

there is nothing conceptually incoherent about the idea, nor does it violate natural law, still there is no good reason to believe that this sort of cognition actually exists.)

Clark, A. (2001) "Reasons, Robots, and the Extended Mind," *Mind and Language* 16: 121-45. (Clark, the principal defender of the extended-mind hypothesis, explores the implications of new paradigms in cognitive science, such as "situated" and "embodied" cognition, for our view of rationality and the evolution of advanced human cognition.)

Garfield, J.L. (ed.) (1987) *Modularity in Knowledge Representation and Natural Language Processing*, Cambridge, MA: MIT Press. (This is a fairly technical compilation of articles both in favor of and against the view that language processing and perception is modular.)

Goldman, A. (1986) *Epistemology and Cognition*, Cambridge, MA: Harvard University Press. (Alvin Goldman, a leading epistemologist, systematically reviews the bearing of research in cognitive psychology on epistemological concerns. He defends a naturalistic account of knowledge and justification. Chapter 10 concerns memory.)

Martin, C.B. and Deutscher, M. (1966) "Remembering," *The Philosophical Review* 75: 161-96. (This classic article attempts to provide an analysis of what it is to remember. The authors propose a causal theory that they claim addresses various epistemological concerns about memory.)

Pinker, S. (1997) *How the Mind Works*, New York, NY: W.W. Norton. (This is a popular work by an eminent psychologist and psychohistorian, in which he presents a view of the mind as a system of innate modules shaped by evolution. Unlike Fodor, he argues that central cognition is largely modular as well.)

John Sutton

THE FEEL OF THE WORLD: EXOGRAMS, HABITS, AND THE CONFUSION OF TYPES OF MEMORY

"I don't want to live backwards,
I don't even want to look backwards . . ."

—Kristin Hersh, lyrics from "Your Dirty Answer,"
featured on the album *Sunny Border Blue* (2001)

Introduction: the feel of the world

MY PAST REMAINS ALIVE FOR ME in my explicit memories of single events, of particular shared experiences, moments of embarrassment or joy. But my past also still marks me in all the things I know about the world yet don't need to think about right now—in the way other people interact with me, in the way I drive and the music I sing along with as I do, in the state of my teeth, in my clothes and my smile, in the scar on my elbow and the condition of my internal organs. History animates complex dynamical systems like people, bodies, brains, and groups at many different timescales and levels. Christopher Nolan's film *Memento* dramatizes the extraordinary variety of ways in which the past is absorbed and drives us even when it isn't consciously accessible. In this chapter, I argue that *Memento* relies on a sophisticated taxonomy of types of memory that it simultaneously and successfully challenges. The film explicitly teaches us about differences between personal memory,

for specific episodes in one's past, *factual memory*, or general knowledge about the past, and *habit* (or *procedural* or *embodied*) *memory*, through which we remember how to do things. Yet at the same time, brilliantly, Nolan complicates these neat distinctions by constantly playing with the many forms of interaction, coordination, or (more often in *Memento*) confusion of different types of memory, of the different ways the past drives us.

As we work out the story told backwards in *Memento*, we decode layers of history built in to artifacts and bodies, often in wayward forms or through deviant causal pathways. Struggling to make sense of the events revealed in the reverse sequence of color scenes, we partly share Leonard's inability explicitly to grasp or tap into that history. This primary narrative device rests on and coexists with a whole range of clues and residues of "actual" fictional-world time, little revelations of the asymmetric causal structure of reality: scars open up, clothes and cars get cleaner.

One example will serve to introduce my central theme: the richly layered, not always comfortable interweaving or co-presence of different forms of memory. When we first see Leonard tending to Natalie's swollen, bruised face, gingerly wrapping ice for her (scene G), both he and we are unaware that it was Leonard himself who hit her, just minutes earlier, not Dodd as she now claims.¹ But—as, I'll argue, throughout the film—Leonard is also still affected in various ways by what he can't recall. In a brilliant short sequence suggested by Guy Pearce, Leonard here experiences sensations in his hand and knuckles, as if he's hurt himself in some way he doesn't understand: looking down, puzzled, he clenches his fist and unfurls it in an insert shot from Leonard's point of view. When we then cut back to Leonard's face, his bewilderment has a slightly different quality (see Figure 3.1).



Figure 3.1 Leonard puzzled by his sore hand (G, 1:12:31)

Bodies, and the traces they conceal, carry the past, whether it is explicitly and fully detected or not. In other cases in the film, I'll suggest, there's even more highlighting of the possible seepage or bleeding of information across personal, factual, procedural, visceral, affective, material, and social aspects of memory and history.

I have two complementary aims, hoping that philosophy and film can here be mutually illuminating. On the one hand, we can better understand the pervasive roles in our lives of those aspects of memory that Leonard has lost, by focusing on the precise nature, range, and difficulty of what he has to do to manage or bypass the narrative gulfs in his life. Here, we treat *Memento* as a brilliant thought experiment that vividly reveals memory-related features of ordinary mental and social life that usually escape notice in their unquestioned ubiquity. On the other hand, we can read back in to the film a more subtle, fascinated interrogation of the distinction between explicit personal memory and habit memory. In this more ambitious mode of analysis, we use independently motivated theoretical concerns to help us see real features of the film that might otherwise remain invisible.

