

Evangelos D. Protopapadakis, PhD

Associate Professor of Applied Ethics

National and Kapodistrian University of Athens, Hellas

Republic of Greece

MESSING WITH AUTOBIOGRAPHICAL MEMORY: IDENTITY, AND MORAL STATUS

ABSTRACT: The role of autobiographical memory is not just to relate us to our past self, but also to shape the future self of ours by helping us navigate the complex world we encounter in our every-day lives on a stable basis: some more or less vivid idea of who we really are as persons, as individual beings with distinct selves and unique identities. In this sense memory has also to do with being and becoming, and not just with having been. The advances in the field of memory neuroscience have resulted in what is called memory reconsolidation, that is, techniques to suppress, modify, or enhance certain memories that have to do with our moral identity and moral status. In this presentation I will discuss certain potential implications of memory reconsolidation that are in my view of key importance for neuroethics, and especially for the debate concerning moral identity, agency and status in the brand-new landscape that has been shaped by the novel capabilities neuroscience has made available.

KEYWORDS: memory neuroscience; memory reconsolidation; moral identity; moral self; moral status; molecular memory modification; false memories; neuron stimulation.

I. INTRODUCTION

Henri Bergson distinguished between 'objective' time, that is, time as it is calculated by the sciences, and subjective, or 'lived' time (*durée réelle*), as it is being experienced by self-conscious individuals.¹ In this latter sense, "time is the co-presence of various pasts in the current moment instead of a series of succeeding 'now' points,"² and this is probably the most telling definition about autobiographical memory, which has been assumed by many to be the basis of personal identity.³ The reason why autobiographical memory is usually being assigned such significance is that, obviously, if one's past experiences are not constantly present in one's mind, one cannot have a sense of a self; in other words, autobiographical memory is the necessary condition for having a continuous state of consciousness, one that endures through time. And given that even identical past experiences result in different lived states for each individual – if only, due to the different angle of experiencing, since "two bodies cannot occupy the same space at the same time,"⁴ autobiographical memory is unique for each self-conscious being, and this makes autobiographical memory also the basis of distinctiveness and individual identity.⁵

1. Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F. L. Pogson (London: George Allen & Unwin, 1950), 165.

2. George Bragues, "Memory and Morals in Memento: Hume at the Movies," *Film-Philosophy* 12, no. 2 (2008): 63. doi: <https://doi.org/10.3366/film.2008.0016>.

3. Shaun Nichols, and Michael Bruno, "Intuitions about Personal Identity: An Empirical Study," *Philosophical Psychology* 23, no. 3 (2010): 293-312. doi: <https://doi.org/10.1080/09515089.2010.490939>; Derek Parfit, "Personal Identity," *The Philosophical Review* 80, no. 1 (1971): 3-27. doi: <https://doi.org/10.2307/2184309>; Sydney S. Shoemaker, "Personal Identity and Memory," *The Journal of Philosophy* 56, no. 22 (1959): 868-882, doi: <https://doi.org/10.2307/2022317>; Bernard Williams, "The Self and the Future," *The Philosophical Review* 79, no. 2 (1970): 161-180, doi: <https://doi.org/10.2307/2183946>.

4. Bergson, 88.

5. Lori J. Nelson, and Dale T. Miller, "The Distinctiveness Effect in Social Categorization: You Are What Makes you

II. PERSONAL IDENTITY: THE EMPIRICAL EXPLANATION

According to what empiricists insistently claim, the mind has no such things as any inherent intellectual content, or structure; instead, our mind encodes the information we perceive from our environment, and the thoughts we make are being articulated by means of images we have gained from experience. According to this view language is equally a collection of signifiers of images, as well as a mechanism by means of which we are able to recall these images instantly and efficiently so as to be able to think⁶. In a long series of empiricists, David Hume has probably been the most articulate, ardent and convincing champion of the view that internal events, the ones he called 'prescriptions,' can be classified into two main categories, as impressions on the one hand, and ideas on the other, the former containing sensations, passions, desires, emotions, and the latter consisting of images formed exclusively by the impressions we have already experienced.⁷ For example, when I see a horse, I have the impression of the horse, and when I feel angry, I have the impression of my anger; when later on I recall in my memory the image of the horse or reflect upon my anger, I have the idea of either the horse, or my anger. Hume claims that the vivacity and clarity of impressions far supersedes that of ideas, and this constitutes the most significant line of demarcation between these two. Our memories, in Hume's view, are part of a continuum stretching from experienced ideas in the present, and impressions reflected upon afterwards. They are neither impressions nor ideas, since on the one hand memories include images that represent past lived experiences, that is, previously acquired impressions, so they cannot be pure impressions; but on the other hand they affect our mind to a larger degree than any idea or thought ever could, so they cannot be pure ideas; and this puts memories somewhere between impressions and ideas, their actual position fluctuating according to the circumstances, "though on the continuum between the perfect manifestations of these perceptions, memory evidently lies at the point at which it is an idea equivalent to an impression."⁸

