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Undoing one's past

Desfazendo o próprio passado

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ABSTRACT

In contemporary research on memory, the idea of mental time travel (MTT) has been connected, at the functional level, with planning and imagining what might occur in one's future. Episodic memory impacts on our capacity to move imaginatively towards possible scenarios ahead. Consequently, Gerrans and Kennett (2010, 2016) urge us to agree that MTT is essential to moral agency. In this paper, we suggest that if we conceive the specific varieties of MTT as something more than remembering one's past and imagining one's future, then the capacity of undoing one's past both by episodic counterfactual thinking and the emotion of regret must be considered essential to moral agency on equal terms.

Keywords: moral agency, Mental Time Travel, episodic counterfactual thinking, regret.

RESUMO

Na pesquisa contemporânea sobre memória, a ideia de viagem mental no tempo (MTT, em inglês) tem sido conectada, no nível funcional, com o planejamento e a imaginação do que pode ocorrer no próprio futuro. A memória episódica impacta a nossa capacidade de nos movermos imaginativamente em direção a possíveis cenários à frente. Consequentemente, Gerrans e Kennett (2010, 2016) nos levam a concordar que a MTT é essencial para a agência moral. Neste trabalho, sugerimos que, se concebermos as variedades específicas de MTT como algo mais do que lembrar o próprio passado e imaginar o próprio futuro, então a capacidade de desfazer o próprio passado, tanto pelo pensamento episódico contrafactual quanto pela emoção do arrependimento, deve ser, de igual forma, considerada essencial para a agência moral.

Palavras-chave: agência moral, viagem mental no tempo, pensamento contrafactual episódico, arrependimento.

Introduction

In "Neurosentimentalism and Moral Agency" Philip Gerrans and Jeanette Kennett endorse the crucial role that imagination and memory play for capable moral agents. They oppose the so-called "neurosentimentalism", namely, a kind of metaethical sentimentalism built upon empirical evidence, available in studies with neurological patients impaired by significant damages to the ventromedial prefrontal cortex (vmPFC), patients who are compromised both at the level of the tacit affective processes and of moral agency. These are the affective processes which, therefore,

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according to advocates of neurosentimentalism, such as Joshua Greene, Jonathan Haidt and Jesse Prinz, the competence in moral judging crucially depends on.

As most of you surely know, in the footsteps of the groundbreaking results by Antonio Damasio and Antoine Bechara, there is a lot of discussion, both in neurosciences and moral psychology, on the correct interpretation of the experimental data exploring the capacities for moral judging and decision-making in vmPFC patients.

For our current goals, it would be less demanding to discuss the big picture of the theoretical dispute against neurosentimentalism than to point out the problematic dissociation between moral agency and moral judgement in the neurosentimentalistic camp, a dissociation suggested by the idea that it is only possible to make moral judgements either by the application of a rule or by automatically responding to tacit affective processes, without the need, in both cases, to mentally project ourselves into fitting future scenarios.

The moral agency could be exemplified by the capacities to plan and make decisions, to commit ourselves to the attitudes of evaluating ends and means, to act in accordance with what we are valuing, to respond to moral demands and to justify chosen courses of action after deliberation.

Kennett and Gerrans offers a fruitful hypothesis to explain why we must avoid dissociating moral judgement and agency, or, in their words: "A moral agent needs to be able to conceive her*self* as a temporal extended entity as a necessary condition for moral reflection and decision-making" (Gerrans and Kennett, 2010, p. 588).

With the hypothesis in plain view, we can move on to introduce the leading motivation behind it: Mental time travel (MTT) is essential to moral agency because episodic memory and imagination are tools to conceive ourselves as temporally extended entities. Furthermore, to reinforce the point about agential competence we must add another component of Gerrans and Kennett's strategy. The MTT capacities to imagine future scenarios and recover past ones are under voluntary control: "It is this voluntary, executive, aspect of mental time travel which is so important for the capacity for planning, and which makes executive action dependent on maturation of the frontal systems" (Gerrans and Kennett, 2010, p. 599).

Neurotypical subjects voluntarily build upon recollected and constructed past scenarios to decide what to do ahead via simulations of possibilities into the future.