Not all aspects of past experience are eliminated or irrelevant even with the selective and dramatic loss of conscious access to it. Leonard still knows how wood will sound when knocked, how glass will feel when he picks it up. As he tells Natalie, "it's the kind of memory you take for granted" (P, 0:34:12). In a range of circumstances, Leonard knows what to do, how to use things, and what's likely to happen when you do. As a philosopher might say, he has an enduring mastery of sensorimotor contingencies, maintained by reliable ongoing interaction with everyday objects (Noë 2004). Like many people who can no longer convert or consolidate new experiences into long-term personal or factual memories, Leonard nonetheless retains the know-how needed to dress and to drive, to walk and talk.

Christopher Nolan found himself always knocking on the table when describing the project to actors.² This concrete action on a brute physical object helped to communicate the film's texture, inside Leonard's world of things and present sensations, operating often from his own point of view or close by, in the claustrophobic space and time he must inhabit. In the pivotal scene in which Leonard describes these remaining sensory certainties, he tells Natalie that despite his condition he still knows "the feel of the world" (P, 0:34:19). By the time of this rare brief moment

of peace between scenes of more frenzied action, the film has already familiarized us with the idea that there are distinct types of memory. We've heard Leonard repeatedly explain the nature of his condition and his system, and we've heard enough from him of the parallel story of Sammy Jankis to know the difference between true memory, affected by possible damage to the hippocampus, and forms of "instinct" or "conditioning." Sammy should still have been able to learn through repetition, as we learn to ride a bike: "you just get better through practice" (7, 0:31:54). Sammy's failure to demonstrate the right dissociation between memory and instinct got Leonard's smug past self a big promotion, and Leonard's present confidence that conditioning works for him as it didn't for Sammy, that habit and routine do make his life possible, is itself pat or routinized. As Nolan says, Leonard has reduced his condition to a series of soundbites.

The theory that thus seems, on first impressions, to drive the film assumes a sharp distinction between different types of memory. It suited Leonard then to accept this theory from Sammy's doctors and from his own research, and he needs it now as he seeks to cope with his own temporally broken situation, to find strategies to tie together his fragmented experience in service of his driving urge for revenge. The idea that memory comes in fundamentally independent forms is heavily reinforced in *Memento's* early scenes, in part to train the audience in the plot's ground rules. Before we ever have doubts about the relationship between Sammy's and Leonard's stories, we know that the abilities to learn new information or to retain new personal experiences for more than a short period can be lost, even while procedural skills and know-how remain.

This chapter considers the complex roles played, at the heart of *Memento*, by this taxonomy of memory. Although the taxonomy is of considerable independent interest for both theoretical and practical reasons (Sutton 2007, 2008), here I stick closely to the film. I first examine habit and knowhow, the range of embodied memory capacities that Leonard labels "conditioning" or "instinct" but that actually include some sophisticated skills. I argue that in *Memento*, as in some complex real-world contexts, information and experience do not remain neatly bounded within independent memory systems, as personal memory and embodied memory interact in subtle ways. Next, I discuss the links between personal or autobiographical memory, on the one hand, and the capacity for genuine

action and choice, on the other, examining the nature, emotional valence, and use of those fragmentary personal memories that Leonard retains. Finally, I address the use in Leonard's "system" of objects and mementos, which I'll call "exograms" or external memories, adopting Merlin Donald's term for the worldly counterparts to "engrams," our inner neurological memory traces (Donald 1991; Sutton forthcoming). Leonard's attempts to extend his own mind, which involve a diverse array of aids, are vulnerable but partly successful. I focus on Leonard's habitual modes of engagement with different parts of this distributed system, arguing that his particular relation to his tattoos—those most embodied of exograms—strikingly reveals Nolan's depiction of the interaction or confusion of distinctive forms of memory and history. In sum, my case in this chapter is that *Memento's* attention to the interaction or confusion of forms of memory brings the "mind-body" problem to practical life by revealing the multiplicity of forces normally hidden behind each term.

Habit, skill, and history

Leonard's spared capacities—the skills that he retains after the incident—extend much further than acquaintance with the basic properties of things and the common requirements of daily life. He also knows and inhabits "the feel of the world" in more unique ways. He believes that he has unusual skills in interacting with both objects and people. In his previous life as an investigator, we hear, Leonard learned how to read eyes and body language effectively, so that he still has the vital ability now to see through people's bullshit (scene 5). Although Leonard officially attributes his remaining capacities to "conditioning" or "instinct," they are in no way rigid or stereotyped. He uses "a practiced hand" to slip the lock on Dodd's room at the Mountcrest Inn (scene M, Nolan 2001: 159). He has the expertise to assess certain kinds of traces even under conditions of high arousal and emotional intensity: arriving with Teddy at the derelict building, he inspects the tracks of the pick-up that he himself had earlier abandoned there with "a methodical, practiced eye" (scene V, Nolan 2001: 106). Despite Teddy's nonchalant claim that the vehicle has been there for years, Leonard is confident that the tracks aren't more than a few days old.

