

Diderot and d'Holbach:  
A Theory of Determinism

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For the degree of D.Phil.  
Oxford, Hilary Term, 2018

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## Acknowledgements

This thesis has benefitted from the feedback and help of a large number of people.

First and foremost, I would like to thank my supervisor, Prof. Nicholas Cronk (University of Oxford, Voltaire Foundation), for his unwavering support. None of my academic achievements would have been possible without his constant guidance.

I am immensely grateful to Dr Gillian Pink (University of Oxford, Voltaire Foundation), who has read a draft of this thesis and provided priceless suggestions and comments. Prof. Jonathan Mallinson (University of Oxford, Trinity College), Prof. Walter Ott (University of Virginia), and Dr Caroline Warman (University of Oxford, Jesus College) have all read, at different stages, single chapters of this thesis, offering invaluable feedback and helping me to shape my argument.

This thesis has also benefitted from illuminating discussions with other people, including Prof. Helen Beebee (University of Manchester), Prof. Colas Duflo (Université Paris Nanterre), Dr Osvaldo Ottaviani (Scuola Normale Superiore di Pisa), Prof. Kelsey Rubin-Detlev (University of Southern California), Prof. Gerhardt Stenger (Université de Nantes), Mr Marco Storni (Ecole Normale Supérieure de Paris – Università di Bologna), and Prof. Ann Thomson (European University Institute). To all of them, my most sincere gratitude.

I have presented several aspects of my doctoral research at various seminars and conferences, including the Annual Conference of the British Society for Eighteenth-Century Studies, the Besterman Enlightenment Workshop, the Early Modern French Seminar, the Forschungskolloquien “History of Women Philosophers and Scientists”, and the Oxford French Graduate Seminar. I would therefore like to express my gratitude to the organisers and attendees of all these events, and especially to John Christie (University of Oxford), Prof Neil

Kenny (University of Oxford, All Souls College), and Dr Kate E. Tunstall (University of Oxford, Worcester College).

My research would have not been possible without the financial support of Hertford College (Drapers' Company Senior Scholarship), The University of Oxford (Vice-Chancellor Fund), Merton College and the Ecole Normale Supérieure, and the Université Paris IV (IDEX Scholarship).

Completing this thesis would have similarly been an unattainable goal had it not been for the encouragement and help of relatives, friends, a bunch of complete strangers, and one truly amazing person, to whom this thesis is dedicated.

To KBRD

## Short Abstract

This thesis offers a detailed analysis of Diderot and d'Holbach's argument for determinism, identifying its building blocks in the Causal Principle, Causal Necessitation, and the Laws of Nature. Diderot and d'Holbach's argument differs significantly from present-day ones and may therefore problematise our modern understanding of determinism.

This work next examines how determinism affects both thinkers' ideas about ethics and society, paying considerable attention to their rejection of the notion of Moral Freedom, and to aesthetic and political questions. Finally, it examines those aspects of Diderot's and d'Holbach's thought that seemingly undermine their theory of determinism (for example, their complex understanding of causality); these aspects, however, may be easily reconciled with Diderot and d'Holbach's faith in determinism, given that both thinkers posit the existence of a gap between ontology and epistemology, between reality and humans' perception of it.

This thesis sheds new light on Diderot and d'Holbach's metaphysics and on their position in relation to key figures in European philosophy, including Aquinas, Hobbes, Spinoza, Malebranche, Leibniz, and Hume. By identifying connections between Diderot and d'Holbach on the one hand, and thinkers such as Malebranche on the other, this work argues for a reconsideration of the Christian component of Diderot's and d'Holbach's culture, and it also challenges Jonathan Israel's notion of 'Radical Enlightenment'.

This thesis further highlights similarities and differences between Diderot's and d'Holbach's writings and philosophy, concluding that, whilst the two thinkers may disagree on specific points, their general attitude towards such notions as determinism, causation, and freedom, is ultimately very similar. The Enlightenment is a period that favours intellectual

exchange and collaboration, and Diderot's and d'Holbach's works, as the product of a collaborative philosophical enquiry, perfectly exemplify this phenomenon.

## Long Abstract

The present thesis offers, for the first time, a detailed analysis of the theory of determinism that was put forward in the eighteenth century by Denis Diderot and Paul-Henri Thiry d'Holbach. It highlights similarities and differences between the two authors' writings and concludes that, in spite of occasional discrepancies, they jointly advance an argument for determinism based on three main notions: the Causal Principle, Causal Necessitation, and the laws of nature. By focusing on Diderot and d'Holbach's disposition towards these and related notions, this work aims to cast new light on both philosophers' metaphysics, thus taking a first step towards restoring them to their rightful place in the history of philosophy. This is further achieved by situating d'Holbach and Diderot in relation to key figures in European philosophy, including Aquinas, Hobbes, Spinoza, Malebranche, Leibniz, and Hume. In particular, bringing to light Diderot and d'Holbach's links with figures like Aquinas and Malebranche, this thesis argues for a reconsideration of the Christian component of Diderot and d'Holbach's culture. Furthermore, this thesis engages with age-long debates such as those concerning Diderot's attitude towards determinism, the interpretation of such masterpieces as *Jacques le fataliste et son maître* and *Le Rêve de d'Alembert*, and Diderot's contribution to d'Holbach's works.

The first three chapters of this thesis identify the building blocks of Diderot and d'Holbach's determinism in the Causal Principle, Causal Necessitation, and the laws of nature.

Chapter I concentrates on Diderot and d'Holbach's attitude towards the Causal Principle, namely the principle according to which (at least) for every thing X that is the case, there must be a cause that explains why X is, in fact, the case. It then addresses the question

of both philosophers' disposition towards two other related principles: the Principle of Sufficient Reason and the Nihil ex Nihilo Principle. In an almost exact replica of the definition of the Causal Principle just provided, the Principle of Sufficient Reason holds that (at least) for every thing X that is the case, there must be a *reason* why X is, in fact, the case. The Nihil ex Nihilo Principle, on the other hand, states that nothing ever comes out of nothing; it therefore overlaps partly with the Causal Principle because it can be reformulated to state positively that all that comes into existence must do so from a pre-existing cause.

It is argued in this chapter that d'Holbach and Diderot enthusiastically subscribe to all three principles. A distinction, however, should be borne in mind: whilst it is hardly surprising that two atheist thinkers such as Diderot and d'Holbach subscribe to the Nihil ex Nihilo Principle, a notion which can easily be employed to deny creationism and counter religious beliefs, the use of the Causal Principle and the Principle of Sufficient Reason appears much more complicated, for both arguments were often employed by deists and theists to demonstrate the existence of God (Cosmological Argument). Even so, it is argued that Diderot and d'Holbach's acceptance of the Causal Principle is dictated on the one hand by their desire to establish determinism, and on the other by the consideration that, besides being a crucial postulate for theologians, the Causal Principle is also a pivotal concept in scientific thought. Much like Spinoza, Diderot and d'Holbach are led to endorse the Principle of Sufficient Reason by their desire to demonstrate that, notwithstanding what theists and deists often maintain, to deny the existence of God is not to renounce the intelligibility of reality. Such observations are extremely interesting from the perspective of an intellectual historian, for they show that ideas can be made to fit within radically diverging systems.

Chapter II then argues that both d'Holbach and Diderot commit to Causal Necessitation, that is, to the claim according to which causes produce their effects necessarily.

It is argued, indeed, that they go as far as to endorse the view that Causal Necessitation is akin to Logical Necessitation, i.e. the stance, relatively common in the early modern period, that it is simply inconceivable that the cause should exist and the effect not follow. Diderot's and d'Holbach's arguments for the equivalence of Causal and Logical Necessitation, however, are not identical. D'Holbach closely follows Aristotle and Aquinas in endorsing what is called the 'argument from essence', according to which a cause, *c*, necessarily produces a certain effect, *e*, inasmuch as it essentially has the power to produce *e*. Diderot, on the other hand, advances an original, more dynamic version of this argument, which is called here the 'argument from *cause une*'. This argument is shown to have similarities to what Marc Bobro and Kenneth Clatterbaugh term, in their discussion of Leibniz, the 'efficacious perception view' of causation. This chapter raises a question similar to the one asked in Chapter I: why do d'Holbach and Diderot commit to such a strong reading of causation in spite of its being common amongst Christian philosophers, and reject instead a view of causation like Hume's that, as was already clear to eighteenth-century philosophers, could easily lend itself to atheism?

The Causal Principle and Causal Necessitation are in themselves sufficient to argue for determinism: if everything has a cause and if every cause necessarily brings about its effect, it will be true that, as the deterministic credo goes, given the way things are arranged in a system, *S*, at a given time,  $t_0$ , the way things are arranged in *S* at any other (subsequent) time,  $t_1$ , is fixed. Nevertheless, Diderot and d'Holbach strengthen their determinism by postulating the existence of laws of nature.

Following Walter Ott, Chapter III explores two competing theories about the origins of laws of nature that were relatively common in the early modern period: the top-down view, which interprets laws of nature as divine decrees, and the bottom-up view, according to which

laws of nature supervene on the causal powers instantiated by finite causes. Spinoza's view, which interestingly combines both of these models, is also discussed. Diderot's and d'Holbach's ideas on the laws of nature diverge from each other in important ways. Diderot is traditionally understood as rejecting the notion of laws of nature as overly simplistic. However, it is argued that several passages in his works reveal support for the bottom-up view, and that this commitment is not incompatible with his unwavering faith in the complexity of reality. D'Holbach, on the other hand, enthusiastically endorses both the top-down and the bottom-up view. In an attempt to understand how these two tendencies may coexist within his work, it is suggested that d'Holbach's view on the laws of nature may be indebted to Spinoza.

Having identified the main pillars of Diderot and d'Holbach's determinism, the last two chapters of the thesis examine how this theory affects both thinkers' ideas about ethics and society, paying considerable attention to their rejection of the notion of Moral Freedom, and to aesthetic, political, and epistemological questions.

Chapter IV specifically examines the notion of Moral Freedom. This is the sort of freedom that is required in order for one to be morally responsible for one's actions, and which determinism is often perceived as threatening. Two different interpretations of this notion, not mutually exclusive, are presented, namely the 'Alternative Possibilities Model' and the 'Source Model', and it is argued that Diderot and d'Holbach refuse both. Diderot and d'Holbach's rejection of moral freedom profoundly affects their views on culpability and social justice, prompting them to reconsider the notions of vice and virtue. It does not prevent them, however, from endorsing other varieties of freedom, e.g. natural, civil, and political freedom, which are entirely compatible with determinism.

Like Chapter IV, Chapter V focuses on how determinism affects d'Holbach's and Diderot's views regarding different facets of human life. More precisely, it considers their deterministic account of the thinking process, madness, dreaming, love, artistic and literary production, and the aesthetic experience. Stepping back from the individual level, it then reviews the factors that, according to both philosophers, may have an impact on the evolution of societies. This discussion leads on to the pivotal issue of Diderot's and d'Holbach's faith in predictability. The importance of this discussion lies in the fact that, while some critics have argued that a system has to be predictable in order to be deterministic, Diderot's name can hardly be disassociated from the notions of complexity and change. Diderot is shown to vacillate in his treatment of predictability: while some passages in his works suggest that he thought of it as an impossibility, others appear almost to anticipate the ideas that Pierre-Simon de Laplace expresses in the *Essai philosophique sur les probabilités*. It is suggested, moreover, that d'Holbach fully shares Diderot's hesitation on the subject of predictability because, contrary to received ideas on this subject, his understanding of reality is no less complex than Diderot's. In conclusion, it is argued that a deterministic system need not be predictable: to take Diderot and d'Holbach's (partial) rejection of the notion of predictability to mean that they are not determinists is to confuse ontology with epistemology.

The question of the relationship between ontology and epistemology crucially reappears in the conclusion, where some aspects of Diderot's and d'Holbach's thought that seemingly call into question their theory of determinism (for example, their complex understanding of causality) are examined. It is argued, however, that these aspects may be easily reconciled with Diderot and d'Holbach's faith in determinism, particularly given that both thinkers posit the existence of a gap between reality and humans' perception of it. Whilst ignorance may prompt human beings to believe that the world is utterly influenced by chance, reality, in itself, is entirely determined.

In describing Diderot and d'Holbach's theory of determinism, this thesis makes claims of broader relevance to the French Enlightenment as a whole. In the context of recent debate among historians of ideas, it questions the validity of the notions of 'Radical' and 'Moderate' Enlightenment as proposed by Jonathan Israel. In the context of philosophical discussion, it demonstrates that the *philosophes* are not merely *passeurs d'idées* but philosophers in the usual English sense of that term: Diderot and d'Holbach present a philosophical position that still has the power to speak to modern philosophers. On the subject of the nature of Enlightenment philosophical debate, it is shown here that Diderot and d'Holbach learned and borrowed from each other: their creative partnership is a striking example of the collaborative thinking and writing that typifies the Enlightenment, a topic that remains to be explored in greater depth.

## List of Abbreviations

DPV = Denis Diderot, *Œuvres complètes*, Paris: Hermann, 1975-

*DS = Diderot Studies*

OCV = *Œuvres complètes de Voltaire*, Oxford: Voltaire Foundation, 1968-

OP = Paul-Henri Thiry d'Holbach, *Œuvres philosophiques*, Paris: Alive, 1998, 3 vols

*RDE = Recherches sur Diderot et sur l'Encyclopédie*

*RHLF = Revue d'Histoire Littéraire de la France*

*SVEC = Studies on Voltaire and the Eighteenth Century*



## Introduction

What is determinism? Given the antiquity of this theory and the large number of supporters it has attracted throughout history, it is hardly surprising that the question can be answered in more than one way.<sup>1</sup> A general answer that does not favour any specific account and would be accepted by the vast majority of scholars, would be that determinism is the theory according to which, given the way things are arranged in a system, S, at a given time,  $t_0$ , the way things are arranged in S at any other (subsequent) time,  $t_1$ , is fixed. Such is, for instance, the definition given by William James in a lecture delivered in 1884 that was subsequently published as *The Dilemma of Determinism*: determinism, he wrote, ‘professes that those parts of the universe already laid down absolutely appoint and decree what the other parts shall be. The future has no ambiguous possibilities hidden in its womb; the part we call the present is compatible with only one totality’.<sup>2</sup> As such, James continued, determinism is opposed to ‘indeterminism’, which can be said to govern a system, S, when the ‘parts [of S] have a certain amount of loose play on one another, so that the laying down of one of them does not necessarily determine what the others shall be’.<sup>3</sup>

Definitions of determinism from the nineteenth century to the twenty-first almost invariably rest on the concept of laws of nature. In *Free Will: An Introduction*, Helen Beebe writes that, assuming  $P_0$  is the ‘proposition that specifies the entire state of the Universe at time  $t_0$ ’ and L the ‘proposition that states all the laws of nature’, ‘determinism is the thesis that there is some proposition,  $P_1$ , which specifies the entire state of the Universe at some later

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<sup>1</sup> See John Earman, *A Primer on Determinism*, Dordrecht: Reidel, 1986, p.4-22.

<sup>2</sup> William James, ‘The Dilemma of Determinism’, in William James, *Essays in Pragmatism*, ed. by Alburey Castell, New York: Hafner Press, 1948, p.40.

<sup>3</sup> James, ‘The Dilemma’, p.41.

time,  $t_1$  [...], such that the conjunction of  $P_0$  and  $L$  entails  $P_1$ '.<sup>4</sup> In an illuminating article to which I shall return, Mark Bernstein provides a similar definition, which, however, employs the terminology of Possible Worlds Theory: 'it is logically impossible', Bernstein writes, 'that there are worlds with natural laws and pasts congruent with the actual world and yet with futures distinct from that of the actual world'.<sup>5</sup>

The present thesis will centre on an elaborate theory of determinism that, quite different from more recent ones, was advanced in the eighteenth century by Denis Diderot and Paul-Henri Thiry d'Holbach.

## Diderot

Denis Diderot is arguably best known today as the chief editor of the *Encyclopédie*, the monumental summa of eighteenth-century knowledge.<sup>6</sup> His intellectual activity, however, stretches far beyond the *Dictionnaire raisonné*. A man of surprisingly wide interests, an eclectic genius animated by the belief that research is never undertaken in vain, Diderot authored such masterpieces as *Jacques le fataliste et son maître*, *La Religieuse*, *Le Neveu de Rameau*, and *Le Rêve de d'Alembert*; wrote mathematical dissertations on the vibration of

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<sup>4</sup> Helen Beebe, *Free Will: An Introduction*, Basingstoke: Palgrave Macmillan, 2013, p.14. See also Kadri Vihvelin, 'Arguments for Incompatibilism', in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2015 Edition), URL = <https://plato.stanford.edu/archives/fall2015/entries/incompatibilism-arguments/>: 'Determinism is a claim about the relation of entailment that holds between, on the one hand, statements of law and statements of particular fact at a time, and, on the other hand, statements of particular fact at any later time'.

<sup>5</sup> Mark Bernstein, 'Fatalism', in Robert Kane (ed.), *The Oxford Handbook of Free Will*, Oxford: Oxford University Press, 2005, p.68. A similar definition can be found in Earman, *A Primer*, p.13.

<sup>6</sup> The best available biographical study on Diderot is arguably Gerhardt Stenger's *Diderot: le combattant de la liberté*, Paris: Perrin, 2013, which also contains interesting and original remarks about Diderot's works and philosophy. An intentionally less scholarly biographical essay is Pierre Chartier, *Vies de Diderot*, Paris: Hermann, 2012, 3 vols. See also Laurent Versini, *Denis Diderot*, Paris: Hachette, 1996; Raymond Trousson, *Diderot jour après jour: chronologie*, Paris: Champion, 2006; Arthur Wilson, *Diderot*, New York: Oxford University Press, 1972; and André Billy, *Vie de Diderot*, Paris: Flammarion, 1932. Andrew Curran is currently writing a popular biography of Diderot in English.

strings and the resistance of air to a pendulum in motion; pioneered the discipline of art criticism; and cultivated with unwavering passion the nascent life sciences.

Born on 5 October 1713 in Langres, Diderot was the son of a cutler.<sup>7</sup> He attended the local Jesuit school from 1723 to 1728, and was subsequently sent to Paris to read theology at the Sorbonne.<sup>8</sup> Very few documents from this period survive, but two learned articles by Blake T. Hanna have cast much-needed light on Diderot's intellectual training and on the pivotal role of theology within it.<sup>9</sup> Several sources, including the *Mémoires* of Madame de Vandeuil, the only one of Diderot's children to reach adulthood, inform us that, for a short while, he considered the idea of pursuing a career in the Church, thus fulfilling his family's expectations: 'il jeûnait, portait le cilice et couchait sur la paille'.<sup>10</sup> This option was soon discarded and, from the 1740s onwards, Diderot devoted himself entirely to literature and philosophy. In 1742 he translated from English Temple Stanyan's *Grecian History*.<sup>11</sup> James's *Medicinal Dictionary* followed and, in 1745, Shaftesbury's *Enquiry Concerning Virtue or Merit*.<sup>12</sup> Alongside these translations, which already suggest the breadth of his interests,

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<sup>7</sup> On Diderot's father, see Hubert Gautier, *Le Père de Diderot: son testament, sa succession, patrimoine d'un maître coutelier langrois vers le milieu du XVIII<sup>e</sup> siècle*, Moulins: Crépin-Leblond, 1933.

<sup>8</sup> On the young Diderot, see Franco Venturi, *Jeunesse de Diderot (1713-1753)*, Paris: Albert Skira, 1939. See also Louis Marcel, 'Diderot écolier: La légende et l'histoire', *RHLF*, 34 (1927), p.377-402.

<sup>9</sup> Blake T. Hanna, 'Diderot théologien', *RHLF*, 78 (1978), p.19-35 and Blake T. Hanna, 'Denis Diderot: Formation traditionnelle et moderne', *RDE*, 5 (1988), p.3-18. See also Versini, *Diderot*, ch. I ('L'abbé Denis Diderot').

<sup>10</sup> Madame de Vandeuil, 'Mémoires pour servir à l'histoire de la vie et des ouvrages de Diderot', in *Mémoires, correspondance et ouvrages inédits de Diderot*, Paris: Paulin, 1830, 3 vols, vol.1, p.61. French quotations have been modernised throughout. See also Venturi, *Jeunesse*, p.21-23.

<sup>11</sup> Denis Diderot, *Histoire de Grèce*, Paris: Briasson, 1743, 2 vols. Other juvenilia were published in the 1970s by Johannes Theodorus De Booy. See Denis Diderot, *Écrits inconnus de jeunesse (1737-1744)*, ed. by Johannes Theodorus De Booy, *SVEC*, 119 (1974) and Denis Diderot, *Écrits inconnus de jeunesse (1745)*, ed. by Johannes Theodorus De Booy, *SVEC*, 178 (1979). The attribution of some of these texts was questioned in Herbert Dieckmann, Jacques Proust, and Jean Varloot, 'Sur les *Œuvres complètes* de Diderot: Une réponse qui s'impose', *DHS*, 8 (1976), p.423-431. See also Arthur Wilson, 'Reflections upon Some Recent Diderot Discoveries', in Raymond Trousson (ed.), *Thèmes et figures du siècle des Lumières: Mélanges offerts à Roland Mortier*, Geneva: Droz, 1980, p.332-333.

<sup>12</sup> *Dictionnaire universel de médecine*, Paris: Briasson, 1746-1748 and Denis Diderot, *Essai sur le mérite et la vertu*, ed. by Paolo Casini and John Spink, in *DPV*, vol.1, p.267-428. See also Stenger, *Diderot*, p.38-49 and Venturi, *Jeunesse*, p.53-72.

Diderot begun to compose original works.<sup>13</sup> The *Pensées philosophiques* of 1746 immediately incurred condemnation because of the unorthodox religious ideas they contained, and were sentenced to be publicly burnt alongside Julien Offray de La Mettrie's *Histoire naturelle de l'âme*.<sup>14</sup> The fact is that, at this stage and until 1749, Diderot's stance on religious matters seems to have vacillated.<sup>15</sup> Evidence for this can be seen in the *Pensées philosophiques*, but also in *La Promenade du sceptique*, a dialogic work published posthumously in 1830, which sets out to compare various approaches to religion.<sup>16</sup> With the composition of the *Lettre sur les aveugles* in 1749, Diderot stoutly and definitively turns towards atheism: on his deathbed, the protagonist of this work, the blind mathematician Nicholas Saunderson, describes nature as intrinsically chaotic, blind, and purposeless, thus dealing a mortal blow to the then extremely widespread Argument from Design.<sup>17</sup> Although Diderot was never to reject atheism, in the years following the publication of the *Lettre* he did partly reconsider his stance on the chaotic nature of reality.<sup>18</sup> From the 1750s onwards, Diderot's philosophical works represent a consistent attempt at finding a valid compromise between atheism on the one hand, and his belief that the world we inhabit is not utterly chaotic, on the other. As Pierre

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<sup>13</sup> In fact, Diderot's translation of Shaftesbury's *Enquiry* is already in many ways original; it is, in Stenger's words, 'une traduction sans en être une' (*Diderot*, p.39).

<sup>14</sup> Denis Diderot, *Pensées philosophiques*, ed. by Robert Niklaus and Yvon Belaval, in DPV, vol.2, p.1-61. See also Stenger, *Diderot*, p.50-69.

<sup>15</sup> Colas Duflo, *Diderot philosophe*, Paris: Champion, 2013, p.70-81. In 'From Deist to Atheist: Diderot's Philosophical Orientation (1746-1749)', *DS*, 1 (1949), p.46-63, Aram Vartanian identifies the factors that prompted Diderot gradually to abandon deism as his interest for biology and knowledge of Spinozism. For a different view, see Marx W. Wartofsky, 'Diderot and the Development of Materialist Monism', *DS*, 2 (1952), p.286: 'Diderot, as an alleged deist, is constantly arguing in his earliest works against what is rather obviously presented as a superior antagonist. This antagonist is an atheist, whose philosophy is materialist'.

<sup>16</sup> Denis Diderot, *La Promenade du Sceptique ou Les Allées*, ed. by Herbert Dieckmann, in DPV, vol.2, p.63-169.

<sup>17</sup> Denis Diderot, *Lettre sur les aveugles à l'usage de ceux qui voient*, ed. by Robert Niklaus, in DPV, vol.4, p.1-107. The widespread idea that the *Lettre* represents a turning point in the evolution of Diderot's ideas has been questioned in Kate E. Tunstall, *Blindness and Enlightenment. An essay*, New York-London: Continuum, 2011.

<sup>18</sup> The bibliography on Diderot's stance on order and disorder is vast. See, for example, Lester G. Crocker, *Diderot's Chaotic Order: Approach to Synthesis*, Princeton: Princeton University Press, 1974.

Saint-Amand has shown, his solution to this problem rests heavily on the category of complexity.<sup>19</sup>

Through the 1750s and the early 1760s, Diderot's major preoccupation was the direction of the *Encyclopédie*, for which he also wrote hundreds of articles, including many on the history of philosophy and on the crafts.<sup>20</sup> Despite the immense amount of labour that the *Encyclopédie* required, in the late 1750s Diderot managed to resume his literary activity. Two plays saw the light of day in the years 1757-1758: *Le Fils naturel*, which elicited criticism from many commentators struck by its resemblance to Goldoni's *Il vero amico*, and *Le Père de famille*.<sup>21</sup> In 1759 another regular literary activity was added as Diderot began to collaborate on Friedrich Melchior Grimm's *Correspondance littéraire*, a manuscript journal widely circulated among European courts. Diderot's most famous contributions to this journal – the *Salons* – are amongst the first examples of art criticism and contain reflections on numerous works by Jean-Baptiste Greuze, Carle Van Loo, Claude Joseph Vernet, Jean-Baptiste Perronneau, and many others.<sup>22</sup> From 1762 into the early 1770s, Diderot worked on a dialogic text – *Le Neveu de Rameau* – that was later to catch Hegel's and Foucault's interest.<sup>23</sup> Another dialogic masterpiece, *Le Rêve de d'Alembert* (1769), features amongst its characters the French physician and collaborator on the *Encyclopédie*, Théophile de Bordeu; Jeanne Julie Eléonore de Lespinasse, the famous *salonnière* and letter writer; and d'Alembert himself,

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<sup>19</sup> Pierre Saint-Amand, *Diderot: Le Labyrinthe de la relation*, Paris: Vrin, 1984.

<sup>20</sup> Jacques Proust's *Diderot et l'Encyclopédie* (Paris: Albin Michel, 1995) still remains essential reading for anyone working on this aspect of Diderot's activity. See also Herbert Dieckmann, 'L'Encyclopédie et le fonds Vandeul', *RHLF*, 51, 3 (1951), p.318-332.

<sup>21</sup> Denis Diderot, *Le Fils naturel*, ed. by Jacques Chouillet and Anne-Marie Chouillet, in DPV, vol.10, p.1-81 and Denis Diderot, *Le Père de famille*, ed. by Jacques Chouillet and Anne-Marie Chouillet, in DPV, vol.10, p.163-322. On Diderot and Goldoni see Manlio Duilio Busnelli, *Diderot et l'Italie: reflets de vie et de culture italienne dans la pensée de Diderot*, Paris: Champion, 1925, p.76-146 and Jessica Goodman, *Goldoni in Paris: La gloire et le malentendu*, Oxford: Oxford University Press, 2017, p.1, 128, 156.

<sup>22</sup> Denis Diderot, *Salon de 1765*, ed. by Annette Lorenceau and Else Marie Bukdahl, in DPV, vol.14, p.1-332; Denis Diderot, *Salon de 1767*, ed. by Annette Lorenceau, Else Marie Bukdahl, and Michel Delon, in DPV, vol.16, p.1-525 (hereafter *Salon 1767*); Denis Diderot, *Salon de 1769*, ed. by Annette Lorenceau and Else Marie Bukdahl, in DPV, vol.16, p.559-673. The remaining *Salons* can be read in Denis Diderot, *Œuvres complètes*, ed. by Laurent Versini, Paris: Laffont, 1994-1997, 5 vols, vol.4.

<sup>23</sup> Denis Diderot, *Le Neveu de Rameau*, ed. by Henri Coulet, in DPV, vol.12, p.31-196 (hereafter *Neveu*). See Michel Foucault, *Histoire de la folie à l'âge classique*, Paris: Gallimard, 1972, p.363-368.

whose apparently delirious sleep-speech the two other characters seek to interpret.<sup>24</sup> Some of the notions most dear to Diderot are discussed here; amongst them, those of continuity and change, to which this thesis will often return. *Jacques le fataliste et son maître*, Diderot's other great masterpiece, appeared for the first time, although not in its entirety, in the *Correspondance littéraire* in the years 1778-1780, but was only published posthumously in 1796.<sup>25</sup> This work is deeply indebted to Cervantes' *Don Quixote* and Sterne's *Tristram Shandy* and, although its peculiar narrative form surely renders its interpretation more complex, it offers extremely interesting insights into Diderot's views on determinism.<sup>26</sup> In his old age, Diderot developed an interest in political theory and sociology; this is reflected not only in his commentary on Catherine the Great's *Nakaz*, but also in the *Plan d'une université*, also addressed to the Russian empress, and in his contribution on the abbé Raynal's *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes*.<sup>27</sup> The *Eléments de physiologie*, an apparently incomplete treatise in which medicine and ethics merge interestingly, also belongs to the final years of Diderot's activity, as does the *Essai sur les règnes de Claude et Néron*.<sup>28</sup> Two other crucial texts of this period are the page by page commentaries on Claude Adrien Helvétius' *De l'homme* and François Hemsterhuis's

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<sup>24</sup> Denis Diderot, *Le Rêve de d'Alembert*, ed. by Jean Varloot and Georges Dulac, in DPV, vol.17, p.23-209 (hereafter *Rêve*).

<sup>25</sup> Denis Diderot, *Jacques le fataliste et son maître*, ed. by Jacques Proust, in DPV, vol.23, p.1-291 (hereafter *Jacques*).