The connections between the capacity for moral agency and MTT could be highlighted in the commitments we assume after short or long-term planning:

> *We exercise the capacity for mental time travel whenever we revise for this year a class we gave last year—remembering what worked and what didn't—whenever we reflect on what kind of career or job would best suit us, whenever we plan a holiday or a shopping trip, arrange a meeting, organize a party, or commit ourselves to a course of study, an exercise program, or a marriage (Gerrans and Kennett, 2010, p. 601).*

Around six years after the first paper on the subject, the authors restarted the discussion in *Mental Time Travel, Dynamic Evaluation, and Moral Agency* in a slightly different focus, reacting to a critique by Zarpentine (2017) on the correct interpretation of experimental data about vmPFC patients' capacities for diachronic agency, or, in Zarpentine's conception, dynamic evaluation. One of the positive results from the discussion was to clarify the following point of Gerrans and Kennett's strategy: "[...] what matters for diachronic agency/dynamic evaluation is the ability to feel the future. Indeed our main point was to argue that if people lose this ability they have less of a self to project and hence are compromised as agents" (Gerrans and Kennett, 2016, p. 5).

Taking stock of Gerrans and Kennett's position on the topic give us at least two questions for the next sections: (1) For what reasons research on episodic memory, along the lines of the MTT quasi-paradigm[2], did the unexpected move from focusing on remembering the past to mainly discussing the anticipation of future scenarios? (2) If the "ability to feel the future" is a functional presupposition to moral agency, why not argue for another phenomenological component of well-functioning moral agency as being the ability to feel the undoing of one's past?

Mental time travel and one's future scenarios

When you write a paper for a dossier, it is possible to presuppose some of the information already given by the previous participants. I am not able to describe the reception of the mental time view of memory more accurately than André Sant'Anna, especially in section 2 of his contribution in the present issue – *Mental time travel and the philosophy of memory* – but I would need to recollect two of the points rightly highlighted by him.

The first one is about the phenomenological aspects of "autonoesis" as described by Tulving: "[t]he act of remembering [...] is characterized by a distinctive, unique awareness of reexperiencing here and now something that happened before, at another time and in another place" (Tulving, 1993, p. 68). The "what-it-is-likeness" of reexperiencing or anticipating autobiographical events gives us the capacity to travel in subjective time, and the conceptual derivations from Tulv-

[2] The prefix "quasi" appears as a reminder that the cognitive science of memory based on MTT has not acquired yet the Kuhnian status of normal science.

ing's autonoesis allow phrases like "feel the future" or "feel the past" when we talk about the MTT varieties.

The second point directs us to the first question made at the end of the introduction and refers to MTT operations as tools to imagine one's future scenarios rather than just recollect or re-experience the past.

One of the most innovative results of the widespread acceptance of the MTT framework in memory research has been a re-conceptualization of episodic memory, through its functional role in future-oriented planning and decision-making. Rather than just recollect the past, episodic memory helps to project one's future, working side by side, as we argue, with the capacity for undoing one's past.

Daniel Schacter above all, championed the idea of a prospective brain, whose main functional task would be to anticipate future scenarios. The impact of this view is highlighted in the editor's introduction to a new collection of essays on the topic edited by Michaelian *et al.* (2016, p. 1): "[...] recognition has grown that mental time travel into the past cannot be understood independently of future-oriented mental time travel (FMTT) [...]; indeed, FMTT may be primary, with our capacity to remember the past being derivative of the more basic capacity to imagine the future [...]."

In the footsteps of Schacter, a very similar point was rightly made in De Brigard (2013, p. 159):

> *I argue that seeing memory as a cognitive system for remembering the past may not be the best way of making sense of its function. Instead, I offer a picture of memory as an integral part of a larger system that supports not only thinking of what was the case and what potentially could be the case, but also what could have been the case. More precisely, building upon the work of Schacter and colleagues (e.g., Schacter 2001; Schacter and Addis 2007), I claim that remembering is a particular operation of a cognitive system that permits the flexible recombination of different components of encoded traces into representations of possible past events that might or might not have occurred, presumably in the service of constructing mental simulations of possible future events.*

In addition to De Brigard's and Schacter's views, the very same general position has been proposed by Klein for the last sixteen years or so (e.g. Klein *et al.*, 2002; Klein *et al.*, 2010, 2011; Klein, 2013, 2016), exploring the biological pressures on evolving episodic memory capacities: "[...] memory, as designed by natural selection, is not simply be *capable* of imagining the future; rather imagining the future *is* its evolved *function*, its raison d'être" (Klein, 2013, p. 233).

