>9</sup>

### The extended self

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<sup>5</sup> Perspectives just are frames of reference. Frames of reference have as many dimensions as the spaces: 3 in the spatial case, one in the temporal case. frames of reference in the temporal case, are points, or moments, in time. I'm ignoring right here the existence of an epistemic horizon that limits the view from a perspective.

<sup>6</sup> In spaces of  $n$  dimensions,  $n$  points are needed to specify a frame of reference. In the spatial case, for example, it's 3. Since time is one dimensional, only a single point is needed.

<sup>7</sup> In the example, the position of the viewer's body is not included in the field of representation, including the viewer's body will give us an objective interpretation of changes in spatial perspective. Changes in spatial perspective can be identified with movements of the agent through space. There is no corresponding interpretation in the temporal case.

<sup>8</sup> That makes it portable, but it also means it doesn't carry information about its own location. Perspective representation always has an implicitly self-locating content, and that self-locating content is crucial to the role that appearances play in our cognitive lives as their objective content.

<sup>9</sup> These formalities are needed to make the notion of temporal perspective precise and sidestep the minefield of threatening confusions.

We begin with a psychological portrait of the history of a temporally extended consciousness. We suppose that the mind decomposes into a set of momentary parts, minimal, thought-supporting components that we'll call momentary selves. Momentary selves are connected to one another by external channels that allow information to pass from one to the next. Each receives from its predecessor an accumulated fund of memories processed through autobiographical memory: a collection of episodic memories provided with a time line and rendered in explicitly first-personal terms, a kind of time-capsule of the moment's ancestry;<sup>10</sup> it represents the moment as the latest stage in a developing story. It says 'this is what has happened so far, this is where things stand.' It is for you to play your part, add your two bits to the emerging portrait, and pass it to the next generation.

On a Lockean view of personal identity (a *pure* Lockean view of the sort defended, for example, recently by Velleman, rather than the mixed view of influential Lockeans like Parfit) it's the lines of transmission for the portrait, external to its contributors, that *makes* them parts of the *same self*, these are the constitutive links between the parts of a self. For our purposes, we need only agree that this gets the psychological connections we bear to past and future selves correct. Memory is notoriously reconstructive and we don't know in general what our future selves will be like. Accuracy is dispensable in self-portraiture, because it's not the content of our self-portraits that determines who they are about, but their causal histories. My past selves are the *source* of the organized packet we receive through memory, with all of the distortions and self-serving embellishments that they built into that packet, and our future selves are those that will inherit the package that we send along the same channels, whoever they are, and whether they satisfy any objective description we're in a position to give. For the Pure Lockean, this is an explicit definition of what 'my past self' means, but it will do just as well for our purposes if it is a rigidified definite description. When a child talks about her grown up self, or when she addresses her future self in the first person, she really doesn't know whom, in an important sense, she is talking to. She has no descriptive .

An analogy might be helpful. Imagine a club or secret society (a subversive political organization, perhaps, cloaked in secrecy). Members don't use their real names, and they know one another only by sight, but they maintain an ongoing chronicle of their collective history that is kept by an appointed caretaker and passed hand to hand through the generations. Each generation learns the history, acts in a manner guided by its conception of its place in that history, and passes the expanded story to the next generation. Whatever you think of the constitutive links between the parts of the self, the analogy captures the psychological role of the portrait. The portrait bears information across generations, and contains a representation of its contributors but it is the natural history of the chronicle (*who* contributed to it, not *how* they portrayed themselves) that determines its subject matter. It functions like a message in a bottle addressed from source to recipient, allowing generations to address one

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<sup>10</sup> Here, I'm borrowing a term from Julian Barbour's *The End of Time*. He attaches a quite rich, precise meaning to the terms, and you wouldn't be wrong to read that in here. But it's not necessary. I won't use make use of anything more than the colloquial notion of a time capsule.

another across a temporal divide, without either direct acquaintance or accurate description. Since the constitutive links between source and recipient are provided by the chronicle itself, there's no way for it to arrive, so to speak, at the wrong address. For those who have looked at the literature on first-personal thought, this explains the immunity to error that has been viewed with both puzzlement and suspicion in the case of "I" (both Anscombe and Wittgenstein, for example, thought it undermined the status of "I" as a genuinely referring term): any given generation can both be radically mistaken about what its past and future selves are like, without changing who those selves are (just as a political organization can 'alter the books' on history to protect itself from persecution, and optimistically include presidents among its future selves, without altering its actual membership).<sup>11 12</sup>

