

## Memory Simulated Jung-In Kwon

Can memory or the process of the effort of remembering be simulated? If so, with what precision of simulation and what will be the psychological description of the simulation? Since memory is one of the crucial cognitive activities and cognition mainly involves mental operations, my question specifically addresses the problems of understanding other minds. There are many theoretical approaches to answer this question, but I critically endorse simulation theory as a paradigm of both psychological explanation and philosophical argument.

When pondering the nature of memory, the one thing to note is the lapse of time between two instances: one is the event or state of what is remembered and the other is the act of remembering. This temporal gap is a striking aspect of memory, somewhat in the similar sense that spatial dimension, along with other relevant physical conditions, is an integral part of psychological explanation of visual perception. Memory is intrinsically temporal, whereas vision is intrinsically spatial, in that each mental phenomenon cannot be understood without reference to the constitutive roles of the temporal lapse and spatial contingencies. For this reason, it is necessary to clarify the nature of the interval between two instances of mental representation. The temporal lapse is between mental events, not between external event and mentally retrieving the first event. The state of what is remembered must be represented at for the encoding purpose.

A key to understanding memory is to give a psychologically robust description of a subjective experience of the lapse *in* time, which is not necessarily conscious. Of interest is the constitutive role that the passage of time plays in the act of remembering, not such an empirical

concern as whether or not the temporal lapse affects the memory retrieval. How vision be explained without taking into account the constitutive role of the spatial contingencies? For example, color perception is an interaction between parts of our body (cone cells on the retina, neural circuitry) and aspects of environment (wavelength of the reflected light, physical properties of the surface of reflection). While seeing color takes time, as intricate perceptual and neural activations are undertaken real time, the temporal magnitude is not an essential part of the process. While remembering takes place in perceptual and neural architecture, spatial magnitude has nothing to do with understanding memory.

If this contrast between memory and vision is intelligible, a question is raised: What is the psychological account of the mental experience of watching someone remembering? Watching is not an observation of the behavior of someone in the gesture of memory, rather an experience in imagination of another person's mental experience of remembering. When such an imaginative experience is occasioned in the audience of visual narrative, viewers are in the position of mentally imitating remembering *from within* the minds of the one whose memory is imaginatively identified. This is the sense in which the question of what it is like to simulate someone remembering something, for, according to the theory of simulation I will examine, simulation is stipulated as an imaginative identification of someones minds.<sup>1</sup>

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<sup>1</sup>Robert Gordon, AThe Simulation Theory,@ in Folk Psychology: the Theory of Mind Debate (Cambridge: Blackwell, 1995), 118.

Temporal dimension as the constituent of memory includes the encoding of the initial data and the selective removal of stored contents, not only the retrieval of the information encoded.<sup>2</sup> It is the complex interplay between these distinct psychological processes that explains in what temporal dimension is integral to the memory process. Memory is intrinsically past-directed process, in the similar sense of direction that intention is intrinsically future-directed mental states. Direction refers to temporal orientation of the mind in relation to the intentional object. When intending to do something, the intentional object has not yet been actualized, whereas when remembering the intentional object is supposed to have been actualized. Remembering sometimes includes purely mental entities, i.e., dreams that I had last night, desires that I once had, hallucinating experiences that I was affected by, and so on. For something to be the object of memory, it must have happened as an external event or occurred in the mind as a mental event. Empirically speaking, both cases are actual in that there have been proper electro-chemical actions realized in the brain. As long as the mind is directed to actualized states in this empirical sense, it is capable of representing them and encoding them to be retrieved in later times. Mental events are essentially represented entities with the varying degrees of uniquely subjective tints added to them. External events, while they themselves are not mental representations, must be represented to be encoded in the mind. The distinction made in regard to the types of actualization-external event and mental event—should not be confused with the distinction between the types of memory that philosophers often make between semantic or propositional memory and episodic memory. We may easily think that the latter distinction is made in terms of distinct manners of actualization of the memory object—we have