<sup>26</sup> On *Jacques le fataliste* and *Tristram Shandy* see Margaux Whiskin, *Narrative Structure and Philosophical Debates in 'Tristram Shandy' and 'Jacques le fataliste'*, London: Modern Humanities Research Association, 2014. On *Don Quixote* and *Jacques le fataliste* see Nicholas Cronk, 'Jacques le fataliste et son maître: un roman quichotisé', *RDE*, 23 (1997), p.63-78.

<sup>27</sup> The *Observations sur le Nakaz*, the *Plan d'une université*, and the contributions to the *Histoire des deux Indes* can be read in Diderot, *Œuvres complètes*, ed. by Versini, vol.3. On Diderot's participation to the abbé Raynal's *Histoire des deux Indes*, see Michèle Duchet, *Diderot et l' 'Histoire des Deux Indes' ou l'Écriture fragmentaire*, Paris: Nizet, 1978. Anthony Strugnell is currently directing a critical edition of Raynal's *Histoire des deux Indes* (Ferney-Voltaire: Centre International d'Étude du XVIIIe Siècle, 2010). Only the first volume, containing books 1-5, has appeared so far. On the political ideas that Diderot expressed in the *Encyclopédie*, see John Lough, 'Les idées politiques de Diderot dans l'*Encyclopédie*', in Trousson (ed.), *Thèmes et figures*, p.137-146.

<sup>28</sup> Denis Diderot, *Eléments de physiologie*, ed. by Jean Mayer, in DPV, vol.17, p.261-574 (hereafter *Physiologie*), and Denis Diderot, *Essai sur les règnes de Claude et Néron*, ed. by Jean Deprun and Annette Lorenceau, in DPV, vol.25, p.1-441 (hereafter *Sénèque*).

*Lettre sur l'homme et ses rapports*.<sup>29</sup> As argued by Arthur Wilson, in spite of their fragmentary nature, these two texts provide perhaps the clearest and most complete exposition of Diderot's philosophy.<sup>30</sup>

### D'Holbach

Ten years younger than Diderot, Paul-Henri Thiry d'Holbach was born in Edesheim, western Germany, in 1723.<sup>31</sup> When still a young boy, he was sent to the French capital, where his maternal uncle, a childless man who had made his fortune at the beginning of the eighteenth century and acquired the title of baron, took care of his education.<sup>32</sup> In 1744 d'Holbach's name appears in the registers of the University of Leiden and in 1749 one finds him back in Paris and naturalised.<sup>33</sup> The following year d'Holbach married his second cousin, Basile-Geneviève d'Aine, and in 1753, after both his father and his uncle's death, he found himself in possession of a considerable fortune. To this already remarkable sum, the wage connected to the position of syndic of the *compagnie des conseillers-secrétaires du roi*, which d'Holbach obtained upon the death of his father-in-law, was added.<sup>34</sup> After the death of his wife in 1754, d'Holbach obtained a papal dispensation to marry his deceased spouse's sister,

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<sup>29</sup> Denis Diderot, *Réfutation suivie de l'ouvrage d'Helvétius intitulé 'L'Homme'*, ed. by Roland Desné and Gerhardt Stenger, in DPV, vol.24, p.421-767 (hereafter *Helvétius*), and Denis Diderot, *Observations sur la 'Lettre sur l'homme et ses rapports' de Hemsterhuis*, ed. by Gerhardt Stenger, in DPV, vol.24, p.215-419 (hereafter *Hemsterhuis*). See also Franck Cabane, *L'Écriture en marge dans l'œuvre de Diderot*, Paris: Champion, 2009.

<sup>30</sup> Wilson, 'Reflections', p.330.

<sup>31</sup> A good introduction to the life and thought of d'Holbach is William Hardy Wickwar, *Baron d'Holbach: A Prelude to the French Revolution*, London: Allen-Unwin, 1935. See also Michael LeBuffe, 'Paul-Henri Thiry (Baron) d'Holbach', in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2015 Edition), URL = <https://plato.stanford.edu/archives/sum2015/entries/holbach/>.

<sup>32</sup> On d'Holbach's uncle, François-Adam Holbach, see Guy Chaussinand-Nogaret, *Les Lumières au péril du bûcher*, Paris: Fayard, 2009, p.129-133.

<sup>33</sup> See John Lough, 'Le Baron d'Holbach: Quelques documents inédits ou peu connus', *RHLF*, 1957, p.524-543 and Wickwar, *D'Holbach*, p.19. On d'Holbach's studies in Leiden see Chaussinand-Nogaret, *Les Lumières*, p.137-139.

<sup>34</sup> Wickwar, *D'Holbach*, p.20.

Charlotte Suzanne.<sup>35</sup> Thanks to their considerable incomes, Madame and Monsieur d’Holbach welcomed to their home in rue Royale Saint-Roch (present-day rue des Moulins) many intellectuals and men of letters, including Diderot, d’Alembert, Helvétius, Charles Pinot Duclos, Charles Marie de La Condamine, and André Morellet.<sup>36</sup> On their visits to the French capital, several foreign intellectuals also participated in the gatherings of what Rousseau famously dubbed the ‘coterie holbachique’.<sup>37</sup> The list includes, but is not limited to, David Hume, Cesare Beccaria, Horace Walpole, Pietro and Alessandro Verri, Adam Smith, and Benjamin Franklin.

The Baron d’Holbach cultivated a deep interest in mineralogy and contributed more than 400 articles on this subject to Diderot’s (and d’Alembert’s) *Encyclopédie*.<sup>38</sup> Starting in the mid-1760s, he began to turn out sharp anticlerical, atheistic writings, which he published under the cover of witty pseudonyms that succeeded in protecting his true identity.<sup>39</sup> *Le Christianisme dévoilé*, one of the Baron’s first works, bears on its front page the name of the ‘feu M. Boulanger’, a natural philosopher whose works were being published posthumously in the 1760s.<sup>40</sup> Since Boulanger’s works were animated by a fierce dislike for superstition and one of them was entitled *L’Antiquité dévoilée par ses usages*, many readers were prepared to accept this attribution without further inquiry. In 1768 the *Théologie portative* was published

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<sup>35</sup> See Chaussinand-Nogaret, *Les Lumières*, p.151-155. See also Jean-Jacques Rousseau, *Confessions*, ed. by Raymond Trousson, in *Œuvres complètes*, Paris: Champion, 2012, 24 vols, vol.1, p.535.

<sup>36</sup> See Alan Charles Kors, *D’Holbach’s Coterie: An Enlightenment in Paris*, Princeton: Princeton University Press, 1976. On Diderot’s participation to d’Holbach’s saloon see Charles Avezac-Lavigne, *Diderot et la société du baron d’Holbach (1713-1789)*, Geneva: Slatkine, 1970.

<sup>37</sup> Rousseau, *Confessions*, p.654.

<sup>38</sup> See Jeroom Vercruyssen, *Bibliographie descriptive des écrits du baron d’Holbach*, Paris: Lettres modernes, 1971 and Alain Sandrier, ‘L’attribution des articles de l’*Encyclopédie* au baron d’Holbach: bilan et perspectives’, *RDE*, 45 (2010), p.44-57. See also Dieckmann, *L’Encyclopédie*, p.332, Chaussinand-Nogaret, *Les Lumières*, p.145-146, and Frank A. Kafker, ‘L’*Encyclopédie* et le cercle du baron d’Holbach’, *RDE*, 3 (1987), p.118.

<sup>39</sup> See Alain Sandrier, *Le Style philosophique du baron d’Holbach: conditions et contraintes du prosélytisme athée en France dans la seconde moitié du XVIII<sup>e</sup> siècle*, Paris: Champion, 2004, p.46-52.

<sup>40</sup> Paul-Henri Thiry d’Holbach, *Le Christianisme dévoilé, ou Examen des principes et des effets de la religion chrétienne*, in OP, vol.1, p.1-120.

under the pseudonym of the abbé Bernier.<sup>41</sup> In 1770 appeared d'Holbach's most audacious and famous book, the *Système de la nature*.<sup>42</sup> Its attribution to the abbé Jean-Baptiste de Mirabaud, philosopher, member of the Académie française, and translator of Tasso and Ariosto, convinced few.<sup>43</sup> Nevertheless, only d'Holbach's most intimate friends – Diderot, Morellet, Jacques-André Naigeon, and very few others – were aware of his writings, and they kept the secret so jealously that even Ferdinando Galiani, a regular attendee of the salon de la rue Royale Saint-Roch, had not the faintest clue about d'Holbach's authorship of these works.<sup>44</sup> Le *Système de la nature* was followed in 1772 by a more easily accessible work, *Le Bon Sens du curé Jean Meslier*.<sup>45</sup> A letter from Voltaire to Charles Augustin Ferriol, comte d'Argental of 4 August 1775 informs us that a rumour was circulating in France that this work had been written by the patriarch of Ferney.<sup>46</sup> D'Holbach's translation of Hobbes's *De homine* (a translation which Diderot criticises as overly wordy and dull) was also published in 1772.<sup>47</sup> His later works (*Le Système social* and *La Politique naturelle* of 1772, *L'Ethocratie* and *La Morale universelle* of 1776), are mainly concerned, as their titles suggest, with ethics and politics.<sup>48</sup> The Baron died on 21 January 1789, a few months before the French

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<sup>41</sup> Paul-Henri Thiry d'Holbach, *Théologie portative, ou Dictionnaire abrégé de la religion chrétienne*, in OP, vol.2, p.479-613.

<sup>42</sup> Paul-Henri Thiry d'Holbach, *Système de la nature, ou Des Lois du monde physique et du monde moral*, in OP, vol.2, p.162-643 (hereafter *Système*).

<sup>43</sup> Chaussinand-Nogaret, *Les Lumières*, p.209.

<sup>44</sup> Ferdinando Galiani, Louise D'Epinay, *Correspondance*, ed. by Georges Dulac and Daniel Maggetti, Paris: Desjonquères, 1992-1997, 5 vols, vol.1, p.196 (30 juin 1770). See also Voltaire, *Correspondence and Related Documents*, ed. by Theodore Besterman, in OCV, vol.85-135, D16666, D16686, D16693, D16735.

<sup>45</sup> Paul-Henri Thiry d'Holbach, *Le Bon Sens, ou Idées naturelles opposées aux idées surnaturelles*, in OP, vol.3, p.222-340 (hereafter *Bon Sens*).

<sup>46</sup> Voltaire, *Correspondence*, D19590.

<sup>47</sup> Paul-Henri Thiry d'Holbach, *De la Nature humaine*, London: 1772. Denis Diderot, *Correspondance*, ed. by Georges Roth, Paris: Editions de Minuit, 1955-1970, 16 vols (hereafter *Correspondance*), vol.12, p.45-47. As noted by Sandrier (*Le Style philosophique*, p.303), however, Diderot expresses a different judgement in his texts addressed to Catherine the Great. On d'Holbach and translation in general see Mladen Kozul, *Les Lumières imaginaires: Holbach et la traduction*, Oxford: Voltaire Foundation, 2016. Sandrier (*Le Style philosophique*, p.296-310) more specifically focuses on d'Holbach's translation of Hobbes's *De la Nature humaine* and Toland's *Lettres philosophiques*.

<sup>48</sup> Paul-Henri Thiry d'Holbach, *Système social, ou Principes naturels de la morale et de la politique*, Paris: Fayard, 1994; Paul-Henri Thiry d'Holbach, *Politique naturelle, ou Discours sur les vrais principes du Gouvernement*, in OP, vol.3, p.342-589 (hereafter *Politique*); Paul-Henri Thiry d'Holbach, *Ethocratie, ou Le*

Revolution began, and was buried in the church of Saint-Roch, alongside Diderot. His works had a remarkable impact on nineteenth-century philosophy and Karl Marx's indebtedness to them has been the subject of several scholarly publications.<sup>49</sup>

### Diderot and d'Holbach

As previously mentioned, d'Holbach was an important contributor to Diderot's *Encyclopédie*. The collaboration between the two thinkers, however, stretches far beyond this episode.<sup>50</sup> A letter addressed to Sophie Volland attests to the fact that, at the end of 1769, Diderot was reading drafts of one of d'Holbach's works, most likely the *Système de la nature*.<sup>51</sup> Indeed, at the end of the eighteenth century rumour had it that Diderot had taken part in the composition of this work. One finds this idea plainly expressed in an obituary speech, perhaps overly critical of d'Holbach's style, written by Jacques-Henri Meister, Grimm's successor as chief editor of the *Correspondance littéraire*:

Le *Système de la nature* est fort inégalement écrit, chargé de redites ennuyeuses et de vaines déclamations, mais il y règne en général un ton d'enthousiasme, de philosophie et d'éloquence assez imposant; il y a des pages entières, et il y en a un grand nombre, où l'on

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*Gouvernement fondé sur la morale*, in OP, vol.3, p.590-707; Paul-Henri Thiry d'Holbach, *La Morale universelle, ou Les Devoirs de l'homme fondés sur sa nature*, in OP, vol.1, p.315-785 (hereafter *Morale*).

<sup>49</sup> See, for example, Denis Lecompte, *Marx et le baron d'Holbach: Aux Sources de Marx, le matérialisme athée holbachique*, Paris: Presses Universitaires de France, 1983.

<sup>50</sup> In his 1954 article, 'Diderot's Supposed Contribution to d'Holbach's Works', *Publications of the Modern Language Association of America*, 69, 1 (1954), p.173-188, Virgil W. Topazio sets out to deny that Diderot played any role at all in the composition of d'Holbach's works. His arguments, however, are not convincing.

<sup>51</sup> *Correspondance*, vol.9, p.194: 'Tout mon temps au Grand Val s'en va à blanchir les chiffons sales du baron'. In a letter to Grimm of 10 November 1770 one similarly reads: '[Le Baron] m'apporte le soir ses chiffons; le matin, il vient voir si je m'en suis occupé; nous en causons, et d'autres choses' (*Correspondance*, vol.10, p.161). Other passages in Diderot's correspondence appear to point in the same direction. See Sandrier, *Le Style philosophique*, p.481-485.

reconnait aisément la plume d'un écrivain supérieur, et cela est fort simple, car ces pages sont de Diderot.<sup>52</sup>

Two letters written shortly after the publication of the *Système* – one from Grimm to Karoline Henriette of Hesse-Darmstadt and the other from Prince Henry of Prussia to Catherine the Great – inform us that many readers were speculating that Diderot could in fact be *the* author of this text.<sup>53</sup> Today, scholars are unanimous in affirming that Diderot contributed to a greater or lesser extent to d'Holbach's *Système*, and some have suggested – but the claim is arguably ungrounded – that he should be regarded as the sole author of its concluding section, the 'Abrégé du Code de la nature'.<sup>54</sup> This idea was first advanced by the editors of an 1822 edition of the *Système*, who claimed to have laid their hands on a copy of this text which Diderot had heavily annotated.<sup>55</sup> These 'editors', however, did not think it worthwhile to record Diderot's contributions or corrections in any way, and their source, if indeed there was one, has since disappeared.<sup>56</sup> Be that as it may, the fact remains that, in all likelihood, Diderot participated in the composition of other works by the Baron. Possibly inspired by Meister, Jean-Claude Bourdin suggests that Diderot may have taken part in the composition of the

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<sup>52</sup> Jacques-Henri Meister, 'Article nécrologique sur d'Holbach', *Correspondance littéraire, philosophique et critique*, Paris: Furne, vol.14, p.289.

<sup>53</sup> Frédéric Melchior Grimm, *Correspondance inédite*, ed. by Jochen Schlobach, Munich: Wilhelm Fink, 1972, p.122 (20 September 1770): 'Votre Altesse a très bien juré sur le *Système de la nature*. Ceux qui le donnent à D[iderot] ne se connaissent certainement pas en manière ni en style, et ce n'est pas la première fois que je m'aperçois que le tact de Potsdam à cet égard n'est rien moins que sûr'; *Briefwechsel zwischen Heinrich Prinz von Preußen und Katharina II. von Russland*, ed. by Richard Krauel, Berlin: Alexander Duncker, 1903, p.116-117 (Henry of Prussia to Catherine II, 9 December 1773): 'Je ne sais si l'auteur du *Système de la nature* se laissa séduire par un amour bizarre, mais je sais bien qu'il a un jugement exquis, il le prouve en quittant Paris et la France pour aller voir gouverner une grande monarchie, pour connaître comment les peuples sont heureux, lorsqu'ils sont soumis par des lois sages, par des principes d'équité et justice'. Catherine's answer of 6 January 1774 (*Briefwechsel*, p.118) shows that she was better informed than Henry about the authoring of the *Système*: 'il est de toute vérité que ce n'est pas [Diderot] qui a écrit ni publié le *Système de la nature*, que je n'ai jamais lu'. A letter sent in 1773 to Christoph Martin Wieland suggests that Friedrich Heinrich Jacobi too believed Diderot to be the author of this book. See Marian Hobson, 'Diderot, Jacobi et le spinozastreit', *RHLF*, 106 (2006), p.350.

<sup>54</sup> An excellent study of this issue is in Sandrier, *Le Style philosophique*, p.518-535, with p.525-529 specifically devoted to the 'Abrégé du Code de la nature'.

<sup>55</sup> Paul-Henri Thiry d'Holbach, *Système de la nature*, Paris: Domère, 1822, 4 vols, vol.1, p.12. The same claim is also in Will Durant and Ariel Durant, *The Age of Voltaire*, in *The Story of Civilization*, New York: Simon-Schuster, 1965, vol.9, p.699-700.

<sup>56</sup> D'Holbach, *Système de la nature*, Paris: Domère, 1822, vol.1, p.12: 'En faisant usage du travail de Diderot, qui consiste principalement en corrections du texte et en quelques notes assez piquantes, nous n'avons pas cru devoir les faire remarquer par quelque signe particulier'.

*Système social*.<sup>57</sup> André Babelon, Joseph Bédier, and Paul Hazard advance the same claim about *Le Christianisme dévoilé*.<sup>58</sup> More recently, Alain Sandrier has claimed to discern in *Le Bon Sens* more than in any other work clear marks of Diderot's intervention.<sup>59</sup> The collaboration between Diderot and d'Holbach, in any case, went in both directions, and a passage from Dominique Joseph Garat's *Mémoires historiques sur la vie de Monsieur Suard* informs us that, when writing his works, Diderot often relied on d'Holbach's summaries of various books for materials.<sup>60</sup> Moreover, various sources show that the two thinkers used to engage in long conversations about thorny philosophical and religious issues. In a letter of 1765 to Etienne Noël Damilaville, for example, Diderot writes: 'Le samedi fut pris par le [...] baron pour discuter certains points de sa philosophie sur lesquels nous n'étions pas d'accord, tel que celui-ci par exemple, si l'idée et la croyance d'un dieu même bon et bienfaisant, n'était pas une source de corruption dans la morale'.<sup>61</sup>

Given the extent to which the two thinkers collaborated and the intellectual closeness between them, it is tempting to paraphrase one of the most famous passages in d'Holbach's correspondence and say that Diderot and he had a 'collective existence' within the Republic

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<sup>57</sup> Jean-Claude Bourdin, *Diderot: le matérialisme*, Paris: Presses Universitaires de France, 1998, p.18-19; Meister, 'Article nécrologique', p.289.

<sup>58</sup> Denis Diderot, *Correspondance inédite*, ed. by André Babelon, Paris: Gallimard, 1931, 2 vols, vol.1, p.226; Joseph Bédier and Paul Hazard, *Histoire de la littérature française illustrée*, Paris: Larousse, 1938-1940, 2 vols, vol.2, p.87.

<sup>59</sup> Sandrier, *Le Style philosophique*, p.529-534.

<sup>60</sup> Dominique Joseph Garat, *Mémoires historiques sur la vie de Monsieur Suard, sur ses écrits, et sur le 18<sup>e</sup> siècle*, Paris: Belin, 1820, p.207.

<sup>61</sup> *Correspondance*, vol.16, p.30.

of Letters.<sup>62</sup> As a consequence, as Jean Ehrard has already claimed, it seems only natural to study the two thinkers together.<sup>63</sup>

### D'Holbach and determinism

It comes as no surprise that d'Holbach endorses determinism. His name – occasionally conjoined to Helvétius' – figures prominently in any reliable discussion of the history of this theory, even those aimed at a wide audience.<sup>64</sup> After all, protected by his anonymity and animated by a strong desire to 'enlighten' his readers, d'Holbach consciously adopts an extremely clear and didactic style that proceeds through frequent repetitions, copious clarifying examples, and several more inspired, almost mystical sections.<sup>65</sup> While possibly mocking d'Holbach's dogmatism, the following passage from Diderot's *Réfutation d'Helvétius* genuinely praises his clarity and consistency:

J'aime une philosophie claire, nette et franche, telle qu'elle est dans *Le Système de la nature*, et plus encore dans *Le Bon Sens*. [...] L'auteur du *Système de la nature*, n'est pas athée dans une page, déiste dans une autre. Sa philosophie est toute d'une pièce. On ne lui dira pas, Tâchez de vous entendre. Nos neveux ne le citeront pas pour et contre, comme les sectateurs de tous les cultes s'attaquent et se défendent par des passages également précis de

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<sup>62</sup> Paul-Henri Thiry d'Holbach, *Die Gesamte erhaltene Korrespondenz*, ed. by Hermann Sauter and Erich Loos, Stuttgart: Franz Steiner Wiesbaden, 1986, p.26 : '[Je ne peux] avoir dans la République des Lettres qu'une existence collective'. See also Bourdin, *Diderot: le matérialisme*, p.18-19: 'Il resterait encore à savoir si, en prenant la plume, pour "blanchir les chiffons sales du baron", Diderot adhérerait à la vérité de ce qu'il exposait. A moins de supposer qu'il y a dans la philosophie de d'Holbach un autre Diderot possible'.

<sup>63</sup> Jean Ehrard, 'Lumières et roman, ou les paradoxes de Denis le fataliste', in *Au Siècle des Lumières*, Paris-Moscou: S.E.V.P.E.N., 1970, p.138: 'Situer Jacques [le fataliste et son maître] par rapport au *Système de la nature*, c'est suivre la voie qu'a suivie Diderot'.

<sup>64</sup> See for example E. Rapetti, 'Determinismo', in *Enciclopedia filosofica*, ed. by Fondazione Centro Studi Filosofici di Gallarate, Milan: Bompiani, 2006, 12 vols, vol.3, p.2755-2758 and <https://en.wikipedia.org/wiki/Determinism> (consulted on 20/7/2017).

<sup>65</sup> See Sandrier, *Le Style philosophique*.

leurs livres prétendus révélés, où l'on trouve Mon père et moi ne sommes qu'un, mon père est plus grand que moi...<sup>66</sup>

But there is an obvious disadvantage to the (apparent) clarity with which d'Holbach expounds his deterministic theory: it renders his works unappealing to scholars, who find ambiguity and enigmas more interesting to study.<sup>67</sup> In a vicious circle, a straw man version of d'Holbach, artificially coherent and even less palatable to academics, was created, and his often-evoked theory of determinism was left utterly unexamined.

### Diderot and determinism

Unlike in the case of d'Holbach, Diderot's disposition towards determinism has been the subject of much scholarly controversy, and rivers of ink have been spilled on this issue since at least the 1790s.<sup>68</sup> Today, two main trends in scholarship can be distinguished: whilst some academics take Diderot's commitment to determinism as read, others utterly reject this interpretation and regard him as a hero of human freedom. An example of the former strand of scholarship is James Fowler who, on the very first page of a rich collection of essays published in 2011, claims that Diderot 'rejected the Christian ideas in which he had been raised [to] bec[o]me an atheist and a determinist'.<sup>69</sup> An extremely interesting study that similarly posits Diderot's determinism is Colas Duflo's *Diderot philosophe*. The second interpretation arguably has in Gerhardt Stenger's *Nature et liberté chez Diderot après*

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<sup>66</sup> *Helvétius*, p.669. See also *Hemsterhuis*, p.409: 'Je ne connais qu'un seul auteur moderne qui ait parlé nettement et sans détour; mais il est bien inconnu'.

<sup>67</sup> Although ostensibly coherent, d'Holbach's works are of course not devoid of inconsistencies. See Anna Minerbi Belgrado, *Paura e ignoranza: Studio sulla teoria della religione in d'Holbach*, Florence: Olschki, 1983, p.7. For a different view, see Josiane Boulad-Ayoub, 'D'Holbach, le maître d'hôtel de la philosophie', in *Corpus*, n° 22/23, 1992, p. 7-11.

<sup>68</sup> See Johannes Theodorus De Booy and Alan J. Freer, *Jacques le Fataliste et La Religieuse devant la critique révolutionnaire (1796-1800)*, *SVEC*, 33 (1965).

<sup>69</sup> James Fowler (ed.), *New Essays on Diderot*, Cambridge: Cambridge University Press, 2011, p.1.

*l'Encyclopédie* its clearest and most elaborate defence.<sup>70</sup> At the core of this dispute is Diderot's perhaps most widely-read text: *Jacques le fataliste et son maître*. As the title suggests, one of the two main characters of this (anti)novel, Jacques, is a strong advocate of determinism.<sup>71</sup> The overall tone of this work, however, is light, and this naturally begs the question of whether (or to what extent) Diderot subscribes to the ideas that Jacques expresses. In 1980 Georges May affirmed that there can be no questioning Diderot's parodic intentions.<sup>72</sup> The same idea can be found, better argued, in Jacques Schérer's *Le Cardinal et l'orang-outang*:

[La doctrine du déterminisme,] liée au matérialisme de Diderot, est en effet une position philosophique sérieuse, alors que l'affirmation, cent fois répétée par Jacques, [...] que tout est « écrit là-haut » est d'un simplisme qui ne permet pas de l'attribuer à son auteur. [...] En réalité, le fatalisme de bazar qu'arbore Jacques n'est destiné qu'à faire ressortir sa liberté, et sa liberté est d'autant plus parfaite qu'il n'existe pas à la manière d'un être réel. A l'image de ce personnage exemplaire, ce qu'exalte le roman est la liberté de l'écrivain qui l'a conçu. S'il y a un thème dominant, à défaut d'un sujet, c'est bien celui de la conscience de la liberté la plus complète chez l'auteur; Diderot ne se fait pas faute de pousser cette liberté jusqu'à la désinvolture, voire jusqu'à l'insolence.<sup>73</sup>

The adversaries of this interpretation have their standard-bearer in Francis Pruner, who, in *L'Unité secrète de 'Jacques le fataliste'*, presents Jacques as Diderot's diegetic *alter ego*.<sup>74</sup> Jean Ehrard reaches the same conclusion by comparing the ideas expressed by Jacques with

<sup>70</sup> Gerhardt Stenger, *Nature et liberté chez Diderot après l'Encyclopédie*, Paris: Universitas, 1994.

<sup>71</sup> For the relation between the words 'fatalism' and 'determinism' see below p.25-26.

<sup>72</sup> Georges May, 'Le fatalisme et Jacques le fataliste', in Trousson (ed.), *Thèmes et figures*, p.174. See also Dominique Lecourt, 'La philosophie de *Jacques le Fataliste*', *RDE*, 26 (1999), p.135.

<sup>73</sup> Jacques Schérer, *Le Cardinal et l'orang-outang: Essai sur les inventions et les distances dans la pensée de Diderot*, Paris: SEDES, 1972, p.177-178. See also Susan Hayward, 'Res Brutae and Diderot's Nun: Suzanne Simonin', *DS*, 20 (1981), p.109: 'In *Jacques le fataliste* (1771) determinism is so ridiculed through its addict Jacques as to prove that only a materialistic ontology makes sense'.

<sup>74</sup> Francis Pruner, *L'Unité secrète de 'Jacques le fataliste'*, Paris: Lettres Modernes, 1970. See also Micheline Levowitz-Treu, '*Jacques le fataliste* et la structure moléculaire', *DS*, 20 (1981), p.185-199.

those voiced by Diderot in a text of 1756, the *Lettre à Landois*. He emphatically concludes: ‘On ne peut guère douter que l’auteur fasse siennes les idées qu’il prête à son personnage. [...] N’essayons donc plus de mettre Diderot en contradiction avec lui-même ni de l’opposer à d’Holbach ou à Jacques. Il est Denis le Fataliste’.<sup>75</sup> To be sure, scholars are not lacking who attempt to mediate between these two opposite readings, claiming to discern, for example, ‘an unresolved tension between an intellectual acceptance of determinism and an emotional faith in the reality of free-will’.<sup>76</sup> Interpretations of this sort have been advanced by Lester G. Crocker and Paolo Casini.<sup>77</sup> More often than not, they are based on a letter of September 1769 that was long thought to be addressed to Sophie Volland, but that, as Jean Pommier and Lydia-Claude Hartman have shown, Diderot actually sent to Madame de Maux.<sup>78</sup> Here, faced with the provocative insinuation that to embrace determinism is to claim that lovers are not free in their sentimental relationships and are ultimately unaccountable, would they prove unfaithful, Diderot famously exclaims: ‘O le beau système pour les ingrats! J’enrage d’être empêtré d’une diable de philosophie que mon esprit ne peut s’empêcher d’approuver, et mon cœur de démentir’.<sup>79</sup> I shall provide in Chapter V my interpretation of this letter. In the intervening chapters, my main aim will be to address the following three questions, which I have already implicitly posed: how does d’Holbach’s account of determinism function, concretely? Did Diderot endorse determinism? And if so, is his argument for determinism in any way similar to d’Holbach’s? I shall answer these questions by claiming that both Diderot and d’Holbach together put forward a coherent theory of determinism that combines

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<sup>75</sup> Ehrard, ‘Lumières et roman’, p.139.

<sup>76</sup> David Langdon, ‘Diderot and Determinism: Analysis of a Letter’, *DS*, 20 (1981), p.175.