From a psychological perspective, the importance of the addition of autobiographical memory cannot be underestimated. A system without this kind of memory doesn't have a psychological *life*, to speak of. It is just an ordered sequence of psychological events – one thought or experience, and then another – with no more internal continuity than a random collection of sentence; there is no plot, no story, no narrative thread connecting them. From a practical perspective, the point of extended selves is easy to see. It's the temporal analogue of a team. A temporally thick self can possess goals span its temporal parts, recruit parts in pursuit of those goals, make good on commitments to future action, carry out a coordinated sequences of actions that couldn't be motivated by interests of a momentary self, and so on.<sup>13</sup>

But the momentary parts of an extended self retain their psychological identity, they are psychologically separable from parts that lie along the same connected stream. One of the nicest things about this broadly Lockean view, interpreted as an account of the psychology of thought about the self, is that it captures the psychological complexity that the parts of an extended self bear to one another, the mix of autonomy and dependence. There is no one better than Proust at evoking both the minimal *selfiness* of one's momentary parts, and the role that memory plays – as he says 'like a rope let down from heaven' – integrating them into a personal history.<sup>14</sup> Early in *Swann's Way*, for example, he writes:

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<sup>11</sup> That's important in the first-person case; it explains one of the singular oddities of reference in the first person; it's immunity to failures of reference through misconception. We can be as radically mistaken about who we are as you please without undermining ability to refer to ourselves.

<sup>12</sup> If one adopts this as a view of the metaphysics of the self (i.e., if one views the self as nothing but a connected stream of psychological life with parts in different parts of time knitted together by memory) the survival of the self is profoundly dependent on preservation of those lines of transmission. If the lines split or merge, so does the self. If they dissolve altogether, the self disintegrates. See "Death", this volume.

<sup>13</sup> It's very natural to think of planning as cooperation among momentary selves on precise analogy with cooperation among extended selves involved in formation of communities.

<sup>14</sup> Not incidentally, the same thing can be said about the relations between individuals and a community.

“When a man is asleep, he has in a circle round him the chain of the hours, the sequence of the years, the order of the heavenly host. Instinctively, when he awakes, he looks to these, and in an instant reads off his own position on the earth’s surface and the time that has elapsed during his slumber; but this ordered procession is apt to grow confused, ... [there were times when] I lost all sense of the place in which I had gone to sleep, and when I awoke in the middle of the night, not knowing where I was, I could not even be sure at first who I was; I had only the most rudimentary sense of existence, such as may lurk and flicker in the depths of an animal’s consciousness; ... but then the memory not yet of the place in which I was, but of various other places where I had lived and might now very possibly be – would come like a rope let down from heaven to draw me up out of the abyss of not-being, from which I could never have escaped by myself; in a flash I would traverse centuries of civilization, and out of a blurred glimpse of oil-lamps, then of shirts and turned down collars, would gradually piece together the original components of my ego.”<sup>15</sup>

There’s the lone thought, which first situates itself as part of the community of connected memories that form a single life. This jumble of memories then shakes itself into an order that is embedded in the larger narrative of history. And all of this structure – the occurrent thoughts and experiences, the episodic memories, the personal history, and the impersonal history in which it is embedded – are all present – in a more or less definite, more or less explicit form - in every momentary part of the psychological life of a normal, human adult. The suggestion here is not that this structure is always part of the foreground of thought, but that it’s present in a form that allows it to be accessed more or less on demand. The contents of memory function like psychological time capsules, providing each momentary self with a compact, backward-looking representation of its own past.

These backwards-looking self-images are paired – as a matter of psychological inevitability, and not unlike the time capsules we actually make for future generations – with anticipatory representations of the future, full of instruction, hope and warning.

### **From the outside**

Now we have the setting in place for exploration of temporal phenomenology. In particular, we have a way of thinking of transitions between temporally embedded perspectives within a life without slipping into the patently non-sensical notion that we move through our lives occupying now one, now another temporal perspective in it, or the equally incoherent idea that we stand still while time flows past us.

