

13 Consent Without Memory¹

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1 Introduction

Can someone with episodic amnesia consent to participate in a scientific experiment? Episodic memory is widely regarded as the capacity to remember knowingly experiences of specific events from one's personal past (Tulving, 1985). Individuals with severe episodic amnesia sometimes cannot episodically remember even a single such event and fail to lay down new episodic memories going forward. In some special cases, such individuals have maximally severe deficits in episodic memory while their intellectual ability and other cognitive functions (e.g., semantic recall, procedural learning, working memory) remain in control range (Rosenbaum et al., 2005). Such individuals afford the unique opportunity to investigate how episodic memory specifically contributes to other cognitive capacities and more generally, to the distinctive lives of persons. We can thus invert the opening question: What, if anything, does episodic memory contribute to the fact that persons can, and so deserve the right to, consent?

Episodic memory can be thought of as having two components: a constructive component (Mullaly & Maguire, 2014; Rosenbaum et al., 2009; Rubin & Umanath, 2015; Schacter et al., 2012) for generating specific experiences out of stored representations across and among different modalities (visual, tactile, olfactory, etc.), and an auto-noetic component, giving one the sense that one is re-experiencing something one did in the past (Tulving, 1983; Mahr & Csibra, forthcoming). Individuals with textbook episodic amnesia can no longer reconstruct or re-experience details of their personal pasts in memory (Tulving, 1985; Rosenbaum et al., 2005).

In both science and popular culture, the ability to re-live our personal pasts in memory is accorded a central position in our lives as persons. Among cognitive scientists, episodic memory is increasingly associated or identified with other capacities that are similarly, intuitively central: the capacity to imagine personal futures (e.g., Atance & O'Neill, 2001; Klein, Loftus, & Khilstrom, 2002; Michaelian, 2016), to imagine counterfactual pasts (Schacter et al., 2012; de Brigard, 2014), to engage in "mental time travel" (Tulving, 1985, 1993; Suddendorf & Corballis, 2007; Boyer, 2008),

and to have a subjective sense of temporality (Dalla Barba and La Corte, 2013). Individuals with episodic amnesia are frequently described as trapped in a “permanent present tense” (Corkin, 2013) with no sense of their pasts or futures. Oliver Sacks (1985), for example, described the life of “Jimmie G.,” a person with episodic amnesia resulting from Korsakoff’s syndrome, as a “Humean froth,” a “fluttering on the surface.”

This popular view about the centrality of episodic memory to our lives as persons has yet to be tested. Neuropsychologists do not yet have a moral profile of individuals with different varieties of amnesia: a complex characterization of if, and if so, how the absence of episodic memory impacts on the capacities required for one to deserve, e.g., the right to consent. This is partly because we do not have a clear sense of which capacities are and are not required to deserve that right. But it is also partly because we are only beginning to understand what episodic memory allows us to do that could not be done with other memory or cognitive systems, and so what episodic memory contributes, in the here and now, to our capacities as agents or persons in the fullest senses of those terms. The case of consent provides a manageable domain in which to address this immense and important topic.

The abstract, philosophical question of consent confronts the hard reality of practice every time a researcher visits an individual with cognitive deficits to perform even the most innocuous of experimental tests. A decision must be made whether the individual is capable of consenting, whether consent should be given by proxy, or, as in our group, whether consent should be obtained from both the participant and the proxy (the “dual consent” approach). Recent discussions of Suzanne Corkin’s approach to the case of Henry Molaison (H.M.) have drawn public attention to the fact that our ordinary idea of “consent” is put under extreme pressure when working with cognitively impaired individuals (Dittrich, 2017, pp. 327–329; Begley, 2016; Levine, 2016). If individuals with episodic memory lack imagination, cannot simulate possible personal futures, cannot re-live their mistakes, cannot consider or evaluate counterfactuals, are trapped in an eternal present, as our best current theories of the function of episodic memory suggest, then they plausibly lack key skills required to make decisions for themselves. It would perhaps be better for a guardian to make the decisions on their behalf.