Although large tracts of Leonard's personal history are otherwise as inaccessible to him as to us, we can thus see that it included various forms

of "useful experience," in which these more idiosyncratic skills were honed. Further, the ongoing employment of Leonard's "system" requires a host of context-sensitive procedures and "well-practiced, efficient movements," like those with which he sets up his wall chart in room 304 (scene 1, Nolan 2001: 169). His ability to use this range of embodied and external memory aids relies on the broader realm of spared skills provided by procedural or habit memory.

The acquisition of both skills and habits tends to be gradual rather than one-off. Such training does not require memory for each specific learning episode: if I've ended up with a competent tennis backhand, half-decent ability at jazz piano, or the dazzling sleight-of-hand of a stage magician, I don't have to think about particular lessons or past exercises of my skill as I act. In fact my smoothly-grooved performance is often disrupted if I do consciously access specific past occasions whilst in the thick of things.

Leonard tells us in a practiced narrative that, in a "graceful solution to the memory problem," he has successfully mobilized habit and routine to substitute for the free-ranging conscious access to the personal past that he's lost (scene 4). This fits a standard view, in both Western philosophy and common sense: the smooth exercise of established skills and habits operates along autonomous and automated embodied lines, independent of attention, awareness, control, deliberation, and explicit memory. On Hubert Dreyfus's influential phenomenology of everyday expertise, for example, absorbed action is the smooth direct engagement of body and world, so that conscious access to the causes or mechanisms, the processes or principles involved, can only interfere with the grooved routines: "mindfulness is the enemy of embodied coping" (Dreyfus 2007: 353). According to practitioners' lore in music, dance, and sport, top-down care or attempted control disrupts flow and rhythm: as one elite performer wrote, "when you're playing well, you don't think about anything" (quoted in Sutton 2007: 767). Sandy Gordon, long-time psychologist with the successful Australian cricket team, describes "a critical skill in cricket" as the capacity "to absorb yourself in the moment and have a present focus" (2001: 20). On this view, history and practice must have their effects directly on and in the present flowing embodied activity, without cognitive mediation.

Yet, as I've noted, the idiosyncratic skills that Leonard can still exercise, despite his lack of explicit personal or factual memory, are

not mindless. Nolan repeatedly underlines the richness and flexibility of these remaining embodied and habitual resources, something that these standard views (including Leonard's) perhaps mask. Leonard is no mere engine of reflex, even though he doesn't need to set his skillful actions in motion deliberately, to reflect on the basis or mechanisms of his ability, or to consider explicitly the source of his skill. The slow processes of incorporation through which embodied skills develop are, in the main, "traceless practices" (Compton 1989: 102). For most of us, such procedural skills are complemented by and integrated with quite different forms of memory, in which history animates present dynamics more directly. My personal memories are about the past events or experiences that also caused them, whereas my current memories of how to use a credit card to slip a lock, how to dance the tango, or how to prepare a homemade tattoo, derive from past experiences that are not themselves part of their content: nothing in the occurrent practice refers in any straightforward way to its history.

But, in principle at least, I can coordinate my remembered autobiographical episodes with my practiced know-how. Leonard's mental and affective life since the incident, in contrast, exhibits an agonizing gulf between a disrupted personal memory and a preserved habit memory. When Leonard is supposed to recognize someone, to access a personal memory, he knows that his failure to show the appropriate signs of recognition may cause offence, and so—like Sammy, perhaps—he's developed the tendency habitually, automatically, to fake it, to bluff.

Humor is just one of a number of ways in which Nolan repeatedly signals the uneasiness and experiential complexity of this reliance on habit without autobiography, scripts without specificity. Leonard's sudden realization (scene Q) that he's in bed with someone else, someone he doesn't recognize, is the most striking of the many scenes of waking in *Memento*. As we imaginatively relate to Leonard's mixture of politeness and confusion, we remember that he can't slowly piece together from memory what might have happened with this woman—Natalie, he discovers from his Polaroid—as we might have done if ever in a similar situation. In more comic mode, Leonard's revealingly practiced skills in breaking and entering are undercut when—misreading Natalie's note—he erroneously first opens the door of room 9 at the Mountrest instead of Dodd's actual room 6. Leonard himself is able to mock his reliable,

conditioned awareness of what he'll find in a motel room—"the Gideon Bible, which I of course, read, religiously" (2, 0:06:32). Just doing what you always do can be marked as funny, or embarrassing. From inside the space of reasons, because such behavior is not considered, not the product of deliberation, and thus in a sense beyond the range of normative evaluation. Teddy's attempt at humor when Leonard reads the age of the pick-up's tracks seeks to locate Leonard as some kind of outsider for relying on skills over memory—"Tracks? What are you, Pochontas? ... C'mon!" (V, 0:04:40).

