

Book Review

Siamo davvero liberi?

Le neuroscienze e il mistero del libero arbitrio

M. De Caro, A. Lavazza and G. Sartori (Eds.)
Codice Edizioni, Torino, 2010

Giuseppe Vicari *
giuseppevicari@unipa.it

The book focuses on the impact of neuroscience on our conception of free will as the capacity of an agent of rational self-determination given a set of possible alternative courses of action (pp. IX, 111): a theme which is a core part of the more general issue whether the central traits of human beings as biologically embodied and socially embedded mindful, rational, morally responsible agents can be adequately located inside a naturalistic conceptual framework, or if the development of neuroscience will force us to get rid of them.

The two parts of the work – “The fall of the ancient certainties” and “Theoretical horizons and social perspectives” – review the relevant results of scientific investigations and discuss their theoretical and social implications, together with a critical discussion of the interpretation of the empirical evidence.

The well-known starting point is given by Libet’s studies of the neural mechanisms underlying the production of voluntary movements, where subjects are required to perform a simple wrist movement whenever they feel the desire to do so and to report the onset of the conscious decision by indicating the position of a dot revolving on a clock located in front of them.

This setting allowed Libet to compare the onset of conscious decision with:

- a) the onset of the “readiness potential”, the increased electric activity in the supplementary premotor cortex which precedes voluntary movements and is detected through EEG; and

* University of Palermo

b) the onset of the movement, identified through electromyography.

The readiness potential starts 350 ms before the conscious decision takes place. It seems, then, that the conscious decision is causally inert with respect to the performance of the movement. In fact, so the reasoning goes, the conscious decision is made only after the onset of the relevant (neural) causal chain: therefore, in short, the decision has not been made by the subject, but rather by “his/her” brain.

As John-Dylan Haynes points out this methodology can be criticized with regard to both the reliability of subjective reports as measures of the onset of the conscious decision¹ and with respect to the assumption that the readiness potential is a causally sufficient antecedent of the action. The latter point, in particular, is due to the fact that Libet’s studies focused only on the supplementary motor area. Moreover, the experiment tests only one of the variables involved in conscious decision making – the “when”, but not the “what” of the action.

The subjects of Haynes’ study choose whether to push the left or right button whenever they want while looking at a series of letters appearing on the screen located in front of them. When the task is performed the subject chooses the letter seen while he/she was making up his/her mind. In this way the onset of the conscious decision can be determined without relying on the possible distortions of subjective timing. The finding of the study is that the frontopolar cortex contains information predictive of the content of the decision from seven to ten seconds before the decision is made, with an accuracy of 60%. It seems, then, that a set of unconscious neurobiological processes takes place over time before the conscious decision is made, and that it contributes to prepare decisions experienced by the subject as free and as occurring in a single moment in time (p. 16).

What is the role played by conscious intentions in this framework? According to Daniel Wegner folk psychology cannot account for the complexity of behavior as it is revealed in borderline cases such as automatisms (like anarchic-hand syndrome, where apparently goal-directed movements are produced against the subject’s conscious will) and delusions of control, where subjects think of themselves as authors of actions that they have not, in fact,

¹ See Filippo Tempia’s contribution for an excellent discussion of this point, especially pp. 92-99.

done.² These cases suggest that thought and action could result from distinct mechanisms (pp. 26ff.), where the ones responsible for behavior would drive online performance of actions, while the thought-producing mechanisms would just give the agent a first-person prediction, or indication, of what is going to happen (pp. 40-41). From a causal point of view the will is nothing but a useful illusion, an “emotion of authority” (pp. 46-48) allowing the organism to distinguish between what he/she is doing from what other organisms are doing in a shared physical and social environment.

Mental causation is, then, “narrative” or “apparent” (p. 39): according to the studies reviewed by Rigoni and Brass (pp. 73-75) a conscious intention of acting would be just a process of inferential reconstruction partially based on events taking place after the performance of the action. In a typical experiment (p. 73), TMS application over the presupplementary motor area (PRE-SMA) 200 ms after the action causes the subject’s perception of the onset of the intention to shift backward in time, while the perceived performance of action shifts forward in time. This would prove that PRE-SMA activity taking place after the action is relevant for the perception of the intention and, therefore, for its “construction”.

The second part of the work starts with Filippo Tempia and Roberta De Monticelli’s different but convergent criticisms of the standard interpretation of the studies illustrated in the first part.

Tempia points out that the standard interpretation would rely on a dualistic model of the relationship between conscious and neurobiological processes. This model would postulate, dualistically, separate and mutually inconsistent mental and physical causes where the former, if free will and voluntary actions have to be genuine phenomena, are supposed to occur before and independently of the latter.

Given this basic dualistic framework, it is obvious that Libet’s results can be interpreted as a “scandal”: saying that the decision-maker is the brain and not “you” makes sense only if one assumes that the conscious will is a sort of *causa sui* separated and independent from brain processes (pp. 88-90, 100ff.).

Tempia opposes this model to the one exemplified, in physics, by magnetic fields, where cause and effect are simultaneously realized: an electric discharge

² Cf. Wegner and Wheatley 1999.

creates the field which in turn affects the discharge, with cause and effect simultaneously realized.³

According to this model the neural processes examined by Libet, Haynes and others do not correlate with conscious will, but rather with other stages of voluntary action preparation, such as recalling to memory the instructions of the task or translating these instructions into a motor performance (p. 101). Moreover, this model would take into account the scientific evidence showing that emotions play a direct causal role with respect to the modulation of practical rationality and social interactions (pp. 102ff).⁴

Of course, that the ontology of mind underlying Libet's studies is controversial, and probably contradictory, has already been noted by Dennett (2003)⁵ and by those contemporary philosophers of mind interested in the problem of mental causation, from Donald Davidson to Jaegwon Kim's dilemma of causal exclusion.

