

1. MEMORY AS TEMPORAL SYNTHESIS. Bergson has introduced us to the notion of “pure perception” in MM1, that is, perception without memory. But he just as quickly reminded us that memory always plays a role in actual perception [cf. 30 / 33 and 72 / 69].

Here we see memory as *temporal synthesis*, the creation of a “thick” present [cf MM3: 152 / 137] This is not to be confused with a punctual instant. That instant “is not” [MM3: 166 / 150], according to the classic analysis of Augustine: that part which is past is no longer and that part which is to come is not yet.

Memory as temporal synthesis is the constitution of duration. We remember from TFW that duration is continuous multiplicity, the unfolding of qualitatively differing but non-numerical process [“other but not several”]. In TFW, it is solely psychological. Here in MM it will become ontological: “material” things will have their own rhythm of duration, so that “matter” is only a limit case, a “quasi-instantaneous” turnover of a repeated process: really fast frequency, in other words. But we’ll have to wait until MM4 to see B’s full development of ontological duration.

About the “thick” present vs the punctual instant: William James makes the same distinction in talking about the “specious present.” James and Bergson knew and admired each other’s work.

Francisco Varela has a great article in *Naturalizing Phenomenology* [Stanford, 1999] entitled “The Specious Present: A Neurophenomenology of Time Consciousness.” The term “neurophenomenology” comes from a 1996 article of Varela’s on the so-called “explanatory gap.” Neuroscience is 3rd person perspective; phenomenology is 1st person perspective. The “explanatory gap” is between 3rd person accounts of conscious experience – which now rely on accounts of sub-personal / unconscious neural processes – and 1st person accounts. [There’s an echo of Bergson here: gap btw 3rd person {= quantitative} and 1st person {= qualitative}]. Often the explanatory gap is posed as a matter and mind problem. I think we can avoid that insoluble by sticking to a “mind in life” perspective, but we’ll leave that for now.

For Varela, “neurophenomenology” means that neuroscience and phenomenology should create a mutually enlightening, reinforcing, and constraining relation. Now 1st person accounts were kicked out of psychology in the 20th C as unreliable “introspection.” But Varela pointed out that phenomenologists weren’t just people picked up off the streets; they had undergone years of training to sharpen their ability to report on their experience. [Varela also thought people who had undergone meditation training would be excellent subjects for reliable and accurate 1st person

reports. He did lots of work with bringing Tibetan Buddhist monks into contact with neuroscientists in the “Mind and Life” group.]

We need to note that phenomenology is a social arrangement, a historically ongoing community project, in which 1st person reports – and [transcendental] explanations of the constitution of 1st person experience – are subjected to intersubjective verification. Although it’s intersubjective, it’s also 1st person, because it has to start with the concrete ego and explain the constitution of concrete experiences; it’s not like Kant, who looks for the conditions of possibility of any rational and finite experience.

Briefly put [my teaching philosophy: outrageous simplification, gross exaggeration, and relentless repetition], Varela will say that a specific RCA (resonant cell assembly – a firing pattern of distributed neurons) underlies cognitive acts, and that RCAs take time to cohere and fall apart. The minimal time for these neural processes comprises the “thickness” of our experienced present. This is Varela trying to naturalize Husserl. The key is dynamic systems theory as a new scientific tool. When Husserl denied that phenomenology could be naturalized [rendered consistent with scientific practices] he was dependent on what he thought the science of his time could do. But dynamic systems theory is the key to bridging the explanatory gap: that is the proposal at least. What I’d like to do some time is to think how to use dynamic systems theory to naturalize Bergson.

2. MEMORY AS HABIT OR “MOTOR SCHEMA.” In MM2 Bergson introduces us to another form of memory, known variously as habit or motor mechanism or motor schema. This is a product of a process of repetition; it is the product either of consciously directed training or of just plain living in a structured world, in which we come upon “similar” situations time and again.

Today this is known as “procedural” memory. It provides us with “practical knowledge” or “know how” as opposed to “know that” which is knowledge of facts. Practical knowledge is non-verbal, as opposed to factual knowledge. It isn’t demonstrated by talking, but by doing. Procedural memory as motor mechanisms is “triggered” and then unrolls, and while it unrolls, it’s “blind” to anything else. The contemporary term for that is “modularity.” [There’s a very important way in which our basic emotions – rage and panic perhaps foremost (and so maybe our basic “negative” emotions? – are modular in this sense. Paul Griffiths in *What Emotions Really Are* [Chicago, 1997] calls these “affect programs.”]

A very simple but very important example is learning to walk, and then walking when you know how to. All though the affective and cognitive realms, our lives are full of these sub-personal unconscious programs. Cf. Bargh and Chartrand, “The Unbearable Automaticity of Being,” *American Psychologist* 54.7 (July 1999): 462-479.