With regard to the ideas, then, Hume assumes that more often than not they are just the reflection of the impressions we have acquired through experience, and this because even the most unreal idea, human beings bearing wings, let's say, an idea that corresponds to nothing ever experienced by the person who entertains it, is actually composed by separate impressions, i.e., the impression of a human body, the impression of a bird's wings, that are combined by imagination into forming the imaginary idea of a distinct being, no matter how unreal this being is.⁹ Given that ideas follow the impressions of which they are the ideas of, since we cannot form in our mind the idea of any simple, concrete thing or quality, such as, let's say, a tree, if we haven't already seen, touched or smelled any tree in the past, according to Hume we couldn't conceive of something if we hadn't already previously sensually experienced that something either as a whole, or its separate constituents. This means that words and terms cannot have any meaning at all unless they correspond to things – and states – that are accessible either by our senses, or feelings:

When we entertain, therefore, any suspicion, that a philosophical term is employed without any meaning or idea (as is but too frequent), we need but enquire,

Unusual," *Psychological Science* 6 (1995) : 246-249. doi: <https://doi.org/10.1111/j.1467-9280.1995.tb00600.x>.

6. John Locke, *An Essay Concerning Human Understanding*, ed. Peter H. Nidditch (Oxford: Clarendon Press, 1975), 43-105, 402-408; Thomas Hobbes, *Leviathan*, ed. C. B. Macpherson (New York: Penguin, 1968), 100-110.

7. David Hume, *A Treatise of Human Nature*, ed. Peter H. Nidditch (Oxford: Oxford University Press, 1978), 1-2.

8. Bragues, 67.

9. *Ibid.*, 3.

from what impression is that idea derived?¹⁰

Given that according to Hume reasoning is the analysis of relationships amongst separate ideas,¹¹ it also follows that a person cannot lucidly pursue a train of thought unless each of the connecting links has been given substance via their experience. This has also a huge bearing on establishing and maintaining one's personal identity:

Hume originally argued that individuals perceive a bond to exist between their successive mental perceptions in part because memory regularly calls forth images that naturally resemble objects previously experienced, rendering it psychologically easy for the mind to connect the two sorts of perceptions. A more important part is played by the mind's customary disposition to link repeatedly succeeding events in cause and effect terms, a process in which memory is indispensable by bringing to mind past regularities in thought, sense, and emotion. Once memory establishes this bond, we then project our identity onto periods and situations we cannot remember on the inference that the causal chain uniting our mental states necessitates that it always be in operation, regardless of whether it is under our notice.¹²

It is obvious that the philosophical debate about personal identity is not just of merely theoretical interest, but it also has momentous implications with regard to moral accountability, since in the case no mental continuum can be established, there can be no moral agency, at least not in typical sense: people could only be accountable for their present-time actions, and this for as long any given present-time could be taken to last, but not for their past deeds, since actually there would be no mental past for anybody, but only physical. Evil might well have been perpetrated by your very hands, but the perpetrator has not really been you.

III. MEMORY RECONSOLIDATION AND ETHICAL PERILS

If memory is indeed of such significance when it comes to one's autobiographical sense of self and personal identity, it follows that any intervention should be attempted only after thorough consideration and with extreme caution. Today there are several techniques available by means of which we could modify one's memories – or, memory, such as molecular memory modification and false memory implantation; the debate, of course, is on whether techniques as such should eventually be implemented, and if yes, to what extent the memories of human beings could be modified without threatening one's autobiographical sense of self and individual personality, rendering hence impossible moral agency.

The bonds between morality, memory and personality have recently become the subject of several studies. Newman et al. set out to investigate the notion of one's "true," or "real," or "authentic" self, to find out that "that observers are more likely to see a person's true self reflected in behaviors they deem to be morally good than in behaviors they deem to be bad,"¹³ and also that "observers' own moral values influence what they judge to be another person's true self."¹⁴ It seems that the notion of one's identity, one's authentic self, is indeed seen as strongly connected to moral properties more than to anything else.