<sup>77</sup> Lester G. Crocker, *Diderot: The Embattled Philosopher*, New York: Free Press, 1966, p.310: ‘[This letter reveals a] conflict between [Diderot’s] inexorable rationalism and an emotional heart that rebelled against the conclusions of his intellect’; Paolo Casini, ‘Le Hasard, la nécessité et « une diable de philosophie »’, in Alfred Jepson Bingham and Virgil W. Topazio (eds), *Enlightenment Studies in Honour of Lester G. Crocker*, Oxford: Voltaire Foundation, 1979, p.59: ‘Diderot ne s’est jamais résigné à un système déterministe rigide. Ou mieux, il a vécu au niveau émotionnel et existentiel une malaise qui dépendait de ses maximes déterministe’.

<sup>78</sup> Jean Pommier, ‘Etudes sur Diderot’, *Revue d’histoire de la philosophie et d’histoire générale de la civilisation*, 30 (1942), p.178-179; Lydia-Claude Hartman, ‘A Propos de Sophie Volland’, *DS*, 12 (1969), p.101.

<sup>79</sup> *Correspondance*, vol.9, p.154-155.

traditional and original elements. As I shall show, this theory rests on two pivotal ideas, the Causal Principle and Causal Necessitation. I shall further claim that Diderot and d'Holbach strengthen their theory of determinism by positing the existence of laws of nature, and that they forcefully argue that determinism also applies at the moral, social, and historical level.

### The two pillars of Diderot and d'Holbach's theory of determinism

I remarked previously that, as a general rule, contemporary definitions of determinism rest on the concept of laws of nature. However, John Milton has noted that, in the eighteenth century, the notion of laws of nature was still rather problematic.<sup>80</sup> In the absence of a clear and precise notion of laws of nature, I argue, Diderot and d'Holbach based their account of determinism on two pivotal concepts: the Causal Principle and Causal Necessitation.<sup>81</sup> The Causal Principle – also known as Causal Maxim, Principle of Causality, or Principle of Universal Causation – maintains that (at least) for every thing, X, that is the case, there must be a cause that explains why X is, in fact, the case. Causal Necessitation is the more controversial claim according to which causes produce their effects necessarily. From these two theses to determinism is but a small step: if everything has a cause and if every cause necessarily brings about its effect, it will be true that, as the deterministic credo goes, given the way things are arranged in a system, S, at a given time,  $t_0$ , the way things are arranged in S at any other (subsequent) time,  $t_1$ , is fixed. This argument was fairly common amongst ancient and early modern determinists, and Riccardo Salles, for instance, attributes it to the Stoics.<sup>82</sup>

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<sup>80</sup> John R. Milton, 'Laws of Nature', in Michael Ayers, Daniel Garber, (eds), *The Cambridge History of Seventeenth-Century Philosophy*, Cambridge: Cambridge University Press, 1998, p.680-701.

<sup>81</sup> Many have claimed that determinism is simply equivalent to the theory that every event has a cause. However, this claim can only be accepted if one adds to it the further claim that causes necessarily bring about their effects. See Beebee, *Free Will*, p.16 and Earman, *A Primer*, p.5-6.

<sup>82</sup> Riccardo Salles, 'Determinism, Fatalism, and Freedom in Stoic Philosophy', in Heather Dyke and Adrian Bardon (eds.), *A Companion to the Philosophy of Time*, Hoboken, N.J.: Wiley, 2013, p.60. See also Beebee, *Free Will*, p.16.

That eighteenth-century thinkers were well acquainted with this line of reasoning is attested, for instance, by the *Encyclopédie* article ‘Fatalité’. Here, the abbé André Morellet claims that, whereas all philosophers agree on the principle that every event has a cause (what he calls, ‘principe de l’enchaînement des causes’), some (today we would say ‘determinists’) additionally believe that causes and effects are linked by means of a ‘nécessité irrésistible’.<sup>83</sup> This argument for determinism has not entirely disappeared from contemporary scholarship: in the *Oxford Companion to Philosophy*, Roy Weatherford writes that determinism may be taken as the thesis ‘that all events without exception are effects-events necessitated by earlier events. Hence any event of any kind is an effect of a prior series of effects, a causal chain with every link solid’.<sup>84</sup>

### Causal Principle

Chapter I concentrates on the first half of the aforementioned line of reasoning and concludes that Diderot and d’Holbach fully endorse the Causal Principle. In addition, it discusses Diderot and d’Holbach’s attitudes towards two other principles which, if not fully identical to the Causal principle, are closely related to it: the Principle of Sufficient Reason and the Nihil ex Nihilo Principle. In an almost exact replica of the definition of the Causal Principle provided above, the Principle of Sufficient Reason holds that (at least) for every thing, X, that is the case there must be a *reason* why X is in fact the case. The Nihil ex Nihilo Principle states that nothing ever comes out of nothing and is connected to the Causal Principle because it can be reformulated positively to say that everything comes out of something. I contend

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<sup>83</sup> *Encyclopédie*, 6:423. See also Stenger, *Nature et liberté*, p.13.

<sup>84</sup> Roy Weatherford, ‘Determinism’, in Ted Honderich (ed.), *The Oxford Companion to Philosophy*, Oxford: Oxford University Press, 2005, p.208-209.

that, in addition to accepting the Causal Principle, Diderot and d'Holbach also hold these two principles to be true.

That d'Holbach and Diderot subscribe to the Nihil ex Nihilo Principle is hardly surprising, for this principle has strong atheistic implications. Conversely, Diderot and d'Holbach's commitment to the Causal Principle and the Principle of Sufficient Reason requires some explanation for, in the early modern period, these two principles were often employed to demonstrate the existence of God.

### Causal Necessitation

Chapter II focuses on the second half of d'Holbach and Diderot's argument for determinism and contends that both philosophers commit to the idea that causes necessitate their effects. Indeed, they go so far as to endorse the view that Causal Necessitation is akin to Logical Necessitation, i.e. the stance that it is simply unconceivable that the cause exists and the effect does not follow. Diderot's and d'Holbach's arguments for the equivalence of Causal and Logical Necessitation, however, are not identical. Whilst d'Holbach closely follows Aristotle and Aquinas in endorsing what I shall call the 'argument from essence', Diderot advances an original version of this argument (the 'argument from *cause une*'), which has similarities to what Marc Bobro and Kenneth Clatterbaugh term, in their discussion of Leibniz, the 'efficacious perception view' of causation.<sup>85</sup> To conclude, the question will be raised as to why d'Holbach and Diderot commit to such a strong reading of causation in spite of its being common amongst Christian philosophers, and reject instead a view of causation like Hume's

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<sup>85</sup> Marc Bobro and Kenneth Clatterbaugh, 'Unpacking the Monad: Leibniz's Theory of Causality', *The Monist*, 79, 3 (1996), p.408-425.

that, as was already clear to eighteenth-century philosophers, could easily lend itself to atheism.<sup>86</sup>

### Laws of nature

In Chapter III, I argue that Diderot and d'Holbach strengthen their determinism by positing the existence of laws of nature. Following Walter Ott, I distinguish between two competing views about laws of nature that were relatively common in the early modern period: the 'top-down' and the 'bottom-up' models.<sup>87</sup> These two theories had in Descartes and Locke, respectively, their most prominent advocates. In addition, I also discuss Spinoza's position, which interestingly combines the top-down and bottom-up models.

Diderot's and d'Holbach's ideas on the laws of nature diverge to some extent. Diderot is traditionally understood as rejecting the notion of laws of nature as overly simplistic, but I argue that to interpret him as a supporter of the bottom-up view – as several passages in his works suggest – is not incompatible with his unwavering faith in the complexity of reality. D'Holbach, on the other hand, enthusiastically endorses both the top-down and the bottom-up view. I attempt to understand how these two tendencies coexist within his work, suggesting that d'Holbach's thought may be indebted to Spinoza.

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<sup>86</sup> See Peter J. E. Kail, 'Causation', in Aaron Garrett (ed.), *The Routledge Companion to Eighteenth Century Philosophy*, New York: Routledge, 2014, p.196.

<sup>87</sup> Walter Ott, *Causation and Laws of Nature in Early Modern Philosophy*, Oxford: Oxford University Press, 2009.

## Moral freedom

Marisa Linton has observed that, like many eighteenth-century French philosophers, Diderot ‘was before all else a moralist’.<sup>88</sup> Ethics is similarly at the forefront of d’Holbach’s mind, and Virgil W. Topazio has devoted an interesting monograph to the study of the sources of his moral philosophy.<sup>89</sup> The question therefore arises as to how Diderot and d’Holbach’s determinism affects their views on ethics.

Chapter IV examines the notion of Moral Freedom. This is the sort of freedom that is required in order for one to be morally responsible for one’s actions, and which determinism is often perceived as threatening. Two different interpretations of this notion, which are not mutually exclusive, will be presented, namely the ‘Alternative Possibilities Model’ and the ‘Source Model’, and Diderot and d’Holbach will be shown to refuse both. While Diderot and d’Holbach’s rejection of moral freedom profoundly affects their views on culpability and social justice, it does not prevent them from endorsing other varieties of freedom, e.g. natural, civil, and political freedom, which are perfectly compatible with determinism.

## Human life and society

The focus of the last chapter is on how determinism affects d’Holbach’s and Diderot’s views regarding human life. I shall consider their deterministic account of the thinking process, madness, dreaming, love, artistic and literary production, and the aesthetic experience. Stepping back from the individual level, I shall then review the factors that, according to both philosophers, may have an impact on the evolution of societies. This will lead me to discuss

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<sup>88</sup> Marisa Linton, *The Politics of Virtue in Enlightenment France*, Basingstoke: Palgrave, 2001, p.45. See also Eric-Emmanuel Schmitt, *Diderot, ou la philosophie de la séduction*, Paris: Albin Michel, 1997, p.58.

<sup>89</sup> Virgil W. Topazio, *D’Holbach’s Moral Philosophy: Its Background and Development*, Geneva: Institut et Musée Voltaire, 1956.

the question of predictability. This is important because determinism has often been defined in terms of predictability, and Diderot's apparent rejection of the latter notion could therefore be perceived as undermining his deterministic credo.

### One theory or two theories?

As the above outline suggests, the similarities between Diderot's and d'Holbach's accounts of determinism are remarkable. It is precisely this consideration that has led me to entitle this thesis *Diderot and d'Holbach: A Theory of Determinism*. In keeping with this synthetic approach, in what follows I shall draw a number of textual parallels between Diderot's and d'Holbach's works, thus continuing on the path indicated by Pierre Naville.<sup>90</sup> Besides helping me to make my point concerning Diderot and d'Holbach's determinism, this comparative study will shed light on the genesis of the works discussed. By emphasising the affinities between Diderot's notion of determinism and d'Holbach's, however, I by no means intend to suggest that their philosophies are in other ways identical. Discrepancies exist even between their accounts of determinism and, however numerous the points in common between the *Système de la nature* and *Jacques le fataliste* may be, Francis Pruner's claim that the latter is an illustration of the former remains a provocative exaggeration.<sup>91</sup> As a result, my insistence on the affinities between Diderot's and d'Holbach's views will be counterbalanced by a parallel effort to highlight any interesting differences between their approaches.

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<sup>90</sup> Pierre Naville, *Paul Thiry d'Holbach et la philosophie scientifique au XVIII<sup>e</sup> siècle*, Paris: Gallimard, 1943, p.243-244.

<sup>91</sup> Pruner, *L'Unité secrète*, p.325. Eighteenth-century readers were aware of the similarities between *Jacques le fataliste* and the *Système de la nature*. See De Booy and Freer, *Jacques le fataliste*, p.91-95.

### Aims of this thesis

While some of the main aims of this thesis have already been outlined, what follows recapitulates the principal ones and adds to their number a few which have not yet emerged.

First and foremost, I aim to analyse d'Holbach and Diderot's argument for determinism. As mentioned above, this argument is rather different from present-day ones, which, as a general rule, are solely based on the laws of nature. To rediscover Diderot and d'Holbach's account is therefore to problematise our modern versions of this philosophical theory.

By insisting on Diderot's and d'Holbach's ideas on causation and the laws of nature, I also aim to contribute to the re-evaluation of their metaphysics.<sup>92</sup> Until not so long ago, Diderot was normally dismissed as a second-class philosopher. Yvon Belaval's usage of inverted commas in the title of his 1952 article 'Le "philosophe" Diderot' speaks volumes, and Robert Loyalty Cru could have hardly been bolder when he wrote that:

if in his own lifetime [Diderot] was commonly [...] designated [with the title of 'philosopher'] not only by 'a few indulgent friends', but by France and Europe, it should be clearly understood that he did not owe that name to any special achievement in the field of metaphysics, to any system of thought which he could call his own. He holds no place in the history of philosophy properly so-called.<sup>93</sup>

Since the 1950s, however, much has changed, and several interesting studies on Diderot's philosophy have been published. Amongst them, those of Marx Wartofsky, Jean-Claude Bourdin, Timo Kaitaro, Eric-Emmanuel Schmitt, and Colas Duflo deserve a special mention.<sup>94</sup> Diderot's views on determinism and causation have not been entirely ignored by

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<sup>92</sup> See Schmitt, *Diderot, ou la philosophie de la séduction*, p.9-15 and 199-200.

<sup>93</sup> Yvon Belaval, 'Le "Philosophe" Diderot', *Critique*, 58 (1952), p.230-253; Robert Loyalty Cru, *Diderot as a Disciple of English Thought*, New York: Columbia University Press, 1913, p.118.

<sup>94</sup> Wartofsky, 'Diderot and the Development of Materialist Monism'; Bourdin, *Diderot: le matérialisme*; Timo Kaitaro, *Diderot's Holism: Philosophical Anti-Reductionism and its Medical Background*, Frankfurt: P. Lang,

scholars either, and very interesting insights can be found in articles and books by Marian Hobson, Nicholas Cronk, Charles T. Wolfe, and Gerhardt Stenger.<sup>95</sup> Even so, much remains to be said. This thesis aims to enter this debate, address a variety of issues that have not yet received appropriate attention, and offer an overarching structure from which to appreciate the inner coherence of Diderot's thought.

The case of d'Holbach is similar, if not even more neglected: while his style and publication practices have recently been the subject of a brilliant monograph by Alain Sandrier, his philosophy still remains deeply understudied, and the limited secondary literature on the subject tends toward oversimplification. This thesis highlights the complexity of d'Holbach's thought and questions the received interpretation of the Baron as a dogmatic thinker and atheist.

Another aim of my thesis, inextricably linked to the previous one, is to situate d'Holbach and Diderot relative to key figures in ancient, medieval, and early modern philosophy such as Aristotle, Aquinas, Hobbes, Spinoza, Leibniz, and Hume. It is only against this background that the ideas of the two French philosophers can be fully understood. After all, to paraphrase what Diderot writes in the *Essai sur les règnes de Claude et de Néron*, a football player is far more interesting if he has an adversary in front of him, than if he is all alone on the field.<sup>96</sup>

An interesting conclusion yielded by this approach is that Diderot and d'Holbach share several ideas with non-atheistic philosophical traditions and, in particular, the Christian one.

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1997; Duflo, *Diderot philosophe*. It is important to remember that many of Diderot's works remained unpublished until not so long ago, the most notable case being the *Observations sur Hemsterhuis*, which only appeared in 1964.

<sup>95</sup> Marian Hobson, 'Jacques le fataliste: the art of the probable', in Kate E. Tunstall and Caroline Warman (eds), *Diderot and Rousseau: Networks of Enlightenment*, SVEC, 2011:4, p.143-163; Nicholas Cronk, 'Reading expectations: the narration of Hume in Jacques le fataliste', *Modern Language Review*, 91 (1996), p.330-341; Charles T. Wolfe, 'Cause et effet', in Jean-Claude Bourdin and Colas Duflo (eds), *Encyclopédie du 'Rêve de d'Alembert' de Diderot*, Paris: CNRS, 2006, p.78-82; Stenger, *Nature et liberté*.

<sup>96</sup> *Sénèque*, p.37.

The most striking example is arguably d'Holbach's endorsement of Malebranche's top-down view of the laws of nature. Likewise, Chapter II will show that Diderot and d'Holbach commit to the Aristotelian-Thomistic notion of essential powers. Such findings are of the utmost importance to historians of ideas as they provide examples of philosophical notions that can be bent and made to fit widely divergent systems. Furthermore, having identified Diderot's and d'Holbach's connections to the Christian tradition, I shall pursue a double aim. My first target is Yvon Belaval's claim that the French Enlightenment, unlike the German *Aufklärung*, represents a complete break with Scholasticism.<sup>97</sup> There can be no doubt that both Diderot and d'Holbach repeatedly and fiercely criticise Scholasticism. Yet, their *cursus studiorum* was absolutely traditional, and it is therefore perfectly plausible that elements of Scholastic philosophy may lurk behind the surface of their works.<sup>98</sup> Second, and connected to this, I intend to temper Jonathan Israel's simplistic and artificial distinction between Radical and Democratic Enlightenment.<sup>99</sup> While it is undeniable that Diderot and d'Holbach draw extensively on Spinoza and put forward a philosophical system that is in many ways original and ground-breaking, and while it is possible that their anti-theological writings and political beliefs may have contributed to the birth of the revolutionary movement, it is also true that both philosophers have an extremely wide philosophical background. Moreover, Spinoza's radicalism itself could be questioned: when it comes to causation, for instance, it is to Hume that one needs to turn to find a position that actually breaks with the tradition.

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<sup>97</sup> Yvon Belaval, *Etudes leibniziennes. De Leibniz à Hegel*, Paris: Gallimard, 1976, p.220.

<sup>98</sup> Hanna, 'Denis Diderot'.

<sup>99</sup> Jonathan I. Israel, *Radical Enlightenment: Philosophy and the Making of Modernity, 1650-1750*, Oxford: Oxford University Press, 2001. See also Ann Thompson, 'Diderot, l'*Encyclopédie* et les Lumières radicales', *RDE*, 49 (2014), p.259-264.

### A few clarifications

Finally, a few clarifications are needed. The most important regards my choice of the term ‘determinism’. Gerhardt Stenger has shown that this lemma was not yet in use in eighteenth-century France.<sup>100</sup> Charles T. Wolfe has criticised this claim in an article that appeared in 2014.<sup>101</sup> However, the only two texts that he mentions in which the word ‘determinism’ appears, rather than other related terms such as ‘determination’, are not French, but German; besides, they date from the last years of the century – thus coming after Diderot and d’Holbach. Why, then, refer here to ‘determinism’? The fact of the matter is that, although the word ‘déterminisme’ may not appear until the end of the eighteenth century, determinism as a theory is as old as philosophy itself. If Aristotle’s commitment to it is still the subject of much scholarly debate, the consensus is that, at least by the end of the Hellenistic Era, determinism was already a well-established doctrine. Other names were used to refer to it, and in eighteenth-century France the most common was undoubtedly ‘fatalisme’. One finds it in the *Encyclopédie* as well as in the abbé Pluquet’s *Examen du fatalisme*, where it is also referred to as ‘système de la nécessité’.<sup>102</sup> Christophe Paillard has shown that, following the publication of this supposed refutation of determinism in 1757, the popularity of the word ‘fatalisme’ rapidly increased.<sup>103</sup> Importantly, d’Holbach uses this word to refer to his own philosophy but, interestingly, he does so in just one chapter of the *Système de la nature*.<sup>104</sup> Nevertheless, in modern philosophical discourse, the term ‘fatalism’ has come to denote something quite remote from determinism, to the point that describing d’Holbach and Diderot as fatalists would generate unnecessary confusion. Perhaps nowhere is the distinction between fatalism

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<sup>100</sup> Stenger, *Nature et liberté*, p.188.

<sup>101</sup> Charles T. Wolfe, ‘Diderot et l’approche déterministe de l’esprit: un autre déterminisme?’, *DHS*, 46 (2014), p.501-516.

<sup>102</sup> *Encyclopédie*, ‘Fatalité’, 6:422-429 and François-André-Adrien Pluquet, *Examen du fatalisme*, Paris: Didot et Barrois, 1757, 3 vols, vol.1, p.iii-iv.

<sup>103</sup> Christophe Paillard, ‘Entre Science et métaphysique: Le Problème du fatalisme dans la philosophie de Voltaire’, *Revue Voltaire*, 8 (2008), p.207-211.

<sup>104</sup> *Système*, I.12.

and determinism expressed more clearly than in Mark Bernstein's chapter on fatalism in *The Oxford Handbook of Free Will*. As Bernstein explains, 'Fatalism is the thesis that whatever happens must happen; every event or state of affairs that occurs, must occur, while the non-occurrence of every event and state of affairs is likewise necessitated'.<sup>105</sup> As evident from the definition just provided, fatalism and determinism are in many ways similar: both doctrines, for one, are incompatible with the 'sort of freedom [that] is necessary for the justified ascription of moral responsibility', that is, with moral freedom.<sup>106</sup> Moreover, as is also the case with determinism, the thesis of fatalism can be summarised by saying that 'whatever happens must happen'. The 'must' in this sentence, however, is interpreted by the fatalist and the determinist in completely different ways. Whereas determinism holds that the present state of affairs is determined by antecedent events (plus the laws of nature), the thesis of fatalism does not include any reference to either causation, laws of nature, or the state of the universe at a preceding time  $t_0$ : whatever happens must happen regardless of any other events.<sup>107</sup> Fatalism, in other words, is perfectly compatible with both determinism and indeterminism.<sup>108</sup>

The second preliminary clarification concerns the texts that I shall be using. In the case of d'Holbach, in the first three chapters of this thesis, I shall focus almost exclusively on the *Système de la nature* and *Le Bon Sens*, for it is in these two works that the Baron deals more extensively with physics and the branches of metaphysics with which I shall be concerned. D'Holbach's moral and political works (*La Morale universelle*, *La Politique naturelle*, *L'Ethocratie*) will receive more attention in the last two chapters, as the focus gradually shifts towards ethics and sociology. Generally speaking, d'Holbach's anti-

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<sup>105</sup> Bernstein, 'Fatalism', p.65.

<sup>106</sup> Bernstein, 'Fatalism', p.65.

<sup>107</sup> See Claude Bernard, 'Du Progrès dans les sciences physiologiques', *Revue des deux mondes*, 35 (1865), p.647: 'Le fatalisme suppose la manifestation nécessaire d'un phénomène indépendamment de ses conditions'.

<sup>108</sup> Bernstein, 'Fatalism', p.69. See also Carl Hoefer, 'Causal determinism', in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), URL = <https://plato.stanford.edu/archives/spr2016/entries/determinism-causal/>.

theological writings (*Le Christianisme dévoilé*, *La Théologie portative*, *L'Histoire critique de Jésus-Christ*, *Le Tableau des saints*, etc.) contain much fewer interesting insights on the issues discussed here and will therefore be quoted only sporadically, if at all.

Until the 1980s, scholars working on Diderot's attitudes towards determinism have predominantly focused on a rather limited range of works, including the *Lettre à Landois*, *Jacques le fataliste*, and *Le Neveu de Rameau*, with its famous discussion of the 'maudite molécule paternelle'.<sup>109</sup> One of the reasons behind this is the absence of a complete scholarly edition of Diderot's works. This gap is now being filled by the Hermann (or DPV) edition.<sup>110</sup> Without leaving aside the three works just mentioned, in the following chapters I shall broaden my corpus, thus analysing a much wider set of texts, ranging from the *Observations sur Hemsterhuis* to Diderot's mathematical writings (most notably the *Réflexions sur une difficulté*), from the 'Promenade Vernet' to the *Supplément au voyage de Bougainville*, from the *Pensées sur l'interprétation de la nature* to the *Principes philosophiques sur la matière et le mouvement*. In the spirit of Eric Emmanuel Schmitt's *Diderot ou la philosophie de la séduction*, I shall therefore give equal status to the works that are traditionally labelled as 'literary' and those that have been considered 'philosophical', for this distinction is entirely artificial in the context of eighteenth-century France.<sup>111</sup>

The *Encyclopédie* also deserves a special mention in this context. Given its collaborative nature, which the *Prospectus* understandably indicates as one of its main strengths, scholars ought to be extremely careful when using it to make statements about Diderot.<sup>112</sup> As a case in point, the anti-deterministic interpretation of Diderot has largely

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<sup>109</sup> *Neveu*, p.173.

<sup>110</sup> Another complete edition, yet not a critical one, was published in the early 1970s. See Denis Diderot, *Œuvres complètes*, Paris: Le Club du Livre, 1969-1973, 15 vols.

<sup>111</sup> Schmitt, *Diderot, ou la philosophie de la séduction*, p.15: 'Distinguer des œuvres philosophiques, romanesques, politiques [...] c'est préjuger de ce qu'on a à trouver'.

<sup>112</sup> Denis Diderot, *Prospectus de l'Encyclopédie*, in DPV, vol.5, p.92-94.

benefitted from an erroneous attribution to him, made by Jules Assézat and Maurice Tourneux, of the article ‘Liberté (Morale)’, which was in fact written by Claude Yvon and significantly modified by Naigeon.<sup>113</sup> But how should Diderot scholars conduct themselves with regard to the *Encyclopédie*? Diderot himself appears to provide a clue in the *Prospectus*:

La seule partie [du] travail [de l’éditeur], qui suppose quelque intelligence, c’est de remplir les vides qui séparent deux sciences ou deux arts, et de renouer la chaîne dans les occasions où nos collègues se sont reposés les uns sur les autres de certains articles qui, paraissant appartenir également à plusieurs d’entre eux, n’ont été faits par aucun. Mais afin que la personne chargée d’une partie ne soit point comptable des fautes qui pourraient se glisser dans des morceaux surajoutés, nous aurons l’attention de distinguer ces morceaux par une étoile.<sup>114</sup>

Things, however, are not as easy as one might think, for Diderot’s star becomes very rare in the ninth volume and utterly disappears from the tenth onwards. Moreover, many articles that the French philosopher affirms to be his own (e.g. the entry ‘Art’) do not bear his ‘signature’.<sup>115</sup> Given such a complicated situation, the best option is indeed to follow Jacques Proust and John Lough’s criteria, and regard as Diderot’s – as the ARTFL digital edition of the *Encyclopédie* also does – only the articles that have been printed in the DPV edition.<sup>116</sup>

Finally, the last clarification concerns Diderot’s vitalism. One of the reasons that often prevent scholars from describing Diderot as a determinist is connected to his interest in the nascent life sciences. It should be understood, however, that determinism does not represent a threat to vitalism. As claimed by Earman, ‘determinism [...] does not assume materialism or mechanism in any narrow sense; indeed, the magnitudes to be considered may be ones

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<sup>113</sup> The attribution of this article to Diderot has been contested by Franco Venturi (*Le origini dell’Enciclopedia*, Rome-Florence-Milan: U Edizioni, 1946, p.139), and definitely rejected by Jacques Proust (*Diderot et l’Encyclopédie*, p.120). Chapter IV contains an ample discussion of this and related articles.

<sup>114</sup> Diderot, *Prospectus*, p.92-94.

<sup>115</sup> *Correspondance*, vol.1, p.107.

<sup>116</sup> Denis Diderot, *Articles dans l’Encyclopédie*, in DPV, vols.5-9.

traditionally taken as ‘mentalistic’, and all that is required is that they be physicalistic in the minimal sense that they have a spatio-temporal representation’.<sup>117</sup>

With all this in mind, we can now move on to the first chapter.

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<sup>117</sup> Earman, *A Primer*, p.5.

## Chapter I: Three Fundamental Principles

The Causal Principle maintains that (at least) for every thing X that is the case, there must be a cause that explains why X is, in fact, the case.<sup>118</sup> Alongside Causal Necessitation – the more controversial claim that causes produce their effects necessarily – this principle can be used to argue in favour of determinism: if everything has a cause and if every cause necessarily brings about its effect, it will be true that, as the deterministic credo goes, given the way things are arranged in a system, S, at a given time,  $t_0$ , the way things are arranged in S at any other (subsequent) time,  $t_1$ , is fixed. That eighteenth-century thinkers were well acquainted with this line of reasoning is attested, for instance, by the *Encyclopédie* article ‘Fatalité’. Here, in keeping with his ‘ecumenical objectivity’, the abbé André Morellet claims that, whereas all philosophers agree on the principle that every event has a cause (what he calls the ‘principe de l’enchaînement des causes’), determinists – or ‘atheistic fatalists’, as he dubs them – additionally believe that causes and effects are linked by means of a ‘nécessité irrésistible’.<sup>119</sup>

This chapter will investigate Diderot and d’Holbach’s attitude towards the Causal Principle. In the first section, I shall introduce the Causal Principle alongside two other principles that, although they do not entirely overlap with it, are inextricably linked to it: the Principle of Sufficient Reason and the Nihil ex Nihilo Principle. Particular emphasis will be placed on the implications that each of these principles has on the theological level: whereas the Nihil ex Nihilo Principle was traditionally rejected by Christian philosophers, both the Causal Principle and the Principle of Sufficient Reason can be employed in order to demonstrate the existence of God. The second part will concentrate on Diderot and d’Holbach and argue that they endorse not only the Nihil ex Nihilo Principle, in keeping with their

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<sup>118</sup> Strong versions of the Causal Principle may prescribe that a cause be attributed even for what is not the case.

<sup>119</sup> *Encyclopédie*, 6:423. See also Kathleen Hardesty Doig and Dorothy Medlin, ‘André Morellet’s Theological Articles for the *Encyclopédie*: Text and Subtext’, *DS*, 26 (1995), p.89 and Stenger, *Nature et liberté*, p.13.

atheistic beliefs, but also the Causal Principle and the Principle of Sufficient Reason. I shall advance two distinct hypotheses as to why Diderot and d'Holbach commit to the Causal Principle, its significant theological implications notwithstanding, and I shall further argue that they are prompted to endorse the Principle of Sufficient Reason by their desire to show that, in spite of what theists and deists often maintained, to deny the existence of God is not to renounce the intelligibility of reality.

