

Introduction

Causation and Mental Causation: Standpoints and Intersections

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1. The General Framework

The distinguishing features of human powers and agency have long been widely acknowledged and analysed. At the same time, the modern and contemporary philosophical problem of mental causation, in its various aspects and formulations,¹ is also connected to a peculiar understanding of causality, mind and the (so-called) ‘physical world’. Thus, it has been suggested that our conundrum concerning the possibility of mind affecting the physical world has been strongly influenced, among other things, by metaphysical choices such as considering the physical and the mental two different kinds of substance (albeit connected and interacting), or assuming a model for physical causality based on material contact, a model that is not plausible for the *res cogitans*. According to many scholars, the impact of a “Cartesian Background” of this type (Heil, 2003, § 9.1) has been so strong that it «for better or worse, set the agenda for modern discussions of mental causation» (Robb-Heil, 2013, § 2; cf. Kim, 2009, § 1.1). This distinction between different levels of reality and different forms of causation generates both an epistemological demarcation and an epistemological interdependence between what is thus separated.

An epistemological *demarcation* occurs because such a distinction also gives rise to the project of a scientific objective study of the physical world (that

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¹ For a classic reference, see: Heil and Mele (Eds.), (1993).

is, the world of physics), centred solely on the so-called primary properties of its objects, that is to say, on the supposed mind-independent properties. An epistemological *interdependence* comes about because the issue concerning mental causality always arises and is formulated against the backdrop of a given conception of non-mental causality, or causality in general.

In the modern age, scientific inquiry concerning nature and philosophical inquiry concerning mind will usually constitute two separate spheres of activity. Scientists have not only devoted their research primarily to physical, mind-independent properties but, initially and for many years, tended to avoid the mind as a subject of research. At the same time, the increasing success of the experimental sciences of nature in giving a useful, growing account of the phenomena they deal with will eventually have an indirect and then more direct impact on the debate on mental causality. It is, for instance, because of (given *interpretation* of the success of the natural sciences (from physics to neuroscience) that tenets such as the “causal closure principle” – i.e. the principle according to which «all physical events are determined (or have their chances determined) entirely by prior physical events according to physical laws»² – may emerge and gain some influence. Obviously, the general range of the principle in itself goes far beyond the mere issue of mental causality, but, at the same time, for those who accept it, it especially affects the possibility, nature and role of mental causation in our world. In any case, also from a non-naturalistic perspective, scientific inquiry of the physical world is certainly relevant for our accounts of mental causation. This at least to the extent one assumes that when we speak of ‘mental causation’ we are speaking of true *causes* (and not, for instance, only of *reasons*), that these mental causes do affect the same world studied by natural sciences and that a good account of mental causation should be *compatible* with our scientific image of the world, even if not necessarily *reducible* to it.

In this light, it is easy to understand, but hard to justify that the study of causality in general and of mental causality in particular have often developed separately and that dialogue and exchange between these two fields of research has probably been insufficient. On the one hand, scholars looking for a general interpretation of causation have rarely taken on issues arising

² Papineau (1990, p. 67); cf.: Id. (2002, *Appendix*) and (2009). On this topic see for instance: Crane and Mellor (1990); Lowe (2000); Loewer (2001); Montero (2003); Jones (2008); Stoljar (2010, § 11.9); Vicente (2011); Gabbani (2013).

from mental causation, or explicitly discussed the framework and constraints their proposals might impose upon mental causation. On the other hand, philosophers dealing with mental causation have perhaps underestimated current theories and recent reflections on the nature of causality, its core features and implications. At the same time, many arguments recently advanced in the debate on mental causality implicitly presuppose or imply a given conception of causation (often one that appeals to physics), but that in some cases has not yet been analysed exhaustively and compared with other conceptions.³ And it is still necessary to investigate whether and how different interpretations of causation (neo-mechanistic models, counterfactual approaches, conserved quantity and mark transmission theories, manipulationist theories, graphical modelling, etc.) may contribute to the interpretation of mental causation and influence a different metaphysical or epistemological understanding of the topic and related issues.⁴