10. David Hume, *An Enquiry Concerning Human Understanding*, ed. Eric Steinberg (Indianapolis: Hackett Publishing Company, 1977), 13.

11. Hume, *A Treatise*, 73.

12. Bragues, 74.

13. George E. Newman, Paul Bloom, and Joshua Knobe, "Value Judgments and the True Self," *Personality and Social Psychology Bulletin* 40, no. 2 (2014): 203. doi: <https://doi.org/10.1177/0146167213508791>.

14. *Ibid.*

The role of morality in shaping one's identity is also stressed by the studies of Strohminger and Nichols: they asked their subjects to imagine a personality change in another person and report the traits that would have been more influential in such a change. Their findings showed that "folk notions of personal identity are largely informed by the mental faculties affecting social relationships, with a particularly keen focus on moral traits."¹⁵ In particular, according to what the subjects reported, changes in one's moral properties counted as of more weight than changes with regard to other personality-related traits, such as several physical and intellectual features. In a later similar study of theirs, Strohminger and Nichols "...measured perceived identity change in patients with three kinds of neurodegenerative disease: frontotemporal dementia, Alzheimer's disease, and amyotrophic lateral sclerosis. Structural equation models revealed that injury to the moral faculty plays the primary role in identity discontinuity. Other cognitive deficits, including amnesia, have no measurable impact on identity persistence."¹⁶ According to these studies, morality is perceived as having a crucial role in shaping the identity of humans.

The memories of what we have experienced in the past have a huge influence on our current and future behavior; therefore, changing any individual memory or set of memories would be expected to directly affect current and future decisions and actions of ours, that is, our personality. In that sense, molecular memory modification, either by means of PKM ζ or propranolol, since what these substances do is to modify one's emotional memories, is theoretically capable of producing long-term changes to one's behavior, even to a limited extent.¹⁷ The same applies to false memory implantation.¹⁸ When it comes especially to emotional memories, for the time being it is almost impossible to tell to what extent memory reconsolidation would affect one's current or future reactions and moral personality in general. According to Walter Glannon,

...chronic manipulation of neural mechanisms mediating emotional responses to the natural and social environment might weaken or even destroy inhibitory mechanisms controlling harmful behavior and thus also the capacity to conform to social norms.¹⁹

The overuse of propranolol could lead to a lessened ability to associate fear in given settings, which is a basic survival mechanism to avoid harmful or otherwise painful scenarios. Propranolol treatment could therefore inadvertently act to dampen some of the positive emotional aspects of untargeted episodic memories, resulting in a loss of the positive emotions associated with past life experiences.²⁰

15. Nina Strohminger, and Shaun Nichols, "The Essential Moral Self," *Cognition* 131, no. 1 (2014): 159. doi: <https://doi.org/10.1016/j.cognition.2013.12.005>.

16. Nina Strohminger, and Shaun Nichols, "Neurodegeneration and Identity," *Psychological Science* 26, no. 9 (2015): 1469-1479. doi: <https://doi.org/10.1177/0956797615592381>.

17. Reut Shema, Sharon Haramati, Shiri Ron, Shoshi Hazvi, Alon Chen, Todd Charlton Sacktor, and Yadin Dudai, "Enhancement of Consolidated Long-Term Memory by Overexpression of Protein Kinase M[zeta] in the Neocortex," *Science* 331, no. 6021 (2011): 1207-1210. doi: <https://doi.org/10.1126/science.1200215>.

18. Daniel M. Bernstein, Cara Laney, Erin K. Morris, and Elizabeth F. Loftus, "False Memories about Food Can Lead to Food Avoidance," *Social Cognition* 23, no. 1 (2005): 11-34. doi:10.1521/soco.23.1.11.59195; Seema L. Clifasefi, Daniel M. Bernstein, Antonia Mantonakis, and Elizabeth F. Loftus, "Queasy Does It': False Alcohol Beliefs and Memories May Lead to Diminished Alcohol Preferences," *Acta Psychologica* 143, no. 1, (2013): 14-19. doi: <https://doi.org/10.1016/j.actpsy.2013.01.017>.

19. Walter Glannon, "The Neuroethics of Memory," in *The Memory Process: Neuroscientific and Humanistic Perspectives*, eds. Suzanne Nalbantian, Paul M. Matthews, and James L. McClelland, 233-248 (Cambridge, MA: MIT Press, 2012).