Our group has relied on a dual consent approach precisely because it leaves open the possibility that the amnesic individual might be able to consent on their own. We begin (Section 2) by explaining why this approach does not, in fact, provide an ethically superior alternative to consent by proxy. The remainder of the chapter addresses whether episodic memory is required for consent. Section 3 argues from abstract considerations that consent plausibly does not require episodic memory or perhaps even memory more generally. In Section 4 we argue from empirical findings for the conclusion that individuals with amnesia might have the psychological capacities required to decide whether to consent for themselves to an experiment.

We focus here on the case of Kent Cochrane (1951–2014; known in the scientific literature as K.C.), the best known and most studied example of someone with specific, episodic memory deficits (Rosenbaum, 2005; see also Branswell, 2014). Kent’s episodic amnesia gradually became apparent after a 1981 motorcycle accident in which he sustained significant brain trauma, including (but not limited to) key areas of the medial temporal lobes known to be involved in episodic memory. Kent’s episodic amnesia, which extended backward over his entire life and prevented him from forming new episodic memories going forward, was singular both in its severity (Kent could not remember a single personal experience) and in its apparent specificity. Yet what we learned from Kent has important implications for other individuals whose episodic amnesia may be less surgical and thorough.

2 Dual Consent?

The dual consent approach involves two consentees in the consent process: e.g., Kent and his mother, Ruth. This approach is designed to solve a practical dilemma that arises in working with individuals with cognitive impairments. Namely, we do not know, before testing him, whether Kent is able to consent. If we give him that right when he does not deserve it, we ~~would~~ subject him to the very risks consent statutes were designed to avoid. However, if we deny him that right when he deserves it, we rob him of the very status consent statutes were designed to protect. Neither choice is obviously correct, and either could do him harm.

The dual consent approach promises a third way: If Kent can consent (and has been properly informed and is acting voluntarily), then he consents when he signs the document. Ruth’s approval is ethically superfluous (even if it is practically or legally beneficial). If Kent cannot consent, Ruth’s consent takes center stage. Kent’s would-be “consent” is transformed into “mere assent,” i.e., mere expressed willingness to go along with the plan. If Kent doesn’t assent, or wants to stop the testing at some later time, that overrides anything he or Ruth said before. The dual consent approach addresses the practical dilemma by covering the bases, allowing Kent to consent if he can, and allowing a proxy to do so if he cannot.

Does the dual consent approach uphold the values consent statutes were designed to protect? The Nuremberg Code was adopted in the face of Nazi atrocities to place standards on the use of human subjects in scientific experiments. Two main values stand out in this document: the prevention of abuse and the protection of autonomy (i.e., the ability to make decisions for oneself). It is also clearly designed to safeguard public trust in science.

The dual consent approach arguably protects Kent from abuse better than a policy of allowing him to consent for himself. It must do so at least as well as allowing Ruth to consent on his behalf. And either of these options is clearly preferable to the illegal option of leaving the decision to the experimenter. Dual consent interposes two layers of consent between

the experimenter and the participant, making it less likely that a harmful experiment will be allowed to proceed and less likely that any abuses will occur than if the participant makes the decision alone. For this reason, the dual consent approach also safeguards public trust; it encourages the sense that researchers and clinicians care about protecting potentially incapacitated participants from harm. Because the policy is flexible and easy to apply, it makes for a convenient way to handle the contingencies that might arise in any particular individual, a particular individual over time, or across very different individuals with overlapping deficits.

Finally, the dual consent model has the virtue of not delivering potentially harmful self-knowledge or, worse, inaccurate and injurious moral psychological diagnoses. Compared to proxy consent, the dual consent approach does not imply, in the very process of soliciting consent, that Kent is incapable of giving it. By remaining agnostic, the dual consent approach avoids introducing the perhaps unwarranted stigma of incompetence under the guise of protecting Kent from harm.

In fact, however, besides this keeping up of appearances, there is no moral difference in Kent's status between the dual consent approach and consent by proxy. This equivalence would be especially apparent if Kent and Ruth disagreed with one another about continuing an experiment (a scenario that never happened, to our knowledge). Under those conditions, the redundant control mechanisms so useful in achieving the utilitarian objectives discussed previously are pitted against one another. If Kent consents, and Ruth does not (perhaps because *he* enjoys the testing, and Ruth has better things to do), we are forced to address the very premise the dual consent approach is designed to sidestep: We have to make a decision about whether Kent can consent on his own. If he cannot, the dual consent model delivers the right verdict. But if he can, Ruth's opinion is no more relevant than the opinion of any other mother about what her 60-year-old son does. He should speak for himself.