The situation is gradually changing also as a result of many epistemological investigations concerning neuroscience, psychiatry, and clinical psychology, but the mutual relations between general philosophical accounts of causation and theories of mental causation still merit deeper consideration. After all, any theory of causality will be plausibly incomplete as a *general* theory of causality if it does not incorporate a substantive account of mental causality. Conversely, any discussion on mental causality will probably be inadequate or lacking if it overlooks the debate on causality in general. Accordingly, this issue of *Humana.Mente* aims to support and stimulate interaction and exchange between the philosophy of causality and the research directly or indirectly dealing with mental causation, presenting a wide range of reflections and possible orientations.

³ Jaegwon Kim, for instance, frankly acknowledged: «It is appropriate to raise questions about the concept of causation operative in the exclusion/supervenience arguments, and to consider, in particular, the question of what sorts of causal concepts are required to underwrite causal exclusion and physical causal closure. I believe Loewer is correct in saying that a robust notion of generation and production is involved in the concept of causation driving the arguments (...) these are substantive and important issues deserving of further explorations» (Kim, 2009, pp. 44–45; Kim also refers to Hall, 2004, as an example of this kind of exploration).

⁴ For instance, Tyler Burge observed: «Why should mental causes of physical effects interfere with physical system if they do not consist in physical processes? Thinking that they must surely depends heavily on thinking of mental causes on a physical model – as providing an extra ‘bump’ or transfer of energy on the physical effect. In such a context, instances of ‘overdetermination’ – two causes having the same effect – must seem to be aberrations. But whether the physical model of mental causation is appropriate is part of what is at issue» (Burge, 1992, p. 37; cf.: Id., 1993, p. 115).

2. The Volume's Contents: Current Views and New Directions

The volume opens with a critical discussion of some of the most widely and hotly debated metaphysical positions on mental causation, that is, the causal closure argument and non-reductive physicalism, with Peter Menzies maintaining that the former constitutes no threat to the latter. Menzies considers different possible formulations of the causal closure argument. A crucial premise of the first and classical formulation states that every physical event has a physical sufficient cause; according to Menzies' reformulation, every physical effect has a physical difference-making cause. If the traditional formulation holds, then the argument – Menzies claims – is invalid; if the reformulation holds, then it is unsound. Menzies' arguments essentially call into question the idea of causation different versions of the causal closure argument can build on, disputing on this ground the alleged compelling character of its conclusion. The paper thus scrutinizes the concept of sufficient cause – and, in relation to it, the notions of nomological sufficiency, causal irrelevance, primitive production and conserved quantity transfer – and a difference-making conception of causation – and, in relation to it, probabilistic and counterfactual frameworks. The concept of «realization-insensitive difference-making cause», elaborated with Christian List elsewhere (2009), is chosen to support «a non-reductive physicalist conception of mental properties as supervenient on physical properties without being identical to them» (Menzies, this volume, p. 25). Menzies' contribution constitutes an articulated attempt to compare successful metaphysical claims in the debate on mental causation with philosophical conceptions of causation, highlighting how the choice of different views of causation can have a significant impact on the metaphysical arguments in which the notion of “cause” figures. While aiming to show how a non-reductive physicalist can rebut the causal closure argument, Menzies' paper has the wider merit of stressing how the soundness of metaphysical views on the causal efficacy – or inefficacy – of mental events cannot be evaluated irrespective of the precise causal – or non genuinely causal... – concepts embedded in them. Both the debates on mental causation and on causation tout court are thus shown to benefit from an “unmasking” of the causal terms in which metaphysical positions are couched and of the possible equivocation arising from them.