Embodied habits and autobiographical experience are often thus entangled, in the many activities involved in real-world remembering. The Japanese discourse psychologist Kyoko Murakami (2003), for example, reports on similarly awkward attempts at lightness as distinctive forms of memory are layered together in particular occurrences and actions. In the course of her work on reconciliation, Murakami interviewed British veterans who'd been held as prisoners of war in WWII on the Thai-Burma railway and in a copper mine in Japan. Murakami notes that troubled interactions arose at moments of shifting from the exchange of pleasantries into interview mode. The British veterans, in search of some jocularity as they position the Japanese researcher as the giver of orders, often used isolated Japanese phrases such as "kyōtsuke," "ichi-ni-san-shi," or "sagiyoo sagiyoo" ("stand to attention!," "one-two-three-four," and "work, work!"). These terms, verbal residues of that very different time, bring the wartime past directly to the present. They have an incorporated, affective force beyond their surface meaning as an entire embodied and moral order arrives with a "visceral shock" (Middleton and Brown 2005: 134-5).

The veterans are unlike Leonard in that they do retain highly charged autobiographical memories of their wartime experiences: but those recollections are not, it seems, directly animating current behavior (Murakami 2003). There is no deliberate reference to particular past events in enacting this word "kyōtsuke" ("stand to attention!") so that in one sense the habitual and embodied residues of the veterans' history are independent of explicit personal memory. But as in Leonard's case, we can still identify the thorough and pervasive layering of levels, as bodily practices, autobiography, and big history are interwoven. As in *Memento*, the past may be fully, viscerally alive and aching even when it isn't cleanly captured in declarative thought or focused awareness.

In other real-world contexts, when explicit thought can't easily get a grip, other ways of absorbing and using information sometimes step in. Consider H.M., the celebrated patient whose speculative neurosurgical treatment for epilepsy lies at the source of the modern sciences of memory. H.M. became tragically unable to encode new factual or personal memories after the summer morning in 1953 when "central portions of his brain were sucked out by a silver straw" (Hills 1995: 21) in the removal of his hippocampus, the organ subsequently identified as playing a key role in these forms of memory (Milner, Corkin, and Teuber 1968). Yet H.M. not only has residual memories of his life before the surgery, as we'll see below: he also famously retains the capacity to learn new skills despite his loss of explicit memory. Moreover, in the kind of seepage of information across memory systems that we're exploring here, in an apparent anomaly H.M. successfully came to remember the detailed layout of a house he lived in only after his operation. This is surprising because spatial memory usually requires explicit memory capacities, in order to form an objective representation of a particular place. In H.M.'s case, though, this information was perhaps learned slowly over an extended period of time, in the course of many repeated movements between rooms in an emotionally significant place (Corkin 2002: 156). Another example comes from Clive Wearing, an Englishman who had been a celebrated early music expert and conductor before sadly suffering a more extreme and all-encompassing amnesia than H.M.'s or Leonard's. Wearing can't remember what's happened moments before the present, and continuously feels as if he's just come to consciousness. Nevertheless, after 18 months in a new home where he was taken for a daily walk to feed the ducks, he started to ask, "when prompted to put his coat on, 'Aha, do the ducks want their tea?'" (Wilson and Wearing 1995: 27).

These examples demonstrate that information can seep through from other systems, variously driven by peculiar cocktails of affect, familiarity, and habit, to influence awareness or action. Just as autobiographical and embodied memories are ordinarily intertwined, so "amnesia is not an all-or-nothing condition" (Corkin 2002: 157). Nolan, I am suggesting, seeks to depict this extra complexity across a number of parallel strands of *Memento*. I'll discuss later the way in which Leonard repeatedly (re)discovers his tattoos: here we can consider the end of the story of Sammy Jankis, so vital a narrative prop for Leonard. We see Mrs. Jankis's

final, extreme test of Sammy's condition (scene 21) just after we've seen Natalie assessing Leonard's own memory with a quick and cruel test involving a polluted beer (scenes D and C). Sammy continues to inject Mrs. Jankis with insulin, administering more and more: but at the moment when he finally sees its effect, Sammy does not register total surprise or shock. As Nolan puts it in his commentary on this scene,

There's some underlying awareness of what's going on, whether it's just on an emotional level, or whether there's some greater awareness, because it was very important to me, the idea of the confusion of different types of memory. I wanted to not make it as simple as Leonard describes the condition. . . . You can't reduce the human mind to this incredibly simple separation of different functions, different brain parts, and a lot of the film deals with Leonard's conscious journey through the story being informed by emotion that he doesn't quite understand, that underlies that, and that's, you know, a different part of his mind doing that, and it's the interaction between them, the conscious mind and the emotional memory . . . that is so difficult for him, so confusing for him.

Perhaps what's at stake here is not best described as simply a two-pronged interaction between consciousness and emotion—perhaps each of these aspects of the embodied mind is itself multiple. The film dramatizes the complexity of these coordination problems that are ordinarily solved, for most of us, by the smooth interaction of the components of our minds, bodies, and brains, well enough to get by, most of the time.

Autobiography, time, action, and emotion

The leaking of Leonard's blood and mind onto the bathroom floor (scene E) has left him unable to form new personal or factual memories. As in the case of H.M., this is anterograde, not retrograde amnesia: it's new or ongoing information, not Leonard's entire past, that is lost to him. But as time passes and more new post-incident events occur, they become past. It's this missing back-story, in which experience has failed to stick, the time between the incident and the present—a period unspecified in the film—that fascinates and frightens. What might Leonard have done?