The main reason for the interdependence of (1) episodic future thinking, (2) episodic memory and (3) episodic counterfactual thinking is what we may call the "same brain area assumption", namely, the widespread acceptance of the neuroimaging evidence for the overlapping activation of the same brain areas in these three specific MTT processes. The following quotes are *bona fide* examples of the "same brain area assumption":

> *[...] it seems safe to conclude that* **episodic future thinking** *and* **episodic counterfactual thinking** *both engage regions that are also recruited when people* **remember specific past experiences** *from their everyday lives. On a general level, the overlap of this core-network with the default network is consistent with theoretical perspectives that have emphasized the role of this network in supporting various kinds of mental simulations (Schacter et al., 2014, p. 16).*

> *It is a reasonable assumption that* **counterfactuals** *share many cognitive and neurological processes with* **past and future memory**. *To construct a counterfactual, key elements from past experiences need to be remembered (like episodic past thinking) and, crucially, some elements need to be recombined so that a novel imagined scenario can be constructed (like episodic future thinking). An abundance of neurological studies during the last decade have demonstrated that* **episodic past and future thinking** *share several areas in the brain. Addis et al. (2009; Schacter and Addis, 2007) proposed a core memory brain network engaged during* **remembering and imaging of past and future events** *that includes the hippocampus, posterior cingulate/retrosplenial midline, inferior parietal lobule, lateral temporal cortices and the medial prefrontal cortex (Van Hoeck et al., 2013, p. 556, emphasis added).*

In view of the structural similarities, at the level of the physical realization of the three main MTT processes in the brain, it seems defendable to assume their functional coordination, hypothesizing the adaptive value of episodic future thinking as the chief target of the entire MTT cognitive system. This hypothesis is at the core of the MTT quasi-paradigm and leaves an open door to explore the connections between moral agency in particular, agency in general, and the MTT processes. All things considered, it seems equally defendable that, as moral agents "[...] we predominantly stand in the present facing the future rather than looking back at the past" (Suddendorf and Corballis, 1997, p. 147).

This hypothesis has some theoretical benefits as well, for example, it helps to come to grips with the peculiar pervasiveness of misremembering in our daily lives, the forthright discussion in De Brigard (2013) as tries to demonstrate.

The same general hypothesis has been expanded in another fruitful direction by Hoerl and McCormack (2016),

discussing both the role of the counterfactual emotion of regret and the evolutionary function of episodic memory in future-oriented decision-making. In their words: "Our argument will be that episodic memory, because of its backward-looking element, underpins the ability to experience regret, and that this is an important way in which episodic memory impacts on and supports adaptive future-oriented decision making" (2016, p. 242).

To examine this argumentative strategy in general and in Hoerl and McCormack's piece will automatically demand from us an answer to the second question made in the introduction, on the ability to feel the undoing of one's past as a necessary component of the well-functioning moral agency. That will be the task for the next section, but by now we need to increase the understanding of the multiple ways a competent moral agent faces the future.

One recently proposed taxonomy for future-oriented mental time travel capacities helps to disclose the moral agency dynamics, at least in one of the directions in which we conceive ourselves as "temporal extended" entities. According to Szpunar *et al.* (2016), we can classify future-oriented mental time travel, or prospection, in four basic modes:

> **simulation** *(construction of a detailed mental representation of the future)*; **prediction** *(estimation of the likelihood of, and/ or one's reaction to, a particular future outcome)*; **intention** *(the mental act of setting a goal)*; *and* **planning** *(the identification and organization of steps toward achieving a goal state) (Szprunar et al., 2016, p. 21).*

The four operative modes equally draw on semantic and episodic memory contents. We will refrain from discussing the semantic forms of FMTT keeping an eye on the episodic forms only. We choose that way on phenomenological grounds, hence in the episodic FMTT "the subject has a pre-reflective sense that he is "pre-living" a possible future" (Michaelian *et al.*, 2016, p. 6). In our view, that is another special feature of moral agency to be added in a comprehensive theory.