In the second contribution, Menzies' appeal to the difference-making account of causation in some previous works of his (2013) is criticized by José Luis Bermúdez and Arnon Cahen, who believe Menzies' version of the exclu-

sion principle forces him into a trilemma with no satisfactory solution. The two Authors discuss Menzies' two formulations of the exclusion principle, which are meant to overcome difficulties and counterexamples to Jaegwon Kim's original formulation and to be compatible with mental causation: upwards exclusion, in which a certain event causally excludes the event that it realizes, and downward exclusion, in which a certain event excludes its realizer, both cast in terms of a difference-making counterfactual approach to causation. According to Bermúdez and Cahen, Menzies' strategy to block the common epiphenomenalist objection to non-reductive physicalism pays too high a price: «the manoeuvre secures the causal efficacy of the mental by excluding the causal efficacy of its physical realizer. The inevitable consequence, therefore, is a ubiquitous violation of the principle of closure» (Bermúdez and Cahen, this volume, p. 53), which Bermúdez and Cahen regard as an undesirable consequence. The second half of their contribution analyses three possible routes Menzies' position could take to address the conflict they identify between the principle of closure and his own difference-making formulation of exclusion. It is argued that none of the options envisaged could make Menzies' proposal a convincing solution to the problem of mental causation, insofar as it could save genuine mental causation only at the price of either denying causal closure or abandoning any acceptable form of non-reductive physicalism. Through Bermudez and Cahen's analysis and evaluation of the three strategies, we can follow some critical discussion of such notions as causal sufficiency, physical realization, and the completeness of physics, and of the requirements for a physicalist – reductive and non-reductive – picture of reality. What also appears from this contribution is the relevance attributed to the approach of causation adopted – in this case, the difference-making counterfactual account – and its possible consequences for solutions advocated in the debates on the metaphysics of mind.

Sophie Gibb's reflections on physical determinability stem from the causal completeness of the physical domain – and, more specifically, its defence by David Papineau via the conservation laws. In arguing against the claim that all physical effects are fully determined by law by prior physical events, Gibb embraces the powers theory of causation to advance a *dualist model of psychophysical causal relevance*. This is grounded on two central claims: intrinsic properties bestow irreducible powers on their bearers, and causation is simply the manifestation of these powers (which are held independently of their manifestations). According to Gibb's dualist model, while not being causes in the physical domain, mental causes are *causally relevant* in such domain insofar

as they enable physical events to be caused. The powers theory of causation is taken to provide an interesting analysis of cases of double prevention – i.e. cases in which an event that would have prevented another from having a given effect is itself prevented from doing so – by considering double prevented events not causes, but *enabling events*. Mental events are held to be enabling events that are – like double preventers – causally relevant in the physical domain: «a mental event enables a certain bodily movement to take place by enabling a neurological event to cause the bodily movement. It enables this causal relation to take place by preventing a mental event from preventing it» (Gibb, this volume, p. 80). Gibb's dualist model is intended to reject what she claims is a hidden causal premise in Papineau's argument, i.e. physical determinability, according to which something non-physical could contribute to determining a physical effect only by either affecting or redistributing its amount of energy or momentum. The rejection of physical determinability by means of the dualist model of psychophysical relevance is presented as implying the rejection of Papineau's overall argument for the causal completeness principle.

Antonella Corradini tackles interactive dualism, arguing that genuine and autonomous mental causation is possible, and that it does not conflict with the basic principles of physics. Corradini first considers objections to interactive dualism having to do with its controversial scientific/non-scientific character: does mental causation actually conflict with the laws of conservation? After arguing against Papineau's view on the completeness of physics along the lines suggested by Gibb, and before putting forward her own proposal, Corradini discusses three contemporary models of dualist mental causation: Uwe Meixner's, Jonathan Lowe's and Sophie Gibb's own view. The nature of causal relata and the causal relation, its non-transitive character, and causal overdetermination as presented in Meixner's "interactive parallelism" are examined, pointing out relationships between Meixner's proposal and the probabilistic approach to causation, as well as some problematic aspects related to its nomological character. Corradini then considers Lowe's emergent dualism, stressing both its strengths – especially in clarifying the explanatory function of mental facts and shedding light on why physical science mis-reads it – and its critical aspects. Finally, the analysis of Gibb's double prevention model brings to the foreground the power theory of causation and the role of absences in the identification of causal scenarios and in the assessment of genuine causal links. Corradini's own proposal is meant to defend a theory of mental causation «that takes into account its being a necessary condition, but within a framework that

has all the advantages of a theory of the cause as sufficient condition» (Corradini, this volume, p. 114). This is also pursued through a discussion of Mackie's INUS conditions and some re-thinking of Menzies' notion of difference-making cause, with a focus on collectively sufficient causes and counterfactually necessary components.