Much of the intense scrutiny of plot and coherence that *Memento* encourages has dealt with Leonard's residual knowledge: not just his spared skills and practical capacities (discussed in the previous section), but also his ongoing knowledge of how to operate his "system" (discussed in the next section), and the fact that he even remembers that he has a condition. Within my overarching focus on the variety of ways in which history and information can be absorbed and retained, in this section I discuss the extent to which Leonard (like real-world anterograde-amnesic patients) retains a grasp of the concept of time on the basis of what remains of his autobiographical memories. Drawing on work by Christoph Hoerl, I suggest that it's appropriate to describe Leonard as temporally disoriented only against the background of a residual understanding of the significance of time: this line of thought helps to explain not just Leonard's insight into his impairment, but also the peculiar and tragic nature of his approach to his own actions and choices. This discussion then helps us consider the peculiar nature of those personal memories of Leonard's that we see in flashback, deriving from his life before the incident, and to see how Nolan depicts Leonard actively using these remaining fragments to motivate his own present actions.

In a rich and original paper "Memory, Amnesia and the Past," Hoerl (1999) develops an analysis of the grounds for and consequences of having a concept of the past. Hoerl notes that in most cases, anterograde amnesia leaves patients with some awareness of their situation, although this leads to many different emotional responses. Even if their amnesia deprives them of information about their condition, they can still (to some degree) *understand* it, because the ideas of the past and of a connected, directed life still make sense. On Hoerl's account, this is because they can still remember some specific events from before the period covered by the amnesia: they have at least some genuine episodic memories for particular past actions and experiences. So if H.M. "has good insight into his memory disorder" (Corkin 2007: 158), this must be anchored in his long-retained personal memories of particular events and sequences from his early years. In Philip Hilt's moving portrait, H.M. smilingly describes a pair of "shoe skates with fiber wheels" he owned as a child, and shyly tells of dropping his girlfriend Mildred Carpenter for Beverly McDonald (Hilt's 1995: 86).³ In episodic memory, as Hoerl argues, we are not just influenced by the past, but are having thoughts about the past:

the ability to have such thoughts, also revealed in our command of the past tense, is required for a grasp of the concept of the past.

In contrast, the few reported extreme amnesias in which patients do seem to "lack the conceptual resources for capturing what is wrong with them" are characterized by an absence of genuine episodic memories. S.S., for example, tended to recall only "the general idea of a past event," so that his knowledge of his whole biography (not just the time after the onset of amnesia) appeared to be exclusively factual rather than truly personal (Cermak and O'Connor 1983: 230). Such patients, suggests Hoerl, "do not have an adequate concept of time" (1999: 240-1). This is a psychological rather than evaluative judgment: responses of distress or confusion or acceptance at their temporal disorientation only appear in patients who still know why and how the passage of time matters.

We would not describe a subject as temporally disoriented for whom it did not have any significance what time it is. Being aware of one's own temporal disorientation thus requires that one can still make sense of oneself as occupying a particular location in an objective time series, even though one may not be able to make out this location on the basis of one's own resources.

(Hoerl 1999: 231)

Leonard is acutely aware of his temporal disorientation, on this view, just because he can still recall particular past events and experiences from his own past, however imperfectly. He still knows how time works, in other words, but can't reliably place himself and his actions or experiences within it. This is why we occasionally see him still trying to remember, aware that he's lost something. Our narrative dislocation within the film thus gives us not just insight into his loss but an experience that echoes it: we feel at a loss, as if all the pieces are there but we can't grasp them, all the memories and exograms in place, if only we could inhabit them.

With Hoerl's help, we can push a little harder on this point that Leonard still knows how time works: this isn't a merely theoretical awareness, but an agonizingly practical influence on his sense of himself as an agent. Hoerl notes that many amnesic patients with insight into their condition realize that they cannot aim easily toward long-term goals, goals that would rely on each action building cumulatively on earlier

actions and their effects. N.A. is typical in, as a result, striving "for a rigorously stable environment as an aid to his memory," and avoiding even the attempt at life-changing progress toward such goals (Kausshall et al. 1981: 387). Hoerl's comment on N.A. affords a striking comparison with Leonard's response:

[N.A.] realizes that any kind of progress he might make can mean a potential danger to him, since, as a consequence of such progress, he might find himself in an environment which he can no longer recognize.