### The Causal Principle

In the *Encyclopédie*, the Causal Principle, defined above, is often enunciated as ‘tout effet (pré)suppose une cause’. This is evidenced, for example, in the articles ‘Education’, by César Chesneau Du Marsais, and ‘Liberté’, by Jacques-André Naigeon and Claude Yvon.<sup>120</sup> In the entry ‘Effet’ by the chevalier de Jaucourt, and in other articles studied below, the Causal Principle is evoked with the following alternative formulation: ‘rien ne se fait sans cause’.<sup>121</sup> In a sense, the latter formulation is much stronger than the former. That every *effect* has a cause is what Kant would call an ‘analytic proposition’ – that is, a necessary truth – because, by definition, an effect is produced by a cause.<sup>122</sup> By contrast, that nothing is without a cause, that is, that every *event* has a cause, is not itself an analytic proposition; it is, instead, what Kant would call a ‘synthetic a priori’ proposition.<sup>123</sup>

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<sup>120</sup> See respectively *Encyclopédie*, 5:397 and 9:462-463. See also the entry ‘Chaleur’ by d’Alembert (*Encyclopédie*, 3:23).

<sup>121</sup> *Encyclopédie*, 5:405.

<sup>122</sup> Necessary truths are discussed in the anonymous entry ‘Nécessaire’ (*Encyclopédie*, 11:68): ‘Un triangle rectiligne a ses trois angles égaux à deux droits; cela est vrai aujourd’hui, cela le sera éternellement, et le contraire n’aura jamais lieu’.

<sup>123</sup> See, for example, Herbert James Paton, *The Categorical Imperative. A Study in Kant’s Moral Philosophy*, Philadelphia: University of Pennsylvania Press, 1971, p.123.

The Causal Principle has very ancient roots and, as Diderot observes in the entry ‘Platonisme’, it can be found in the works of Plato.<sup>124</sup> Following his teacher, Aristotle also endorses it, and in Book 8 of his *Physics* advances the claim that ‘everything that is in motion is moved by something’.<sup>125</sup> Through the Stoics, the Causal Principle filtered down to medieval Aristotelian philosophers, both Christian and Muslim.<sup>126</sup> Aquinas, for example, writes that ‘if anything that has not always existed begins to be, it needs some cause for its existence’.<sup>127</sup> Other formulations of the Causal Principle, which punctuate the writings of Aquinas, include ‘everything which was not always manifestly has a cause’, ‘whatever is in motion is put in motion by another’, and ‘every composition requires a compounder’.<sup>128</sup> The *encyclopédistes* were perfectly aware of the pivotal role that the Causal Principle played in Scholastic philosophy. This is proved, for example, by the article ‘Suffisante Raison, principe de la raison suffisante’, in which it is stated that ‘les Scholastiques admettaient bien qu’il ne se fait rien sans cause’.<sup>129</sup> Supporters of the Causal Principle in the early modern period were, amongst others, Hobbes, Spinoza, and Leibniz. However, since their versions of the Causal Principle cannot be fully understood without some knowledge of the Principle of Sufficient Reason, discussion of them is deferred to later in this chapter.

Of particular pertinence here is instead that the Causal Principle lies at the heart of the notion of the causal chain, namely the idea that all events are causally linked and form an

<sup>124</sup> *Encyclopédie*, 12:745.

<sup>125</sup> Aristotle, *Physica*, ed. by Robert Purves Hardie and R. K. Gaye, in William David Ross (ed.), *The Works of Aristotle*, Oxford: Clarendon Press, 1908-52, 12 vols, vol.2, VIII.6, 259a30-31. For more on Aristotle and the Causal Principle see Francis Xavier Meehan, *Efficient Causality in Aristotle and St Thomas: a Dissertation*, Washington: The Catholic University of America Press, 1940, p.98-123.

<sup>126</sup> See Susanne Bobzien, *Determinism and Freedom in Stoic Philosophy*, Oxford: Clarendon Press, 1998, p.39, and Ricardo Salles, *The Stoics on Determinism and Compatibilism*, Aldershot: Ashgate, 2005, p.3-18.

<sup>127</sup> Thomas Aquinas, *Compendium Theologiae*, Manchester, New Hampshire: Sophia Institute Press, 2002, p.13 (I.vii). See also Thomas Aquinas, *Summa Contra Gentiles*, London: Burn Oates & Washbourne, 1923-29, 4 vols, vol.1, p.23-24 (I.xiii).

<sup>128</sup> See respectively: Thomas Aquinas, *Summa Theologica*, Boston: MobileReference.com, 2010, p.760 (I.xlvi.1); Aquinas, *Summa Theologica*, p.59 (I.ii.3); Aquinas, *Summa Contra Gentiles*, vol.1, p.40 (I.xviii). For more on Aquinas and the Causal Principle see Meehan, *Efficient Causality*, p.330-374, and Franco Amerio, ‘La Formulazione del Principio di Causalità e la Nozione di Causa in S. Tomaso’, *Rivista di Filosofia Neo-Scolastica*, 29 (1937), p.388-400.

<sup>129</sup> *Encyclopédie*, 15:634.

uninterrupted series. Just like the Causal Principle on which it is based, the causal chain has a long history. Jason Jordan pinpoints the first appearance of the causal chain in Aristotle's *Metaphysics*.<sup>130</sup> As will be outlined below, it then reappears in the works of Aquinas, where it is employed to demonstrate the existence of the First Cause, i.e. God. In the eighteenth century, the notion of the causal chain met with almost unprecedented popularity, and although no entry in the *Encyclopédie* is specifically devoted to it, Voltaire makes it the main subject of the article 'Chaîne ou génération des événements' in the *Questions sur l'Encyclopédie*.<sup>131</sup> In a passage of this article, to which I shall return, the causal chain is thus outlined:

Un vent qui souffle du fond de l'Afrique et des mers australes, amène une partie de l'atmosphère africaine, qui retombe en pluie dans les vallées des Alpes; ces pluies fécondent nos terres; notre vent du nord à son tour envoie nos vapeurs chez les nègres; nous faisons du bien à la Guinée, et la Guinée nous en fait. La chaîne s'étend d'un bout de l'univers à l'autre.<sup>132</sup>

Voltaire also discusses the notion of the causal chain in numerous other works, including the *Dialogue entre un brahmane et un jésuite*, *De la Mort de Louis XV et de la fatalité*, and, most famously, *Candide, ou l'optimisme*.<sup>133</sup>

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<sup>130</sup> Jason Jordan, 'Ab alio movetur: Aristotle and causal determinism', *Apeiron*, 49, 4 (2016), p.4. See also Dorothea Frede, 'Accidental Causes in Aristotle', *Synthese*, 92 (1992), p.46. As for the notion of the causal chain in Stoic philosophy, see Samuel Sambursky, *Physics of the Stoics*, London: Routledge and Kegan Paul, 1959, p.57.

<sup>131</sup> References to the causal chain can, however, be found in the *Encyclopédie*. One instance is in the article 'Cause' by Claude Yvon, in which it is claimed that 'la tâche du philosophe est de [...] remonter par degrés au premier principe, en suivant la chaîne des causes secondes' (*Encyclopédie*, 2:788).

<sup>132</sup> Voltaire, *Questions sur l'Encyclopédie*, article 'Chaîne ou Génération des événements', ed. by Nicholas Cronk and Christiane Mervaud, in OCV, vol.40, p.10.

<sup>133</sup> Voltaire, *Dialogue entre un brahmane et un jésuite*, ed. by William Henry Barber and Robert L. Walters, in OCV, vol.32A, p.97-117; Voltaire, *De la Mort de Louis XV et de la fatalité*, ed. by Janet Godden, in OCV, vol.76, p.285-294; and Voltaire, *Candide, ou l'optimisme*, ed. by René Pomeau, in OCV, vol.48.

## The Causal Principle under attack

Although endorsed by many eminent figures in the history of philosophy, the Causal Principle did not go uncontested. In the eighteenth century it was extensively criticised in the writings of Hume, who devoted an entire section of *A Treatise of Human Nature* to debunking it.<sup>134</sup> To mount his attack, Hume pursues two lines of thought. His target is, first and foremost, what we may call the ‘empirical argument for the Causal Principle’, namely, the assumption that ‘the opinion of the necessity of a cause to every new production [...] arise[s] from observation and experience’.<sup>135</sup> As will be discussed further in Chapter II, pushing Locke’s empiricism to its extreme, whilst possibly being inspired by Malebranche, Hume claims that no causal connection can be observed to exist. In other words, Hume maintains that, when considered in isolation, nothing can be observed in the alleged cause that unquestionably points to what is normally regarded as its effect, and vice versa. Therefore, his argument continues, what we are accustomed to see as causes and effects should instead be taken as completely distinct events.<sup>136</sup> This leads Hume to suggest the possibility of conceiving of an event without a cause, thus dealing a first, severe blow to the Causal Principle. As he states:

We can never demonstrate the necessity of a cause to every new existence, or new modification of existence, without showing at the same time the impossibility there is, that any thing can ever begin to exist without some productive principle [...]. Now that the latter proposition is utterly incapable of a demonstrative proof, we may satisfy ourselves by considering, that as all distinct ideas are *separable* from each other, and as *the ideas of cause and effect are evidently distinct*, ’twill be easy for us to conceive any object to be non-existent this moment, and existent the next, without conjoining to it the distinct idea of a

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<sup>134</sup> David Hume, *A Treatise of Human Nature*, ed. by David Fate Norton and Mary J. Norton, Oxford: Oxford University Press, 2000, p.56-58 (1,3,3). See Kail, ‘Causation’, p.193.

<sup>135</sup> *Treatise*, p.58.

<sup>136</sup> Kail, ‘Causation’, p.193. For a different account on Hume’s theory of causation, see Helen Beebe, *Hume on Causation*, London and New York: Routledge, 2006. See also Tom L. Beauchamp, ‘Hume’s two theories of causation’, *Archiv für Geschichte der Philosophie*, 55 (1973), p.281-300.

cause or productive principle. The separation, therefore, of the idea of a cause from that of a beginning of existence, is plainly possible for the imagination; and consequently the actual separation of these objects is so far possible, that it implies no contradiction nor absurdity; and is therefore incapable of being refuted by any reasoning from mere ideas; without which 'tis impossible to demonstrate the necessity of a cause.<sup>137</sup>

In addition to this, Hume puts forward a second line of reasoning against the Causal Principle. Unlike in his first line of attack, Hume's target in this argument is the alleged intuitive nature or self-evidence of the Causal Principle, that is the idea that the Causal Principle must be taken as a necessarily true proposition:

'Tis a general maxim in philosophy, that whatever begins to exist, must have a cause of existence. [...] 'Tis suppos'd to be founded on intuition, and to be one of those maxims, which tho' they may be deny'd with the lips, 'tis impossible for men in their hearts really to doubt of. But if we examine this maxim [...] we shall discover in it no mark of any such intuitive certainty; but on the contrary shall find, that 'tis of a nature quite foreign to that species of conviction.<sup>138</sup>

### The Principle of Sufficient Reason

A principle that is in many ways analogous to the Causal Principle is the Principle of Sufficient Reason. The Principle of Sufficient Reason holds that (at least) for every thing X that is the case, there must be a *reason* why X is, in fact, the case.<sup>139</sup> In the article 'Leibnitzianisme ou Philosophie de Leibnitz', tacitly quoting Leibniz's *Monadologie* (see

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<sup>137</sup> *Treatise*, p.56. Italics mine.

<sup>138</sup> *Treatise*, p.56.

<sup>139</sup> For a general overview on the Principle of Sufficient Reason, see Alexander R. Pruss, *The Principle of Sufficient Reason*, New York: Cambridge University Press, 2006 and Yitzhak Y. Melamed and Martin Lin, 'Principle of Sufficient Reason', in Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2016 Edition), URL = <<https://plato.stanford.edu/archives/fall2016/entries/sufficient-reason/>>.

below), Diderot enunciates this theory as follows: ‘rien n’est sans une raison suffisante, pourquoi cela est ainsi et non autrement, quoique souvent cette raison ne nous soit pas connue’.<sup>140</sup> In other words, every thing must be susceptible of an explanation that is sufficient, at least in principle, to make us understand why that thing is the way it is and not otherwise. Thus, if a plane crashes or a box of pralines is found on the windowsill, and if the Principle of Sufficient Reason is true, we can safely claim that a reason exists to explain why the plane crashed or the box of pralines was on the windowsill. Since an infinite series of reasons would not normally be regarded as explanatory, the consensus is that the Principle of Sufficient Reason is incompatible with infinite regress: sooner or later along the chain of *explanantes* and *explananda* one needs to find a first reason that may, at least in theory, fully explain the event that we are trying to understand. In this respect, the Principle of Sufficient Reason is unlike the Causal Principle, which is often regarded as compatible with infinite regress.<sup>141</sup>

As noted by Diderot, the Principle of Sufficient Reason was not unknown to Greek thinkers.<sup>142</sup> For one, Parmenides uses a fully developed version of this principle in order to demonstrate the correctness of the Nihil ex Nihilo Principle.<sup>143</sup> In the early modern period, the Principle of Sufficient Reason was upheld, amongst others, by Hobbes, who interestingly employs it to argue that every thing that comes into existence has a cause, i.e., to demonstrate the correctness of the Causal Principle:

that a man cannot imagine any thing to begin without a cause, can [...] be made known, [...] by trying how he can imagine it. But if he try, he shall find as much reason, if there be no cause of the thing, to conceive it should begin at one time as another, that is, he hath equal

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<sup>140</sup> *Encyclopédie*, 9:369.

<sup>141</sup> Pruss, *Principle*, p.26.

<sup>142</sup> *Encyclopédie*, ‘Leibnitzianisme ou Philosophie de Leibnitz’, 9:375.

<sup>143</sup> Pruss, *Principle*, p.20-25.

reason to think it should begin at all times, which is impossible. And therefore he must think there was some special cause, why it began then rather than sooner or later; or else that it began never, but was eternal.<sup>144</sup>

The Principle of Sufficient Reason later assumed an arguably unprecedented relevance in the philosophy of Spinoza who, in the *Ethica*, claims that what ‘cannot be conceived through something else must be conceived through itself’, which amounts to maintaining that everything must be explicable through something.<sup>145</sup> This chapter will later return to Spinoza’s formulations of the Principle of Sufficient Reason. For the moment, however, it is important to stress that, as affirmed by Michael Della Rocca, ‘Spinoza’s philosophy is characterized by perhaps the boldest and most thoroughgoing commitment ever to appear in the history of philosophy to the intelligibility of everything’, and it is specifically on the Principle of Sufficient Reason that Spinoza’s faith in the intelligibility of reality ultimately rests.<sup>146</sup>

Whatever its centrality to Spinoza’s system, in the eighteenth century as today, the Principle of Sufficient Reason was almost without exception associated with Leibniz.<sup>147</sup> In a passage of the *Encyclopédie* article ‘Vertu’, which shows a certain romantic sensibility, Romilly fils writes:

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<sup>144</sup> Thomas Hobbes, *The Questions Concerning Liberty, Necessity, and Chance*, in Thomas Hobbes, *The English Works*, ed. by William Molesworth, London: John Bohn, 1839-1845, vol.5, p.389. Hobbes’s argument is criticised by Hume. See *Treatise*, p.56-57.

<sup>145</sup> Baruch Spinoza, *Ethics*, ed. by George Henry Radcliffe Parkinson, Oxford: Oxford University Press, 2000 (hereafter *Ethics*), p.76 (p1ax2). See Michael Della Rocca, ‘Spinoza and the Metaphysics of Scepticism’, *Mind*, 116 (2007), p.853-854 and *Representation and the Mind-Body Problem in Spinoza*, New York: Oxford University Press, 1996, p.3-4.

<sup>146</sup> Michael Della Rocca, *Spinoza*, London: Routledge, 2008, p.1.

<sup>147</sup> Pruss, *Principle*, p.29-30. Voltaire and Maupertuis both fulminate against the very common idea that the Principle of Sufficient Reason was ‘invented’ by Leibniz. See Voltaire, *Exposition du livre des Institutions de physique*, ed. by William Henry Barber and Robert L. Walters, in OCV, vol.20A, p.231 and Pierre Louis Moreau de Maupertuis, *Lettre sur les systèmes*, in Pierre Louis Moreau de Maupertuis, *Lettres*, Dresden: George Conrad Walther, 1752, p.49.

Ne tirons point du profond oubli auquel ils sont justement condamnés, les mots barbares et vides de sens qui étaient toute la métaphysique du péripatétisme moderne; un *génie créateur* a dissipé ces ténèbres, et levé d'une main hardie le voile qui enveloppait les premiers principes des choses: quelques étincelles avaient précédé cette masse de lumière, mais Leibniz a poli les diamants bruts que les anciens avaient puisé dans le sein générateur de la nature. Un principe également simple et fécond lui a servi de fil; *rien ne peut exister sans raison suffisante*.<sup>148</sup>

To be sure, Leibniz repeatedly presents the Principle of Sufficient Reason as one of his 'two great principles' – the other one being the Principle of Non Contradiction – and uses it, for example, in order to argue for his relational theory of space and time over Newton and Clarke's absolute theory.<sup>149</sup> Over the course of his long life, Leibniz advanced a number of distinct definitions of this principle, so many, in fact, that some commentators – Arthur Lovejoy, for one – have accused him of inconsistency.<sup>150</sup> Meanwhile, Francesco Piro has shown that three main versions of the Principle of Sufficient Reason – PRS<sub>1</sub>, PRS<sub>2</sub>, and PRS<sub>3</sub> – can be identified in Leibniz's works, and that the divergences between these three renditions should not be taken as evidence of any genuine inconsistency, but rather as an attempt on Leibniz's part to extend the same axiom to a wide spectrum of philosophical demands, most notably the rejection of Spinoza's necessitarianism.<sup>151</sup> PRS<sub>1</sub>, PRS<sub>2</sub>, and PRS<sub>3</sub> all appear in

<sup>148</sup> *Encyclopédie*, 17:182-183. Italics mine.

<sup>149</sup> See *Streitschriften zwischen Leibniz und Clarke*, in Gottfried Wilhelm Leibniz, *Philosophischen Schriften*, ed. by Carl Immanuel Gerhardt, Berlin: Weidmannsche Buchhandlung, 1875-1890, 7 vols, vol.7, p.364. For more on Leibniz and the Principle of Sufficient Reason see Bertrand Russell, *A Critical Exposition of the Philosophy of Leibniz*, Cambridge: Cambridge University Press, 1900, p.25-39; Juan A. Nicolás, *Razón, verdad y libertad en G. W. Leibniz. Análisis histórico-crítico del principio de razón suficiente*, Granada: Servicio de Publicaciones de la Universidad de Granada, 1993; and Benson Mates, *The Philosophy of Leibniz. Metaphysics and Language*, New York and Oxford: Oxford University Press, 1986, p.154-162.

<sup>150</sup> See Arthur Oncken Lovejoy, *The Great Chain of Being. A Study of the History of an Idea*, New York: Harper & Brothers, 1960, p.145.

<sup>151</sup> Francesco Piro, *Spontaneità e Ragion Sufficiente. Determinismo e Filosofia dell'Azione in Leibniz*, Rome: Edizioni di storia e letteratura, 2002. For further explanation of Spinoza's necessitarianism, see Don Garrett, 'Spinoza's Necessitarianism', in Yirmiyahu Yovel (ed.), *God and Nature: Spinoza's Metaphysics*, Leiden: Brill, 1991, p.191-218. For a contrary account, see Edwin Curley and Gregory Walski, 'Spinoza's Necessitarianism Reconsidered', in Gennaro Rocco and Charles Huenemann (eds.), *New Essays on the Rationalists*, Oxford: Oxford University Press, 1999, p.241-63.

eighteenth-century French philosophical works such as Emilie Du Châtelet's *Institutions de Physique*, and Diderot himself committed to at least two of them.<sup>152</sup> While an extended analysis of Leibniz's three principles lies beyond the scope of the present chapter, it will be useful, before moving on to examine the theological implications of both the Causal Principle and the Principle of Sufficient Reason, to list some of the definitions that Leibniz provides of the latter principle – the second of which is tacitly quoted by Diderot in his entry on Leibnizianism in the *Encyclopédie*:

There are two first principles of all reasonings, the principle of contradiction [...] and the principle that a reason must be given, *i.e.*, that every true proposition which is not known *per se*, has an *a priori* proof, or that a reason can be given for every truth.<sup>153</sup>

[le principe] de la raison suffisante [est celui] en vertu duquel nous considérons qu'aucun fait ne saurait se trouver vrai ou existant, aucune énonciation véritable, sans qu'il y ait une raison suffisante, pourquoi il en soit ainsi et non pas autrement, *quoique ces raisons le plus souvent ne puissent point nous être connues*.<sup>154</sup>

[le Principe de la Raison Suffisante est le] grand principe [...] qui porte que rien ne se fait sans raison suffisante, c'est-à-dire que rien n'arrive, sans qu'il soit possible à celui qui connaîtrait assez les choses, de rendre une Raison qui suffit pour déterminer, pourquoi il en est ainsi, et non pas autrement.<sup>155</sup>

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<sup>152</sup> For a discussion of Emilie du Châtelet's version of the Principle of Sufficient Reason see Paul Veatch Moriarty, 'The Principle of Sufficient Reason in Du Châtelet's *Institutions*', *SVEC*, 2006:01, p.203-225 and Ruggero Sciuto, 'Emilie Du Châtelet and the Three Leibnizian Versions of the Principle of Sufficient Reason', in Ruth Hagenruber (ed.), *Époque Émilienne. Philosophy and Science 1700-1750*, Berlin-Heidelberg: Springer (forthcoming, 2019).

<sup>153</sup> Gottfried Wilhelm Leibniz, *Specimen Inventorum de Admirandis Naturae Generalis Arcanis*, in Leibniz, *Philosophischen Schriften*, vol.7, p.309. The English translation can be read in Philip P. Wiener (ed.), *Leibniz Selections*, New York: Charles Scribner's Sons, 1951, p.94.

<sup>154</sup> Gottfried Wilhelm Leibniz, *Monadologie*, in Leibniz, *Philosophischen Schriften*, vol.6, p.612.

<sup>155</sup> Gottfried Wilhelm Leibniz, *Principes de la Nature et de la Grâce*, in Leibniz, *Philosophischen Schriften*, vol.6, p.602.

## The Causal Principle, the Principle of Sufficient Reason, and the Cosmological Argument

Arguments for the existence of God can be divided into *a posteriori* and *a priori* arguments.<sup>156</sup> *A posteriori* arguments purport to demonstrate the existence of God starting from some premise about the actual world that is known by means of experience.<sup>157</sup> Contrastingly, *a priori* arguments for the existence of God, such as the Ontological Argument, are built on principles ‘that can be known independently of our experience of the world’.<sup>158</sup> This bipartition is not a recent one and is early evidenced, for example, in d’Alembert’s article ‘Démonstration à posteriori’:

démontrer qu’il y a un Dieu, en faisant attention à la nature de l’Etre infiniment parfait et à ses attributs, c’est démontrer l’existence de Dieu *à priori*, ou par des raisonnements tirés de la nature même du sujet: démontrer l’existence de Dieu par l’existence du monde et de l’univers, c’est la démontrer *à posteriori*; cette dernière espèce de preuve est celle qui est le plus généralement admise.<sup>159</sup>

Crucially, one of the strongest *a posteriori* arguments for the existence of God, known as the Cosmological Argument, takes as its foundation the Causal Principle, the Principle of Sufficient Reason, or a combination of the two. In one of its many formulations, the Cosmological Argument based on the Causal Principle takes as its starting point the allegedly empirically observable premiss that (1) every thing that begins to exist must have a cause (Causal Principle); proceeds to argue that (2) nothing that begins to exist can be the cause of its own coming into existence; demonstrates (3) the existence of a causal chain; proves that (4) an infinite chain of causes is impossible; demonstrates thereby (5) the existence of a First Cause that accounts for the existence of the causal chain; and finally shows that (6) this First

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<sup>156</sup> See William L. Rowe, *The Cosmological Argument*, Princeton: Princeton University Press, 1975, p.3-4.

<sup>157</sup> Rowe, *Cosmological Argument*, p.3-4.

<sup>158</sup> William Lane Craig, *The Cosmological Argument from Plato to Leibniz*, London: Macmillan, 1980, p.3.

<sup>159</sup> *Encyclopédie*, 4:823.

Cause is endowed with all the chief attributes of the theistic God, e.g. omnipotence, omnibenevolence, omniscience, infinity, etc.<sup>160</sup> Importantly, the fourth point in this process can be affirmed, without needing to be, with reference to the Principle of Sufficient Reason, for the latter principle, as outlined above, is normally understood as being incompatible with infinite regress. A famous example of the Cosmological Argument that rests on the Causal Principle is provided by Aristotle in Book 8 of the *Physics*, and neatly summarised by Diderot in his article ‘Péripatécienne Philosophie, ou Philosophie d’Aristote’.<sup>161</sup>

Tout ce qui se meut est mû par un autre qui agit ou au-dedans ou au-dehors du mobile.

Mais comme *ce progrès à l’infini est impossible*; il faut donc arriver à un premier moteur, qui ne prenne son mouvement de rien, et qui soit l’origine de tout mouvement.

Ce premier moteur est immobile, car s’il se mouvait, ce serait par un autre; car rien ne se meut de soi. Il est éternel [...]. Il est indivisible et sans quantité. Il est infini [...]. Sa puissance est illimitée.<sup>162</sup>

Although Diderot does not explain Aristotle’s rejection of an infinite regress of causes, the Stagirite himself is clearer on this point and argues that an infinite series of movers must be rejected because it is impossible ‘that one thing moves with an infinite motion in a finite time’.<sup>163</sup> Thus, the Principle of Sufficient Reason plays no role in Aristotle’s version of the Cosmological Argument.

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<sup>160</sup> Rowe, *Cosmological Argument*, p.5.

<sup>161</sup> Aristotle, *Physica*, VIII.1-6, 250b5-260a15 – quoted in Craig, *Cosmological Argument*, p.43. Aristotle’s argument for the unmoved mover is also discussed by Claude Yvon in the article ‘Aristotélisme’ (*Encyclopédie*, 1:659).

<sup>162</sup> *Encyclopédie*, 12:367. Italics mine. Diderot also discusses the Aristotelian argument for the unmoved mover in his entry ‘Sarrasins ou Arabes, philosophie des’ (*Encyclopédie*, 14:663): ‘[Selon] Thophail [...] le mouvement est l’acte de la puissance, en tant que puissance. *Le progrès du mouvement n’est point infini*; il se résout à un premier moteur immobile, un, éternel, invisible, sans quantité et sans matière. [...] Cette cause première du mouvement ne change point. Elle est par elle-même. C’est Dieu, être éternel, immobile, insensible, indivisible, infiniment puissant’.

<sup>163</sup> Craig, *Cosmological Argument*, p.22.

In the Western tradition, the most important Cosmological Argument for the existence of God was Aquinas's *Secunda Via* in the *Summa Theologica*:

The second way is from the nature of the efficient cause. In the world of sense we find there is an order of efficient causes. There is no case known (neither is it, indeed, possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity [...]. Therefore it is necessary to admit a first efficient cause, to which everyone gives the name of God.<sup>164</sup>

Unlike Aristotle, Aquinas does not provide a clear explanation of what prompted him to reject infinite regress. William Rowe maintains that he may have based his rejection of infinite regress on the distinction between essentially ordered series of causes and accidental series of causes, a distinction that is certainly evident in Aquinas's writings, but which is much more clearly discussed in the works of Duns Scotus, for example.<sup>165</sup> Contrary to Rowe, Alexander Pruss contends there is reason to believe that Aquinas sees the impossibility of infinite regress as resting on the Principle of Sufficient Reason.<sup>166</sup>

In the seventeenth and eighteenth centuries, versions of the Cosmological Argument entirely based on the Principle of Sufficient Reason began to flourish.<sup>167</sup> One such argument appears in Leibniz's *Principes de la Nature et de la Grâce*.<sup>168</sup> This argument begins by introducing a distinction between contingent and necessary beings: that is, between those beings whose non-existence would not imply a contradiction and those whose non-existence

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<sup>164</sup> Aquinas, *Summa Theologica*, p.60 (I,ii,3). For more on Aquinas's *Secunda Via* see Christopher F. J. Martin, *Thomas Aquinas. God and Explanation*, Edinburgh: Edinburgh University Press, 1997, p.146.

<sup>165</sup> Rowe, *Cosmological Argument*, p.22-39.

<sup>166</sup> Pruss, *Principle*, p.26.

<sup>167</sup> One such argument can be found in the entry 'Fatalité' (*Encyclopédie*, 6:422-423).

<sup>168</sup> For more on Leibniz and the Cosmological Argument, see David Blumenfeld, 'Leibniz's Ontological and Cosmological Arguments', in Nicholas Jolley (ed.), *The Cambridge Companion to Leibniz*, Cambridge: Cambridge University Press, 1995, p.353-381. Samuel Clarke also puts forward a Cosmological Argument entirely based on the Principle of Sufficient Reason (see Rowe, *Cosmological Argument*, p.60-114).

would imply a contradiction.<sup>169</sup> From this premiss, Leibniz moves on to claim that the existence of contingent beings can only be *explained* with reference to a necessary being that has in itself the *reason* of its own existence.<sup>170</sup> As is also the case with Aristotle's argument for the unmoved mover, Leibniz's Cosmological Argument is discussed by Diderot in the *Encyclopédie*:

On peut découvrir la raison suffisante dans les choses contingentes ou de fait. Elle est dans l'enchaînement universel: il y a une résolution ou analyse successive de *causes ou raisons* particulières, à d'autres *raisons ou causes* particulières, et ainsi de suite. Cependant toute cette suite ne nous menant que de contingence en contingence, et la dernière n'exigeant pas moins une analyse progressive que la première, on ne peut s'arrêter: pour arriver à la certitude, il faut tenir la raison suffisante ou dernière, fût-elle à l'infini. Mais où est cette raison suffisante et dernière, sinon dans quelque substance nécessaire, source et principe de toutes mutations? Et quelle est cette substance, terme dernier de la série, sinon Dieu? Dieu est donc, et il suffit.<sup>171</sup>

### Hume's criticisms of the Cosmological Argument

Besides attacking the Causal Principle, Hume also fulminates against the Cosmological Argument. In his *Dialogues Concerning Natural Religion*, the fictional character Cleanthes replies to Demea's presentation of the Cosmological Argument in the following way:

In [a] chain [...], or succession of objects, each part is caused by that which preceded it, and causes that which succeeds it. Where then is the difficulty? But the WHOLE, you say, wants a cause. I answer, that the uniting of these parts into a whole [...] is performed merely by an

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<sup>169</sup> Contingent and necessary beings are defined in the *Encyclopédie* as those 'dont l'opposé n'implique aucune contradiction' and those 'dont le contraire est impossible et implique contradiction'. See the entry 'Contingent' by Formey and the anonymous article 'Nécessaire', respectively *Encyclopédie*, 4:114 and 11:68.