Overall, Corradini's reflections effectively disclose important and interesting features entwining models of dualistic mental causation and the underlying conceptions of causation: «having even a sketchy knowledge of general theories of causation is quite important, since these allow us to comprehend better the true nature of the debate on mental causation, as the dualists conceive it» (ibid., p. 95). Which notion of causation is in place when discussing the mental? According to Jennifer Hornsby, when problematizing mental causation many analytic philosophers assume a broadly Humean conception, which however should not be taken for granted, and which does not prove the most fruitful when tackling issues concerning minded beings and their actions. Challenging what she regards as the very widespread Humean standpoint, Hornsby stresses how human agency cannot be properly accounted for in terms of causal relations holding between pairs of objects or events, and suggests that the very idea of "psychophysical interaction" should be reconsidered in the light of anti-Humean views. Recent neo-Aristotelian approaches are more suitable to adequately address causation by the mental – Hornsby argues – insofar as they manage to capture the peculiar features of human agency. Neo-Aristotelians are here maintained to have the merit of defending a metaphysics in which such notions as powers, capacities and potentialities play a crucial role: in this framework, acting is seen as the engagement in a process by virtue of exercising a power that one has, and that can affect someone or something else. Far from being uncontroversial and exempt from criticism, Hornsby claims a metaphysics of substance ontology and dispositions deserves much more attention than mainstream philosophy of mind and, more specifically, physicalists have paid it so far, because it can help us capture what agency actually amounts to. Acting is not to be regarded as a matter of an agent's ceasing to be idle, thus leaving a state of abeyance: such a picture cannot apply to human agents, who are rational beings constantly devising projects and moving around, leading a life equipped with the *powers* to do so. A plea is hence made for a *metaphysics of capacities* to take the place of a causal theory of action presenting cause-effect relations between mental things and physical things, causation by the mental essentially concerning ourselves as *minded beings*.

When enquiring what the etiology of some human cognitive, affective or bodily phenomenon is, we tend to wonder whether its causes belong to a mental or psychological or, rather, to a physical or neurological level, to which the *responsibility* of the phenomenon itself can then be attributed. Different kinds of causes are taken to belong to different levels, which are in turn conceived of differently in the philosophical literature. Stuart Glennan investigates how claims about what are regarded as mental and physical levels shall be connected, by taking as his philosophical standpoint the mechanistic account of causation and related ontological and epistemological views on causal levels. According to Glennan, neo-mechanist discourses on multi-level mechanisms constitute the most suitable framework to clarify what levels are and how inter-level causal claims are to be understood. Largely referring to various medical cases, and to the interactions between different disciplinary fields (e.g. biology, psychology, sociology, ...) in investigations on disorders, he takes the notion of “mechanism” as the key to multi-level systems, spanning different degrees of graininess and organizational complexity. Building on the notion of a “minimal mechanism” – i.e. «a mechanism for a phenomenon [that] consists of entities (or parts) whose activities and interactions are organized so as to be responsible for the phenomenon» (Glennan, this volume, p. 145) – and on some of the major issues in dealing with mechanisms – e.g. those regarding spatio-temporal localization, decomposability, the distinction between causation and constitution and that between production and difference-making – Glennan zooms in on “broken mechanisms”. He labels them “problems”, as opposed to “normal” sets of phenomena, and discusses level attributions especially for the purposes of elaborating causal explanations or intervening to change a phenomenon, solving or mitigating the “problem”. Glennan’s reflections constitute an attempt to disentangle and sharpen the specific contribution that some core neo-mechanist tenets, and related debates, can provide in making sense of *when* a given causal level *is mental*, when it is described as mental, and when and how it is addressed and intervened upon as mental.