(1999: 242)

In Leonard's world, these dangers have become actual. He knows perfectly well that what he does makes a difference, and that things may not be the same after any particular action, even though he won't remember how they were before or understand what's changed. Under normal circumstances, he is thus reluctant to transform momentary feelings into action, and fears the effects of his own anger. But, unlike N.A., Leonard cannot protect himself from the world of time, because his single driving passion makes one particular action obligatory. This drives the intensity of his information-gathering and his urge to trust "facts, not memories" (R, 0:24:04). This high-level stability of planning doesn't justify attributing to Leonard full temporally extended agency in Michael Brauman's sense (2000): Leonard's attempts to develop and coordinate his policies and activities through reflective temporal cross-referencing are severely compromised by the executive disruptions brought on by his inability to attend for any substantial span, or across pressures and distractions like the slamming of a car door.⁴ But Hoerl's analysis offers an alternative notion of agency that perhaps gives us more of a grip on Leonard's plight and choices: Leonard is a full-blooded agent at least in the sense that, because he shares our concept of time, he too is "sensitive to the irrevocability of certain acts" (Hoerl 1999: 243). He understands the uniqueness and unrepeatability of events, and has insight into the causal structure of the world, the significance of the fact that actions cannot be undone (Hoerl 1999: 245).

It's true that Leonard can't reliably track his own position within these causal sequences. But the point, which we have drawn from Hoerl's analysis, that Leonard nonetheless grasps the singularity of time also helps

us better appreciate the climactic end of *Memento*. In scene A, by writing a new message on Teddy's Polaroid, burning the photos of himself and Jimmy, and writing a note for a tattoo of Teddy's license number, Leonard is manipulating his future self, tampering with the records and exograms on which he knows he will later rely. His decision here to alter the course of future events is momentous—it's a genuine and perhaps horrifying choice, rather than a random or reflex response—precisely because it depends on and demonstrates Leonard's residual understanding of the irrevocability of action. We come to realize that we have already seen, at the beginning of the film, the fatal effect of these decisions: while Leonard himself couldn't later assess the outcome of these actions, we now hold the burden of both tracing and understanding the lines of causal and moral responsibility for Teddy's death.

At least two other key sequences in *Memento* also show Leonard exploiting his remaining capacity for personal memories. Consider again those surviving memories from Leonard's earlier past to which we gain access. Leonard repeatedly insists on his psychological continuity with his previous self, and on his access to autobiographical information from before the incident—"I know who I am, I know all about myself," as he tells Burt (U, 0:08:25). But the only signs of the more recollective, sensory-perceptual phenomenology of true episodic memory are in his flashbacks. We become familiar with the first-person point of view characteristic of his memories of his wife, which he typically recalls in "field" perspective, as from the original vantage-point, rather than in "observer" mode, seeing himself in the remembered scene (Nigro and Neisser 1983), as in his memories of the Jankis case. They are vivid but isolated memories—Leonard looks down toward his wife reading in bed or turning in her chair to look at him, or up across her side of the bed to the clock and the bedside table.

These personal memories are fragmentary: the contents of Leonard's churning engrams, his remaining inner memories of his wife, are no more woven in to any fuller, clean life-narrative than are the assortment of external, artifactual relics with which he seeks to mourn her. The emotional valence of these fragments is not always unambiguously positive. Whatever their accuracy, this mode of presentation from a "field" point of view underlines their affective intensity. *Memento* offers intriguing opportunities to work through such questions about vantage-point in memory and imagination, topics on which discussions in

philosophy, psychology, and film studies so far remain disconnected (Bernsen and Rubin 2006; Debus 2007; Smith 1997; Wollheim 1984). Here I merely note one aspect of the use and motivational function of these first-person fragments. In hiring an escort to recreate momentary belief in his wife's presence (scenes I and J), Leonard exploits his amnesia by re-occupying his first-personal vantage point: when he wakes as the woman goes to the bathroom, he again looks across the warm bed at her worn paperback and hairbrush, for a brief moment "utterly content" (scene J, Nolan 2001: 166). He seeks to coordinate his biological memory fragments with his bag of mementos (bra, hairbrush, book, toy, clock) in a desperate quest for brief comfort. The strategy fails, as it must have failed before, for even with more immersive sensory memory (smelling her book) and ceremonial ritual (burning his memorial props in a desolate lot), Leonard can neither obliterate her death nor "remember to forget" her (scene K). The sequence both demonstrates Leonard's capacity for self-manipulation, on a more minor scale here than the grand decision to lie to himself at the end of the film, and further underlines his lament to Natalie, "How can I heal . . . if I can't feel time?" (P, 0:37:33).

One effective message of *Memento* is that a wider range of emotions and interpersonal practices than we usually notice depends on a constantly, more-or-less reliably updated personal memory. The class of temporally extended emotions, which Leonard can only at best approximate, includes not only grief but love and probably hate, regret, anticipation, and (according to Natalie) fear (scene F). Leonard's condition also rules him out of the ordinary social practices of working successfully with contracts and trust and promises, as Teddy and Natalie both realize. It's not just that relevant information often fails to make it across episodes of Leonard's waking awareness, but that—at temporal scales below the grand search for John G—such connections, for him, don't automatically matter in their own right. Anger, however, remains available under pressure, and if Leonard can still be scared it's at the things he might have done under its influence and then forgotten. It's interesting that H.M. too went through more periods of high emotional intensity and anger than might be apparent from the public scientific record (Hills 1995: 152–7).