This problem reveals something intellectually unsatisfying about the dual consent approach even when Kent and Ruth agree. If Kent is competent to make decisions for himself, the necessity of Ruth's consent enshrined in the dual consent model is not merely gratuitous; it renders Kent's retained decision-making power illusory. In fact, if Kent had thought it through, he might have recognized the dual consent model as cold comfort or worse. So the dual consent approach does not really sidestep the ethical question. We have to ask directly whether someone robbed of their episodic memory capacity, and all that goes with it, might nonetheless deserve the right to consent.

3 Consent Without Memory

Intuitively and prereflectively, memory seems to play a crucial role in keeping track of what one has consented to and what one has not. If Kent

cannot possibly remember giving his consent, one might reasonably surmise, he cannot keep track of what he has consented to and what he has not. The relevant thread between the moment of consent and its moment of fruition is severed, and “consent” loses all meaning (Dittrich, 2016, pp. 329–331).

This intuition, however, does not fit with things we already know about consent. For example: It is typically given in writing. We have this practice precisely because we know our memories often fail. The document provides evidence of a binding agreement undertaken at the moment of consent. Should doubts arise as to whether consent was granted or about what exactly one consented to, the document legally trumps the frail constructions of memory.

This mundane fact should lead us to question whether the thread binding the moment of consent and its moment of fruition must be wound from episodic memory specifically. If the bond between these times might be constituted by a piece of paper, there is little reason to think consent requires that one be able to reactivate a vivid, experiential memory of the moment consent was given. We do not require such things for monthly bank account deductions to fund public radio, for marriages, or for sex. We do not videotape or photograph such moments to preserve the consent in their fine detail. If episodic detail is so unnecessary in our ordinary dealings with consent, why should it take center stage when we think about consenting to a scientific experiment?

This way of thinking will no doubt be congenial to externalists in the philosophy of mind (Clark & Chalmers, 1998). The persistence conditions for consent need not be satisfied “inside the skull” but might just as easily be borne by a piece of external scaffolding. From this perspective, the thread between the moment of consent and its fruition might equally be written on paper, stored in digital traces, or tattooed across one’s chest. Perhaps Kent, left to his own devices, could not consent; but perhaps with Ruth’s help, a pencil and paper, or a mobile phone, he could (see Fluharty & Priddy, 1993; Sohlberg & Mateer, 1989).

A second mundane fact, however, undermines even the idea that consent requires a thread between the moment of consent and the moment of fruition: We routinely require and give consent for actions we cannot possibly remember, think about, or understand at the moment of fruition. We consent to surgery during which we will be unconscious. We consent to having our organs harvested when we will be dead. In neither case is it even possible to remember consenting when the moment of fruition arrives. Nor is there any knowledge the consentee must entertain (or, arguably, possess). Indeed, the consenter might no longer even exist. Consent, it would seem, can outlast our thoughts, our mental lives, and even our bodies (cf. Nagel, 1970).

If so, the key causal players in consent occur at the time consent is granted. In giving one’s consent, one thereby (immediately) permits someone to do something that they were not previously permitted to do. That change in one’s ethical relations to others is not, in the first instance, a change in the

causal structure of the world. It is rather a change in its ethical structure: in what is permissible and what is not. To understand how persons are related to the causal mechanisms studied in the psychological and brain sciences, we must cross a divide between two very different ways of “keeping track of” human beings and their relations. We must relate a world of norms to a world of causes (Haugeland, 1993). From the normative perspective, persons are nodes in a network of commitments, obligations, permissions, deservings, and the like, that make some future possibilities permissible and others not. We should not be looking for the material basis of consent’s persistence but rather the material conditions for the existence of consenters in the first place. We should rather ask: What kinds of causal mechanisms must nature assemble to create creatures that properly can be said to, and so to deserve the right to, consent for themselves?