20. Ross Michael Reul, *Memory Modifications and Ethical Implications* (PhD diss., University of Texas, 2018), 47. The author cites Glannon, *The Neuroethics*.

False memory implantation, on the other hand, is not at all about chemically affecting the brain, or permanently modifying its structure.²¹ On the contrary, it is about behaviorally interfering with the human mind, in particular in the case of children, by means of incorporating “misleading or otherwise false information into past episodic memory engrams,”²² on purpose of eliminating unwanted behaviors and promoting desirable ones. Today it is true that due to advance techniques psychologists, taking advantage of the human “flexible and reconstructive memory system, wherein recollections are altered each time they are retrieved,”²³ have the ability to artificially implant certain autobiographical memories in the subjects’ minds, memories that are expected to benefit the very person, but also the society, by pushing one to achieve one’s potential, or by eradicating harmful memories that may be keeping the individual from living a healthy and happy life. Herein lie certain ethical dilemmas concerning the justification of false memory ‘therapies,’ since by and large they are based on ‘deception,’ even if such an intervention would eventually be beneficial for the person that is being ‘deceived.’

In my view, though, the most pressing ethical issue regarding autobiographical memory modification is the one that concerns personal and, further, moral identity. If the persons we are is determined to the most part by the content of our brain, and if connecting to our past selves and preserving our continuity through time can only be achieved through our memories, it follows that inducing artificial modifications or even ‘breaches’ in one’s memory would unavoidably disrupt one’s psychological continuity, jeopardizing thus one’s moral continuous identity to such an extent, as to make accountability unattainable. As Rebecca Roache argues, identity is transitive, and depends heavily on the memory’s capability of linking together individual memory strands into a cohesive continuum:

A person P, at time t, is identical to a person P1, at a later time t1, if P1 at t1 remembers P’s experiences at t. Since identity is transitive, it can also arise from overlapping strands of such memory links: if P2 at t2 does not remember P’s experiences at t, P2 at t2 and P at t are nevertheless identical if P2 at t2 remembers P1’s experiences at t1, and if P1 at t1 remembers P’s experiences at t.²⁴

If this is true, one’s overall moral personality consists of one’s moral ‘personalities’ at any given time in one’s life, each one of them linked to each other through bonds that can only be made available by the functions of one’s memory: as Aristotle would probably put it, virtue is acquired through practice and habituation, but both would be impossible in the absence of any stable, persistent through time moral personality; and what makes possible any stable personality is memory. Eradicating particular memory engrams could be fragmenting oneself into several, unlinked to each other, ‘selves,’ disrupting thus continuity. In the words of Leon Kass, “... to deprive oneself of one’s memory – in its truthfulness also of feeling – is to deprive oneself of one’s own life and identity.”²⁵

21. See Beate Muschalla, and Fabian Schönborn, “Induction of False Beliefs and False Memories in Laboratory Studies – A Systematic Review,” *Clinical Psychology and Psychotherapy* 28, no. 5 (2021): 1194-1209. doi: <https://doi.org/10.1002/cpp.2567>.

22. Reul, 48-49.

23. Robert A. Nash, Shari R. Berkowitz, and Simon Roche, “Public Attitudes on the Ethics of Deceptively Planting False Memories to Motivate Healthy Behavior,” *Applied Cognitive Psychology* 30, no. 6 (2016): 885-897. doi: <https://doi.org/10.1002/acp.3274>.

24. Rebecca Roache, “Memory and Mineness in Personal Identity,” *Philosophical Psychology* 29, no. 4 (2016): 479-489. doi: <https://doi.org/10.1080/09515089.2015.1102216>.