However, although these criticisms usually lead to materialism as the right solution of the mind-body problem, we could observe – following the spirit and, I believe, the letter of Tempia's proposal – that inferring epiphenomenalism from a neural explanation of behavior reveals an implicit *a priori* acceptance of dualistic categories, such that it would be impossible that consciousness itself is a higher-level brain process. We might say, as Searle once put it, that materialism (the denial of any ontological and/or causal reality to the mind as such) is in this sense «the finest flower of dualism» (Searle 1992, p. 26).⁶

³ Similarly, John Searle has argued that the mechanism of bottom-up, no time gap causation exemplified in physics and biology gives us a general theoretical model of the ontology of mind (which he dubs “biological naturalism”) which takes into account both the ontological irreducibility of the subjectivity of mind and its causal reducibility. For a systematic analysis of this model even with respect to the problem of mental causation, see Vicari 2008.

⁴ Cf. Damasio 1994 and 1999.

⁵ Cf. De Monticelli's contribution, p. 106.

⁶ More recently Searle (2001, pp. 288-289) has integrated Roger Sperry's model of top-down causation within his “biological naturalism”. He also points out, however, that the uncritical use of metaphors such as “bottom-up” and “top-down” causation could be misleading in this context because it suggests the existence of mutually separated and independent “mental” and “physical” causal chains and obscure the fact that consciousness is a “system feature” of the brain (Searle 2001, p. 287). As such, consciousness can affect the behavior of the elements of which the system is composed without postulating any breakdown in the causal closure of physics. For an analysis of the notion of “systemic causation”, see Di Lorenzo Ajello 2009.

According to Andrea Lavazza and Luca Sammiceli a dualistic model of mind would implicitly shape our legal systems. Concepts such as “being chargeable”, “being responsible”, “being guilty” are grounded on the assumption of free will. Neuropsychological tests are already used in criminal trials to establish the ability of a person to understand and will under the presupposition that free will exists, though it might break down.⁷ But what happens if neuroscience shows that “the real decision-maker” is just a set of “material causes” such as automatic neural mechanisms? Again, if the juxtaposition of “I” and “my brain” holds, then the notion of free will is in deep problems (p. 153). It is unclear, for example, whether we would be entitled to hold a retributive view of legal punishment or if we should see crimes as the result of a “malfunctioning” of a system and, then, think of the guilty person simply as a damaged element that must be kept away from society.

While Tempia puts forward an ontologically and scientifically motivated criticism of Libet’s results, Roberta De Monticelli works out a phenomenological criticism.⁸

The materialist argues that every event has a causally sufficient antecedent that determines it, and since actions are events, then actions are determined. But this argument leaves out the fact that actions are not experienced as determined events, but rather as *motivated* acts. This experience, she argues, reflects an ontological difference between, for example, falling asleep and going to sleep: the former case is determined by a causally sufficient antecedent, but the latter case – the action case – requires that the agent takes a position toward his/her *motives* and makes them effective through his/her decision (p. 121). But then, if a decision is the act through which a person makes his/her motives effective through an exercise of his/her “positionality”, it seems that an unmotivated decision, like the ones typical of the experimental settings, is not a decision at all (pp. 124ff.).⁹

Mario De Caro argues against the re-actualization of emotivism as a reductive explanation of morality put forward by Chapman and colleagues (Chapman *et al.* 2009), who claim that “moral disgust” is strongly associated

⁷ Cf. Gnoato and Sartori’s contribution.

⁸ For a criticism of Wegner based on his misleading description of – or lack of attention to – the phenomenology of agency, see Bayne 2006.

⁹ Cf. Tempia’s contribution, pp. 97-99.

with the evolutionarily more primitive emotional reaction of disgust that one has, for example, while standing in front of a rotten food.

The claim is plausible provided that one does not interpret it – as Chapman and colleagues apparently do – as the claim that the evolutionary account of the mechanisms enabling morality offers *ipso facto* an explanation of its contents. This is a stronger thesis, even because it implies the reduction of the normative concepts of morality to the non-normative concepts of emotional reactions and evolutionary neuropsychology.

For example, if moral judgments were reducible to emotional reactions we could not understand why two persons, endowed with different cultural systems, could react in quite different ways (like moral disgust and moral approval) to the same event and context: in cases like these the order of explanation could plausibly go from culture to physiology, while it would be useless to explain the different moral reactions in terms of emotional reactions because the latter should in turn be explained by something else capable of taking into account the normative character of moral judgments (pp. 137-139).

Morality requires the possibility of a detached look at our own emotional and instinctive reactions because without it we would not be able to understand that a given reaction is not only wrong with respect to a certain context, but also, in a deeper sense, morally, normatively, rationally unacceptable. And the deep reason of this fact is that, as De Caro also argues, morality requires the articulation of reasons justifying a moral judgment in the language game of asking and giving reasons, while nothing similar seem to be required to emotional disgust – especially when food-related (pp. 142-145).

De Caro's argument, at least as I understand it, does not deny, for example, the significance of Damasio's analysis of Phineas Gage's case as showing that emotions play an active causal role in shaping the rationality of our social interactions. Rather it points out the difference between a condition enabling some capacity to work, and the reductive identification of the capacity itself with its causal precondition.

Being characterized by a multidisciplinary approach, this book offers the reader a highly detailed while accessible picture of the problems, of the different theoretical views, of the arguments supporting the views and of their implications for our self-conception. As such it provides the reader with a useful tool to find one's way in an extremely stimulating, rich and complex debate. Whether we are free remains an empirically and conceptually open

question, as some of the essays here collected convincingly argue, and, as Adina Roskies argue in her contribution, perhaps neuroscience will just explain the mystery without explaining the phenomenon away.

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