4 Consent in Amnesia: Informed, Voluntary, and Fully Capacitated

Even if consent requires no memorial or material bridge to persist, it is possible that Kent was cognitively impaired in ways that prevented him from being fully informed, from consenting voluntarily, or from being fully capacitated to make decisions for himself. As psychologists and philosophers have identified episodic memory with other, far-reaching cognitive capacities, it has become easier to suppose that a person with episodic amnesia must be critically debilitated in capacities required for giving autonomous consent. The available evidence, however, does not support this supposition.

4.1 *Informed Consent*

Did Kent’s episodic amnesia prevent him from being informed or from understanding what he was being asked to do?

Anecdotally, nothing in our experience raised any doubts on this front. Kent never displayed any difficulty understanding the consent process or any of the tests he was being asked to perform. He was regularly able to describe the test in his own words and appeared to grasp the meagre risks and benefits in each case. On one occasion, Kent was able to explain what consent is and how consent works. Without prompting, he repeated his right to withdraw. This is precisely what one would expect given that Kent’s semantic and procedural knowledge from before his accident were largely preserved (Rosenbaum et al., 2005; Tulving, 1985). The same symptom profile has now been observed in many individuals; indeed, some individuals with episodic memory deficits resulting from perinatal trauma have graduated high school and held jobs (e.g., Vargha-Khadem, Gadian, & Mishkin, 2001). There is, in short, no reason to suspect that Kent should fail to understand what he was being asked to do or what he was being asked to give up in the consent encounter.

One might wonder, however, whether a conceptual grasp of the consent situation suffices for a complete understanding of what consent involves. If, for example, amnesic individuals are trapped in a permanent present tense (Corkin, 2013) or lack a subjective temporality (Dalla Barba and La Corte, 2013), they arguably cannot fully appreciate that they are being asked now to permit a future act. Or perhaps they lack the requisite understanding of time (Hoerl, 1999). Individuals with episodic amnesia indeed have difficulties generating details of future personal events in direct proportion to the extent of their amnesia (Kwan et al., 2010; Rosenbaum, 2005). Kent, for example, could not generate a single future scenario involving himself (Tulving, 1985). Asked what it felt like to try to answer the question, he described it as “like being asleep,” “blank,” or like being in an empty room and, “having a guy tell you to go find a chair.”

Despite these very severe deficits, a test of Kent’s temporal knowledge revealed no significant deficits. He could list significant life events (e.g., his birth, his graduation, a car accident, a train wreck) and order them on a timeline in roughly the correct sequence. That is, he understood what J.M.E. McTaggart (1908) called the B-series: time construed as a series of events arranged earlier or later than one another. Kent’s semantic grasp of the B-series also extends into the future. Individuals with amnesia can predict future events (e.g., their deaths, global resource conflicts, climate change) despite being unable to construct vivid personal scenarios involving those events. This dissociation is also seen in neurotypical individuals (Klein, Loftus, & Kihlstrom, 2002).

Kent also clearly understood McTaggart’s A-series: time ordered as past, present, or future relative to an indexical “now” (contra Hoerl, 1999; but see McCormack & Hoerl, 1999). On a battery of questions designed to probe his grasp of the A-series, Kent correctly understood the concepts of past, present, and future and understood, for example, that the past is irrevocable; and that the present influences the future and not vice versa (Craver et al., 2014). He was, in this respect, like other individuals with episodic amnesia (Klein, 2002). Semantic knowledge of the past, present, and future, in short, allows individuals with episodic amnesia subjectively to escape a permanent present tense. In fact, this finding has now been replicated in individuals with developmental amnesia (Vargha-Khadem, unpublished data), indicating that one need never have had a fully functioning episodic memory system to acquire a conceptual grasp of the A-series or to understand the idea that one is consenting to a future event.

Kent also had definite opinions about how he should orient his behavior with respect to time. We tested him and three other individuals with episodic amnesia on the Zimbardo Time Perspective Inventory (Zimbardo and Boyd 2015/1999), a battery of questions designed to assess the extent to which a person is positive or negative about the past, oriented toward the future, fatalistic about the present, and hedonistic about the present. Kent had no difficulty understanding the questions or generating meaningful answers.