25. Leon R. Kass, ed., *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (New York: Dana Press, 2003).

REFERENCES

1. Bergson, Henri. *Time and Free Will: An Essay on the Immediate Data of Consciousness*. Translated by F. L. Pogson. London: George Allen & Unwin, 1950.
2. Bernstein, Daniel M., Cara Laney, Erin K. Morris, and Elizabeth F. Loftus. "False Memories about Food Can Lead to Food Avoidance." *Social Cognition* 23, no. 1 (2005): 11-34. doi: <https://doi.org/10.1521/soco.23.1.11.59195>.
3. Bragues, George. "Memory and Morals in Memento: Hume at the Movies." *Film-Philosophy* 12, no. 2 (2008): 62-82. doi: <https://doi.org/10.3366/film.2008.0016>.
4. Clifasefi, Seema L., Daniel M. Bernstein, Antonia Mantonakis, and Elizabeth F. Loftus. "Queasy Does It': False Alcohol Beliefs and Memories May Lead to Diminished Alcohol Preferences." *Acta Psychologica* 143, no. 1, (2013): 14-19. doi: <https://doi.org/10.1016/j.actpsy.2013.01.017>.
5. Glannon, Walter. "The Neuroethics of Memory." In *The Memory Process: Neuroscientific and Humanistic Perspectives*, edited by Suzanne Nalbantian, Paul M. Matthews, and James L. McClelland, 233-248. Cambridge, MA: MIT Press, 2012.
6. Hobbes, Thomas. *Leviathan*, edited by C. B. Macpherson. New York: Penguin, 1968.
7. Hume, David. *A Treatise of Human Nature*, edited by Peter H. Nidditch. Oxford: Oxford University Press, 1978.
8. Hume, David. *An Enquiry Concerning Human Understanding*, edited by Eric Steinberg. Indianapolis: Hackett Publishing Company, 1977.
9. Leon R. Kass, ed. *Beyond Therapy: Biotechnology and the Pursuit of Happiness*. New York: Dana Press, 2003.
10. Locke, John. *An Essay Concerning Human Understanding*, edited by Peter H. Nidditch. Oxford: Clarendon Press, 1975.
11. Muschalla, Beate, and Fabian Schönborn. "Induction of False Beliefs and False Memories in Laboratory Studies – A Systematic Review." *Clinical Psychology and Psychotherapy* 28, no. 5 (2021): 1194-1209. doi: <https://doi.org/10.1002/cpp.2567>.
12. Nash, Robert A., Shari R. Berkowitz, and Simon Roche. "Public Attitudes on the Ethics of Deceptively Planting False Memories to Motivate Healthy Behavior." *Applied Cognitive Psychology* 30, no. 6 (2016): 885-897. doi: <https://doi.org/10.1002/acp.3274>.
13. Nelson, Lori J., and Dale T. Miller. "The Distinctiveness Effect in Social Categorization: You Are What Makes you Unusual." *Psychological Science* 6 (1995) : 246-249. doi: <https://doi.org/10.1111/j.1467-9280.1995.tb00600.x>.
14. Newman, George E., Paul Bloom, and Joshua Knobe. "Value Judgments and the True Self." *Personality and Social Psychology Bulletin* 40, no. 2 (2014): 203-216. doi: <https://doi.org/10.1177/0146167213508791>.
15. Nichols, Shaun, and Michael Bruno. "Intuitions about Personal Identity: An Empirical Study." *Philosophical Psychology* 23, no. 3 (2010): 293-312. doi: <https://doi.org/10.1080/09515089.2010.490939>.
16. Parfit, Derek. "Personal Identity." *The Philosophical Review* 80, no. 1 (1971): 3-27. doi: <https://doi.org/10.2307/2184309>.
17. Reul, Ross Michael. *Memory Modifications and Ethical Implications*. PhD diss., University of Texas, 2018.
18. Roache, Rebecca. "Memory and Mineness in Personal Identity." *Philosophical Psychology* 29, no. 4 (2016): 479-489. doi: <https://doi.org/10.1080/0951508>

- [9.2015.1102216](https://doi.org/10.1126/science.1200215).
19. Shema, Reut, Sharon Haramati, Shiri Ron, Shoshi Hazvi, Alon Chen, Todd Charlton Sacktor, and Yadin Dudai. "Enhancement of Consolidated Long-Term Memory by Overexpression of Protein Kinase M[zeta] in the Neocortex." *Science* 331, no. 6021 (2011): 1207-1210. doi: <https://doi.org/10.1126/science.1200215>.
 20. Shoemaker, Sydney S. "Personal Identity and Memory." *The Journal of Philosophy* 56, no. 22 (1959): 868-882. doi: <https://doi.org/10.2307/2022317>.
 21. Strohminger, Nina, and Shaun Nichols. "Neurodegeneration and Identity." *Psychological Science* 26, no. 9 (2015): 1469-1479. doi: <https://doi.org/10.1177/0956797615592381>.
 22. Strohminger, Nina, and Shaun Nichols. "The Essential Moral Self." *Cognition* 131, no. 1 (2014): 159-171. doi: <https://doi.org/10.1016/j.cognition.2013.12.005>.
 23. Williams, Bernard. "The Self and the Future." *The Philosophical Review* 79, no. 2 (1970): 161-180. doi: <https://doi.org/10.2307/2183946>.