Let’s get an abstract description of what the psychological life of an extended self looks like from the outside, and then we’ll turn to the temporally embedded perspective. I’ve helped myself to talk of momentary selves. I’ve said that memory provides every momentary self with a kind of psychological time capsule, a backward-looking portrait of its ancestry. I assume that these time capsules will form a temporal progression growing by ‘accretion of fact’ as one moves up the temporal dimension, with each time capsule adding its own two bits to the emerging story. (there is some complexity here, about how to model this in a psychologically realistic way; we just suppose that, alongside memory

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<sup>15</sup> Proust, *Swann’s way*, p. 56.

and observation, we have a mechanism of self-observation so that we have the mind's conscious activity is incorporated along with information about experience into autobiographical memory.

The result is an asymmetric arrangement, with information accumulating along the temporal dimension in an almost profligate reification of structure, representation and re-representation of the same events fed through channels provided by memory in every momentary part of a life, with potential rehashing, reorganization at each stage. Each component contains, alongside information coming in from observation, a remembered image of the preceding state, with that state's nested image of the one that preceded it, and that state's image of its predecessor, and so on like a string of growing Chinese boxes.<sup>16</sup>

Autobiographical memory doesn't extend indefinitely into past or future, the sequence is bounded by birth on one end and death on the other, and everything we know about the transformative effects of both memory and self-observation should caution us against any naïve presumption of either accuracy or completeness.<sup>17</sup> So you're not to assume that the backward-looking portraits are faithful. Our lives exhibit this structure to an approximation: each moment only very partially and selectively reified in the next, replete with its internal image of the one that preceded it, and that one's image of its predecessor. And that reification doesn't merely copy, but transforms its objects, sometimes distorting them. None of this matters for our purposes. We can read 'observation' and 'memory' as, respectively, 'process which generates representations of the environment' and 'process which generates representations of the past'; everything I say will hold even if the representations generated by those processes are entirely non-veridical. This is very important. The reason that inaccuracy and incompleteness don't undermine reference because the defining feature of the Lockean self is that *who* your past and future selves are doesn't depend on *how* you represent them as being.

Compare this nested structure with the representational history of a system without a memory. The epistemic states of such a system (it can be anything from a thermostat to a cockroach<sup>18</sup>) follow one another

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<sup>16</sup> The nested structure is clearest if we focus on the explicit content, but more generally, as Velleman remarks, we can see later experiences as occurring 'in the wake of' earlier ones even if there are no explicit memories of the earlier in the sense that we retain implicit traces of other kinds.

<sup>17</sup> That is not to say that autobiographical memory begins at birth and (necessarily) ends at death, only that it doesn't (ordinarily, so far as we know) extend beyond either.

<sup>18</sup> Or as high as you're willing to go up the phylogenetic scale without attribution of autobiographical memory... some people would go right up to humans. Others insist that their pets are people, in this sense. Less interested in where one draws the line, than in what one is attributing in attributing autobiographical memory. Relationship between autobiographical and episodic memory complex, but for these purposes, we can think of episodic memories as the raw material for autobiographical memory, something like the snapshots that get organized into a family history by provision of labels. The labels provide the frame of reference that allows us to relate elements in photographs to one another; reidentify people and places, order them in time.

in an ordered sequence, but there is no retention of information in the explicit content of its representational states. Each replaces the next; they are strung together like pearls on a string.<sup>19</sup>

There is change – each is different from the preceding state - but no temporal *development*. *Development* requires memory, it requires the preservation of information across change.<sup>20</sup> There are causal connections, and that will mean that there is continuity that is visible from the outside (i.e., to a perspective from which multiple states are simultaneously visible, but there is no retention of information in the explicit content of the states. The system itself, at no time, occupies the perspective.)

Now we add the forward-looking, anticipatory component to the representational states of the system with a memory.<sup>21</sup> I won't make any assumptions about how expectations are generated, except to say that it has something to do with the perception of regularities and their projection into the future, and so what we expect varies from one state to the next, and clearly the line between events represented in memory and events represented in expectation changes from one moment to the next, so that if we move up the sequence, keeping our eye on an event that starts out as expectation (say the wedding day of a daughter), it will get progressively closer to the line, eventually crossing and passing into memory. If we reproduce this sequence with memory in black and expectation in green,<sup>22</sup> the balance between black and green will shift,

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<sup>19</sup> There is a subtle issue that explains why the qualification about explicit content is necessary. Every state of any closed system constitutes a record of its past, in the sense that it retains traces that can be translated into information about its history under when it is combined with information about the dynamical laws. The difference is that where the information is merely implicit, is needed to retrieve that information, and that information is extrinsic to the state itself. It's not, for example, information that can be put to use in a flexible way to guide behavior (see SS). A simple way to see the difference is simply that, by ordinary information-theoretic measures the informational content of sensory states is constant, whereas that of memory grows with time.