Perhaps surprisingly, Kent scored in the first percentile on measures of present hedonism and only slightly higher for measures of fatalism (Kwan et al., 2013). That is, he positively disavowed temporal perspectives bound to the here and now. In fact, his highest scores showed positivity toward the past and a preference for valuing the future. None of the other individuals with amnesia had hedonism or fatalism as their dominant orientations; in fact, none rose above the fiftieth percentile in these categories. It would appear, then, that one can maintain healthy and typical attitudes toward the past, present, and future in the absence of episodic temporal self-projection.

Yet perhaps one could have this conceptual knowledge but be unable to use it for the purposes of making complex moral decisions, as would be required in a consent encounter. Perhaps episodic construction is required to imagine or assess moral actions (Casebeer & Churchland, 2003; Thagard, 2007; Darwin, 1871). To address this question, we tested Kent and eleven other individuals with episodic amnesia on a battery of moral scenarios designed to study moral decision-making in healthy adults (Greene et al., 2001). None of them had any difficulty understanding the questions. They each seemed to consider the advantages and disadvantages of the possible actions in each scenario (Craver et al., 2016). Consistent with Greene's motivating hypothesis, Kent did show a significant bias toward utilitarian answers: he explained in each case that the good of the many outweighs the good of the few. While unusual outside academic philosophy, this response profile nonetheless showed that Kent could understand complex, high-stakes, and high-conflict moral scenarios and reason his way to an answer comparable to the answers that, e.g., John Stuart Mill and Greene would give. Importantly, however, no other individual with amnesia displayed this utilitarian bias; in fact, one of them showed the opposite bias, i.e., toward deontological answers. The others fell between these extremes, like controls. The main point is that even individuals with episodic amnesia can decide what to do in complex moral situations, such as the situation one faces when giving consent.²

In sum, there is no evidentially grounded reason to suppose that an individual with episodic amnesia must lack the conceptual resources required to be informed in the consent proceedings.

4.2 Voluntary Consent

Let us turn, then, to whether Kent was capable of consenting *voluntarily*. One might come to doubt his ability to do so by considering the implications of Kent's amnesia for his identity over time, for his self-knowledge, or for his unique vulnerability to forms of coercion.

Starting with Locke (1690), many philosophers have held that a person's identity over time is constituted by threads of episodic memory. If those threads are severed, Kent₁, at the moment of consent, is not the same person as Kent₂, who engages in the experimental task. If so, Kent₁'s

voluntary consent is irrelevant to Kent₂, who is forced to undergo the experimental test without having agreed to do so (see Dittrich, 2016).

As intuitive as this idea is, the simple Lockean view of personal identity is viciously circular (see Butler, 1975/1736; Schechtman, 1990). For a memory to ground one's identity over time, the memory has to be a veridical memory, not merely an apparent memory. And for the memory of an event to be veridical, the person has to have experienced the earlier event. So to remember an event veridically presupposes, and cannot ground, personal identity over time.

A more serviceable view holds that diachronic identity is reducible to a complex web of interlocking causal connections between states of consciousness at different times (Parfit, 1984). These causal connections are not limited to episodic memories, but also include other kinds of memories (e.g., semantic or procedural memory), preserved beliefs and attitudes, emotions and moods, prolonged perceptual experiences and imaginings, etc. If so, then episodic memory does not contribute uniquely to the preservation of the self over time, and Kent's identity might be maintained by causal threads independent of episodic systems. This intuitive idea that loss of memory severs one's right to speak for one's future self loses its justification (see Craver, 2012).

But even if one cannot shake the Lockean intuition that Kent₁ is not metaphysically identical to Kent₂, that alone would not imply that Kent₁ should ~~not make the~~ decisions for Kent₂. After all, Kent₂ and Kent₁ share all the same semantic knowledge, the same preferences, the same quirks of habit, and, not trivially, the same body. Even if they are distinct persons, in some technical, metaphysical sense, Kent₁ would seem to have a better claim to speaking for Kent₂ than anyone else. So given the choice between Kent₁ and Ruth, Kent₁ is arguably the better judge of what Kent₂ would want.