<sup>170</sup> Leibniz, *Principes de la Nature*, p.602.

<sup>171</sup> *Encyclopédie*, 'Leibnitzianisme ou Philosophie de Leibnitz', 9:375. Italics mine.

arbitrary act of the mind, and has no influence on the nature of things. Did I show you the particular causes of each individual in a collection of twenty particles of matter, I should think it very unreasonable, should you afterwards ask me, what was the cause of the whole twenty. That is sufficiently *explained* in explaining the cause of the parts.<sup>172</sup>

In short, Hume espouses that, so long as every member of a given set has an explanation, no reason for the existence of the set as a whole is required: the existence of the set itself is sufficiently explained when one provides an explanation for each of its members.<sup>173</sup> This argument has come to be known as ‘the Hume-Edwards argument’, from the names of the two major philosophers who put it forward: Hume and the Austrian-American philosopher Paul Edwards.<sup>174</sup> It clearly represents a major blow to the Cosmological Argument inasmuch as it renders it unnecessary to postulate the existence of a divine entity in order to explain the existence of the universe as a whole.<sup>175</sup> Richard Gale and Alexander Pruss have, however, recently contested the correctness of the Hume-Edwards principle and argued that to provide an explanation for each element of a set is not always to provide a reason for the set itself.<sup>176</sup> Thus, for example, if 300 dix-huitiémistes were to be found at St Hugh’s College, Oxford, at the beginning of January 2017, to explain why each of them arrived there would not constitute a satisfactory explanation as to why they were *all* there at that particular time. Instead, one would need to say that a conference of the British Society for Eighteenth-Century Studies was taking place at St Hugh’s College, Oxford, from 4 to 6 January 2017 in order to provide a reason that actually qualifies as an explanation.

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<sup>172</sup> David Hume, *Dialogues Concerning Natural Religion*, ed. by Stanley Tweyman, London and New York: Routledge, 1991, p.150. For a discussion of Hume’s refutation of the Cosmological Argument see Joseph K. Campbell, ‘Hume’s Refutation of the Cosmological Argument’, *International Journal for Philosophy of Religion*, 40 (1996), p.159-173.

<sup>173</sup> See Pruss, *Principle*, p.41-42; Alexander R. Pruss, ‘The Hume-Edwards Principle and the Cosmological Argument’, *International Journal for Philosophy of Religion*, 43, 3 (1998), p.149-165; and William L. Rowe, ‘Two Criticisms of the Cosmological Argument’, *The Monist*, 54, 3 (1970), p.441-459.

<sup>174</sup> Paul Edwards, ‘The Cosmological Argument’, in Donald R. Burrill (ed.), *The Cosmological Argument*, New York: Doubleday, 1967.

<sup>175</sup> Pruss, ‘Hume-Edwards Principle’.

<sup>176</sup> See Richard M. Gale, *On the Nature and Existence of God*, Cambridge: Cambridge University Press, 1991, p.254-255; and Pruss, *Principle*, p.41-42.

## The Nihil ex Nihilo Principle

The third and last principle pertinent here is the Nihil ex Nihilo Principle, which maintains that no entity comes into existence out of nothing. As Jean Pestré and d'Alembert explain in the entry 'Cabale': 'De rien il ne se fait rien, c'est-à-dire qu'aucune chose ne peut être tirée du néant'.<sup>177</sup> The importance of the Nihil ex Nihilo Principle to the present discussion is that this principle can be reformulated to state positively that 'all that comes into existence must do so from an existing thing', that is, from a pre-existing cause. Thus, it overlaps in part with the Causal Principle.<sup>178</sup> Furthermore, many critics have claimed that the Nihil ex Nihilo Principle also has significant affinities with the Principle of Sufficient Reason.<sup>179</sup> Nevertheless, Pruss has pointed out that the Nihil ex Nihilo Principle 'is not in the first instance a principle about explanation or causation' and that, in one of its cosmological forms, it can be interpreted to mean only that 'a universe with an empty past will not have a nonempty present or future'.<sup>180</sup>

In the article 'Incréé', Diderot argues that ancient philosophers were unanimous in accepting the Nihil ex Nihilo Principle.<sup>181</sup> Consistently, in *Encyclopédie* articles on varied topics, he ascribes the claim that 'il ne se fait rien de rien' to Anaxagoras, Epicharmus of Kos, Epicurus, Heraclitus, Parmenides, Plato, and Zoroaster.<sup>182</sup> Among the aforementioned philosophers, Parmenides devotes particular attention to the Nihil ex Nihilo Principle and puts forward three different arguments that purport to demonstrate it. As already discussed, one of

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<sup>177</sup> *Encyclopédie*, 2:475.

<sup>178</sup> As for the similarities between Nihil ex Nihilo Principle and Causal Principle see Pruss, *Principle*, p.58.

<sup>179</sup> See Pruss, *Principle*, p.21, and Melamed and Lin, 'Principle of Sufficient Reason'.

<sup>180</sup> Pruss, *Principle*, p.21. Pruss, however, does not subscribe to this stance; he only puts it forward in order to reject it.

<sup>181</sup> *Encyclopédie*, 8:657: 'Tous les anciens philosophes ont dit, rien ne se fait de rien; ainsi la matière était, selon eux, *incrée*, éternelle'. The same claim appears in d'Holbach, *Christianisme dévoilé*, p.27.

<sup>182</sup> See, respectively, *Encyclopédie*, 'Ionique, Secte', 8:878; 'Pythagorisme ou Philosophie de Pythagore', 13:622; 'Epicurisme ou Epicurisme', 5:780; 'Héraclitisme', 8:141; 'Parménidéenne, Philosophie', 12:70; 'Platonisme ou Philosophie de Platon', 12:747; and 'Perses, Philosophie des', 12:423.

these arguments is founded on the Principle of Sufficient Reason, although the latter is normally regarded as less primitive than the Nihil ex Nihilo Principle.<sup>183</sup> The Nihil ex Nihilo Principle was commonly rejected by Christian philosophers, who thought that God had created the world *ex nihilo*.<sup>184</sup> This is reflected in Johann Heinrich Samuel Formey's entry 'Création' in the *Encyclopédie*, in which the Nihil ex Nihilo Principle is vehemently attacked and creationism defended:

Le fameux axiome, *rien ne se fait de rien*, est vrai en un certain sens; mais il est entièrement faux dans celui auquel les athées le prennent. [...] Puisqu'il est certain que les êtres imparfaits peuvent eux-mêmes produire quelque chose, comme de nouvelles pensées, de nouveaux mouvements et de nouvelles modifications dans les corps, il est raisonnable de croire que l'Être souverainement parfait va plus loin, et qu'il peut produire des substances. On a même lieu de croire qu'il est aussi aisé à Dieu de faire un monde entier, qu'à nous de remuer le doigt. [...] La création de rien est donc conforme à la raison [...].<sup>185</sup>

Although often attacked by Christian thinkers, the Nihil ex Nihilo Principle was upheld by a number of early modern philosophers. An example can be found in Spinoza's *Principia Philosophiæ Cartesianæ*. In this critical exposition of the philosophy of Descartes, the Dutch philosopher writes that 'no actually existing thing and no actually existing perfection of a thing can have nothing, or a thing not existing, as the cause of its existence'.<sup>186</sup> This is recorded in the anonymous *Encyclopédie* article 'Spinoza, philosophie de'.<sup>187</sup>

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<sup>183</sup> Pruss, *Principle*, p.20-21.

<sup>184</sup> See, for example, Aquinas, *Compendium Theologiæ*, p.63-69.

<sup>185</sup> *Encyclopédie*, 4:443-444. Diderot touches on *ex nihilo* creation in his discussion of the philosophy of Christian Thomasius (*Encyclopédie*, 16:284): '[D'après Thomasius] les créatures ont toutes été faites de rien, hors de Dieu. [...] La matière première a été créée; Dieu l'a produite de rien; elle ne peut lui être coéternelle'.

<sup>186</sup> Baruch Spinoza, *Descartes's 'Principles of Philosophy'*, in Baruch Spinoza, *Collected Works*, ed. by Edwin Curley, Princeton: Princeton University Press, 1985, 2 vols, vol.1, p.244 (p1a7). The Latin original can be read in Baruch Spinoza, *Renati Des Cartes Principiorum Philosophiæ More Geometrico Demonstratæ*, in Baruch Spinoza, *Opera*, ed. by Carl Gebhardt, Heidelberg: Carl Winters, 1925, 4 vols, vol.1, p.155.

<sup>187</sup> *Encyclopédie*, 15:463.

## Diderot, d'Holbach, and the Nihil ex Nihilo Principle

Considering the theological repercussions of both the Causal Principle and the Principle of Sufficient Reason, it might be expected that both Diderot and d'Holbach would reject them. This supposition would only increase in plausibility if one were to accept Yvon Belaval's and William Barber's claim about the utmost aversion of the French *Lumières* to Scholasticism and Leibnizianism.<sup>188</sup> Nevertheless, as will be shown below, d'Holbach and Diderot fully endorse both principles. In advance of this discussion, first let us focus on the Nihil ex Nihilo Principle, which is today generally regarded as the least controversial of the three principles discussed in this chapter. That Diderot commits to the Nihil ex Nihilo Principle is documented, for example, in a passage in the 'Entretien entre d'Alembert et Diderot':

Diderot: [...] permettez-moi de vous faire l'histoire d'un des plus grands géomètres de l'Europe. Qu'était-ce d'abord que cet être merveilleux? rien.

d'Alembert: Comment rien? On ne fait rien de rien.

Diderot: Vous prenez les mots trop à la lettre. Je veux dire qu'avant que sa mère [...] eût atteint l'âge de puberté, avant que le militaire La Touche fût adolescent, les molécules qui devaient former les premiers rudiments de mon géomètre étaient éparées dans les jeunes et frêles machines de l'un et de l'autre, [...] jusqu'à ce qu'enfin elles se rendissent dans les réservoirs destinés à leur coalition.<sup>189</sup>

The fact that the Nihil ex Nihilo Principle is enunciated by d'Alembert should not deceive anyone, for Diderot's prompt response, which qualifies the word 'rien' previously employed

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<sup>188</sup> Belaval, *Etudes leibniziennes*, p.220. On Diderot and Leibniz see William Henry Barber, *Leibniz in France from Arnauld to Voltaire. A Study in French Reactions to Leibnizianism, 1670-1760*, Oxford: Clarendon Press, 1955, p.174: 'Of the major French literary figures of the eighteenth century, Voltaire alone was seriously concerned with Leibniz's ideas and involved in the controversies which they occasioned. Diderot's references to them are few and largely hostile'. This position has recently been challenged. See Christian Leduc, François Pépin, Anne-Lise Rey, and Mitia Rioux-Beaulne (eds.), *Leibniz et Diderot: rencontres et transformations*, Montréal: Les Presses de l'Université de Montréal/Paris: VRIN, 2015; and Claire Fauvergue, *Diderot, lecteur et interprète de Leibniz*, Paris: Champion, 2006.

<sup>189</sup> *Rêve*, p.95-96.

for its rhetorical strength, makes it clear that he agrees with d'Alembert's rejoinder. In fact, the materialistic theory that Diderot then enunciates, according to which matter undergoes a process of constant transformation, without ever being created or destroyed, relies on the Nihil ex Nihilo Principle, and d'Alembert's comment is only there to show that this theory is perfectly in keeping with, or even logically follows from, received scientific knowledge. As for d'Holbach, his sympathy for the Nihil ex Nihilo Principle is unambiguously demonstrated by his statement in the *Système de la nature* that, 'si par la nature nous entendons ce qu'elle est véritablement, [...] nous trouverons que rien ne se fait de rien'.<sup>190</sup>

Unlike Parmenides, Diderot and d'Holbach do not provide any arguments in favour of the Nihil ex Nihilo Principle. Instead, they simply present it as an obvious truth, whose opposite would be entirely inconceivable. In the *Système*, for example, d'Holbach rejects creationism precisely on the basis of the utter impossibility of any infringement of the Nihil ex Nihilo Principle: 'l'éduction du néant [...] n'est qu'un mot qui [...] ne présente aucun sens auquel l'esprit puisse s'arrêter'.<sup>191</sup> In the article 'Néant, rien, ou négation', Diderot extends this line of thought, claiming that the word 'nothing' itself is completely devoid of meaning:

suivant les philosophes scholastiques, [le néant] est une chose qui n'a point d'être réel, et qui ne se conçoit et ne se nomme que par une *négation*. On voit des gens qui se plaignent qu'après tous les efforts imaginables pour concevoir le néant, ils n'en peuvent venir à bout. Qu'est-ce qui a précédé la création du monde? Qu'est-ce qui en tenait la place? *Rien*. Mais le moyen de se représenter ce *rien*? Il est plus aisé de se représenter une matière éternelle.<sup>192</sup>

Whilst Diderot and d'Holbach may not be overly clear in their outline of the possible foundations of the Nihil ex Nihilo Principle, their reasons for accepting it are evident. One of the two main reasons behind Diderot's and d'Holbach's acceptance of this principle has to do

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<sup>190</sup> *Système*, p.494. See also d'Holbach, *Théologie portative*, p.522 and 570.

<sup>191</sup> *Système*, p.181.

<sup>192</sup> *Encyclopédie*, 11:66.

with their strong belief in the eternity of matter: since matter cannot have been produced out of nothing, matter must have always existed.<sup>193</sup> Just how closely connected in Diderot's mind are the Nihil ex Nihilo Principle and the affirmation of the eternity of matter plainly shows in a passage in his article 'Epicurisme ou Epicurisme', in which the simple juxtaposition of these two notions suggests the existence of so strong a logical connection such as few linking phrases could have conveyed: 'Il ne s'est rien fait de rien. L'Univers a toujours été, et sera toujours'.<sup>194</sup> The second reason that prompted d'Holbach and Diderot to commit to the Nihil ex Nihilo Principle is theological in nature. As already remarked, the received idea amongst Christian philosophers was that God pre-existed matter and created the world out of nothing. To claim that nothing can come out of nothing is therefore to reject one of the fundamental principles of Christian theology. This is confirmed by d'Holbach who, insisting again on the inconceivability of a violation of the Nihil ex Nihilo Principle, writes:

à quoi bon recourir à l'opération inconcevable et chimérique que l'on a voulu désigner par le mot de *création*[?] Concevons-nous qu'un être immatériel ait pu tirer la matière de son propre fond? Si la création est l'*éducation du néant*, ne faut-il pas en conclure que le dieu qui l'a tirée de son propre fond l'a tirée du néant et n'est lui-même que le néant? Ceux qui nous parlent sans cesse de cet acte de la toute-puissance divine par lequel une masse infinie de la matière a tout d'un coup été substituée au néant, entendent-ils bien ce qu'ils nous disent?<sup>195</sup>

It is clear that the two reasons leading Diderot and d'Holbach to endorse the Nihil ex Nihilo Principle are inextricably linked: if one accepts the possibility that matter and God are co-eternal and that God has therefore created the world using pre-existing matter, to claim that matter has always existed is in fact to render the figure of a creator entirely redundant. This is evident, for instance, from a passage in Diderot's article 'Matérialistes':

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<sup>193</sup> See Maria Giovanna di Domenico, *Natura, uomo, Dio: Saggio sull'antropologia di d'Holbach*, Naples: Loffredo, 1994, p.32.

<sup>194</sup> *Encyclopédie*, 5:779.

<sup>195</sup> *Système*, p.494-495.

L'ancienne église appelait *matérialistes* ceux qui, prévenus par la philosophie qu'il ne se fait rien de rien, recouraient à une matière éternelle [...], au lieu de s'en tenir au système de la création, qui n'admet que Dieu seul, comme cause unique de l'existence de toutes choses.<sup>196</sup>

Thus, the Nihil ex Nihilo Principle is at the very heart of the idea, shared by both d'Holbach and Diderot, that nothing can either be created or annihilated, and that everything simply undergoes a never-ending process of change.<sup>197</sup>

### Diderot, d'Holbach, and the Causal Principle

That d'Holbach and Diderot endorse the Nihil ex Nihilo Principle is of paramount importance to the present discussion because, as Alexander Pruss notes, this principle can be reformulated to state positively that all that comes into existence must do so from an existing thing, which is close to what the Causal Principle maintains. The link between the Nihil ex Nihilo Principle and the Principle of Sufficient Reason is equally close, for there is a consensus that neither the coming into existence of a thing, nor its coming into existence at a given time or in a given place can reasonably be explained with reference to a preceding non-existing thing.<sup>198</sup> However, d'Holbach and Diderot's acceptance of the Nihil ex Nihilo Principle does not, in itself, automatically imply that they also endorse either the Causal Principle or the Principle of Sufficient Reason: as previously mentioned, the Nihil ex Nihilo Principle is not in the first instance a principle about either causation or explanation.

Even so, the fact that both d'Holbach and Diderot endorse the Causal Principle is documented in several passages of their works. Various formulations, it recurs almost

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<sup>196</sup> *Encyclopédie*, 10:188.

<sup>197</sup> On Diderot's and d'Holbach's attitude towards change see Chapter V.

<sup>198</sup> See Pruss, *Principle*, p.21.

obsessively in the works of d'Holbach. In Chapter I.11 of the *Système de la nature*, for example, d'Holbach writes that 'dans une nature où tout est lié, il n'existe point d'effet sans cause'.<sup>199</sup> The same claim then reappears in Chapter I.5, where the phrase 'cause suffisante' ('il n'y a ni hasard ni rien de fortuit dans cette nature, où il n'est point d'effet sans cause suffisante') suggests that d'Holbach sees the Causal Principle and the Principle of Sufficient Reason as overlapping to some extent – an idea to which the final section of this chapter will return.<sup>200</sup> In Chapter I.4, the analytical proposition 'il ne peut y avoir d'effet sans cause' is coupled in a perfectly symmetrical sentence with the seemingly analytical statement that 'toute cause produit un effet', and in *Le Bon Sens*, the Baron treats the claim that an effect may be produced without a cause as the paradoxical claim *par excellence*: 'L'idée de Dieu', he writes, 'n'est-elle pas aussi impossible que des effets sans cause?'<sup>201</sup>

Although such assertive formulations are admittedly rare in Diderot's writings, the idea that a cause is necessary for the production of every event is clearly detectable.<sup>202</sup> In the *Essais sur la peinture*, for instance, it is claimed that 'la nature ne fait rien d'incorrect. Toute forme belle ou laide a sa cause'.<sup>203</sup> Likewise, in the *Pensées sur l'interprétation de la nature*, Diderot writes: 'Supposez une molécule déplacée, elle ne s'est point déplacée d'elle-même; la cause de son déplacement a une autre cause; celle-ci, une autre, et ainsi de suite, sans qu'on puisse trouver de limites naturelles aux causes dans la durée qui a précédé'.<sup>204</sup> As is also the case with d'Holbach, Diderot believes that the Causal Principle holds true not only in the physical world but also in the moral one.<sup>205</sup> Thus, in the *Eléments de physiologie*, Diderot

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<sup>199</sup> *Système*, p.299

<sup>200</sup> *Système*, p.206.

<sup>201</sup> *Système*, p.195 and *Bon Sens*, p.224. See also *Bon Sens*, p.236.

<sup>202</sup> This is also accepted by Gerhardt Stenger (see *Nature et liberté*, p.236).

<sup>203</sup> Denis Diderot, *Essais sur la peinture*, ed. by Georges May, in DPV, vol.14, p.343. This passage is analysed in Colas Duflo, 'La Nature ne fait rien d'incorrect. Forme artistique et forme naturelle chez Diderot', in Annie Ibrahim (ed.), *Diderot et la question de la forme*, Paris: Presses Universitaires de France, 1999, p.76-77.

<sup>204</sup> Denis Diderot, *Pensées sur l'interprétation de la nature*, ed. by Jean Varloot, in DPV, vol.9, p.1-111 (hereafter, *Interprétation*), p.88.

<sup>205</sup> See Chapter IV.

writes: ‘La volonté est l’effet d’une cause qui la meut et la détermine; un acte de volonté sans cause est une chimère’.<sup>206</sup> Commenting on a passage of Hemsterhuis’s *Lettre sur l’homme* in which the Dutch philosopher discusses the role that ‘velléité’ plays in sensitive knowledge, Diderot similarly writes: ‘Je ne sais ce que vous entendez par *velléité*. Il semble supposer en moi, un acte sans cause. Ce que je ne saurais admettre’.<sup>207</sup>

As the passage from the *Pensées sur l’interprétation de la nature* quoted above shows, Diderot follows Aristotle, Aquinas, and Hobbes in deriving from the Causal Principle the idea that all events are causally connected in a chain. Another passage in the same work informs us that, in keeping with his endorsement of the Nihil ex Nihilo Principle, he believes the causal chain to be infinite: ‘A ne consulter que les vaines conjectures de la philosophie et la faible lumière de notre raison, on croirait que la chaîne des causes n’a point eu de commencement, et que celle des effets n’aura point de fin’.<sup>208</sup> The idea of the causal chain is most prominent in *Jacques le fataliste et son maître*, which can be interpreted as a journey along the uninterrupted chain of events that connects Jacques’s injury at Fontenoy to his falling in love:

Jacques s’écria: Que le Diable emporte le cabaretier et son cabaret!

Le maître: Pourquoi donner au Diable son prochain? Cela n’est pas chrétien.

Jacques: C’est que tandis que je m’enivre de son mauvais vin, j’oublie de mener nos chevaux à l’abreuvoir. Mon père s’en aperçoit, il se fâche. Je hoche de la tête; il prend un bâton et m’en frotte un peu durement les épaules. Un régiment passait pour aller au camp devant Fontenoy, de dépit je m’ enrôle. Nous arrivons, la bataille se donne....

Le maître: Et tu reçois la balle à ton adresse.

Jacques: Vous l’avez deviné, un coup de feu au genou; et Dieu sait les bonnes et mauvaises aventures amenées par ce coup de feu. Elles se tiennent ni plus ni moins que les chaînons

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<sup>206</sup> *Physiologie*, p.483.

<sup>207</sup> *Hemsterhuis*, p.257.

<sup>208</sup> *Interprétation*, p.88.

d'une gourmète. Sans ce coup de feu, par exemple, je crois que je n'aurais été amoureux de ma vie, ni boiteux.<sup>209</sup>

D'Holbach also believes that all events are linked in an endless causal chain and expresses his belief repeatedly in the *Système* and elsewhere: 'tout est lié dans l'univers; il n'est lui-même qu'une chaîne immense de causes et d'effets qui sans cesse découlent les uns des autres'.<sup>210</sup> Although Diderot and d'Holbach arguably inherited the notion of the causal chain from Hobbes, the additional influence of Leibniz may have strengthened their belief in the concatenation of all events: one of the most famous and celebrated points of Leibniz's philosophy was that nature never makes leaps and that all change is produced by degrees. This principle, usually referred to as Leibniz's 'principium continuitatis', is expounded upon in the entry 'Continuité, loi de', jointly authored by Formey and d'Alembert, and is introduced with the following explanation in Emilie Du Châtelet's *Institutions de physique*: '[la loi de continuité] nous enseigne que rien ne se fait par saut dans la nature, et qu'un être ne passe point d'un état à un autre, sans passer par tous les différents états qu'on peut concevoir entre eux'.<sup>211</sup> This principle is often encountered in the works of both Diderot and d'Holbach, where it is normally enunciated as 'rien ne se fait par saut (dans la nature)'.<sup>212</sup> It informs for example the *Rêve de d'Alembert*, in which Diderot advances the claim that the supposed gap between human beings and beasts, like the one between human beings and 'monsters', can in fact be bridged.

When applied to the domain of causes, Leibniz's *principium continuitatis* implies precisely that all events are connected in an uninterrupted series and that no event is isolated.

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<sup>209</sup> *Jacques*, p.23-24. For more on the theme of the causal chain in *Jacques le fataliste*, see Georges May, 'Le Maître, la chaîne et le chien dans *Jacques le fataliste*', *Cahiers de l'Association Internationale des Etudes Françaises*, 13, 1 (1961), p.269-282.

<sup>210</sup> *Système*, p.195.

<sup>211</sup> Emilie Du Châtelet, *Institutions de physique*, Paris: Prault, 1740, p.30. *Encyclopédie*, 4:116-117.

<sup>212</sup> See, for instance, Diderot's *Physiologie*, p.483; *Helvétius*, p.626; *Hemsterhuis*, p.309; and *Salon 1767*, p.74: 'Il faut que les lois inviolables de nature s'exécutent; c'est que la nature ne fait rien par saut, et que cela n'est pas moins vrai dans les arts que dans l'univers'.

Thus d'Holbach writes: 'nous sommes forcés d'avouer qu'il ne peut y avoir d'énergie indépendante, de cause isolée, d'action détachée dans une nature où tous les êtres agissent sans interruption les uns sur les autres et qui n'est elle-même qu'un cercle éternel de mouvements donnés et reçus suivant des lois nécessaires'.<sup>213</sup> Likewise, in the *Salon de 1767* Diderot claims that 'dans la science, ainsi que dans la nature, tout tient; [...] une idée stérile, et un phénomène isolé, sont deux impossibilités'.<sup>214</sup>

Diderot and d'Holbach's belief that all events are connected in a causal chain has at least three major consequences. First of all, it prompts them to reconsider even the most seemingly insignificant events and endow them with great importance.<sup>215</sup> Diderot asserts that it is impossible to follow the chain of events triggered by the fall of a single grain of sand into the ocean, and that an atom can set the whole world into motion.<sup>216</sup> This example is a common one in the works of Diderot and d'Holbach and reappears, for example, in the *Observations sur Hemsterhuis* and the *Système de la nature*.<sup>217</sup> By insisting on the importance of apparently trivial events, Diderot and d'Holbach join a long philosophical tradition most famously expressed by Pascal's claim in the *Pensées* that, had Cleopatra's nose been slightly shorter than it was, the whole world would have been different.<sup>218</sup> Indeed, as testified by a newly discovered commentary to Voltaire's *Histoire de la Guerre de 1741* by Adrien Maurice de Noailles, by the 1750s the habit of ascribing the causes of the most important events to small or even barely noticeable influences had become so common amongst philosophers that

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<sup>213</sup> *Système*, p.195-196.

<sup>214</sup> *Salon 1767*, p.222.

<sup>215</sup> See Hobson, 'Jacques le fataliste: the art of the probable', p.157.

<sup>216</sup> Denis Diderot, *Principes philosophiques sur la matière et le mouvement*, ed. by Michel Delon, in DPV, vol.17, (hereafter *Matière et mouvement*), p.16.

<sup>217</sup> See *Hemsterhuis*, p.290 and *Système*, p.221.

<sup>218</sup> Blaise Pascal, *Pensées*, ed. by Philippe Sellier, Paris: Le Livre de Poche, 2000, p.51 ('Pensée XXXI').

it was perceived as one of the defining and most reprehensible features of the ‘style philosophique’ itself.<sup>219</sup>

Secondly, the idea that all events are causally connected in a chain leads Diderot and d’Holbach to reformulate the Causal Principle so that every cause *is* itself an effect. Thus, in the *Observations sur Hemsterhuis*, Diderot writes: ‘Toute cause est un effet me paraît un axiome. Sans quoi la nature agirait à tout moment *per saltum*; ce qui n’est jamais vrai. [...] Il m’est évidemment démontré et par la raison et par l’expérience, que j’ai toujours été passif, avant que d’être actif, effet avant que d’être cause’.<sup>220</sup> Likewise, d’Holbach writes:

Ces éléments que nos sens ne nous montrent jamais purs, étant mis continuellement en action les uns par les autres, toujours agissant et réagissant, toujours se combinant et se séparant, s’attirant et se repoussant, suffisent pour nous expliquer la formation de tous les êtres que nous voyons; leurs mouvements naissent sans interruption les uns des autres; *ils sont alternativement des causes et des effets*. Ils forment ainsi un vaste *cercle de générations et de destructions*, de combinaisons et de décompositions, qui n’a pu avoir de commencement et qui n’aura jamais de fin.<sup>221</sup>

This tendency reaches its climax in the famous harpsichord simile in the *Rêve de d’Alembert*, where Diderot, building on an image already appeared in *La Mettrie*, compares human beings to musical instruments whose keys ‘se pincent souvent elles-mêmes’.<sup>222</sup> This image very interestingly reappears in the *Eléments de physiologie*, as well as the *Système de la nature*, in which d’Holbach writes: ‘L’homme peut être comparé à une harpe sensible qui rend des sons d’elle-même et qui se demande qu’est-ce qui les lui fait rendre; elle ne voit pas qu’en sa qualité d’être sensible, elle se pince elle-même et qu’elle est pincée et rendue sonore par tout

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<sup>219</sup> Paris, Archives du Ministère des Affaires Etrangères, 53MD/525, f.323.

<sup>220</sup> *Hemsterhuis*, p.309.

<sup>221</sup> *Système*, p.183-184.