Relationships between metaphysical views on mental causation and common explanatory practices of behaviour are the concern of Michele Di Francesco and Alfredo Tomasetta who presents a “negotiating” model to theorize over whether and how what we think affects what we do. They start by bringing into focus the problematic relation between metaphysical assumptions and explanatory strategies: which ones shall be taken as prior to the others is the preliminary issue to address to face the difficulty in reconciling various

metaphysical claims – such as the causal closure of the physical and the non-overdetermination thesis – with the widespread idea of the causal efficacy of the mental. A close look at science as it is actually performed can provide the ground for a comprehensive conception of causal explanation taking into proper account both metaphysical and epistemological issues. From the success of explanatory practices in the sciences and their plurality of methodological and conceptual, discipline-sensitive and context-sensitive, tools we can infer neither ontological physicalism nor the causal efficacy of the properties considered by the special sciences. How is the priority between causation and explanation to be negotiated? Di Francesco and Tomasetta examine puzzles concerning mental causation in the larger framework of some rethinking of our conception of the very relation between ontology and epistemology, its possible connections with empirical research programs and with pluralistic or monist pictures of scientific enquiry. What is suggested is the construction of a picture of a mental causation realm involving some continuous trade-off between metaphysical considerations and cues provided by successful explanatory practices, a picture motivated by the recognition that «purely metaphysical principles are very far from being a stable and firm basis for our theoretical constructions» (Di Francesco and Tomasetta, this volume, p. 176). The causal closure principle is taken as a case study to highlight the contentious character of popular metaphysical positions and the merits a negotiation model can have in discussing arguments and justification strategies supporting them, working towards the construction of a «physicalism with a human face» (ibid., p. 186).

That causality interestingly and problematically intertwines with explanation is stressed by Alberto Peruzzi, whose contribution addresses the relation between the two and a number of related matters. Which notion of cause can, or should, we embrace when asking questions “why...?”, and how do we specify it? How do philosophical and scientific concepts of cause relate with commonsensical notions, referring to our ordinary experience? Which kinds of evidence are needed to support the assessment of causal nexus, and which roles do causal links play in explanatory accounts? How do we choose between possible alternative – causal and/or non-causal – explanations, and how do we describe and pick “*the* cause” from a “democracy of causes”? These are some of the questions that draw the boundaries of Peruzzi’s reflections, which critically tackle, to start with, the deductive-nomological and inductive-statistical models of explanation and their appeal to scientific laws. He raises a

range of criticisms having to do with the nomological and logical characters of models of explanation, as well as with linguistic and contextual aspects, and then moves on to reflections on emergent systems and bottom-up and top-down relations. On the whole, Peruzzi's paper questions our ways of obtaining causal knowledge and depicts a very wide and articulated network of concerns which can frame our epistemic interests and orientate our discourse when dealing with causation, explanation and emergence.

If Peruzzi's focus is largely on logical issues and philosophical conceptual puzzles, what about *empirical evidence* and the ways in which it can impact on philosophical discourse on mental causation and the mind-body problem? Dealing with the mental in the context of the mental causation debate, and developing such positions as, for instance, emergentism or non-reductive physicalism, has to do with the assumption that the mental causes are intelligible. David Robb investigates the hypothesis that mental causes and their effects are internally related and "interlock" in an intelligible way, in a sort of "macro-intelligibility" analogous to puzzle pieces fitting together. The assumption of intelligibility can have the consequence – it is claimed – of making the decision among different positions in the mental causation debate largely an empirical matter – a result Robb welcomes. To show how it might be the case, Robb analyses the role the intelligibility of mental causation, taken as a working hypothesis, could play in different situations. Assuming from the start that causal relata are powers and that there is mental causation – i.e. mental causes do enter into the production of intentional behaviour – he examines how a few options in the metaphysics of mental causation would do in the light of empirical investigations. As the «potential outcome of a sufficiently advanced science of intentional behaviour» (Robb, this volume, p. 215), Robb discusses two possible scenarios: one in which the causation of behaviour is physically intelligible, and one in which it is not. What Robb considers is not some set of actual empirical results, but how our future scientists – mainly physiologists – could reason on the basis of various possible empirical discoveries concerning the intelligibility of mental causation, how they could interpret them and which conclusions they could draw in deciding between different reductionist and non-reductionist positions. In dwelling over what would happen with respect to our evaluations on mental causation if scientists were to empirically find out whether mental causation is/is not intelligible, Robb disentangles – among others – metaphysical from epistemic and conceptual components of the views at stake.