Still, one might wonder whether individuals with episodic amnesia really have sufficient self-knowledge to act voluntarily. To act voluntarily, one might think, is a matter of acting in accordance with your own beliefs and values. If episodic memories ground our knowledge of who we are, what we think, what we like, etc., then an individual with episodic amnesia might not know themselves well enough to act voluntarily, in the fullest sense of the word.

In considering this possibility, one should note that there is no clear threshold for how much self-knowledge one has to have to act voluntarily. Unimpaired people vary considerably in the extent to which they form an explicit sense of self and in the accuracy of the self-conceptions they form (see Vazire & Carlson, 2011). Furthermore, people often act out of character voluntarily.

Yet without settling these matters, the important question for us is whether episodic memory contributes something to the sense of self that cannot just as easily be contributed by one's semantic self-knowledge. Self-knowledge can be stored and accessed episodically or semantically, and

these two forms of self-knowledge, as Kent helped to demonstrate, can be dissociated from one another (Rosenbaum et al., 2005; Tulving, 1993a). When we think of ourselves as ambitious, creative, kind, mischievous, or selfish, we subsume ourselves under abstract, semantic categories. Such categorical knowledge is plausibly involved in consent situations: the consentee must know themselves well enough to know what they could and could not tolerate being done to them, which values they would like to maximize, etc.

Tulving repeatedly tested both Kent and Ruth on their knowledge of Kent's categorical traits and desires, having them describe in separate tests Kent's personality before and after the accident. When Tulving asked them to describe Kent's personality in general and his personality before the accident, their answers matched 73%. Assuming Ruth was a good judge of Kent's personality, these findings suggest that Kent has a fairly accurate conception of himself. It suggests further that his self-conception evolved to match his post-accident personality. His updating clearly did not rely on an episodic store of exemplars: Kent had no episodic memories. This feature of Kent's amnesic syndrome accords well with independent evidence from other individuals with amnesia (e.g., Klein, Loftus, and Kihlstrom, 1996) and from unimpaired individuals (e.g., Klein, Sherman, & Loftus, 1996).

Having made these points, it should be acknowledged that individuals with episodic memory deficits are clearly more dependent for their daily needs on caretakers than are neurotypical individuals. Their mobility is limited, and they may be more in need of social interaction outside the home (Davidson, 2012). They are likely accustomed to treating doctors with authority. They are perhaps likely to expect treatment benefits from the experiment even if they have been told to expect none. And in these ways, they are susceptible to influence by external factors that might impinge upon the voluntariness of their decisions. Yet it is not clear that the possible impingements in this case are any greater than those imposed on the undergraduate in need of spending money, a cancer patient out of standard treatment options, or a person consenting to a liver transplant. That is, Kent's vulnerability along this dimension is not a consequence of the memory deficit per se but rather of his being impaired in a way that might leave him with expectations and dependencies healthy and well-healed individuals do not have. Kent's special vulnerabilities in this respect do not disqualify him as a consentee. They should rather lead researchers and administrators to design consent procedures that scaffold the intact capacities for voluntary choice that cognitively impaired individuals might retain.

4.3 *Capacitated Consent*

Much of the evidence discussed in the previous two sections concerns what Kent believes: about the world, about himself, about time, and about the appropriateness and inappropriateness of different courses of action. But it does not address the key question of whether Kent's actual decision-making suffered because of his amnesia.

It is easy to imagine that individuals with episodic amnesia must be erratic, akritic, and impulsive, acting without regard to future consequences. If Kent was trapped in a permanent present with no sense of the past or the future, one might expect this to have impacted how he made decisions. One might expect Kent to have been impulsive and risk-prone, taking immediate gains without regard for future consequences. Or one might expect Kent to have adopted a more fatalistic orientation toward the future, as if his future is dead or “blank.” However, as detailed next, the results of a few studies of decision-making in which Kent and other individuals with episodic amnesia participated did not support these intuitive expectations.