For the episodic contents, *simulation* is the "construction of a mental representation of a specific autobiographical future event", *prediction* is the "estimation of the likelihood of [...] one's reaction to a specific autobiographical future event", *intention* works "setting a goal in relation to a specific autobiographical future event", and for *planning* we have the demand for "organization of steps needed to arrive at a specific autobiographical future event" (Szprunar *et al.*, 2016, p. 22).

For the sake of the argumentative strategy developed in the next section, we need to presuppose the correctness and explicative power of this taxonomy. Understanding the phenomenological aspects of the four episodic modes of prospection is crucial to what will follow. As we will see in the next section, the "what-is-it-likeness" of FMTT and its functional connections with moral agency will be partially replicated for the counterfactual episodic thinking.

In order to feel the temporal extension of the self into the future, we need to feel the *simulation, prediction, intention and planning*, working upon episodic contents. In order to feel the undoing of one's past, we need to pay attention to the phenomenological dimensions of the *counterfactual episodic simulation* or the construction of a mental representation of an autobiographical counterfactual event, and *counterfactual episodic prediction* or the estimation of the likelihood of one's reaction to an autobiographical counterfactual event.

Episodic counterfactual thinking, regret and moral agency

In both fictional literature and science, the question as to what episodic counterfactual thinking is for has been asked now and then, keeping up with skeptical worries, sometimes with genuine curiosity, sometimes only nurturing pure perplexity. It is not exactly an easy task to formulate an explanation for the evolutionary pressure to think about what you and me could have done or chosen differently. Everybody knows what must be the meaning conveyed by common sayings like "don't cry over spilled milk", "what's done is done", or, a little more figuratively, the proper rhetorical push of phrases like "to rake over old coals". All these phrases and sayings point to the same old and venerated metaphysical view on the immutability of past events.

Nevertheless, it is plausible to find a convergence of opinions on a usual suspect for that skepticism or perplexity: the emotion of regret. In view of the immutability of the things already done, what could be a function for the counterfactual emotion of regret?

Let's re-start establishing a meaning for the word: "Regret [...] is by definition an emotion directed toward the past: one regrets a choice one has made, typically believing that if one had chosen differently a better outcome would have obtained" (Hoerl and McCormack, 2016, p. 241-242). Therefore, regret is a counterfactual emotion, to be more specific, an emotion functionally dependent on the occurrence of an upward counterfactual conditional thought. The undoing of aspects of one's past—the "if I had chosen differently" antecedent part—is followed by the simulation of a possible upward consequence— the "a better outcome would have obtained" consequent part.

In the psychological literature, it is not difficult to find authors hypothesizing functions for the emotion of regret in decision-making processes, planning, or in motivation and control of future behavior (see Zeelenberg and Pieters, 2007). Neal Roese probably has been one of the main advocates of a functional theory of counterfactual thinking in general and counterfactual emotions, like regret, in particular. Back in the early nineties, he wrote: "[...] people may strategically use [...] upward and additive counterfactuals to improve performances in the future (a preparative function)" (Roese, 1993, p. 806). In his last book on the subject, using a more popular

tone, we also read: "Regret feels bad, but it is utterly essential for healthy living. Understanding and harnessing our own regrets can make you better. [...] Regret is an example of a negative emotion that spurs people to problem-solving and personal betterment" (Roese, 2005, p. 2).

Hoerl and McCormack (2016, p. 245), as already mentioned, argue in a more straightforward fashion, using the emotion of regret as a link between decision-making about the future and episodic memory. Their argument offers a simple explanation of the role played by episodic memory in thinking and deciding about the future, through the following schematic steps:

(1) "the emotion of regret plays a crucial role in future-oriented decision-making";
(2) "one can only regret what is in the past";
(3) regret "requires a type of mental simulation that is itself intrinsically bound up with a capacity to recollect one's past";
(4) therefore, the capacity to recollect one's past (episodic memory) "plays a crucial role in future-oriented decision-making" (Hoerl and McCormack, 2016, p. 245).