But there's a suggestion in another vital scene of *Memento* that—in the absence of the kind of abuse Natalie doles out in scene F—Leonard has

to incite or provoke his own rage, using his disconnected engrams to manipulate himself into action. In watching Jimmy arrive at the derelict building (scene 22), as Leonard works up to killing him—just before the timelines meet as the photo of the dead Jimmy morphs into color—Leonard mobilizes a series of flashbacks of his wife, allowing the version of her he carries with him to sanction or request or drive his violence. The first-person or field perspective in these fragmentary, apparently mundane episodic memories, before a final flash of her head thrashing during the incident, is complex. As well as having his wife turn in her seat to urge him on with her direct look, somehow drawing these images from his available stock, Leonard almost becomes her momentarily as he and she both move to the window when Jimmy's vehicle draws up outside (22, 1:37:18). The blurring between Leonard and his wife is rendered even more striking because these are color flashbacks intruding into a black and white scene.

Embodied exograms

One pleasure of increasing familiarity with *Memento* is gradually to trace the idiosyncratic provenance and trajectories of the array of objects and artifacts on and around Leonard over time. Leonard is desperate to give certain sanctioned things their own cognitive life, while still controlling their history and contacts. His "system" has a glorious baroque precision, with different levels of information allotted to different storage media, particular pockets assigned to particular items, and different handwriting employed for information that needs later scrutiny.

But we see Leonard's wishful confidence in his system of notes and photos, chart and file and so on, under pressure from the start. Cognitive artifacts are twisted, or adapted for other purposes; or they roam free of their designer's plans, living out unauthorized biographies or off on a frolic of their own. One tattoo reads "notes can be lost" (T, 0:14:11); Leonard's retort to Teddy that memory too can be unreliable doesn't refute Teddy's point that notes are (scene R); and our realization that one of Leonard's vital photo annotations has been scribbled out (scene S) immediately suggests the potential for his system to unravel or be undermined. We are trying throughout to decode the (reverse) history of bodies and bruises, keys and coasters and cards, guns and clocks and bullets and bags, a jacket and a Jaguar, as well as the various

components of Leonard's explicit symbolic system of words and images and inscriptions. The cognitive environment for Leonard is everywhere: anything can become a trace, following Leonard across contexts or media whether he is currently aware of its significance or not. His field of possible inference includes not just others and objects, skin and system, but also his own inner states: he has to assess his sobriety when he comes to holding a whiskey bottle, or (as we've seen) treat his own residual neurally encoded memories as useful prosthetic tools to help provoke action.

Many of Leonard's exogrammatic traces are unreliable in these ways, or (in some cases) detachable and thus imperfectly accessible. In these respects the information in the external parts of Leonard's system differs from the usual ways that beliefs are held and accessed by those without such a condition, though of course various non-standard conditions such as forgetfulness, drunkenness, or enduring repression can render engrams too hard to reach. But we can close this discussion of coordination between forms of memory by pointing to two more successful aspects of his use of exograms: the transparency of Leonard's "system" when in use, and the way he repeatedly discovers his tattoos.

Many parts of Leonard's network of traces, carrying him across repeated gaps in consciousness, do function with remarkable success much of the time. Just as his practiced eyes and hands retain and develop certain practical skills, so he has achieved an impressive level of procedural efficiency in more or less unobtrusively hooking up to his photos and notes. Under many circumstances, he can quickly work out who someone is, or which car to get into, or where to go: always flipping through his photos, he has routinized the means to encode relevant basic information about people extra-neurally, to store this information in accessible spots about his person, and to retrieve it when needed. When this all goes well—when his externalized cognitive equipment is genuinely transparent in use, requiring no reflective mediation—he is (arguably) simply remembering. An observer might think that Leonard must first activate an inner belief that the information needed is on the notes or photos before looking at them. But this would be a mistaken or at best awkward interpretation of his behavior: it is more economical to see Leonard as simply accessing the relevant information in one step, given his extensive practice, when the system of exograms is in fact operating roughly as desired. This case no more requires an explicit prior belief about what's

in his pockets than does our ordinary use of on-board biological, engrammatic memory (Clark forthcoming).

But there are, as we've noted, significant limits to the transportability, security, flexibility, and resistance to pressure of Leonard's system. Where he hasn't yet incorporated particular artifacts into that system, his lack of flexible executive control and attention can hurt him: Leonard could easily have left the restaurant, after lunch with Natalie, without his room key and the brown envelope containing Teddy's registration details, which he'd forgotten to take with him to the restroom, if the waiter hadn't stepped in as a transient memory support (scene T). Habit and routine, Leonard's "graceful solution to the memory problem," don't do all the work he might wish. But he has successfully internalized at least a basic range of proceduralizations. He doesn't have to think first before taking or checking his Polaroids, or even before destroying them by burning, the only way possible: in each case, he just does it.