<sup>222</sup> *Rêve*, p.102.

ce qui la touche'.<sup>223</sup> With their claim that human beings are simultaneously active and passive, the passages just quoted are here of the utmost importance. Some scholars, in fact, refrain from interpreting Diderot as a determinist precisely because of the importance that he occasionally ascribes to the human ability to act, which they interpret as incompatible with determinism. Chapter IV will return to this issue.

Finally, belief in the existence of a causal chain allows both Diderot and d'Holbach to detect imperceptible links amongst the most disparate and distant events. Thus, in the entry 'Hobbisme, ou philosophie d'Hobbes', Diderot perceives a connection between Hobbes's valetudinarianism and the defeat of the *Armada Invencible* in 1588.<sup>224</sup> One of the most prominent inspirers of Diderot's determinism thus eventually becomes an example in his own right! Similarly, in a passage of the *Système de la nature*, which is reminiscent of Voltaire's discussion of the causal chain in the entry 'Chaîne ou génération des événements' quoted above, d'Holbach writes: 'C'est peut-être dans les plaines arides de la Libye que s'amassent les premiers éléments d'un orage, qui porté par les vents viendra vers nous, appesantira notre atmosphère, influera sur le tempérament et sur les passions d'un homme, que ses circonstances mettent à portée d'influer sur beaucoup d'autres, et qui décidera d'après ses volontés du sort de plusieurs nations'.<sup>225</sup> This, in turn, has a somewhat unforeseen consequence, namely, that one cannot easily counter the beliefs of haruspices and fortune-tellers. This appears in the dialogue with which Diderot opens the entry 'Romains,

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<sup>223</sup> *Système*, p.227. See also *Physiologie*, p.514.

<sup>224</sup> *Encyclopédie*, 8:232. I shall return to the historical implications of Diderot and d'Holbach's determinism in Chapter IV.

<sup>225</sup> *Système*, p.196. Voltaire's article first appeared in the *Dictionnaire philosophique* in 1764 and was then partly modified in the early 1770s to include references to Catherine II's war against the Ottoman Empire. For more on Voltaire and d'Holbach, see Robert Sasso, 'Voltaire et le *Système de la nature*', *Revue Internationale de Philosophie*, 32 (1978), p.279-296, and Roland Mortier, 'Ce Maudit *Système de la nature*', in Ulla Kölvig and Christiane Mervaud (eds.), *Voltaire et Ses Combats*, Oxford: Voltaire Foundation, 1997, 2 vols, vol.1, p.697-704.

Philosophie des Etrusques et des Romains’, a very interesting dialogue to which I shall return towards the end of this thesis:

Ne conviens-tu pas que tout est lié dans la nature?... J’en conviens .... Pourquoi donc oses-tu nier qu’il y ait entre la conformation de ce foie et cet événement, un rapport qui m’éclaire? [...] Et voilà, mon philosophe [...] réduit à laisser de côté sa raison, et à prendre le couteau du sacrificateur, ou à abandonner un principe incontestable; c’est que tout tient dans la nature par un enchaînement nécessaire.<sup>226</sup>

### Why do Diderot and d’Holbach endorse the Causal Principle?

Now that it has been established that both Diderot and d’Holbach fully endorse the Causal Principle, the question naturally arises as to why they do so. As made clear above, the Causal Principle is employed as the conceptual basis for myriad versions of the Cosmological Argument, e.g. Aristotle and Aquinas’s, and eighteenth-century thinkers were well aware of its theological implications. Thus, for instance, in the article ‘Dieu’ in the *Encyclopédie*, Formey maintains that atheists cannot possibly endorse the Causal Principle without running into a contradiction because, without God, there would be no cause for the universe’s existence.<sup>227</sup> Interestingly, the same idea can be found in a review of *Jacques le fataliste* that appeared in the *Journal littéraire* in 1796, in which Jean-Marie-Bernard Clément reflects on how Diderot could have written a novel that centres on the idea of a causal chain while at the same time denying that Nature is caused by God: ‘Assurément’, he writes, ‘si Diderot voyait la nature sans maître et sans Dieu, il voyait un effet sans cause’.<sup>228</sup> Not only Diderot and d’Holbach’s contemporaries, but Diderot and d’Holbach themselves were perfectly aware of

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<sup>226</sup> *Encyclopédie*, 14:338.

<sup>227</sup> *Encyclopédie*, 4:976.

<sup>228</sup> De Booy and Freer, ‘*Jacques le fataliste*’, p.149.

the theological implications of the Causal Principle. As already argued, Diderot provides a scheme of Aristotle's Cosmological Argument in the article 'Péripatécienne Philosophie'. That d'Holbach was no less instructed than Diderot in this regard can be seen, for instance, in a passage of the *Système* where he writes that 'en remontant de causes en causes, les mortels ont fini par ne rien voir, et c'est dans cette obscurité qu'ils ont placé leur dieu'.<sup>229</sup> Diderot and d'Holbach are so well acquainted with the 'inconvenient' implications of the Causal Principle that they seek to dodge them. They achieve this by insisting that, contrary to what Yvon and Formey respectively claim in the entries 'Cause' and 'Dieu', infinite regress is not an absurdity, and that the universe ought to be regarded as a cause rather than an effect: 'l'univers', d'Holbach writes in *Le Bon Sens*, 'n'est point un effet: il est la cause de tous les effets'.<sup>230</sup> So, again, why do d'Holbach and Diderot prefer to have recourse to such arguments rather than simply rejecting the Causal Principle, especially since Hume, a personal acquaintance of both thinkers, had already offered valid arguments against it?<sup>231</sup>

There are two possible reasons for this. The first is, quite obviously, that d'Holbach and Diderot need the Causal Principle in order to argue for determinism. That d'Holbach was personally familiar with the line of reasoning that derives determinism from the Causal Principle and Causal Necessitation is clearly visible in the *Système de la nature*, where he claims that 'tous les mouvements ou toutes les façons d'agir des êtres étant dus à quelques causes [which is exactly what the Causal Principle holds] et ces causes ne pouvant agir et se mouvoir que d'après leur façon d'être ou leurs propriétés essentielles [which is what Causal Necessitation prescribes] il faut [...] conclure que tous les phénomènes sont nécessaires': it

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<sup>229</sup> *Système*, p.398.

<sup>230</sup> *Bon Sens*, p.236. On Diderot and infinite regress, see Paolo Quintili, *La Pensée critique de Diderot: matérialisme, science et poésie à l'âge de l'Encyclopédie (1742-1782)*, Paris: Honoré Champion, 2001, p.320.

<sup>231</sup> See Laurence Bongie, 'Hume en France au dix-huitième siècle', doctoral thesis, Sorbonne, 1952; Rudolf Mertz, 'Les Amitiés françaises de Hume et le mouvement des idées', *Revue de Littérature Comparée*, 9 (1929), p.644-710; Ernest Campbell Mossner, 'Hume and the French Men of Letters', *Revue Internationale de Philosophie*, 6, 20 (1952), p.222-235; Michel Malherbe, 'Hume's Reception in France', in Peter Jones (ed.), *The Reception of David Hume in Europe*, London-New York: Thoemmes Continuum, 2005, p.43-97.

must be concluded, in other words, that determinism holds.<sup>232</sup> This line of reasoning is never explicitly formulated by Diderot. This, however, is unsurprising, for on more than one occasion he criticises those philosophers who, in order to prove something, provide their readers with too explicit a line of reasoning: ‘l’appareil de la méthode ressemble à l’échafaud qu’on laisserait toujours subsister après que le bâtiment est élevé. C’est une chose nécessaire pour travailler; mais qu’on ne doit plus apercevoir quand l’ouvrage est fini’.<sup>233</sup>

The second reason is that, besides being a crucial postulate for theologians, the Causal Principle is also a pivotal concept in scientific thought.<sup>234</sup> Theodor Adorno and Max Horkheimer succeed in capturing this ambiguity in their perceptive definition of causation as ‘the latest secular form of the creative principle’.<sup>235</sup> In order to explain a given phenomenon, a *cause* must be provided: if I want to understand why the chocolate pralines are on my windowsill, I must suppose the existence of some cause that accounts for the pralines being there (arguably, someone who does not dislike me, unless they know I am on a diet or the pralines are poisoned). As Aristotle explains, human beings ‘do not think they know a thing till they have grasped the *why* of it (which is to grasp its primary cause)’.<sup>236</sup> This idea, epitomised in the famous formula ‘scire est per causas scire’, was at the core of the Scientific Revolution of the seventeenth century and has survived virtually intact up to the present day.<sup>237</sup> Moreover, human hopes of progress are largely founded on our ability to unveil the hidden causes of natural phenomena. As Francis Bacon puts it in the *Novum Organum*,

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<sup>232</sup> *Système*, p.195.

<sup>233</sup> Denis Diderot, *Réflexions sur le livre De l’Esprit par M. Helvétius*, ed. by Jean Varloot, in DPV, vol.9, p.310-311.

<sup>234</sup> See Meehan, *Efficient Causality*, p.331: ‘the principle of causality [...] remains valid because it appears as a necessary postulate of scientific labors which without the supposition of the real existence of causal relations would be lacking in meaning and guarantee of progress’.

<sup>235</sup> Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*, Stanford: Stanford University Press, 2007, p.3.

<sup>236</sup> Aristotle, *Physica*, II.3, 194b19-20. See Kenneth Clatterbaugh, *The Causation Debate in Modern Philosophy (1637-1739)*, New York-London: Routledge, 1999, p.7, and Nathanael Stein, ‘Causation and explanation in Aristotle’, *Philosophy Compass*, 6, 10 (2011), p.699-707.

<sup>237</sup> The idea that scientific knowledge bears a causal character can be found, for example, in Hobbes. See Cees Leijenhorst, ‘Hobbes’s theory of causality and its Aristotelian background’, *The Monist*, 79, 3 (1996), p.426.

‘human knowledge and power come to the same thing, for ignorance of the cause puts the effect beyond reach’.<sup>238</sup> It is therefore safe to argue that Diderot and d’Holbach endorse the Causal Principle not only because of the critical role it plays in establishing determinism, but also because they conceive of it as an extremely powerful antidote against rampant superstition and fear.<sup>239</sup> I shall return to Diderot and d’Holbach’s crusade against superstition in the next few pages. For the moment, the following excerpt from the *Eléments de physiologie*, in which Diderot describes how the physical symptoms of illness, until identified as such, can lead sufferers into imagining that all sort of terrible things are befalling them, may help to make my point clearer:

L’action des nerfs porte au cerveau [...] les fantaisies les plus bizarres [...]: Il me semble que j’entends crier ma femme: on attaque ma fille [...]; je vois les murs s’ébranler autour de moi: le plafond est prêt à tomber sur ma tête; je me sens pusillanime, je me tâte le pouls, j’y découvre un petit mouvement fébrile: la cause de ma frayeur connue, elle cesse.<sup>240</sup>

Having evoked the subject of knowledge and explanation, it is appropriate at this point to consider whether Diderot and d’Holbach also accept the Principle of Sufficient Reason in addition to the Nihil ex Nihilo Principle and the Causal Principle.

### Diderot, d’Holbach, and the Principle of Sufficient Reason

Explicit endorsements of the Principle of Sufficient Reason are rare in the works of Diderot and d’Holbach. The closest Diderot ever comes is in the ‘Promenade Vernet’ in the *Salon de 1767*, specifically in the ‘Deuxième Site’, where Diderot’s diegetic *alter ego* addresses his

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<sup>238</sup> Francis Bacon, *Novum Organum*, ed. by Graham Rees and Maria Wakely, in *The Oxford Francis Bacon*, Oxford: Oxford University Press, 1996-, vol.11, p.65.

<sup>239</sup> By freeing mankind from fear and superstition, Diderot’s and d’Holbach’s philosophy aims first and foremost to be useful to humankind. On Diderot and ‘la catégorie de l’utile’ see Amor Cherni, *Diderot, l’ordre et le devenir*, Geneva: Droz, 2002, p. 22.

<sup>240</sup> *Physiologie*, p.359.

Cicero thus: ‘Pourquoi l’univers vous paraît-il si bien ordonné; c’est que tout y est enchaîné à sa place, et qu’il n’y a pas un seul être qui n’ait dans sa position, sa production, son effet, une raison suffisante ignorée ou connue’.<sup>241</sup> As for d’Holbach, the formula ‘raison suffisante’, unlike ‘cause suffisante’, does not appear in his writings. This might initially suggest that d’Holbach does not commit to the Principle of Sufficient Reason and that Diderot’s endorsement of it in the ‘Promenade Vernet’ is an unintentional slip of the pen. After all, why would they ever accept a principle without which, as Leibniz writes in the *Théodicée*, it would never be possible to demonstrate the existence of God?<sup>242</sup> Nevertheless, it is my contention here that Diderot and d’Holbach’s commitment to the Principle of Sufficient Reason is pervasive, even if not immediately detectable.

### Causa sive ratio

As implied in the above section on the reasons behind d’Holbach and Diderot’s acceptance of the Causal Principle, the words ‘cause’ and ‘reason’ are in many respects interchangeable. Sarah Broadie remarks that the ambiguity was already present in the Greek word *αἴτιον*.<sup>243</sup> This equivalence of the terms ‘reason’ and ‘cause’ is particularly evident in the writings of Spinoza.<sup>244</sup> In the *Ethica*, the Dutch philosopher makes constant use of the formula ‘*causa sive ratio*’, which had been used by Descartes in his *Réponses aux secondes objections* and

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<sup>241</sup> *Salon 1767*, p.186.

<sup>242</sup> See Gottfried Wilhelm Leibniz, *Essais de Théodicée*, in *Philosophischen Schriften*, vol.6 (hereafter *Théodicée*) p.127. See also Leibniz’s letter to Magnus Wedderkopp of May 1671 in Gottfried Wilhelm Leibniz, *Sämtliche Schriften und Briefe*, Berlin: Akademie Verlag, 1923-, vol.2.1, p.186-187.

<sup>243</sup> Sarah Broadie, ‘The ancient Greeks’, in Helen Beebe, Christopher Hitchcock, and Peter Charles Menzies (eds.), *The Oxford Handbook of Causation*, Oxford: Oxford University Press, 2009, p.27. See also J. R. Hankinson, *Cause and Explanation in Ancient Greek Thought*, Oxford: Clarendon Press, 1998.

<sup>244</sup> See Jon Miller, ‘Spinoza and the Concept of a Law of Nature’, *History of Philosophy Quarterly*, 20, 3 (2003), p.268.

which is normally rendered in English as ‘cause *or* reason’.<sup>245</sup> There has been considerable debate as to the meaning of the conjunction ‘sive’. However, there is now a reasonably wide consensus that, as Samuel Newlands argues, ‘Spinoza’s *sive* should not be read in a disjunctive sense’ but is rather better conceived as a conjunction indicating ‘a mere equivalence’.<sup>246</sup> Thus, for example, when Spinoza writes that ‘si triangulus existit, ratio, *seu* causa dari debet, cur existit’ (where ‘seu’ is nothing other than an apocope of ‘sive’), what he means is simply that a reason/cause must be provided for the existence of any triangle that actually exists.<sup>247</sup> Of particular importance to our present purpose is that the formula ‘causa sive ratio’ also appears in Spinoza’s formulations of the Principle of Sufficient Reason. This phrase is present, for example, in Spinoza’s exposition of the principles of Descartes’s philosophy, where the Dutch philosopher writes that ‘nothing exists of which it cannot be asked, what is the *cause, or reason, [causa, sive ratio]* why it exists’.<sup>248</sup> Confirmation that this accurately represents Spinoza’s stance can be found in the *Ethica*, where he states: ‘to each thing there must be ascribed a *cause or reason [causa, seu ratio]* both for its existence and for its non-existence’.<sup>249</sup>

Leibniz makes a very similar case to Spinoza. In one of his fragments, he asserts that a cause is nothing other than a ‘realis ratio’, a ‘concrete reason’.<sup>250</sup> In the *Nouveaux Essais*, he then explicitly makes the point that ‘la cause dans les choses répond à la raison dans les vérités. C’est pourquoi la cause même est souvent appelée raison, et particulièrement la cause

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<sup>245</sup> René Descartes, *Secundæ Responsiones*, in *Œuvres de Descartes*, ed. by Charles Adam and Paul Tannery, Paris: VRIN, 1964-1976, 11 vols, vol.7, p.164-165. For more see Marilène Phillips, ‘La “causa sive ratio” chez Descartes’, *Les Etudes philosophiques*, 1 (1984), p.11-21.

<sup>246</sup> Samuel Newlands, ‘Spinoza’s Modal Metaphysics’, in Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2013 Edition), URL = <<https://plato.stanford.edu/archives/win2013/entries/spinoza-modal/>>.

<sup>247</sup> Baruch Spinoza, *Ethica Ordine Geometrico Demonstrata*, in Spinoza, *Opera*, vol.2, p.52 (p1p11d2). The English translation can be read in Spinoza, *Ethics*, p.82.

<sup>248</sup> Spinoza, *Descartes’s “Principles”*, p.246 (p1a11). The Latin original can be read in Spinoza, *Renati Des Cartes*, p.158.

<sup>249</sup> Spinoza, *Ethics*, p.82 (p1pr11d2).

<sup>250</sup> See Louis Couturat, *Opuscles et fragments inédits de Leibniz*, Hildesheim: Georg Olms, 1961, p.533.

finale'.<sup>251</sup> Similarly to Spinoza, Leibniz's belief that there is at least partial overlap between the terms 'cause' and 'reason' impacts *some* of his formulations of the Principle of Sufficient Reason.<sup>252</sup> In a letter to Coste in 1707, for instance, Leibniz claims that 'c'est un des plus grands principes du bon sens, que rien n'arrive jamais sans *cause ou raison* déterminante'.<sup>253</sup> Likewise, in the *Théodicée*, he affirms: '[le] principe [...] de la raison déterminante [est celui qui porte] que jamais rien n'arrive, sans qu'il y ait une *cause* ou du moins une *raison* déterminante, c'est-à-dire quelque chose qui puisse servir à rendre raison a priori, pourquoi cela est existant plutôt que non existant, et pourquoi cela est ainsi plutôt que de toute autre façon'.<sup>254</sup>

As far as the French context is concerned, it is important to point out that, in 1694, the editors of the *Dictionnaire de l'Académie Française* stated that the word 'cause' 'veut dire encore, motif, sujet, occasion, raison'.<sup>255</sup> The same dictionary also lists the terms 'sujet, cause, motif' as synonyms of the lemma 'raison'. This is replicated in all eighteenth-century reprints of the *Dictionnaire de l'Académie Française*, as well as in Jean-François Féraud's *Dictionnaire critique de la langue française* (1787-1788).<sup>256</sup> Even the *Encyclopédie* often treats 'cause' and 'raison' as synonyms, for instance in the article 'Liaison', where the sprouting of a seed is said to be connected to certain events, e.g. the fact that it was raining, or that the sun was shining above the seed, that are alternatively called the 'causes' or 'raisons'

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<sup>251</sup> Gottfried Wilhelm Leibniz, *Nouveaux Essais sur l'entendement*, in *Philosophischen Schriften*, vol.5, p.457.

<sup>252</sup> See Mates, *Philosophy of Leibniz*, p.162 and Craig, *Cosmological Argument*, p.261. As previously remarked, in his works Leibniz provides numerous versions of the Principle of Sufficient Reason. Whereas the ones quoted on this page suggest that Leibniz sees the terms 'cause' and 'reason' as at least partly overlapping, others employ the term 'reason' in an acceptation that can hardly be connected to that of a cause.

<sup>253</sup> Gottfried Wilhelm Leibniz, *Letter to Coste of 19 December 1707*, in *Philosophischen Schriften*, vol.3, p.402.

<sup>254</sup> *Théodicée*, p.127. See also Pierre-Simon Laplace, *Essai philosophique sur les probabilités*, Paris: Courcier, 1814, p.5: 'Une chose ne peut pas commencer d'être, sans une cause qui la produise. Cet axiome connu sous le nom de *principe de la raison suffisante*, s'étend aux actions même les plus indifférentes'.

<sup>255</sup> *Dictionnaire de l'Académie Française*, Paris: chez la Veuve de Jean Baptiste Coignard, 1694.

<sup>256</sup> Jean-François Féraud, *Dictionnaire critique de la langue française*, Marseille: Mossy, 1787-1788, 3 vols, vol.1, p.374.

of the germination of the seed itself.<sup>257</sup> Likewise, in the entry ‘Moussons’, Formey reflects on the sufficient causes or reasons of monsoons.<sup>258</sup> The issue of the relation between the words ‘cause’ and ‘raison’ is addressed more directly in the entry ‘Suffisante raison, principe de la raison suffisante’, which, as Ulla Kölving has noted, is almost entirely lifted from Du Châtelet’s *Institutions de physique*:<sup>259</sup>

[L]e principe [de la raison suffisante] bannit de la philosophie tous les raisonnements à la scholastique; car les Scholastiques admettaient bien qu’il ne se fait rien sans cause; mais ils alléguaient pour causes des natures plastiques, des âmes végétatives, et d’autres mots vides de sens; mais quand on a une fois établi qu’une cause n’est bonne qu’autant qu’elle satisfait au principe de raison suffisante, c’est-à-dire, qu’autant qu’elle contient quelque chose par où on puisse faire voir comment, et pourquoi un effet peut arriver; alors on ne peut plus se payer de ces grands mots qu’on mettait à la place des idées.<sup>260</sup>

### Cause and reason in Diderot and d’Holbach

As for Diderot and d’Holbach, do they personally believe that the terms ‘cause’ and ‘raison’ overlap in meaning? Do they agree with Du Châtelet and the anonymous compiler of the entry ‘Suffisante raison, principe de la raison suffisante’ that causes are such only inasmuch as they qualify as reasons and therefore explain their effects? The answer to this question must be affirmative. Diderot’s rejection of the idea of the soul in the *Rêve*, for example, rests on the precept that ‘[il ne faut pas] substitue[r] à une cause qui est et qui *explique* tout, une autre

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<sup>257</sup> *Encyclopédie*, 9:454. Interestingly, the same example appears in the entry ‘Suffisante raison, principe de la raison suffisante’ (*Encyclopédie*, 15:635).

<sup>258</sup> *Encyclopédie*, 10:824.

<sup>259</sup> Ulla Kölving, ‘Emilie Du Châtelet: bibliographie chronologique’, in Ulla Kölving and Olivier Courcelle (eds.), *Emilie Du Châtelet: Eclairages et documents nouveaux*, Ferney-Voltaire: Centre International d’Etude du XVIII<sup>e</sup> Siècle, 2008, p.351. I have discussed this issue in more detail in a presentation (*The Principle of Sufficient Reason, Emilie du Châtelet and... an anonymous Encyclopédiste*) that I have given at the ‘Emilie du Châtelet Study Day’ (Oxford, Ertegun House, 14 May 2015).

<sup>260</sup> *Encyclopédie*, 15:635; Du Châtelet, *Institutions*, p.27. Italics mine.

cause qui ne se conçoit pas, [...] qui engendre une multitude infinie de difficultés et qui n'en résout aucune'.<sup>261</sup> In order for causes to be acceptable, in other words, it is essential that they *explain* whatever effect they produce; a cause that fails to explain its effect is, for that very reason, simply not a cause. This idea is espoused by Diderot throughout his writings and is expressed in such chronologically distant works as the *Lettre sur les aveugles* and the *Observations sur Hemsterhuis* ('Je n'appelle point à mon secours une cause inintelligible, contradictoire dans ses effets et ses attributs, et obscurcissant plutôt la question qu'elle ne l'éclaircit; me suscitant mille difficultés effrayantes, pour une qu'elle ne lève pas').<sup>262</sup> In *Jacques le fataliste*, this idea is epitomised in the episode of the horse. Towards the beginning of the text, Jacques purchases a horse from an unknown man. This horse is soon revealed as having a real passion for scaffolds, and whenever Jacques and his *maître* ride in the proximity of a gibbet, it drags his master towards it. Jacques's *maître* immediately interprets this strange habit on the horse's part as a bad omen. However, the real cause that actually explains the horse's (bizarre) behaviour is later produced by the *maître* himself, who discovers that the horse's former owner was none other than the hangman of a nearby village.<sup>263</sup>

Just like Diderot, d'Holbach believes that causes are such only insofar as they explain their effects. This is evident in the distinction that he introduces between real causes – what he calls 'causes réelles', 'vraies', 'véritables', or 'naturelles' – and imaginary causes – what he terms 'causes fictives' or 'imaginaires'. Consider the following excerpt:

Au défaut de nos sens, qui souvent ne peuvent rien nous apprendre sur les causes et les effets que nous cherchons avec le plus d'ardeur, [...] nous avons recours à notre imagination, qui troublée par la crainte devient un guide suspect, et nous crée des chimères

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<sup>261</sup> *Rêve*, p.107. Italics mine.

<sup>262</sup> Diderot, *Lettre sur les aveugles*, p.49; *Hemsterhuis*, p.277.

<sup>263</sup> On the theme of the horse in *Jacques le fataliste*, see Wim De Vos, 'Le Cheval comme métaphore de la narration dans *Jacques le fataliste*', *DS*, 25 (1993), p.41-48.

ou des *causes fictives* auxquelles elle fait honneur des phénomènes qui nous alarment. C'est à ces dispositions de l'esprit humain que sont dues [...] toutes les erreurs religieuses des hommes, qui, dans le désespoir de pouvoir remonter aux *causes naturelles* des phénomènes inquiétants dont ils étaient les témoins [...], ont créé dans leur cerveau des *causes imaginaires*, devenues pour eux des sources de folies.<sup>264</sup>

This distinction is not to be confused with the equally crucial one that the Baron introduces between 'causes cachées' and 'causes visibles', the formula 'cause cachée' being consistently used in order to refer to a true cause, which, however, human beings fail to identify.<sup>265</sup>

Given that, as has been shown above, d'Holbach and Diderot believe that every event has a cause, and since they additionally believe that causes are such only inasmuch as they explain whatever effect they bring about, then it can be deduced that Diderot and d'Holbach also subscribe to the Principle of Sufficient Reason.<sup>266</sup> Nevertheless, as was also the case with the Causal Principle, the question remains as to what prompts Diderot and d'Holbach, two atheist philosophers, to commit to the Principle of Sufficient Reason when, in Pruss's words, it 'appears generally established that once one grants an appropriate version of [this principle], it follows that there is a necessary first cause of the cosmos, that is, of the aggregate of all contingent beings'?'<sup>267</sup>

An answer is suggested by the claim made by Leo Strauss in his preface to *Spinoza's Critique of Religion*, which is that 'the genuine refutation of orthodoxy would require the proof that the world and human life are perfectly intelligible without the assumption of a

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<sup>264</sup> *Système*, p.190-191. Italics mine.

<sup>265</sup> See, for example, *Système*, p.386. The further distinction that d'Holbach and Diderot introduce between internal and external causes will be discussed in Chapter IV.

<sup>266</sup> See Jacques Barzun, 'Diderot as Philosopher', *DS*, 22 (1986), p.18: 'Diderot [...] clung to [the idea] that science and experiment [...] will answer all questions of metaphysics and morals'.

<sup>267</sup> Pruss, *Principle*, p.4.

mysterious God'.<sup>268</sup> In order to provide a valid alternative to religion, in other words, one needs to demonstrate that the world is perfectly intelligible even in the absence of any divine entity.<sup>269</sup> That this is Spinoza's main objective in the *Ethica* is the contention not only of Strauss and Michael Della Rocca, but also of Diderot, who, in the entry 'Spinosiste' in the *Encyclopédie*, describes the followers of Spinoza as those who believe that there is nothing besides matter, that matter is not inert, and that it is sufficient to explain *any* phenomenon ('[la matière] *suffit* pour tout expliquer').<sup>270</sup> It is also, I argue, one of the chief goals that Diderot and d'Holbach themselves – true 'spinosistes', at least in this sense – pursue throughout their philosophical careers.<sup>271</sup> The target is set very early by Diderot who, still uncertain as to whether to embrace theism or not, in the *Pensées philosophiques* presents atheists as those who claim that God adds nothing to the understandability of the universe.<sup>272</sup> Almost twenty-five years later, in the *Système de la nature*, d'Holbach provides the following definition of an atheist:

Qu'est-ce, en effet, qu'un *athée*? [...] C'est un penseur qui, ayant médité la matière, son énergie, ses propriétés et ses façons d'agir, n'a pas besoin pour expliquer les phénomènes de l'univers et les opérations de la nature, d'imaginer des puissances idéales, des intelligences imaginaires, des êtres de raison qui, loin de faire mieux connaître cette nature, ne font que la rendre capricieuse, inexplicable, méconnaissable, inutile au bonheur des humains.<sup>273</sup>

The *Système de la nature* thus reflects Diderot and d'Holbach's quest over more than two decades to demonstrate that, *at least in principle*, all phenomena (including the phenomena of

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<sup>268</sup> Leo Strauss, *Spinoza's Critique of Religion*, Chicago and London: The University of Chicago Press, 1965, p.29. See also Landon Frim, 'Sufficient Reason and the Causal Argument for Monism', *Society and Politics*, 5, 2 (2011), p.139.

<sup>269</sup> See also Clatterbaugh, *Causation Debate*, p.3.

<sup>270</sup> *Encyclopédie*, 15:474. Italics mine.

<sup>271</sup> See Duflo, *Diderot philosophe*, p.191: 'Défendre la possibilité du matérialisme, cela suppose pouvoir montrer que la matière ou la substance corporelle en général suffit pour rendre compte de tout le réel, sans aucune intervention d'une substance spirituelle'.

<sup>272</sup> *Pensées philosophiques*, p.22. See also Bourdin, *Diderot: le matérialisme*, p.26.