<sup>20</sup> Memory doesn't have to take the form of autobiography, but it does require preservation of information across change. Here is one of the places where the connection with the notion of narrative becomes clear. Development is a distinguishing feature of forms of narrative art. I should emphasize here and throughout that I'm using information loosely... the rule is transformation rather than copying; there's never complete preservation of information, nor is complete preservation of information required. Part of the point of memory is to filter, transform, and maybe even in some cases, to distort.

<sup>21</sup> Expectations are representations of the future, but with a different epistemic caste than representations of the past. They may inform the future, by causing things to happen later down the line, but they are not informed *by* them. They don't purport to bring us *news* from the future in the way that memories purport to bring news about the past.

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with green dominating at the beginning and black gradually encroaching as we move up the sequence. We all start out fresh and green and get blackened by experience.

### From the inside

Now that we have some sense of what the history of a self looks like from the outside, we can switch points of view and ask what things seem from the embedded perspective of a particular moment, and we can ask how things change with changes in perspective,<sup>23</sup> in the same way we can ask what things look like from a particular point in space and how that changes with changes in spatial perspective.<sup>24</sup> The temporal analogue of a spatially extended object is a process, and the view of a process from a particular temporal perspective is the epistemic state of the momentary self that occupies that perspective with respect to that process (which is just a fancy way of saying, a snapshot of your epistemic state at a particular time, which I'll suppose is given, well enough, for our purposes, by a combination of memory and expectation).

Now, let's consider a very simple example: immerse yourself in a warm bath (as Anscombe once suggested in looking for something to play the role of a sensory deprivation chamber), stop up all your senses except for your ears, make your mind a blank slate, attach a friend's iPod to the stereo and hit the 'shuffle' button (make it a friend so that we can suppose you don't have relevant memories and expectations). We'll look at the evolution of your epistemic state as you listen to the first piece that plays. Suppose that as it happens, what comes on is a recording of Bach's Cello Suite #4 in E flat. Before the first sound emerges from the stereo, you don't expect silence over sound, Janis Joplin over John Cage, you have no conscious memory of having heard the piece before. Once the first note is sounded, registered, and recorded, you have at least some memory and some new expectation (you assign a high probability to another hearing more cello than you did before, low probability to Joplin). A second note is registered and added to memory. Your earlier expectation is confirmed. A new note is registered, compared against expectation from previous cycle, added to memory, new expectation is generated and new, more definite expectations begin to take shape.

The cycle repeats, with memories accumulating and expectations, becoming more definite at every stage. The mind begins to discern patterns, recognize motifs. It jumps ahead and completes a theme before the notes register. It is either satisfied, or surprised by what it hears, delighted or disappointed. Representing experiences with o's and expectations with -s, and enclosing the contents of memory in brackets, it looks something like this. At the first stage, the mind registers a note and forms a very indefinite sort of expectation. There's nothing at this

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<sup>23</sup> Just to make things clear; a temporal perspective is a location in a temporal progression. The occupants of temporal perspectives, in this context, are momentary selves.

<sup>24</sup> The analogy holds perfectly so long as we are careful not to slip into thinking of transitions between epistemic perspectives as suggesting that there is any *thing* that undergoes those transitions. Nothing moves through time. We get the *illusion* of movement by looking back over the years (i.e., by comparing our current representations of the view from different temporal perspectives) and we seem to see – in some versions, ourselves, in some versions, the present – moving ever farther away from our births and towards our deaths.

stage yet in memory. At the next stage, the note and expectation registered at the first stage are incorporated into memory and form the psychological backdrop against which the second note is heard. A newer, more definite expectation is formed that draws both on the note that is being currently registered and the contents of memory. And so it goes, at each stage, the contents of the previous stage being incorporated into memory, a new note being registered, and a new expectation formed that draws on the whole accumulating stock of information being registered perceptually and incorporated into memory.