To assess Kent’s impulsivity and risk-taking independently of one another, we used the Toronto Gambling Task, which was specifically designed for use in cognitively impaired individuals (Floden et al., 2008). As operationalized in this task, an impulsive person tends to act at the first opportunity, without regard to future consequences. A risk-taker, in contrast, shows a decided preference for low-probability/high payoff options. These tendencies are detected in ascending and descending presentations of a card selection task. Participants sit in front of a computer screen. In the ascending condition, cards appear on the screen one at a time, with some delay, up to a maximum of five cards. In the descending condition, five cards appear on the screen, and one is removed at a time, with some delay, until only one card remains. Participants can stop the dealer at any time. If the “winning card” is in their hand when they stop the dealer, the participant wins a payout inversely proportional to the number of cards in their hand. A risk-taker will tend to stop the presentation with very few cards in both the ascending and the descending condition. An impulsive person will tend to choose the first available option in each condition (i.e., with few cards in the ascending condition and many cards in the descending condition). Kent’s patterns of behavior were neither risk-prone nor impulsive (Rosenbaum et al., 2016). In fact, he displayed a general conservatism, preferring to wait until three or more cards had been dealt in both the ascending and descending conditions.

These experiments all involved testing Kent’s choices about immediate rewards. This is unlike the consent situation, which requires one to consider future benefits and costs. Does the inability to episodically imagine future events impair one’s ability to make decisions about future rewards? Perhaps vividly imagining the future is essential for investing it with any value at all. This appears not to be the case. On multiple occasions, Kent took a standard test that asks subjects repeatedly to choose between a fixed reward in the present and a reward of a greater value in the future. The choices are arranged so as to converge on an indifference point, where the decisional forces in either direction are at equilibrium. We found that Kent (and three other individuals with amnesia) discounted the value of future rewards and did so well within the range of controls (Kwan et al., 2012; 2013; 2015). This means that Kent could invest the future with

value despite being unable to imagine concrete, personal, future scenarios; otherwise, one would expect him to discount far more rapidly than controls.

Building on these results, there is also some evidence that Kent was able to anticipate the possibility of regretting his choices and to factor that anticipated regret into present decisions. Given the choice between a sure-thing payoff of one million dollars and an 89% chance of one million, a 10% chance of five million, and a 1% chance of nothing, most people will take the sure thing. A natural and intuitive explanation of this effect is that people imagine themselves in the unfortunate 1%; i.e., in the future with nothing but regret. This anticipated regret then tilts the decision in favor of the first option. If Kent were unable to anticipate his regret in such choice situations, ~~one would expect him to~~ follow the expected utilities (which are greater in the second option). But Kent's behavior was statistically indistinguishable from controls. He was thus arguably able to anticipate future regrets and to consider them in making present decisions (Craver et al., 2014; in contrast, see Hoerl and McCormick, 2016).

In short, the available evidence demonstrates that Kent retained many of the capacities plausibly involved in the kinds of decisions persons make. Furthermore, his exercise of those capacities left him well within the range of neurotypical subjects and so within the range one might think is required to make decisions for one's self.

These studies indicate that Kent's explicit decision-making capacities were largely intact and that his decisions on these tasks were indistinguishable from those of healthy controls. However, one might reasonably worry that episodic amnesia impairs one's ability to update one's knowledge (and so desires and preferences) based on experience. Many individuals with episodic amnesia, including Kent, fail the Iowa Gambling task (Gutbrod et al., 2006; Gupta et al., 2009; Rosenbaum et al., 2016). This task is designed to assess one's ability to update one's preferred actions in response to repeated experience of probabilistic outcomes of different values (Bechara et al., 1994). In this task, the participant is instructed to make a number of sequential draws from four piles of cards. The piles are assembled such that two deliver large payoffs but, on balance, lose more than they gain. The other two piles deliver more modest gains and losses and, on balance, gain more than they lose. The point of the task is to determine whether the participant gradually learns to prefer the advantageous decks over the disadvantageous decks. Kent's performance was in the second percentile. He selected from the disadvantageous decks twice as often as the advantageous decks; at no point did his preferences begin to deflect in the direction of the advantageous deck (Rosenbaum et al., 2016). Kent's performance on the Toronto Gambling task indicate that his responses likely do not reflect an impulsive character or bias resulting from his brain damage. Instead, these findings appear to indicate that Kent does not update his knowledge of the world with the same facility as do neurotypical controls.