<sup>273</sup> *Système*, p.587.

life) can be explained without recourse to divine intervention.<sup>274</sup> Hence, for example, Diderot's idea of postulating the existence of the dual concept 'sensibilité active'/'sensibilité inerte' (a symmetrical counterpoint to the Leibnizian 'vis viva'/'vis morta') in order to account for the formation of living beings from apparently inert components.<sup>275</sup> Hence also d'Holbach's forceful crusade against 'les erreurs des hommes' and against the fallacious explanations that the clergy often provided:

Il ne peut y avoir ni monstres, ni prodiges, ni merveilles, ni miracles dans la nature. [...] Ce que nous nommons des *prodiges*, des *merveilles*, des effets *surnaturels* sont des phénomènes de la nature dont notre ignorance ne connaît point les principes ni la façon d'agir et que, faute d'en connaître *les causes véritables*, nous attribuons follement à des causes fictives.<sup>276</sup>

This faith in the explicability of everything necessarily needs to be reconciled with Diderot and d'Holbach's scepticism. This will be the subject of further comment in Chapter V and in the Conclusion.

## Conclusion

As I have demonstrated, Diderot and d'Holbach commit to three closely interrelated yet not identical principles, namely, the Nihil ex Nihilo Principle, the Causal Principle, and the Principle of Sufficient Reason. Their commitment to the Nihil ex Nihilo Principle is hardly surprising since this principle can be employed in order to argue for the eternity of matter and

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<sup>274</sup> Henri Coulet, 'Diderot et le problème du changement', *RDE*, 2 (1987), p.61: 'Diderot ne tardera pas à penser qu'on ne peut pas faire de philosophie si l'on admet un Dieu libre et tout-puissant; sur un ton dubitatif affecté, il cite Bacon dans *l'Apologie de l'abbé de Prades* (III, 7): « le physicien doit faire dans ses recherches une entière abstraction de l'existence de Dieu, poursuivre son travail en bon athée... ». De Diderot, J. Roger peut dire ce qu'il dit aussi de Buffon: il lui faut « trouver dans la nature un ordre qui ne vienne pas de Dieu »'.

<sup>275</sup> *Rêve*, p.92.

<sup>276</sup> *Système*, p.201. See also Paul-Henri Thiry d'Holbach, *Essai sur les Préjugés*, in *DOP*, vol.2, p.7.

reject creationism. Their endorsement of the Causal Principle and the Principle of Sufficient Reason is, on the other hand, surprising, for both were widespread amongst theists and deists and amply used in Cosmological Arguments for the existence of God. Nevertheless, I contend that d'Holbach and Diderot do not reject the Causal Principle since they need it in order to argue for determinism and since it plays a crucial role in scientific enquiry. Likewise, they do not reject the Principle of Sufficient Reason because they realise that, in order to provide a valid alternative to theism, atheists must show that a Godless universe is one that, at least in theory, can be fully understood.

My discussion of Diderot and d'Holbach's attitude towards the Causal Principle and the Principle of Sufficient Reason is not complete. In Chapter IV, I shall return to both principles and discuss in more detail how Diderot and d'Holbach's acceptance of them affects their moral philosophy. In particular, I shall claim that they use the Principle of Sufficient Reason to reject Louis de Molina's notion of freedom of indifference; they similarly employ the Causal Principle to refute what I shall call the Source Model of moral freedom. As mentioned above, the Causal Principle and the Principle of Sufficient Reason will also figure prominently in Chapter V, where I shall focus on the pivotal issue of determinism and complexity.<sup>277</sup>

In advance of this discussion, it is useful first to consider Causal Necessitation in further detail. As stated at the beginning of this chapter, the Causal Principle is but the first of the two elements that are required in order to argue for determinism. In order to demonstrate that both d'Holbach and Diderot subscribe to determinism, it is therefore necessary to show that they also believe in Causal Necessitation. This is the aim of Chapter II.

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<sup>277</sup> See Saint-Amand, *Diderot*.

## Chapter II: Causal Necessitation

The previous chapter demonstrated that Diderot and d'Holbach fully endorse the Causal Principle. This principle plays a fundamental role in many ancient and early modern deterministic theories. As noted in the introduction, however, it is not sufficient in itself to establish determinism. To this end, it needs to be combined with the statement that causes necessitate their effects, that is with the claim that causes necessarily produce or bring about their effects. This is known as Causal Necessitation. In the present chapter, I shall show that, in addition to subscribing to the Causal Principle, Diderot and d'Holbach also believe in Causal Necessitation.

I shall begin by defining the seminal notion of Causal Necessitation. In doing so, I shall devote particular attention to the theory that Causal Necessitation is akin to Logical Necessitation, that is the idea that it is simply inconceivable that a cause should exist, yet its effect not follow. Two major arguments for the equivalence of Causal and Logical Necessitation will be discussed, namely Aristotle and Aquinas' *argument from essence* and Hobbes's *argument from total cause*. I shall then consider what Anthony R. J. Fisher and Steven Nadler call the 'No Necessary Connection' theory; this is the claim, variously argued for by Al-Ghazali, Malebranche, Locke (on some moods), and Hume, that causes do not necessitate their effects, let alone in a way that is akin to Logical Necessitation.<sup>278</sup>

I shall then focus on Diderot and d'Holbach and suggest that, in addition to endorsing Causal Necessitation, they also commit to the more contentious idea that Causal Necessitation is akin to Logical Necessitation. I shall argue that d'Holbach closely follows Aristotle and

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<sup>278</sup> Anthony Robert James Fisher, 'Causal and Logical Necessity in Malebranche's Occasionalism', *Canadian Journal of Philosophy*, 41 (December 2011), p.523-548, and Steven Nadler, "'No Necessary Connection': The Medieval Roots of the Occasionalistic Roots of Hume", *The Monist*, 79, 3 (1996), p.448-466. See also Sukjae Lee, 'Occasionalism', in *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), URL = <http://plato.stanford.edu/archives/spr2014/entries/occasionalism/>.

Aquinas in accepting the argument from essence. Diderot's belief in the equivalence of Causal and Logical Necessitation, on the other hand, is based either on the argument from essence, or on an original, dynamic version of it, which I shall call the *argument from cause une*. This argument is in some respects similar to what Marc Bobro and Kenneth Clatterbaugh term, in their discussion of Leibniz, the 'efficacious perception view' of causation.<sup>279</sup> To conclude, the question will be raised as to why Diderot and d'Holbach commit to such a strong reading of causation in spite of the fact that, traditionally, it was God that was regarded as the necessitating cause *par excellence*, and reject, instead, a view of causation like Hume's, which, as was already perfectly clear to eighteenth-century philosophers, could easily lend itself to atheism.<sup>280</sup>

### Causal Necessitation

Causal Necessitation is the idea that causes necessarily bring about their effects. In an interesting contribution on efficient causation in Leibniz and Spinoza, Martin Lin explains this concept by saying that, 'if the cause exists or occurs, then the effect must also exist or occur'.<sup>281</sup> It may be surprising for modern readers to learn that this stance was a very common one amongst ancient and early modern philosophers.<sup>282</sup> Gertrude E. M. Anscombe, Jason Jordan, and Rögnvaldur Ingthorsson agree that it can already be found in Aristotle's writings.<sup>283</sup> As argued by Richard Sorabji, Susanne Bobzien, and Ricardo Salles, and as

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<sup>279</sup> Bobro and Clatterbaugh, 'Unpacking the monad'.

<sup>280</sup> See Kail, 'Causation', p.196.

<sup>281</sup> Martin Lin, 'Efficient causation in Spinoza and Leibniz', in Tad M. Schmaltz (ed.), *Efficient Causation: A History*, Oxford: Oxford University Press, 2014, p.165.

<sup>282</sup> See Michael Della Rocca, 'Causation without intelligibility and causation without God in Descartes', in Janet Broughton and John Peter Carriero, *A Companion to Descartes*, Oxford: Blackwell, 2008, p.235.

<sup>283</sup> Gertrude Elizabeth Margaret Anscombe, 'Causality and determination', in *Metaphysics and the Philosophy of Mind*, Minneapolis: University of Minnesota Press, 1981, p.134; Jason Jordan, 'Ab alio movetur'; and Rögnvaldur Ingthorsson, *An Aristotelian Defence of Causal Necessity*, unpublished paper consulted at [https://www.academia.edu/8132258/An\\_Aristotelian\\_Defence\\_of\\_Causal\\_Necessity](https://www.academia.edu/8132258/An_Aristotelian_Defence_of_Causal_Necessity). See also Menno Hulswit, *From Cause to Causation: A Peircean Perspective*, Dordrecht: Kluwer Academic Publishers, 2002, p.5.

already noted by Morellet in his article ‘Fatalité’ in the *Encyclopédie*, Causal Necessitation then reappeared in the Stoic tradition.<sup>284</sup> The doxographer Stobaeus, for instance, mentions Zeno of Citium as claiming that ‘it is impossible that the cause be present yet that of which it is the cause not obtain’.<sup>285</sup> In his book *περί εἰμαρμένης* (*On Fate*), Alexander of Aphrodisias also presents the Stoics as maintaining that ‘it is impossible, where all the same circumstances obtain with respect to the cause and that to which it is a cause, that a result which does not ensue on one occasion should ensue on another’.<sup>286</sup> Causal Necessitation was also a prominent theory in the Middle Ages. Thomas Aquinas, for example, defines a cause precisely as that ‘ad quam de necessitate sequitur aliud’, i.e. that from which something else follows of necessity.<sup>287</sup> He does so, not only in his commentary on Aristotle’s *Metaphysics*, but also in the *Summa Theologica* and in *De Malo*.<sup>288</sup> Through Scholasticism, Causal Necessitation reached early modern philosophers. Spinoza subscribes to Causal Necessitation by stating that ‘from a given determinate cause there necessarily follows an effect’ (‘ex data causa determinata necessario sequitur effectus’).<sup>289</sup> Today, Causal Necessitation is not as widely accepted as it was in the past, and many philosophers have put forward instances of causation that cannot be regarded as necessary connections. For example, it does not seem to

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However, Richard Sorabji claims that ‘Aristotle does not firmly stick to the view that every effect of an efficient cause is necessitated’. See Sorabji, *Necessity, Cause and Blame: Perspectives on Aristotle’s Theory*, London: Duckworth, 1980, p.51-56.

<sup>284</sup> Indeed, Sorabji has argued that it is to the Stoics, and not to Aristotle, that one needs to turn in order to find the first enunciations of Causal Necessitation. See his *Necessity, Cause and Blame*, p.64-69. See also Hulswit, *From Cause to Causation*, p.6; Bobzien, *Determinism in Stoic Philosophy*, p.372; and Salles, *The Stoics on Determinism*, p.19-29. Following Cicero, in *Encyclopédie*, 6:423 (‘Fatalité’), Morellet lists as endorsing Causal Necessitation not only the Stoics but also Democritus, Empedocles, Heraclitus, and Aristotle.

<sup>285</sup> *Stoicorum Veterum Fragmenta*, ed. by Hans Friedrich August von Arnim and Maximilianus Adler, Leipzig: Teubneri, 1903-1924, I.89 (quoted in Ricardo Salles, ‘Determinism, Fatalism, and Freedom’, p.60). See also Robert J. Hankinson, ‘Efficient Causation in the Stoic Tradition’, in Schmaltz (ed.), *Efficient Causation*, p.62.

<sup>286</sup> *Stoicorum Veterum Fragmenta*, II.945 (quoted in Hankinson, ‘Efficient Causation in the Stoic Tradition’, p.74-75).

<sup>287</sup> Thomas Aquinas, *In Aristotelis libros Metaphysicorum*, Turnhout: Brepols Publishers, 2010, Lib. V, lect.1, §749.

<sup>288</sup> Aquinas, *Summa Theologica*, I.cxv.6; Thomas Aquinas, *Quaestiones Disputatae de Malo*, Turnhout: Brepols Publishers, 2010, q.3,a.3,ad.3. For a discussion of Aquinas’ theory of Causal Necessitation, see Meehan, *Efficient Causality*, ch. XIII, and Stephen L. Brock, ‘Causality and Necessity in Thomas Aquinas’, *Quaestio*, 2 (2002), p.217-240.

<sup>289</sup> *Ethics*, p.46 (p1a3). For the Latin text, see *Ethica*, p.76. As explained by Martin Lin, what Spinoza means by a ‘determinate’ cause is a *specific* cause. See Lin, ‘Efficient Causation’, p.169.

be true that smoking necessarily causes lung cancer. As a consequence, modern philosophers prefer to think of causation in terms of an increase in probability, rather than of a necessary connection.<sup>290</sup> Smoking, in other words, increases one's probability of developing lung cancer, but does not necessarily cause one to develop it. Yet, Causal Necessitation has not entirely disappeared from the modern philosophical scene and today counts amongst its most influential supporters Sydney Shoemaker.<sup>291</sup>

### Causal and Logical Necessitation

The claim that causes necessarily produce their effects, however common in the history of philosophy, can be understood in a variety of ways. Traditionally, at least three different kinds of necessity have been distinguished, namely logical, natural, and nomological necessity.<sup>292</sup> Amongst these, logical (absolute, or metaphysical) necessity, the sort that pertains to the truths of mathematics, is by far the strongest. Early modern authors were perfectly aware of the distinction between this and other types of necessity. In the anonymous article 'Nécessité' in the *Encyclopédie*, for example, logical necessity is referred to as 'nécessité absolue' and is aptly illustrated with reference to a parallelogram: 'Il est absolument nécessaire que le parallélogramme ait quatre côtés, et qu'il soit divisible par la diagonale en deux parties égales: le contraire implique [contradiction] en tout temps, aucune condition ne saurait le rendre possible'.<sup>293</sup> Now, among ancient and early modern philosophers, the idea was widespread

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<sup>290</sup> See Christopher Hitchcock, 'Probabilistic Causation', in *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), URL = <https://plato.stanford.edu/archives/win2016/entries/causation-probabilistic/>.

<sup>291</sup> Sydney Shoemaker, 'Causality and Properties', in Richard Taylor and Peter van Inwagen (eds.), *Time and Cause: Essays Presented to Richard Taylor*, Dordrecht: Reidel, 1980, p.109-135.

<sup>292</sup> See Kit Fine, 'The Varieties of Necessity', in Fine, *Modality and Tense: Philosophical Papers*, Oxford: Clarendon Press, 2005, p.235-259. See also Nathanael Stein, 'Causal Necessity in Aristotle', *British Journal for the History of Philosophy*, 20, 5 (2012), p.855-879.

<sup>293</sup> *Encyclopédie*, 11:68.

that causes do not only necessitate their effects, but do so in a way that is akin to Logical Necessitation.<sup>294</sup> Quoting from Michael Della Rocca:

for many years, the view that causation is necessary connection held sway in philosophy. Indeed, for some time a prominent view was the even stronger view [...] that the necessary connection between cause and effect is a conceptual connection. This stronger view is stronger because it entails that it is not conceivable that the cause exists and the effect does not, whereas the weaker view does not have this entailment.<sup>295</sup>

An early modern philosopher who conceives of Causal Necessitation in terms of Logical Necessitation is Spinoza, who maintains that it would be as absurd for a cause not to bring about its effect as it would be for the interior angles of a triangle not to equal two right angles.<sup>296</sup>

### The argument from essence

The claim that Causal Necessitation is akin to Logical Necessitation has been variously accounted for by its supporters. Two major arguments are worth reproducing here, which I shall respectively call the *argument from essence* and the *argument from total cause*. According to the argument from essence, a cause, *c*, produces a certain effect, *e*, inasmuch as it essentially has the power to produce *e*.<sup>297</sup> Formey explains in the article 'Essence' that the essence of a thing is that 'sans quoi l'être ne serait point ce qu'il est'.<sup>298</sup> To suppose that a cause *c* that essentially has the power to produce a certain effect *e*, and is not impeded by any

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<sup>294</sup> Della Rocca, 'Causation Without Intelligibility', p.235. See also Lin, 'Efficient Causation', p.165 and Ott, *Causation and Laws*, p.14. For a different view, see Steven Nadler, 'Malebranche on Causation', in Nadler (ed.), *The Cambridge Companion to Malebranche*, Cambridge: Cambridge University Press, 2000, p.114.

<sup>295</sup> Della Rocca, 'Causation Without Intelligibility', p.235.

<sup>296</sup> *Ethics*, p.91 (p1p17s). For an analysis of this passage see Lin, 'Efficient Causation', p.170.

<sup>297</sup> Boris Kment calls this 'the argument from causal essentialism'. See Kment, 'Varieties of Modality', in *The Stanford Encyclopedia of Philosophy* (Winter 2012 Edition), URL = <http://plato.stanford.edu/archives/win2012/entries/modality-varieties/>.

<sup>298</sup> *Encyclopédie*, 5:996.

external factors (*impedimenta extrinseca*), did not produce *e*, would therefore imply a contradiction. Put another way, it is *logically* necessary that a cause *c* that essentially has the power to produce a certain effect *e*, and is not impeded by any external factors, must produce *e*. The argument from essence appears in Aristotle's *Metaphysics*. After drawing a distinction between rational and non-rational causes, the Greek philosopher claims that a non-rational agent that has the power to induce a certain change in others, necessarily ('ἐξ ἀνάγκης') brings about that very change in a patient that has the potency to undergo that particular change and is suitably placed in its proximity.<sup>299</sup> In a famous passage of *On Generation and Corruption* – one that, as we shall see, d'Holbach had at the forefront of his mind when writing the *Système de la nature* – Aristotle illustrates this claim by maintaining that 'what is capable of being hot, when what is capable of heating is present and approaches, necessarily becomes hot'.<sup>300</sup> According to Aristotle, this is so precisely because it is in the form (i.e. essence) of what is capable of heating to heat something that is capable of being hot. As claimed by Walter Ott, according to Aristotle 'a substance does what it does in virtue of its form. That fire burns is an analytic truth [...]. Fire that failed to burn [objects endowed with the appropriate passive power] would, for that reason, simply not be fire'.<sup>301</sup>

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<sup>299</sup> Aristotle, *Metaphysics*, ed. by William David Ross, in Ross and Smith (eds.), *The Works of Aristotle*, vol.8, 1048a5. See also Ott, *Causation and Laws*, p.222-223: 'On the Aristotelian picture, the containment of a thing's powers in its essence means that its characteristic effects flow, as a matter of logical necessity, from that essence'. On the distinction between rational and non-rational causes see Sorabji, *Necessity, Cause and Blame*, p.52: '[Aristotle] distinguishes between irrational *dunameis*, such as the ability of what is hot to transmit heat, and rational *dunameis* such as the ability of the doctor to heal. Rational *dunameis* differ, in that one who has the ability to heal also has the ability to withhold health, since he knows what is needed for health, and his ability can be exercised in opposite ways, depending on what outcome he wants. None the less, the exercise of his ability is just as much necessitated, when the conditions are right; the chief difference is that the conditions will include his having certain desires'. Peroutka too has claimed that, according to Aristotle, Causal Necessitation also applies to rational potencies. See David Peroutka, 'Dispositional Necessity and Ontological Possibility', in Lukáš Novák et al. (eds.), *Metaphysics: Aristotelian, Scholastic, Analytic*, Frankfurt: Ontos Verlag, 2012, p.203.

<sup>300</sup> Aristotle, *On Generation and Corruption*, 324b8-10.

<sup>301</sup> Ott, *Causation and Law*, p.21.

Unsurprisingly, the argument from essence resurfaces in the works of the Scholastics.<sup>302</sup> In his commentary on Aristotle's *Metaphysics*, for instance, Aquinas writes that: 'Apropos irrational potencies, whenever a passive potency approaches an active (virtue or power) in that disposition in which the passive can suffer and the active, act, it is necessary that the one suffer and the other act, as when that which is combustible is applied to fire'.<sup>303</sup> The argument from essence can also be found in contemporary scholarship, and is part and parcel of what Michael Esfeld and Michael J. Costa call 'Causal Properties Theory' and 'Causal Objectivism', respectively.<sup>304</sup> Contrary to the 'Categorical Properties Theory', according to which properties exercise their causal powers only contingently, the Causal Properties Theory states that 'the essence of a property is the power to enter into certain causal relations'.<sup>305</sup> Thus, for instance, it is logically necessary that the property that exercises the charge role in the actual world should exercise the same role in any other possible world. As Sydney Shoemaker explains:

all of the causal potentialities possessed by a property at any time in the actual world are essential to it and so belong to it at all times and in all possible worlds. This has a very strong consequence, namely that causal necessity is just a species of logical necessity. If the introduction into certain circumstances of a thing having certain properties causally necessitates the occurrence of certain effects, then it is impossible, logically impossible, that such an introduction could fail to have such an effect, and so logically necessary that it has it.<sup>306</sup>

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<sup>302</sup> Ott, *Causation and Laws*, p.14. The argument from essence also appears in the Stoic tradition. See Bobzien, *Determinism in Stoic Philosophy*, p.370.

<sup>303</sup> Aquinas, *In Aristotelis libros Metaphysicorum*, Lib. IX, lect.4, §1818.

<sup>304</sup> See Michael Esfeld, 'Causal Realism', in Dennis Dieks et al. (eds.), *Probabilities, Laws, and Structures: The Philosophy of Science in a European Perspective*, Dordrecht: Springer, 2012, p.157-168, and Michael J. Costa, 'Hume and Causal Realism', *Australasian Journal of Philosophy*, 67 (1989), p.172-190.

<sup>305</sup> Michael Esfeld and Christian Sachse, *Conservative Reductionism*, New York-London: Routledge, 2011, p.36.

<sup>306</sup> Shoemaker, 'Causality and Properties', p.124.

### The argument from total cause

The second argument for the equivalence of causal and logical necessitation is the argument from total cause. To understand this, take the case of Hobbes, one with which, as we shall see shortly, Diderot was perfectly acquainted.<sup>307</sup> It was shown in Chapter I that Hobbes strongly commits to both the Causal Principle and the Principle of Sufficient Reason; he therefore believes that everything that exists or happens must have a sufficient cause (or reason) why it does in fact exist or happen. In the *Short Tract on First Principles*, Hobbes defines a sufficient cause to be a cause ‘which hath all things requisite to produce the effect’.<sup>308</sup> As noted by Cees Leijenhorst, Hobbes significantly includes in the set of ‘all things requisite to produce the effect’ even the absence of any potential disruptors that could prevent the cause from bringing about its effect.<sup>309</sup> That the absence of all external impediments be included in the sufficient (or rather total or entire) cause means, of course, that sufficient (or total) causes are in fact necessary causes, and that they cannot possibly fail to produce their effect. Quoting from the *Short Tract*:

That Cause which cannot but produce the effect, is a Necessary Cause [...] but a sufficient cause cannot but produce the effect, because it hath all things requisite to produce it [...]. For if it Produce it not, somewhat else is wanting to the production of it, and so the cause is not a sufficient cause, which *is contrary to the supposition*.<sup>310</sup>

In the *Elements of Philosophy* Hobbes similarly writes:

A cause simply, or an entire cause, is the aggregate of all the accidents both of the agents how many soever they be, and of the patient, put together; which when they are all supposed

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<sup>307</sup> Basic remarks on Hobbes’s views on Causal Necessitation can be found in Hulswit, *From Cause to Causation*, p.20.

<sup>308</sup> Thomas Hobbes, *Court Traité des premiers principes. Le Short Tract on First Principles de 1630-1631*, ed. by Jean Bernhardt, Paris: Presses Universitaires de France, 1988, p.14 (s1p11).

<sup>309</sup> See Leijenhorst, ‘Hobbes’s Theory of Causality’, p.431-432.

<sup>310</sup> Hobbes, *Court Traité*, p.20 (c11). Italics mine.

to be present, *it cannot be understood* but that the effect is produced at the same instant; and if any one of them be wanting, it cannot be understood but that the effect is not produced.<sup>311</sup>

### No Necessary Connection Arguments

Although supported by so many eminent figures in the history of philosophy, the theory that causes necessitate their effects, and that they do so in a way that is akin to logical necessitation, did not go uncontested. On the basis of either logical or empirical arguments, some medieval and early modern philosophers argued that no necessary connection actually exists between cause and effect, let alone a logical one. A logical argument against Causal Necessitation is used by Malebranche, who declares in his *Recherche de la vérité* that it is not impossible for the mind to conceive of an instance of causation where the supposed cause fails to bring about its effect.<sup>312</sup> In fact, he importantly argues that the only instance of causation where the mind does detect a necessary connection is the one in which the cause possesses infinite power, i.e. is God:

Cause véritable est une cause entre laquelle et son effet l'esprit aperçoit une *liaison nécessaire* [...]. Or il n'y a que l'être infiniment parfait, entre la volonté duquel et les effets l'esprit aperçoit une liaison nécessaire. Il n'y a donc que Dieu qui soit véritable cause, et qui ait véritablement la puissance de mouvoir les corps.<sup>313</sup>

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<sup>311</sup> Thomas Hobbes, *Elements of Philosophy*, in *English Works*, vol.1, p.121-122. Italics mine. See also *Elements of Philosophy*, p.77. A third argument for the equivalence of Causal and Logical Necessity is put forward by Spinoza in the *Ethica*. See Melamed and Lin, 'Principle of Sufficient Reason', in *The Stanford Encyclopedia of Philosophy* (Fall 2016 Edition), URL = <https://plato.stanford.edu/archives/fall2016/entries/sufficient-reason/>: 'In E1p21d Spinoza relies on the PSR to infer a bold causal principle: a simple cause has one, and only one, simple effect. Had the cause more than one effect, the difference between the two effects would be unexplicable insofar as each effect is supposed to be fully explained by the same cause. Thus, if we experience a cause bringing about more than one effect, we should conclude that the cause was not simple, but comprised of parts (so that the different parts contributed to the causation of the different effects)'.

<sup>312</sup> This argument is discussed in Fisher, 'Causal and Logical Necessity', and Nadler, "No Necessary Connection".

<sup>313</sup> Nicolas Malebranche, *Recherche de la vérité*, in Nicolas Malebranche, *Œuvres Complètes*, ed. by André Robinet, Paris: Vrin, 1958-1984, 22 vols, vol.2, p.316 (VI,II,III). Italics mine.

The rejection of Causal Necessitation among finite substances – i.e. beings and objects – is one of the most important pillars of (Malebranche’s) Occasionalism. This is the theory that finite substances are completely devoid of any causal power and that the effects that we normally ascribe to bodies and souls are ‘all due directly to God, moving bodies or producing sensations in minds on the occasions of other appropriate events’.<sup>314</sup> As Diderot summarises in the *Encyclopédie* entry ‘Malebranchisme ou philosophie de Malebranche’, ‘le fond de toute [l]a doctrine [des causes occasionnelles], c’est que [...] c’est Dieu qui fait tout en tout’.<sup>315</sup>

That the connection between Occasionalism and the No Necessary Connection argument is a tight one is further demonstrated by the case of the eleventh-century Persian Occasionalist Al-Ghazālī.<sup>316</sup> The following passage from *The Incoherence of the Philosophers* sets out Al-Ghazālī’s position and is worth quoting at length given that the *Encyclopédie* entry ‘Arabes, Etat de la philosophie chez les anciens Arabes’ testifies to Diderot’s (at least second-hand) knowledge of the works of this philosopher:<sup>317</sup>

The connection between what is habitually believed to be a cause and what is habitually believed to be an effect is not necessary [...]. But with any two things, where this is not that and that is not this, and where neither the affirmation of the one entails the affirmation of the other nor the negation of the one entails the negation of the other, it is not a necessity of the

<sup>314</sup> Daniel Garber, ‘Descartes and Occasionalism’, in Steven Nadler (ed.), *Causation in Early Modern Philosophy*, University Park: Pennsylvania State University Press, 1993, p.9.

<sup>315</sup> *Encyclopédie*, 9:942. Interestingly enough, when discussing the philosophy of Malebranche in Chapter II.5 of the *Système de la nature* (p.475), d’Holbach notes that, by regarding God as the sole true cause, occasionalism somewhat awkwardly finishes up resembling Spinozism: ‘Les principes du célèbre père Malebranche’, he writes, ‘semblent conduire directement au spinozisme; en effet quoi de plus conforme au langage de Spinoza que de dire que l’univers n’est qu’une émanation de Dieu; que nous voyons tout en Dieu; que tout ce que nous voyons est Dieu seul; que Dieu seul fait tout ce qui se fait; qu’il est lui-même toute l’action et toute l’opération qui est dans toute la nature; en un mot que Dieu est tout l’être et le seul être’. Similar considerations can be found in Voltaire as well as in other thinkers. See Gerhardt Stenger, ‘Un philosophe peut en cacher un autre: Malebranche et Spinoza dans *Tout en Dieu*’, in Sébastien Charles and Stéphane Pujol, *Voltaire philosophe: regards croisés*, Ferney-Voltaire: Centre International d’Etude du XVIIIe siècle, 2017, p.45-56 and Sylviane Charles, ‘L’idée d’étendue chez Malebranche et Spinoza ou pourquoi Malebranche n’était pas spinoziste’, *Horizons philosophiques*, 9 (1998), p.33-49.

<sup>316</sup> See S. Riker, ‘Al-Ghazālī on Necessary Causality in *The Incoherence of the Philosophers*’, *The Monist*, 79, 3 (1996), p.315-324, and Nadler, “‘No Necessary Connection’”. See also Schmaltz (ed.), *Efficient Causation*, p.10.