Leonard's relative ease in working with his photographs and notes, however, contrasts with his more complex interactions with his tattoos: this provides our last example of the film's rich depiction of the subtle interfaces between memory, habit, bodies, objects, and emotions. Leonard's tattoos are less ready to hand or eye than his photos and notes. We are primed by Leonard's own genuine surprise at finding the message "remember Sammy Jankis" on the back of his hand to be indelible—this happens twice, in what is for us quick succession, though in fact at opposite ends of the fictional-world chronology (scenes 2 and T). Thus schooled from the start into thinking, as Natalie does, that Leonard doesn't seem the tattooing type, we find the extraordinary revelation of Leonard's panoply of tattoos later in scene T engrossing, as we try to piece together fragmentary clues to help our narrative orientation. While we are still trying to assimilate Leonard's writing "KILL HIM" on Teddy's picture at the end of scene T, Nolan works us further—in "a bit of a reinforcement," as he puts it in the commentary—by immediately showing us Leonard discovering his tattoos again as for the first time at the start of scene 4.

The tattoos we see revealed on Leonard's body in these scenes are all different, in style, script, and provenance as well as content. Some have to be viewed in the mirror, some are read rightly by looking down, and so on. Just as, within the time span of the film, one of his new tattoos is self-administered and the other tattooed in a parlor, so the great variety

of other tattoos suggests the longer back-story, the history to which we and Leonard equally lack direct access. Where the (re)discovery of the Sammy Jankis tattoo on his hand does puzzle Leonard each time, his response to finding the rest across his body is not so easy to read. Nolan plausibly describes Guy Pearce's performance here as capturing Leonard as both knowing and not knowing something at the same time.

Though lacking explicit memories of the appearance, history, or content of his tattoos, Leonard is nevertheless neither entirely surprised nor nonplussed. In these sequences, a number of layers of memory or experience or history are present simultaneously, in uneasy cooperation or confusion or competition. Familiarity, repetition, habit, and his affective engagement with his quest as mapped out on his chest, over the period in which he has had these tattoos, have had their indirect effects on Leonard despite his overt ignorance. What's written on the body does make sense to him, and this is a body he can inhabit or rehabit fully rather than simply occupy. While we as first-time viewers are scrambling for each item of incorporated information, Leonard is simply caressing his skin, allowing the words again to acquire their affective significance for him (see Figure 3.2).

One could suggest that here Leonard's hands remember more than he does. But even this formulation, still hankering after the two terms of the mind-body problem, would reinscribe the dualism that *Memento* dismantles. Neither body nor self is singular and unified. While personal memories and embodied memories do make their distinctive

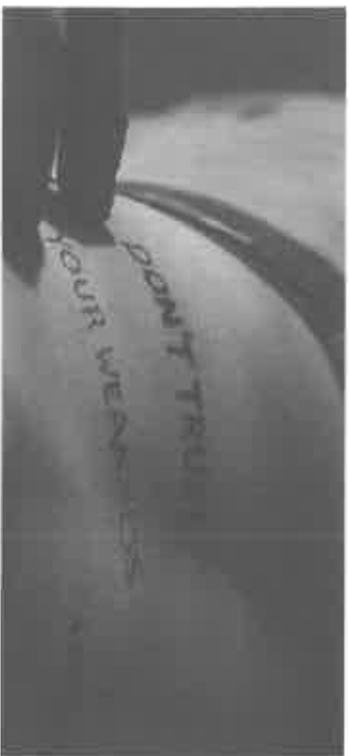


Figure 3.2 Don't trust your weakness (T, 0:14:10)

contributions to action, habit, and identity, they constantly shadow and infect each other, not as isolated and neatly dissociable as we, or Leonard, might think.⁵

"I don't want to live backwards,
I don't even want to look backwards.

It's not my fault,

It's not my fault you don't love me.

It's not my fault you don't love me when I'm drunk."

—Kristin Hersh, "Your Dirty Answer,"
from *Sunny Border Blue* (2001)

Notes

- 1 Scenes are referenced using the standard scene tables as explained in Andrew Kania's introduction to this volume. Quotations are from the film and from the screenplay (Nolan 2001) as appropriate.
- 2 Christopher Nolan, Limited Edition DVD commentary. I rely heavily on this informative commentary. It diverges into three distinct versions over the final scenes, but my references derive from the scenes before the switch point.
- 3 Like every case of amnesia, of course, H.M.'s is unique. Many of the personal events H.M. seems to have retained for a long time have a slightly generic, unspecific feel. They are not clearly single, particular, temporally unique events and may be somewhat "semanticized," more factual than truly personal (Corkin 2002: 157). And in recent years, as H.M. has got older, his remote autobiographical memory has deteriorated rapidly, even though he "could still demonstrate impressive recall of old and even new semantic knowledge" (Salat et al. 2006: 944).
- 4 However, in a fascinating recent discussion of *Memento*, Marya Schechtman argues that Leonard exhibits at least a basic, practical unity of agency while being entirely fragmented as an experiencing subject (2008: 412ff). For Schechtman, Leonard's virtuosic manipulations of his future self are both evidence of and mechanisms for his ongoing constitution as a continuing agent (417).
- 5 Many thanks to Andrew Kania for his help throughout. He, Will Sutton, and an anonymous referee offered extremely helpful comments that I've tried to incorporate. Doris McIlwain has strongly influenced my views on the relations between skill and memory, movement and thought. Thanks also to Amanda Barmier, John Buckmaster, Wayne Christensen, and Ed Cooke.

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Further reading

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