These findings raise the question of whether individuals with episodic amnesia can effectively exercise their right to withdraw from an experiment.

Though they know their preferences and can make reasonable decisions in light of them, the fact that they might not update their preferences with experience raises the possibility that they are impaired in learning that the experiment is no longer beneficial or fun or, perhaps, that it is costing them more in the long-run than they are gaining. These findings raise the burden on experimenters and caretakers to be especially careful to guard against this occurrence: to allow for frequent breaks, to monitor participants for signs of discomfort, and to regularly re-administer the consent process. It is important to bear in mind, however, that the IGT results concern relatively subtle assessments of anticipated reward. When the reward and punishment signals are stronger (i.e., when something is truly unpleasant) individuals with episodic amnesia learn to avoid unpleasant and noxious stimuli (as demonstrated in the Claparède task).

5 Conclusion: Relating Episodic Memory to Our Moral Lives

The question of Kent's competence to consent is unlikely to be settled by the conceptual and empirical considerations described in this chapter. On the contrary, we are only beginning to farm this rich and fertile valley at the confluence of science and philosophy. The data to date concern too few individuals and approach these questions with only limited experimental tools. A deeper appreciation of the relationship between consent and amnesia requires a more systematic investigation of the agential and person-level competencies of individuals with episodic amnesia than we have completed and a deeper understanding of the role that episodic memory plays in our lives as persons than philosophy has achieved.

Yet perhaps for now, the question is more interesting than the answer. Psychologists do not typically ask how episodic memory might figure in the person-level game of keeping track of our entitlements and commitments in relation to one another, or wonder (in practice) how those commitments are grounded in experiential, episodic knowledge of the world (see Mahr & Csibra, 2017 for a notable exception). They do not ask what role episodic memory plays in our ability to alter our positions in ethical space by undertaking obligations, granting permissions, forgiving transgressions, and taking responsibility. The very real question of how to obtain consent from individuals with episodic amnesia is in fact a convenient and tractable entry point into the question of how persons are possible in a world of causes. The point of this chapter has not been to answer this question with finality but to sketch an approach whereby philosophy and neuropsychology might inter-animate one another in the search for answers. Yet we hope to have established one important conclusion: Our armchair intuitions about the role of memory in our lives are a very poor guide to the psychological reality of how episodic memory mechanisms figure in our informed, voluntary choices.

Kent and his family remained committed for over thirty years to participate in scientific experiments. They granted researchers from various disciplines (psychology, neurology, philosophy) access to their homes, their lives, and their minds, resulting in over 40 scientific publications (and counting) and a research program dedicated to the study of episodic memory. And this prolonged arrangement was sustained by the careful and courteous stewardship of a few key scientists, beginning with Endel Tulving. Should the scientists that follow in their footsteps manage to build and sustain such working relationships with the individuals and families that is required to work on these important topics, and should they approach these questions with philosophical humility, grounded in sensible ideas about what personhood, agency, consent, promising, forgiveness, etc., are, we might open a path to learning more about how nature has managed to create a kind of creature that can consent, and that deserves the distinctive respect we accord to persons.

Notes

- 1 Thanks to Andrè Ariew, Pascal Boyer, Brian Carpenter, Julia Driver, Len Green, Charlie Kurth, Joel Myerson, Pamela Speh, Amy Ravin, Roddy Roediger, Richard Rubin, Marya Schechtman, and Eric Wiland for useful comments discussions. Thanks especially to Endel Tulving and Donna Kwan for inspiration and experimental work. And finally, thanks to Kent, Ruth, and the Cochrane family for allowing the kind of access to their lives that makes work like this possible.
- 2 McCormick et al. (2016) report heightened deontological tendencies in five individuals with hippocampal damage. Given that we typically do not know moral response profiles prior to hippocampal damage, it is difficult to assess causation in these cases. With such low sample sizes, differences in response profiles might arise simply by chance. Speculatively, KC's utilitarian performance might be explained by an additional lesion to the vmPFC discovered only post-mortem.

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