Practical knowledge is “artisanal” knowledge vs. “architectural” knowledge. I did some work on this distinction in Plato in Ch 5 of *Political Physics*. There’s some interesting things to say about teaching and learning here. Deleuze picks up on them in DR 3. To teach someone is not to spit words at them that the student can spit back at another time. Or rather, there is a political meaning [production of docility / obedience] to that sort of “teaching”: there would be interesting things to say here about religious liturgy, Foucault’s notions of pastoral power, discipline, and governmentality. To teach someone is to set up a training regime in which they can develop skills.

Now I think we have cognitive skills just as we have bodily skills. We can develop a feeling for conceptual maneuvers just as we develop a feeling for moves in a game. But let’s leave that where it is for the moment.

3. MEMORY AS “PURE MEMORY.” The last type of memory is probably the most difficult to understand. This is episodic memory. It is dated and personal. It is preserved in itself, in the “past in general.” Deleuze insists on the ontological and not psychological nature of pure memory.

Pure memory is virtual and is actualized in images that are “inserted” into the present. Here we have the famous image of the cone, which we’ll get to in Ch 3.

Chapter 2 of *Matter and Memory*: “On the recognition of images”: Second lecture
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1. BERGSON’S THEORY OF RECOGNITION. The second hypothesis of Ch 2 concerns recognition. How do we recognize something familiar as familiar? Bergson asks us to consider walking in a strange city. [MM2: 100 / 92].

At first, we hesitate at each corner; we have action alternatives presented to us by our perception [remember what perception is: the presentation of virtual images, indicating our potential action], but our walk is discontinuous: turning one corner doesn’t give us any clue as to what is to come next: is the street rough or smooth, uphill or downhill, wide or narrow?

After a long stay in that city, we hardly have any conscious perception at all. Our movements are automatic. We have become accustomed to the city; our body has built up habits of navigating it. We “know how” to walk in the city: turning a familiar corner, our body is already adopting the posture needed to handle walking on the new street. Our cness is free to think about other things, to talk with our companion. Today we might give the example of learning to drive. Once you’ve learned how to drive a familiar route, you hardly even see the road.

Between the two extremes we have conscious recognition: we still perceive the objects along the way, but we are preparing the motor mechanisms we will need to

navigate the street. [Note the difference: in the “automatic” case, our body has *already adopted* the needed mechanism; in the intermediate case, we are aware of our body *getting ready to adopt* the needed mechanism.]

So, Bergson concludes, the “consciousness of a well-regulated motor accompaniment, of an organized motor reaction, is here the foundation of the sense of familiarity.” Thus recognition is based on practical knowledge of how to use something.

2. RELATION OF MEMORY AND MOVEMENT. Bergson transitions to his 3rd hypothesis of Ch 2 at 107 / 98, by reminding us that in automatic recognition our movements render an object useful to us. In this way, they take us away from the object -- again, you hardly even see the familiar road while driving on it. On the other hand, “attentive recognition” brings us back to the object to dwell on its outlines [*les contours*]. Here the useful reaction is delayed, the automatic habit by which we unconsciously handle things. Instead we become aware of its “striking features” [*les traits saillants*]. It’s in this case that “memory-images” come to play a role. Our motor habits have sketched out the form of the object, and memory-images that are “analogous” to the present perception “flow into this mold.” But there is a price: these memory-images “may” have to give up much of their detail.

There’s a lot to be said here. We have here an analysis that shares a lot with Heidegger’s distinction between the ready-to-hand [*Zuhandenheit*] and the merely present-at-hand [*Vorhandenheit*]. You don’t really perceive the door handle, Heidegger tells, us, you just use it. [Of course, H doesn’t attribute to bodily habit that capacity.]

This is also a preview of B’s cone image: personal, detailed memories are at the top, while at the point, we have impersonal, general memory-images. But this won’t come up until Ch 3. In the meantime, B finishes Ch 2 by discussing the relation of perception and memory.

3. THE BRAIN. To understand the proper relation of perception and memory, we have to be straight about the brain.

In metaphysical terms, the brain is only one image among others. It is part of the body, which, although it is a special image, is part of the material world; there is a difference in kind between it and spirit. It has no magic power of generating representations; in fact, it has no hidden powers at all; it has no virtuality; it is completely actual [MM1: 76 / 72].

In physiological terms, the brain is a telephone relay center: it’s just where sensory inputs and motor outputs meet. But, and this is a very important distinction, the complexity of the brain allows it to be a “zone of indetermination.” We don’t just have automatic reactions; we often “hesitate” between options. Even when this hesitation is really fast, and the “choice” is unconscious, between different motor mechanisms.