The issues touched upon by Robb can encourage us to investigate, on the one hand, how – explicit or implicit, aware or unaware – metaphysical commitments can affect empirical research and discoveries, and, on the other hand, whether and how empirical evidence collected in *real* scenarios *actually* impacts on our conceptions of mental causation. In other words, to what extent can *present* rather than future scientists be involved in the philosophical arena of the debate on mental causation, contributing to sort out «how the mental powers producing intentional behaviour are related to the physical, biochemical power observed to work in the human body?» (Robb, this volume, p. 224). This concern is addressed by the last contribution in the volume, which focuses on experimental studies on consciousness, thus zooming in on their underlying empirical investigations and assumptions. From the standpoint of research practice on neural correlates of consciousness (NCC), Borysław Paulewicz and Michał Wierzchoń analyse a range of claims on the causal role of consciousness made on experimental grounds, and end by putting forward an operational definition of NCC. Experimental research methodologies are discussed in an attempt to identify the brain activation patterns in sets of situations taken to involve conscious perception. Crucial problematic issues clearly arise with respect to gathering evidence on brain activation and the related assessment of causal links – rather than mere correlations – between brain activation and the content of conscious experience (as distinct from unconscious processing of stimuli). Paulewicz and Wierzchoń question the role and effectiveness of classical research paradigms in identifying the causes of consciousness and unraveling the relations between physical systems (brains) and mental properties. They describe a number of experiments – employing electrophysiological and neurobiological methods, and different intervention techniques – that are typically employed in the search for the neural underpinnings of conscious content, pointing out puzzles in the interpretation of their results as well as some conceptual problems. To meet the challenges of research on “causes of consciousness”, Paulewicz and Wierzchoń suggest embracing a working definition of NCC that takes the neural correlate of consciousness to be «the last stage in the neural causal path from the stimulus to the content based response that still causes changes in the content of the experience and through this change affects the change in the response» (Paulewicz and Wierzchoń, this volume, p. 234). On the one hand, their operational definition – adopting the notions of manipulation and probable cause – is claimed to capture more adequately actual scientists’ assumptions and purposes in

carrying on their experiments and difficulties in dealing with confounders. On the other, it is admittedly recognized to leave the relation between NCC as a neural event and conscious experience as a mental event in need of further conceptual sharpening. Having started with a discussion mainly focusing on metaphysical positions, the volume thus closes with reflections adding some stimuli from inside the laboratory and encouraging a rethink of the mental on the grounds of some research programmes and their (actual or potential?) crossing mainstream philosophy of mind.

Without claiming to be tracing any definitive, or even privileged, itinerary research should follow in making the debates on mental causation and on general philosophical theories of causation interact, this volume aims to draw attention to the fruitfulness such interaction might have. The different contributions prove how issues raised from distant standpoints – like, for instance, physicalist and non-physicalist views on mental causation – can take on different notions of cause – relying on, e.g., causal powers, difference-making conditions, mechanisms, counterfactuals, ... – with multifaceted philosophical outcomes. While manifold, all the papers unequivocally remark that metaphysical, epistemological and methodological positions on mental causation and on causation as such are not mutually neutral, and, in doing so, promote a higher awareness in this respect, hinting toward the construction of possibly more comprehensive philosophical pictures.

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