stage 1	stage 2	stage 3	stage 4
( o,-)	((o,-),o,-)	(((o,-),o,-),o,-)	((((o,-),o,-),o,-),o,-)

The sort of system that has a reflexive memory retains a record of its past and forms expectations, encounters every note as a partial revelation of an extended structure that will be eventually apprehended in its entirety. It encounters each note, essentially as part of a melody in progress, a partially recollected and partly anticipated whole. The notes themselves occur one at a time; it is in the memory of the subject that they are brought together, setting up a complex pattern of cross-temporal resonance and reverberation that make them music.<sup>25</sup>

It's not simply that the parts of the song need to be simultaneously represented in memory to permit apprehension of patterns and recurrences. That is one part of it, but that is available also to the person looking at a musical score, and notice that it doesn't matter, for purposes of perception of these regularities whether he reads the score front to back or back to front. But it is essential to the musical experience that listening *itself* is a process, i.e., that the song is revealed in stages, and in stages that follow a particular order. And that is because it is essential that each note is encountered by a different momentary self, in a psychological context lined with different memories and different expectations. Changes are wrought in the listener at each stage in the listening process. In physics, we would say that the listener doesn't 'return to his ground state' after each observation, but that memory serves like a kind of cognitive ratchet, saving changes wrought by experience and propelling the listener into an ever . And these changes make a difference to the quality of the experience. The mind that confronts a theme for the third or fourth time hears it differently than a mind that confronts it for the first. Surprise, recognition, disappointment... these epistemic attitudes have a phenomenology of their own. That phenomenology is not available to a system without a memory, and it is as much a part of the musical experience as the sounds emerging from the bow. You have to think of the quality of the experience as determined not just by input from perception, but jointly by the input from perception and memory.

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<sup>25</sup> The meeting of an expectation is a kind of consonance between a remembered expectation and an observation; surprise, or disappointment, is a kind of dissonance. To have suspense resolved or to recognize a repeated theme, to see a theme developed, these are all cross-temporal relations.

Surprise, disappointment (what you expect doesn't come to pass); pleasing or unpleasing cross-temporal dissonance. Resolution, satisfaction, repetition (what you expect comes to pass); pleasing or unpleasing cross-temporal consonance.

Now, consider the momentary self that confronts that final note. It has a high degree of internal complexity. It is very much less innocent than the momentary self that crawled into the bath. It has memories of the view from all perspectives that preceded as constituents. That structure has to be built up by passing through those stages; it can't be bypassed by simultaneous apprehension of the notes in a higher dimensional medium, as, for example, by looking at the score. When you look at a score, you see in two dimensions what you hear as a temporally ordered sequence.

Such – at a much higher degree of complexity - are the epistemic states of a system with a reflexive memory. We add the full complement of experiences, with all of their internal complexity, and we extend the sequence to cover a lifetime. Nothing like it is found in a system that doesn't represent its past, and the complexity of these states that is so nicely captured in a paper by David Velleman in which he defends this sort Lockean view as a constitutive account of self-sameness over time.<sup>26</sup> He writes, for example

“I don't just anticipate experience the future; I anticipate experiencing it as the payoff of this anticipation, as the cadence resolving the present, anticipatory phase of thought... Within the frame of my anticipatory image, I glimpse a state of mind that will include a memory of its having been glimpsed through this frame – as if the image were a window through which to climb into the prefigured experience.”<sup>27</sup>

Not just our epistemic state, but also, and perhaps especially, our emotional responses are closely tied to these cross-temporal patterns of resonance and reverberation, consonance and dissonance, not just among remembered experiences, but among our memories of expectations and expectations of memories, think, for example, of the complexity of sadness at the memory of years of regret attached to expectations for a relationship in light of what actually came to pass. You have no difficulty attaching both a phenomenology and a content to that state, and its exceedingly complex) reproduced – partially, at least implicitly - inside each momentary part of our lives. States with the complexity to support these epistemic and emotional attitudes have the nested structure that arises from reflexive memory. And again, because they have as constituents, representations of the view from different epistemic perspectives, they have to be built up in stages by passing through those perspectives, one at a time, in a particular order.<sup>28</sup> Building

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<sup>26</sup>“Self to Self”.