This hesitation can be modeled in dynamic systems terms as the fractal zone between basins of attraction and seems correlated in neuroscience terms with chaotic firing in the refractory period between RCAs. The “choice” can be modeled in dynamic systems terms as the falling into a basin of attraction and seems correlated in neuroscience terms with the formation of an RCA.

In terms of its role in perception, the brain doesn't generate a representation of the world as an inner picture of outer reality; rather it is an organ of selection, diminishing material images by picking out what is useful to us, preparing our motor actions by providing image as sketch of possible action.

Finally, it doesn't store memories. It is only the site at which pure memory becomes actual (becomes memory-images) by being “inserted” into the thick, durational present (memory as temporal synthesis) as perception is “prolonged” into nascent movements or motor schemas (memory as corporeal habit).

4. CYCLICAL RELATION OF PERCEPTION, ATTENTION, AND MEMORY. This is important for B, as he needs to fight the conception of perception as a linear process of interior image generation starting with sensation and then calling up, mechanically, that is, by the laws of association, already formed images somehow stored in the brain [113 / 103]. B's theory is cyclical, which he illustrates with the diagram at 115 / 105. Before we get there, though, B takes us through each factor.

Attention is an attitude of the body. To pay attention to something, we must first disengage from the automatic body reaction that is prepared for it, by which we would have made use of it; we must hesitate and provoke a “backward movement of the mind” [*un retour en arrière de l'esprit*] (110 / 101). But once this hesitation takes hold, “more subtle movements” take hold and retrace the outlines of the object: in other words, the motor schemas are activated, but not engaged; they stand at the ready. They prepare multiple potential actions. The “real” thing is nothing but the “center” of this penumbra of virtual images.

5. INTERLUDE ON THE VIRTUAL.

In *Parables for the Virtual*, Massumi writes about approaching the virtual topologically: “A topological figure is defined as the continuous transformation of one geometrical figure into another” [134]. It would be better to say “into a certain number of other figures.” Those other figures are potential in any one figure. There is no one privileged “figure.” Topology is the study of transformation. “Figures” or “things” are only snapshots of the underlying change. The change is the substance; the figure is the attribute. This is the key to process philosophy, the reversal of Aristotelianism.

Back to the notion of motor schemas, which are repeatable patterns of neural firing preparing body movements. What is the ontological status of a “repeatable pattern”? How does the pattern relate to any one instance of firing that fits the pattern? Is this

“fit” an instantiation of an unchangeable form [along Platonic lines]? But that doesn’t seem right, as patterns are changeable: they develop, mature, and degenerate. So there’s a link of the firings and the pattern. At this point I want to refer to DeLanda’s take on the “virtual” as the structure of multiply realizable morphogenetic processes. These structures are modeled as attractors in phase spaces in dynamic systems models. [Phase spaces are changeable and hence are not Platonic Ideas. At certain thresholds a system will not just flip to an already-established pattern {represented by an attractor} but will develop a new set of patterns {represented by a new set of attractors}.] This sense of “virtual” is a good candidate for the ontological status of “repeatable pattern.” Thus the link is “actualization / differentiation”: firings follow patterns, but do not perfectly match them [system trajectories never hit an attractor]; the repetition of these diverging firings can feedback to change the pattern for future firings.

6. BACK TO THE NARRATIVE.

Memory is the continuation of attention. Attention disengages automatic reactions and allows disengaged motor schemas to prepare the outlines of possible action(s). In this thick durational present of hesitation, memory doubles present perception with images sent back and forth in a cyclical process. It’s a question of detail and fit. If more detail is needed, another “draft” is called for. In this case, attention is like a “telegraph clerk” who sends back an important message to check its accuracy. In this way, the analysis effected by attention (attention pulls apart a situation and allows concentration on details isolated from the whole) is only accomplished by a series of attempts at synthesis, that is, a series of “draft” images sent back and forth between memory and attentive (hesitant) perception.

So now we must tackle *perception*. While [hypothetical] pure perception is a snapshot that “molds itself to the object” and subtracts that which is useful to us, actual perception is mixed with all three forms of memory. It requires hesitation that disengages yet activates motor schemas (memory as habit) and thus occurs as a thick durational present (memory as temporal synthesis); into the hesitation flows memory-images that are cycled back and forth to provide “color” and “detail.” This results in the “projection, outside ourselves, of an actively created image, identical with, or similar to, the object on which it comes to mold itself.” [NB: this is not the “projection” of sensations criticized by B in Ch 1. Sensations are affections and mark the impact other bodies have on ours. Memory-images are actualizations of virtual memories, which are preserved in the “past in general” as we will see in Ch 3.]