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<sup>2</sup>Mary Potter, ARemembering.@ in Thinking: An Invitation to Cognitive Science Vol. 3, (Cambridge: MIT Press, 1990) 14.

episodic memory when we remember what we have experienced mentally, while semantic memory is about the external events. Bear in mind, however, that the distinction between the episodic and semantic memory is a matter of how the object of memory is stored or what aspect of the object is encoded, rather than a matter of whether the object is the external event or mental event.<sup>3</sup> For example, an emotion as a mental event can be remembered as experientially or in a declarative manner. The memory of its intensity or duration and all the subjective feel constitutes episodic memory, while the memory of my emotion being a kind of anger constitutes more—though it is hard to characterize the declarative aspect of an emotion—declarative memory than episodic. In the second case, memory is more like a belief that explains the appropriateness of an emotion. Simply put, mental events can be remembered as propositional contents or as merely experiential entities. It is not hard to see why external events cannot be the objects of episodic memory, unless what is at issue is subjective reactions to those events.

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<sup>3</sup>John Sutton groups both semantic and episodic memory into declarative memory and distinguishes it from nondeclarative memory. The one aims at truth and the other is not, because only the declarative memory is representational. The distinction between semantic and episodic thus has to do with the distinct manner of representation. John Sutton, A Memory, @ URL: <[plato.stanford.edu/entries/memory/html](http://plato.stanford.edu/entries/memory/html)> I found it interesting that he considers one's episodic memory as subject to verification. Granted, it is much puzzling to me that whatever capable of mental representation is subject to verification.

Although this paper addresses the question of what it is to know the mental states of others, it does not mean that the memory of external events is excluded from the proper issue. A specific question is what it is to understand someone else's memory process, and give a psychologically robust description of this simulation and consider the adequacy of simulation theory in this matter. I approach this issue from the point of view of the audience of a narrative film. Explaining the manner of psychological participation of the audience by using simulation theory as a paradigm is the best candidate for a philosophical study of imagining someone remembering from *within* that person. In this seemingly one of the banal pastimes of watching a film, vision as an intrinsically spatial experience and memory as an intrinsically temporal experience create a unique space of imagination in their experiential overlap.<sup>4</sup>

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<sup>4</sup>I believe that memory and visual imagination must be inseparable when either being explained. This is the case not only in understanding a work of visual narrative but also in real life remembering and imagining. The overlapping mental space is characterized as spatialized passage of time or temporalized extension of space. I extensively discussed in my dissertation this unique dimension of audience experience with an experimental film *La Jetée* (Chris Marker, 1962).

The protagonist in the film *Memento* (Christopher Nolan , 2000) suffers from a bizarre condition that makes him unable to form a new memory.<sup>5</sup> Any event that lasts more than a couple of minutes long suddenly starts to evade from his memory storage. The condition is the result of head injury during the murderous assault on his wife. The memories of the protagonist that the audiences are simulating are thus both the external event of the assault and the mental event of unbearable trauma. Can we imagine what he is supposed to remember?

The film is provocative in that its narrative is about a desperate attempt for a revenge by the protagonist who is incapable of constructing consistent and reliable alibi. Such a narrative encourages the audience to participate in his risky journey by constructing on their own a reliable story line. Crucially, in this film, the narrative is unfolded mainly from the protagonist 's point of view. What we see on the screen is supposedly what the protagonist sees and experiences in his surroundings.<sup>6</sup> Since the story is about a man with memory problem, and the narrative is unfolded following his memory traces, it is somewhat a frustrating attempt for the audience to construct a consistent story from the information on the screen. It is such a negative emotional response, however, that enables the audience successfully to simulate the protagonist, since the difficulty of making a consistent narration is the very problem that our protagonist is shown to have.

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<sup>5</sup>Clinically, this condition is known as the result of the damage of the hippocampal area of the brain, which is crucial to the memory processing.. Gerald Edelman reports a case of a patient (known as H.C.) whose hippocampus was removed due to potentially lethal epilepsy: AHe could recall all long-term memories up to a time somewhat before the removal of his hippocampus. But he was unable to remember events that have occurred just a short time before he was asked about them.@ Gerald Edleman, *Bright Air, Brilliant Fire* (New York: Basic Books, 1992) 106-7.