Trying to support the premise (1), Hoerl and McCormack (2016, p. 246) say, endorsing Zeelenberg and Pieters (2007):

> *One way to argue for a close relation between regret and future-oriented decision making might be to point to its close relation with agency and personal responsibility: indeed, Zeelenberg and Pieters (2007) argue that regret is the only negative emotion that has a special relation with one's own choices, such that it is only experienced if one believes one has made a poor or suboptimal choice. However, for present purposes we want to focus on the temporal character of regret. Zeelenberg and Pieters (2007, p. 8) capture this character in their claim that "[r]egret bridges the past and the future in the present." What they mean by this is that although regret is experienced in the present, it is always past-directed; at the same time, although regret is directed toward our past, it has the capacity to exert a strong influence on our future (Hoerl and McCormack, 2016, p. 246).*

To meet our present needs it is sufficient to propose the emotion of regret as the main phenomenological component of the undoing of one's past; therefore, it is equally sufficient to propose that the capacity for regret is essential to moral agency, especially because of the temporal scope of it, crossing past, present and future directions.

The emotion of regret, additionally, shares at least two aspects with the commonsensical attribution of responsibility: we do not feel regret or are held responsible for (a) what could not have been done otherwise, and (b) for what has not been done by ourselves. We do not regret the incapacity to fly without some apparatus, as we are not responsible for that. We do not regret other people's choices, as we are not, in most cases, responsible for them.

Recovering the previous discussion on the dynamics of moral agency, we finally propose the general capacity for episodic counterfactual thinking as one of the tools we must use to properly conceive ourselves as temporal extended entities. Considering the taxonomy of four basic modes of FMTT or prospection, we think it is sound to argue for the functional role of two counterpart mental processes, namely, (1') *counterfactual episodic simulation*, or the construction of a mental representation of an autobiographical counterfactual event, and (2') *counterfactual episodic prediction*, or the estimation of the likelihood of one's reaction to an autobiographical counterfactual event.[3] It is not difficult to perceive that the activation of regret, for example, depends on both (1') and (2').

The temporal extension of the moral selves, in the direction of episodic counterfactual scenarios, adds a modal dimension to moral agency. It is not enough to travel back and forth in the subjective time to have a complete picture of moral agency. The well-documented contribution of regret in decision-making processes shows that we must take seriously the capacity of undoing one's past as an essential aspect of capable moral agency.

Additionally, we must recognize that the "same brain area argument" equally works here to integrate the emotion of regret, decision-making, episodic future thinking and episodic memory.

In a paper by Sacha Bourgeois-Gironde one can find a fine example of this:

> *The integration of regret in decision theory has been supported by recent neurobiological investigation. Present studies on the neural correlates of regret take advantage of previous observations on the role of the orbitofrontal cortex in the processing of reward and its role on subsequent behaviour. Rolls (2000) has evidenced the incapacity of orbitofrontal patients to modify their behaviour in response to negative consequences. Ursu and Carter (2005) have demonstrated how the anticipated affective impact of a choice was modulated by the comparison between the different available alternatives. These reasoning patterns, con-*

[3] It is not exactly clear to me whether it is sound to think of the other two counterfactual parts of FMTT, namely, *counterfactual intention* and *counterfactual planning*.

> *sisting of anticipating contrasts between actual outcomes and counterfactual ones (counterfactual in the sense that those outcomes are the ones that I would have got had I taken an alternative course of action), are reflected in the orbitofrontal cortex activity. More precisely, the impact of potentially negative consequences of choices is essentially represented in the lateral areas of the orbitofrontal cortex, whereas the medial and dorsal areas of the prefrontal cortex are more specialized in the impact of positive consequences (Bourgeois-Gironde, 2010, p. 250).*

Final remarks

I think it is fair enough to claim that the idea of mental time travel has established a solid beachhead in moral psychology, bringing effects for metaethics. And that this is great news for the respective fields. After Gerrans and Kennett (2010, 2016) we have very good reasons to nourish second thoughts about the theoretical possibility of only making moral judgments either by the application of a rule or by automatically responding to tacit affective processes. The full capacity for moral agency create a demand to mentally project ourselves into future and past scenarios. And, we would like to add, to mentally project ourselves into counterfactual episodic scenarios. The functionality of the emotion of regret in decision-making is only the most pervasive evidence for an expected counterfactual dimension of the temporal extended moral self.

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