<sup>27</sup> “Self to Self”, p. 198. And later:

“My prior image of an event may produce various other thought, emotions, or inclinations whose remnants will color a future experience of the event even if no memory of the image itself remains. I can then picture the event as experienced in the psychological wake of this picture whether or not a memory of itself will be among the items that the picture leaves in its wake” (self to self, p. 199).

<sup>28</sup>The view from a particular perspective just is the view with a particular set of memories at one's back, and so the events stored in memory have an intrinsic order.

those states, at least, in a world like ours, requires the laborious process of living.<sup>29</sup>

And that brings us finally to the most salient aspect of the phenomenology of a life lived in time: suspense, not knowing *what comes next*. There is a tension set up in the mind of the subject that represents her own life, in the gaps between anticipation and resolution, when the mind prompted by history has formed an expectation and awaits its resolution. From the perspective of any of the momentary selves that compose a life, there's always a space between what is known and what awaits revelation, between what's been stored in memory and what lingers in expectation. We live our lives in that space, perpetually poised between expectation and resolution, in the limbo between what is and what might yet be.

The transitions between temporal perspectives are accompanied by impression of possibilities melting away. As we look back over our pasts and forward to the impending end, we have the inescapable impression of motion, or passage, away from our pasts and towards the future. In the beginning of life, we are separated from the end by a yawning gap full of possibilities awaiting resolution. That gap is narrowed as we move up the temporal dimension of our lives and possibilities give way to actualities. The space between what is known and what is still to be revealed is closed at the end of life,<sup>30</sup> but we spend our lives in a state of suspended cognitive animation; representing ourselves as captured in the middle of a cycle that has been repeated as far back – quite literally – as time immemorial.

Someone 'looking from the outside', without the particular set of epistemic limitations that characterize the view from within time, doesn't undergo the cycle of expectation and resolution, doesn't experience the accompanying emotional tension and release. For God, as surely as for the cow that has no sense of its past or future, there is no uncertainty, no nostalgia, no anticipation, discovery, anxiety, or expectation. There is no cycle of suspense and resolution, there is only the set of events laid out in time.<sup>31</sup>

What all of this brings out is that it is the combination of autobiographical memory (in its truly reflexive form) and the fact that each of our momentary selves has an epistemic horizon that is essential to the epistemic phenomenology. Things seem different from different perspectives, and there seems to be a definite direction of movement, only because each perspective has a view that is both partial and asymmetric. This contrasts with the spatial case, in which there is limitation, without asymmetry; what one sees from a given spatial perspective is a proscribed

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<sup>29</sup> In a world like the one that Russell once envisioned, in which the world is created *ex nihilo* with all memories and records of the past intact, things would be different, but in a world of the sort we take ours to be, the process takes time.

<sup>30</sup> Which is not to say that everything gets revealed, but that what ignorance is left, forever remains.

<sup>31</sup> Nor does your dog, if his representational states don't have a temporal dimension, experience the passage of time. Which means that there are certain experiences – agency might be one as well, if I have been right about that – that depend on representational structure.

region of space centered on one's body, but one doesn't see more from one perspective than from another (ignoring contingencies like obstacles and so on that limit one's field of vision).

So, there is a special phenomenology that arises within the special representational context of reflexive, autobiographical memory. The cognitive, emotional and epistemic attitudes that characterize the life of a system with autobiographical memory are essential to the felt character of a life lived *in* time. Those attitudes are not available either to a system without a reflexive memory or to an all-knowing god. They are not available to a system without a reflexive memory, because such a system doesn't have the states with the complexity to support those attitudes. (recall what those states look like; just one representation of the occurrent state of the environment after another, like pearls on a string). And they are not available to an all-knowing god, because the psychological history of an all-knowing god is boring. There is no development, no change; no difference in how things seem at different times. Perhaps the most important upshot of all of this is that it helps us reconcile the view *of* time presented in our physical theories, as one dimension in an eternal and unchanging four dimensional manifold of events, with the view from *within* time, with its undeniable experience of flux, movement, flow. Changes in our own epistemic states don't reflect changes in *time*, they reflect changes in our epistemic perspective on time, like the changes in your visual field as you walk around the table sitting motionless in the center of the room.