<sup>6</sup>The director uses another character as the omniscient observer in the story world, by which audiences eventually came to realize what really happened. This doesn't have to be an excess of information that often rids a film of a certain experimental quality. Resolution of a puzzle often contributes to the arousal of genuine and appropriate audience emotions by making the narrative transparent. I think it is more a merit than a defect.

What is the significance, in regard to this film, of the nature of memory that it is intrinsically past-oriented? First, memories that we consider here are mental representations.<sup>7</sup> This doesn't help much, however, because every intentional state is representing its object. What is the most conspicuous difference between remembering and intending, which is intrinsically future-directed? As mentioned above, past-directed intentional states have the objects that have actualized in one's mental representation. When we recollect mental events, what constitutes the psychological current is the *fusion* of two distinct instances of representation—the representation of the actualized events (encoding) and the representation of the stored representation (decoding or retrieving). This mental fusion characterizes a space of imagination in the audiences. As for the intention, there is no such a fusion, for there is no nested representation, so to speak.

What is implied by this account of mental fusion? It cannot be that what is remembered is an exact replica of the initial representation, because what is encoded in the mind must be mediated by another instance of representation which is never like a transparent paper through which the original image is visible without any distortion. Such a formal mechanics of memory can hardly give a psychologically robust account of the intricacy of memory. The most that be assumed is that the current mental states inevitably condition the represented contents of the encoded events. The merit of *Memento* is that it is a cinematic manifestation of this puzzling obscurity of memory. It delivers in a visual medium the similar knowledge that a cognitive psychologist can explain in a linguistic medium. The one makes sense only when visually experienced and accompanied with affective response, while the latter appeals to intellect.

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<sup>7</sup>I do not deny that some memories are nonrepresentational or implicit. For instance, the knowledge necessary for the generation of new sentences is made possible implicit memory.

Experience of film provides the audience with experiential knowledge by motivating them to simulate the psychological process of the characters as a means to comprehending the narrative. Only some films, however, are qualified for this cognitive role. What, then, is the visual design of this film that can occasion an instance of experiential knowledge? The answer is its temporal design. According to Susan Feagin, timing in film includes both duration and sequencing.<sup>8</sup> The importance of timing lies in that it is a crucial cinematic design that controls how the story world is transformed into a diegetic world, or vice versa. Appreciation of film requires the audience to create a meaningful world of events and characters, which is conditioned by timing of the film and by the memory of what has been shown in timing. As for the duration, each scene in this film lasts on screen for approximately 3 to 5 minutes. Plausibly, it is the time span during which the protagonist can maintain a consistent memory. As for the sequencing, the next scene shows the events that have happened and lasted up to the point when the events depicted in the previous scene start to happen. What we first see on screen is therefore the last event in the story world. This temporally reversed sequencing dominates almost the entire film.<sup>9</sup> The very last episode in a series of events shown in the later sequence on screen is temporally, spatially and also causally connected to the very last episode among the series of events shown in the previous sequence. The spectator is tempted mentally to reverse the adjoining sequences in order to restore the normal temporal order where causes precede effects.<sup>10</sup> Compared to our usual expectation of

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<sup>8</sup>Susan Feagin, *A Time and Timing*, in Passionate Views: Film, Cognition, and Emotion (Baltimore: Johns Hopkins Univ. Press, 1999) 164.

<sup>9</sup>In film theory, such a sequencing method is called reversal or distortion. AThe story time in a later sequence represents an overlap with the story time of the previous sequence with a brief jump back in time. @ Edward Branigan, Narrative Comprehension and Film (New York, Routledge, 1990) 40-41.

<sup>10</sup>Actually, I have once tried plying this film on the computer by reversing the order of the chapters, so that I can watch the later chapter prior to watching the previous chapter. (It's nice that DVD template allows us to do it.

prospective time (*A and do B*), the temporal order in this film is retrospective (*A because of B*).

Temporal reversal on screen is a common cinematic device—flashback—usually employed in the scenes of recollection. However, considering that the protagonist in this film is not able to encode short-term memories into a lasting memory, it does not seem correct that the on screen reversal visualizes what is recollected by the protagonist. We are encouraged not to believe what he believes as his memory. What elicits the most powerful affective response is the voice of an implicit narrator that the meaningful connection between events are completely beyond the reach of the cognitive capacity of the protagonist. We can envisage his distorted mental world as a flickering bulb with the series of disorderly images coming into existence and disappearing momentarily without any connections. It is not hard to realize that the reversal or distortion as a method of sequencing is especially efficient in visualize the distorted memory capacity of the protagonist. On the part of the audience, the mental effort mentally to reverse the sequences to construct a causally closed narrative is much alike the desperate effort of the protagonist to grappling firmly in his consciousness the fleeting experiences and make a meaningful connections between them. More precisely speaking, we must remember as much as possible and as clearly as possible to associate the images shown in current sequence with the images of the previous or later sequences.

Taking notice of this striking similarity involved both in the protagonist inner world and that of the audience, it is reasonable to say that understanding the experiences of the protagonist is the significant part of the narrative comprehension. If the narration—constructing a diegesis or imagined world in which characters and events constitute of a causally closed story world—were made by either a character or an implicit narrator whose beliefs about the story world are considered reliable, the psychological experience of the audience could hardly resemble that of the protagonist. In the jargon of simulation theory, the more faithfully we are able to transform ourselves into the protagonist, the more successfully we are able to understand the mental states of the characters.<sup>11</sup> In a similar vein, Gregory asserts that when mentally simulating the inner experiences of another, we put ourselves directly into his or her situation without being mediated by our own awareness that we imagine someone=s experiences.<sup>12</sup> What is it that we understand him reliably? What is it like to imaginatively identify with someone who is unable to take any transparent perspective of the world including his own identity?

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<sup>11</sup>According to Robert Gordon, simulation is mental transformation, without being mental transfer. The latter is simply an analogous understanding of other minds as they are reflected on my own states. By >transfer, he seems to mean bringing into the other minds my own states, whereas when in mental transformation, we become the others. Robert Gordon, ASimulation without Introspection,@ in Martin Davies & Tony Stone eds. Mental Simulation (Oxford: Blackwell, 1995) 54-55.

<sup>12</sup>Gregory Currie, Image and Mind: Film, Philosophy, and Cognitive Science (Cambridge: Cambridge Univ. Press, 1995) 165-68.

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All that he can remember as the building block of his world—the most meaningful and the most *real*—with the prosthetic mementos (Polaroid shots, tattoos on his body, hand-written memos) to his damaged capacity is no more than what the audiences can possibly know. The bounds of his impaired memory is the bounds of our understanding him and thus of comprehending the narrative. What is further implied by this interpretation? The inner world of the protagonist, represented through memory, is conditioned by his *current* psychological states, which are also physiologically conditioned by the damaged brain. The appropriateness of the space of audience imagination is also conditioned by their current psychological contingencies and vicissitudes. When the narrative of a film is disruptive rather than constructive, there is much room for the audience to remodel or restructure the story. Proper simulation calls for creative and/or autobiographical engagement with the characters and events. We should bear in mind that the so-called mental transformation, suggested by Gordon as the proper manner of simulation, is never meant to be completely dismissive of one's own mental states. Simulation, with whatever rubric it is characterized, is rather an open-ended psychological activity, which equally depends on both the kinds of mental states we are to simulate and our own psychological constitution.

Intriguingly enough, the case of simulating an impaired memory casts a bright illumination to one important aspect of our psychological participation in a work of visual narrative. We create an imaginative space—diegesis—in accordance with visual perception aided by distinctive cinematic designs. The process of imagination resembles the process of memory decoding. We imagine by remembering, or vice versa. What seems to be revealed by a robust psychological description of simulating another's mental experience, memory in particular, is that memory is a constructive mental activity that resembles imagination of the audiences of a narrative film.