<sup>317</sup> *Encyclopédie*, 1:566-569.

existence of the one that the other should exist, and it is not a necessity of the non-existence of the one that the other should not exist: for example, [...] satiety and eating, burning and contact with fire, light and the appearance of the sun, death and decapitation [...]. Their connection is due to the prior decree of God, who creates them side by side, not to its being necessary of itself, incapable of separation.<sup>318</sup>

A second argument against Causal Necessitation is the *empirical* one. According to this argument, the purported necessitation instantiated in causation should be rejected on the basis that such necessitation cannot be perceived sensorily. This is, for example, the position that Locke adopts in book IV of his *Essay on Human Understanding*.<sup>319</sup> Most famously, the empirical argument against Causal Necessitation appears in the works of Hume. Having recourse to his famous Copy Principle – to the idea, that is, that all our ideas are copies of impressions –, Hume attacks the received notion of causation, insisting that the senses provide us neither with the idea of a necessary connection between cause and effect, nor with any indication of the powers purportedly involved in the causal relation.<sup>320</sup> This line of reasoning is particularly clearly expressed in section 7 of the *Enquiry Concerning Human Understanding*, entitled ‘Of the Idea of Necessary Connexion’:

When we look about us towards external objects, and consider the operation of causes, we are never able, in a single instance, to discover any power or necessary connexion; any *quality*, which *binds* the effect to the cause, and renders the one an infallible consequence of the other. We only find, that the one does actually, in fact, follow the other. [...] In reality, there is no part of matter, that does ever, by its sensible qualities, discover any power or

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<sup>318</sup> Al-Ghazālī, *The Incoherence of the Philosophers*, trans. by Michael E. Marmura, Provo, Ut.: Brigham Young University Press, 2000, p.166 (quoted in John Marenbon, ‘The Medievals’, in Beebe, Hitchcock, and Menzies (eds.), *The Oxford Handbook of Causation*, p.46).

<sup>319</sup> John Locke, *An Essay Concerning Human Understanding*, ed. by P. H. Nidditch, Oxford: Clarendon Press, 1975, p.559 (IV, iii, 28).

<sup>320</sup> In *A Treatise of Human Nature*, p.9 (1.1.1.7/3-5), Hume enunciates the Copy Principle as follows: ‘All our simple ideas in their first appearance are deriv’d from simple impressions, which are correspondent to them, and which they exactly represent’. For more on this subject see, for example, William Edward Morris and Charlotte R. Brown, ‘David Hume’, in *The Stanford Encyclopedia of Philosophy (Spring 2017 Edition)*, URL = <https://plato.stanford.edu/archives/spr2017/entries/hume/>.

energy, or give us ground to imagine, that it could produce any thing, or be followed by any other object, which we could denominate its effect.<sup>321</sup>

Hume's point here is that no causal connection, let alone any necessary or logically necessary connection, can be observed in the physical world. All that one can see is a sequence of 'entirely loose and separate' events.<sup>322</sup> However, these considerations do not lead Hume to an outright rejection of the concept of causation. On witnessing several instances of the same phenomenon, Hume argues, the human mind can in fact reach an understanding of causation.<sup>323</sup> The famous example that he cites is that of two billiard balls, now a cliché in books and articles about causation and free will:

The first time a man saw the communication of motion by impulse, as by the shock of two billiard-balls, he could not pronounce that the one event was *connected*: but only that it was conjoined with the other. After he has observed several instances of this nature, he then pronounces them to be connected. What alteration has happened to give rise to this new idea of *connexion*? Nothing but that he now feels these events to be *connected in his imagination*, and can readily foretel the existence of one from the appearance of the other. When we say, therefore, that one object is connected with another, we mean only that *they have acquired a connexion in our thought*.<sup>324</sup>

In other words, far from being an actual connection among objects and beings, causation, according to Hume, is only in the mind of the observer.<sup>325</sup> But when exactly is an observer

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<sup>321</sup> David Hume, *An Enquiry Concerning Human Understanding*, ed. by Tom L. Beauchamp, Oxford: Clarendon Press, 2000 (hereafter *Enquiry*), p.51. See A. Rosenberg, 'Hume and the Philosophy of Science', in D. Fate Norton (ed.), *The Cambridge Companion to Hume*, Cambridge: Cambridge University Press, 1993, p.71-72.

<sup>322</sup> Hume, *Enquiry*, p.58.

<sup>323</sup> Hume's views about causation are in fact the object of much scholarly debate. The reading I provide here is probably the most widely accepted. Most importantly, it is also the argument that Hume was perceived to be claiming by his contemporaries. See Kail, 'Causation', p.192-197. A different, very interesting, interpretation is proposed in Beebe, *Hume on Causation*. On this controversy concerning Hume's stance on causation, see also Justin Broackes, 'Did Hume Hold a Regularity Theory of Causation?', *British Journal for the History of Philosophy*, 1, 1 (1993), p.99-114.

<sup>324</sup> Hume, *Enquiry*, p.59.

<sup>325</sup> See Alexander Rosenberg, 'Hume and the Philosophy of Science', in David Fate Norton (ed.), *The Cambridge Companion to Hume*, New York: Cambridge University Press, 1993, p.73.

justified in deducing that two events are causally connected? This is explained in the *Treatise of Human Nature*, where the Scottish philosopher defines a cause as ‘an object precedent and contiguous to another, and where all the objects resembling the former are place’d in like relations of precedency and contiguity to those objects, that resemble the latter’.<sup>326</sup> *Mutatis mutandis*, Hume’s account of causation is therefore not dissimilar from the contemporary theory known as ‘Dependence Theory’ or ‘Regularity View of Causation’, which, unsurprisingly, is also known as ‘the Humean approach’.<sup>327</sup> Borrowing the following scheme from Stathis Psillos, we can say that, according to the Regularity View of Causation, an event, *c*, can be said to cause an event, *e*, if and only if:

- a) *c* is spatio-temporally contiguous to *e*;
- b) *e* succeeds *c* in time – because otherwise one may end up taking the effect for the cause;
- c) all events of type C (i.e. all *c*-like events) are regularly followed by (or are constantly conjoined with) events of type E (i.e. *e*-like events).<sup>328</sup>

An example may perhaps be useful. Suppose that Mme Dupont has just made a perfectly functioning electric circuit, where a light bulb is connected via a wire to an on/off switch. Every time Mme Dupont presses the ‘on’ button, the light bulb turns on. Likewise, every time she presses the ‘off’ button, the light bulb turns off. Now, suppose that Mr Rossi has built a similarly perfectly functioning circuit in the apartment next to Mme Dupont’s. According to the Regularity View of Causation we can say that Mme Dupont’s pressing the ‘on’ button at 15:52:00 on 2 February 2016 (*c<sub>D</sub>*), and not Mr Rossi’s pressing the ‘on’ button of his circuit at

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<sup>326</sup> *Treatise*, p.114 (1.3.14,31/4-7). In the *Treatise*, Hume famously provides two different definitions of a cause. For more, see J. A. Robinson, ‘Hume’s two definitions of cause’, *The Philosophical Quarterly*, 12, 47 (1962), p.162-171.

<sup>327</sup> See Douglas Ehring, ‘Contemporary Efficient Causation: Humean Themes’, in Schmaltz (ed.), *Efficient Causation*, p.286-290.

<sup>328</sup> Stathis Psillos, ‘Regularity Theories’, in Beebe, Hitchcock, and Menzies (eds.), *The Oxford Handbook of Causation*, p.131-157.

15:55:00 on the same day ( $c_R$ ), has caused the light bulb in Mme Dupont's circuit to turn on at 15:52:01 ( $e_D$ ) because (1)  $c_D$  is spatio-temporally contiguous to  $e_D$ , (2)  $c_D$  precedes  $e_D$  in time, and (3) every time Mme Dupont presses the 'on' button of her circuit an event of the type  $e_D$  occurs – that is, the light bulb in her circuit turns on.

### Diderot and d'Holbach on Causal Necessitation

In a famous work published in 1943, Pierre Naville remarked that d'Holbach thinks of causal relations as necessary: 'Les rapports de cause à effet', he writes, 'sont absolument nécessaires. La nécessité est absolue dans le moindre comme dans le plus vaste de ses effets'.<sup>329</sup> Shortly thereafter, however, Naville criticises d'Holbach's superficiality and lack of clarity on the subject of causation and necessitation: 'D'Holbach n'entre pas dans une analyse des formes particulières que revêt la nécessité. On ignore si d'Holbach admet l'analyse de Hume sur la source de notre croyance à la loi de la causalité'.<sup>330</sup> Naville's call for further research on this subject seems to have been ignored until now, and Diderot's attitudes towards these ideas have similarly received scant attention. Having completed the survey of the theories concerning Causal Necessitation that existed in the eighteenth century, I shall now attempt to fill this gap in research.

To begin with, that Diderot and d'Holbach both conceive of causes as necessarily bringing about their effects is suggested by their use of such phrases as 'effet(s) nécessaire(s)' or 'suite(s) nécessaire(s)' as the following examples will show. Vehemently arguing against the Teleological Argument (the argument, extremely common amongst eighteenth-century deists, that the natural world shows a design that can be taken as clear evidence of the existence of a divine figure), d'Holbach asserts: 'Dans les merveilles de la Nature, le

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<sup>329</sup> Naville, *D'Holbach*, p. 236.

<sup>330</sup> Naville, *D'Holbach*, p. 242.

physicien sans préjugé ne voit rien que [...] *les effets nécessaires* des combinaisons différentes d'une matière prodigieusement diversifiée'.<sup>331</sup> On a different occasion, when introducing his dichotomy between visible and hidden causes, the Baron writes: 'dans le monde physique [...] tout ce qui arrive est une *suite nécessaire* de causes visibles ou cachées'.<sup>332</sup> On the whole, the phrase 'suite(s) nécessaire(s)' appears no fewer than 54 times in the *Système de la nature* alone, thus outnumbering 'effet(s) nécessaire(s)', of which there are 16 occurrences. The obsessive repetition of this formula must have struck eighteenth-century readers. This is testified by the *Lettres de Memmius à Cicéron*, a short text of 1771 in which, as shown by Christophe Paillard, one can see that Voltaire was intrigued by the ideas expressed in the newly published *Système de la nature*.<sup>333</sup> In this epistolary fiction, the patriarch of Ferney juxtaposes the phrase 'suite nécessaire' with a formulation of the Causal Principle, thus showing awareness of the pivotal role that these two ideas play within a deterministic system:

Si je descends dans moi-même, qu'y vois-je que le fatalisme? Ne fallait-il pas que je naquisse quand les mouvements des entrailles de ma mère ouvrirent sa matrice, et me jetèrent nécessairement dans le monde? Pouvait-elle l'empêcher? Pouvais-je m'y opposer? Me suis-je donné quelque chose? Toutes mes idées ne sont-elles pas entrées successivement dans ma tête, sans que j'en aie appelé aucune? Ces idées n'ont-elles pas déterminé invinciblement ma volonté, sans quoi ma volonté n'aurait point eu de cause? Tout ce que

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<sup>331</sup> *Bon Sens*, p.233 (§36). Italics mine. For more on d'Holbach's criticism of the theological argument, see *Bon Sens*, §§38 and 44. As for Diderot, his most vehement attacks against the argument from design are indeed to be found in the *Lettre sur les aveugles*. See Bourdin, *Diderot: le matérialisme*, p.22: 'Il faut noter que comme les *Pensées*, la *Lettre [sur les aveugles]* inscrit sa présentation du matérialisme, non dans le cadre d'une opposition avec l'idéalisme, mais face au déisme appuyé sur les preuves physico-téléologiques de l'existence de Dieu. Ce qui revient à dire que pour Diderot l'enjeu de ce conflit n'est pas l'existence du monde extérieur et sa connaissance, mais celui du statut du monde: est-il ordonné, unifié? Si oui selon quel principe? A-t-il un sens, une destination? Peut-on y répondre sans recourir à Dieu? Un monde sans sens est-il pensable?'

<sup>332</sup> *Système*, p.299. Italics mine.

<sup>333</sup> Voltaire, *Lettres de Memmius à Cicéron*, ed. by Jean Dagen, in *OCV*, vol.72, p.187-270. See also Paillard, 'Entre Science et métaphysique'.

j'ai fait n'a-t-il pas été la suite nécessaire de toutes ces prémisses nécessaires? N'en est-il pas ainsi dans toute la nature?<sup>334</sup>

Although less frequently than in d'Holbach's publications, the phrases 'effet(s) nécessaire(s)' and 'suite(s) nécessaire(s)' also appear in Diderot's works. A good example can be found in the *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit et du cœur humain*, a book review that appeared in the *Correspondance littéraire* in 1769. Here, anticipating the anti-educational position he was to adopt in the *Réfutation d'Helvétius*, Diderot writes:

Ce compilateur prétend que les jeunes gens trouveront dans les sentences qu'il a ramassées de droite et de gauche, un supplément à l'expérience qui leur manque. Il ne sait pas que c'est par une *suite nécessaire* de ce défaut d'expérience, que les enfants prennent pour du radotage toutes les sages leçons que nous autres pères ne cessons de leur adresser.<sup>335</sup>

Were the phrases 'effet(s) nécessaire(s)' and 'suite(s) nécessaire(s)' the only indicators of Diderot and d'Holbach's commitment to Causal Necessitation, one could perhaps doubt of the authenticity of their enthusiasm for this theory. Nevertheless, the two philosophers are frequently far more explicit. In Chapter II.5 of the *Système de la nature*, for instance, d'Holbach writes: 'tous les effets que nous voyons découlent nécessairement de leurs causes'.<sup>336</sup> As confirmed by the *Dictionnaire de l'Académie Française*, the verb *découler* was crucially used, in the eighteenth century as it is today, to refer to the way in which a conclusion derives from its premisses.<sup>337</sup> D'Holbach's use of this verb here is therefore revealing because it suggests that he views the necessity involved in causal relations as

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<sup>334</sup> Voltaire, *Lettres de Memmius*, p.242.

<sup>335</sup> Denis Diderot, *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit et du cœur humain*, in *Œuvres Complètes*, Paris: Le Club français du livre, 1971, 15 vols, vol.8, p.181-182. See also *Rêve*, p.138: 'L'homme n'est qu'un effet commun; le monstre qu'un effet rare; tous les deux également naturels, également nécessaires'.

<sup>336</sup> *Système*, p.487.

<sup>337</sup> *Dictionnaire de l'Académie Française*, 1798, vol.1, p.374. This usage of the verb *découler* is attested well before the publication of the fifth edition of the *Dictionnaire de l'Académie Française*. See, for instance, Jean Le Clerc, *Bibliothèque ancienne et moderne*, Amsterdam: Frères Wetstein, 1720, vol.13, p.455.

logical, an idea to which I shall return. Another passage in which d'Holbach explicitly endorses Causal Necessitation and which is worth commenting on is in Chapter I.4 of the *Système de la nature*. Defining the term 'nécessité', d'Holbach writes: 'La nécessité est la liaison infaillible et constante des causes avec leurs effets. Le feu brûle *nécessairement* les matières combustibles qui sont placées dans la sphère de son action'.<sup>338</sup> It is quite possible that d'Holbach may have borrowed this image from Aquinas' commentary on Aristotle's *Metaphysics* or directly from Aristotle's *On Generation and Corruption*, where, as remarked previously, it is used precisely to epitomize Causal Necessitation. We shall see in Chapter V that d'Holbach uses the same simile in his *Politique naturelle* to make the point that the social world, just like the physical one, is fully determined.

Diderot is no less explicit than d'Holbach in his endorsement of Causal Necessitation. In the entry 'Philosophie des Étrusques et des Romains' in the *Encyclopédie*, for example, he presents as an indisputable principle ('un principe incontestable') that everything in the universe is connected by means of necessary connections ('que tout tient dans la nature par un enchaînement nécessaire').<sup>339</sup> In the *Principes philosophiques sur la matière et le mouvement*, he then offers a pyrotechnical variation on d'Holbach's (or Aristotle's) fire example:

[...] moi qui suis physicien et chimiste; qui prends les corps dans la nature et non dans ma tête, je les vois existants, divers, *revêtus de propriétés et d'actions* et s'agitant dans l'univers comme dans le laboratoire où une étincelle ne se trouve point à côté de trois molécules combinées de salpêtre, de charbon et de soufre, sans qu'il s'ensuive une explosion *nécessaire*.<sup>340</sup>

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<sup>338</sup> *Système*, p.195.

<sup>339</sup> *Encyclopédie*, 14:338.

<sup>340</sup> *Matière et mouvement*, p.15. Italics mine.

### Causal Necessitation in the moral world

Diderot and d'Holbach maintain that Causal Necessitation holds true not only in the physical world, but also in the moral one. In fact, both philosophers are generally more unambiguous in their treatment of causal necessitation in the moral world than in the physical one, and this is likely a result of the fact that fewer philosophers were prepared to accept this notion. Evidence for d'Holbach's belief in the applicability of Causal Necessitation to human behaviour can be found in a passage of *Le Bon Sens* where the phrase 'suites nécessaires' significantly reappears: 'Pour peu que l'on réfléchisse, on sera forcé de reconnaître que l'homme est nécessité dans toutes ses actions. [...] Ses idées acquises, ses opinions, ses notions, vraies ou fausses, sont des fruits nécessaires de l'éducation qu'il a reçue [...]. Ses passions et ses désirs sont des suites nécessaires du tempérament que la Nature lui a donné'.<sup>341</sup> And again, in the *Système*: 'les actions des hommes ne sont jamais libres; elles sont toujours des suites nécessaires de leur tempérament'.<sup>342</sup>

A comment on Hemsterhuis's *Lettre sur l'homme* shows that Diderot, too, believes that Causal Necessitation applies to the moral world. This passage uses an image, that of an object rolling down a slope, that, as we shall see in later pages, also appears in *Jacques le fataliste*: 'rien ne dépend de notre velléité, [...] elle a aussi besoin d'une impulsion pour se porter vers un objet déterminé, qu'un corps a besoin d'un choc pour se mouvoir. Et [...] cette impulsion une fois donnée, elle va, sans qu'il y ait l'ombre de volonté; [...] elle va aussi nécessairement qu'un corps descend sur un plan incliné'.<sup>343</sup> Yet, a few lines of an exchange, in the first section of the *Rêve de d'Alembert*, between d'Alembert himself and Diderot, might at

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<sup>341</sup> *Bon Sens*, p.256 (§80). For the social implications of such a stance, see *Bon Sens*, § 81.

<sup>342</sup> Several other examples could be mentioned. See, for example, *Système*, p.168: 'Les mouvements ou façons d'agir dont [l'homme] est susceptible ne sont-ils pas physiques? Ses actions visibles ainsi que les mouvements invisibles excités dans son intérieur, qui viennent de sa volonté ou de sa pensée, sont également des effets naturels, des suites nécessaires de son mécanisme propre et des impulsions qu'il reçoit des êtres dont il est entouré'. See also *Système*, p.349.

<sup>343</sup> *Hemsterhuis*, p.259.

first seem to contradict the point just made and relegate Causal Necessitation to the domain of physics only:

d'Alembert: On ne conçoit pas trop d'après votre système comment nous formons des syllogismes ni comment nous tirons des conséquences.

Diderot: C'est que nous n'en tirons point; elles sont toutes tirées par la nature. Nous ne faisons qu'énoncer des phénomènes conjoints dont la liaison est ou nécessaire ou contingente; [...] nécessaires en mathématiques, en physique et autres sciences rigoureuses; contingents en morale, en politique et autres sciences conjecturales.

d'Alembert: Est-ce que la liaison des phénomènes est moins nécessaire dans un cas que dans un autre?

Diderot: Non. Mais la cause subit trop de vicissitudes particulières qui nous échappent pour que nous puissions compter infailliblement sur l'effet qui s'ensuivra. La certitude que nous avons qu'un homme violent s'irritera d'une injure n'est pas la même que celle qu'un corps qui en frappe un plus petit le mettra en mouvement.<sup>344</sup>

Although the first half of this dialogue may appear to suggest that, unlike physical causes, moral ones bring about their effects contingently rather than necessarily, the second part removes any doubt: moral events are contingent only in as much as the human mind cannot predict them with certainty; otherwise, they are just as necessarily produced as any purely physical effects. Put another way, moral events are contingent from an epistemological perspective only. This interpretation is confirmed by the *Lettre à Landois*, where Diderot writes: 'Il n'y a qu'une sorte de causes à proprement parler; ce sont les causes physiques. Il n'y a qu'une sorte de nécessité, c'est la même pour tous les êtres, quelque distinction qu'il

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<sup>344</sup> *Rêve*, p.109-110.

nous plaise d'établir entre eux, ou qui y soit réellement'.<sup>345</sup> There will be further discussion of the notions of determinism, predictability, and epistemology in Chapter V, by which point Diderot and d'Holbach's deterministic ethics and their ideas about moral freedom will have been explored in Chapter IV.

#### Diderot and d'Holbach on the equivalence of Causal and Logical Necessitation

Not only do Diderot and d'Holbach endorse Causal Necessitation; they also accept the more extreme contention that causes necessitate their effects in a way that is akin to Logical Necessitation. As described above, two existing major arguments in favour of the latter assertion were already available to eighteenth-century philosophers: Aristotle and Aquinas' argument from essence and Hobbes's argument from total cause. A non-trivial amount of ink has already been spilled on Diderot's and d'Holbach's attitudes towards the philosopher of Malmesbury. Yvon Belaval, Jean Varloot, and Gianni Goggi have detected interesting parallels between the *Leviathan* and the *Rêve de d'Alembert*.<sup>346</sup> Leland J. Thielemann, Yves Glaziou, and Olivier Bloch have analysed the reception of Hobbes in the *Encyclopédie* and in eighteenth-century France more broadly, commenting, amongst other things, on Diderot's article 'Hobbisme' as well as d'Holbach's translation of *On Human Nature*.<sup>347</sup> This translation has been studied in more detail in a recent essay by Mladen Kozul, whilst further remarks on the Hobbesian roots of d'Holbach's moral philosophy can be found in works by

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<sup>345</sup> Denis Diderot, *Lettre à Landois*, ed. by Jean Varloot and Paolo Casini, in DPV, vol.9, p.258.

<sup>346</sup> Belaval, 'Le "Philosophe" Diderot'; *Rêve*; and Gianluigi Goggi, *De l'Encyclopédie à l'éloquence républicaine: Étude sur Diderot et autour de Diderot*, Paris, Honoré Champion, 2013, p.185-202.

<sup>347</sup> Leland Thielemann, 'Diderot and Hobbes', *DS*, 2 (1952), p.221-278; Leland Thielemann, 'Thomas Hobbes dans l'Encyclopédie', *RHLF*, 51 (1951), p.333-346; Yves Glaziou, *Hobbes en France au XVIII<sup>e</sup> siècle*, Paris: PUF, 1993; Olivier Bloch, *Matière à histoires*, Paris: Vrin, 1997, ch. V.

Virgil Topazio and Anne Staquet.<sup>348</sup> Given the extent to which Diderot's and d'Holbach's philosophy is indebted to Hobbes, one might perhaps imagine that, if they espoused the view that causes logically necessitate their effects, then they would naturally have turned to the 'argument from total cause' in order to substantiate their claim. To be sure, Diderot and d'Holbach are perfectly familiar with this argument. In the aforementioned entry 'Hobbisme, ou philosophie d'Hobbes', Diderot expounds Hobbes's line of reasoning in supremely clear terms:

De l'agrégat de tous les accidents, tant dans l'agent que dans le patient, on conclut la nécessité d'un effet; et réciproquement on conclut du défaut d'un seul accident, soit dans l'agent soit dans le patient, l'impossibilité de l'effet. L'agrégat de tous les accidents nécessaires à la production de l'effet s'appelle dans l'agent cause complète, *causa simpliciter*. La cause complète a toujours son effet; au moment où elle est entière, l'effet est produit et est *nécessaire*.<sup>349</sup>

Like many other articles on the history of philosophy that Diderot contributed to the *Encyclopédie*, 'Hobbisme' is significantly indebted to Johann Jacob Brucker's *Historia Critica Philosophiae*, whose section on Hobbes's theory of Causal Necessitation closely follows, in turn, the passage from the *Elements of Philosophy* partly quoted earlier:<sup>350</sup>

Causa simpliciter, sive causa integra est aggregatum omnium accidentium tum agentium quotquot sunt, tum patientis, quibus omnibus suppositis intelligi non potest, quin effectus una fit productus, et supposito, quod unum eorum deficit intelligi non potest, quin effectus non sit productus. Accidentium requisitorum ad effectum in agente aggregatum product effectum vocatur causa efficiens; in patiente causa materialis. Ubi autem effectus nullus est,

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<sup>348</sup> Kozul, *Les Lumières imaginaires*; Topazio, *D'Holbach's Moral Philosophy*; Anne Staquet, 'Hobbes, d'Holbach et la théorie des passions: Importance du passage par la physique et la théorie de la connaissance', *Revue de métaphysique et de morale*, 71 (2011), p.385-404.

<sup>349</sup> *Encyclopédie*, 8:235

<sup>350</sup> See above p.78-79.

ibi nulla est causa. Causa integra ad producendum effectum suum semper sufficit. Effectus productus est eodem instante, quo causa integra, habetque causam necessariam.<sup>351</sup>

The fact that Diderot rearranges the sentences and suppresses Hobbes/Brucker's statement that the aggregate of all accidents is called 'efficient cause' in the agent(s), and 'material cause' in the patient(s) testifies to his full understanding of this line of reasoning, which he attempts to present as clearly as possible.<sup>352</sup> The formula 'cause complète' by which Diderot translates Brucker's 'causa integra' and Hobbes' 'entire cause' appears once more in the *Encyclopédie*, namely in the entry 'Inverse, ou Converse' by the Genevan physicist Georges-Louis Le Sage.<sup>353</sup> However, Le Sage's definition of a 'cause complète' as the aggregate of all that is necessary to produce the effect ('collection de tout ce qui est requis pour qu[e l'effet] parvienne à l'existence'), in addition to what he refers to as a 'condition' or 'occasion', is much less accurate than Diderot's. In fact, it is very possible that Le Sage is recalling here a medical tradition independent from Hobbes, which one finds expressed also in the article 'Cause' in the French translation of Robert James's *Medicinal Dictionary*, which was possibly penned by Diderot.<sup>354</sup>

While the entry 'Hobbisme, ou philosophie d'Hobbes' plainly testifies to Diderot's knowledge of Hobbes's argument from total cause, it must be admitted that nowhere else in his works does Diderot explicitly base the equivalence of Causal and Logical Necessitation on this argument. The phrase 'cause complète' is also absent from d'Holbach's *Système de la nature*. Instead, in order to account for the equivalence of Causal and Logical Necessitation, Diderot and d'Holbach tend to turn to Aristotle and Aquinas' argument from essence. A distinction, however, must be made between the two French philosophers. Whereas d'Holbach merely repeats this argument in its traditional form, Diderot's position is slightly

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<sup>351</sup> Johann Jakob Brucker, *Historia Critica Philosophiae*, Lipsia: Breitkopf, 1746, vol.4, 2, p.185.

<sup>352</sup> Hobbes, *Element of Philosophy*, p.122.

<sup>353</sup> *Encyclopédie*, 8:849.

<sup>354</sup> *Dictionnaire universel de médecine*, vol.3, p.197.

more complex: whereas sometimes, like d'Holbach, he endorses the Aristotelian-Thomistic argument, on other occasions, and in discussions of ethics only, he puts forward an original argument (what I term the 'argument from *cause une*') that results from an interesting compromise between the Aristotelian-Thomistic argument itself and Leibniz's ideas about causation. But let us first focus on d'Holbach.

### D'Holbach and the argument from essence

As stated above, d'Holbach usually employs the argument from essence in an utterly traditional manner. He posits that every thing has an essence, supposes that it would imply a contradiction if a thing acted against its essence, and concludes from this that every cause logically necessitates its effect. In Chapter I.9 of the *Système*, for example, when introducing the notion of 'fatalité' – exactly what, today, we would call 'determinism' – d'Holbach writes that '[les] causes [...] sont forcées d'agir d'après leurs propres essences'.<sup>355</sup> Elsewhere he claims: 'tous les êtres [...] agissent nécessairement d'après leurs essences particulières'.<sup>356</sup> On several occasions, however, instead of having recourse to essences, d'Holbach turns to essential properties – what he calls 'qualités' or 'propriétés essentielles' – in order to argue that causes logically necessitate their effects. In Chapter I.4 of the *Système*, for instance, he maintains that 'dès qu'[un objet] a des propriétés données, il agit nécessairement'.<sup>357</sup> Similarly, in *Le Bon Sens*, he writes that '[les] effets [...] résultent nécessairement de causes qui n'agissent que suivant leurs propriétés'.<sup>358</sup> In Chapter I.2 of the *Système de la nature* he then exemplifies this claim by writing:

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<sup>355</sup> *Système*, p.299.

<sup>356</sup> *Système*, p.195.

<sup>357</sup> *Système*, p.194.

<sup>358</sup> *Bon Sens*, p.243 (§56).

L'existence suppose des propriétés dans la chose qui existe; dès qu'elle a des propriétés, ses façons d'agir doivent nécessairement découler de sa façon d'être. Dès qu'un corps a de la pesanteur il doit tomber; dès qu'il tombe il doit frapper les corps qu'il rencontre dans sa chute; dès qu'il est dense et solide, il doit en raison de sa propre densité communiquer du mouvement aux corps qu'il va heurter; dès qu'il a de l'analogie et de l'affinité avec eux, il doit s'y unir; dès qu'il n'a point d'analogie, il doit être repoussé, etc.<sup>359</sup>

The last of these passages seem to anticipate the modern theory that Michael Esfeld terms 'Causal Properties theory'. It should be emphasised, however, that, in spite of their ostensible diversity, what one might call the 'argument from essence *sensu stricto*' and the 'argument from essential properties' are hardly distinguishable, for, according to d'Holbach, a substance's essence is nothing other than the sum of that substance's essential qualities. This plainly shows from the definition of essence provided in the *Système de la nature*:

Par essence, j'entends ce qui constitue un être ce qu'il est, la somme de ses propriétés ou des qualités d'après lesquelles il existe et agit comme il fait. Quand on dit qu'il est de l'essence de la pierre de tomber, c'est comme si l'on disait que sa chute est un effet nécessaire de son poids, de sa densité, de la liaison de ses parties, des éléments dont elle est composée. En un mot l'essence d'un être est sa nature individuelle et particulière.<sup>360</sup>

An analogous definition is offered in *Le Bon Sens*. Here, however, a substance's essence is represented not as the summation of that substance's essential properties, but rather as their source: 'l'essence d'un être est ce d'où découlent toutes les propriétés de l'être'.<sup>361</sup> This definition could be considered particularly traditional. Indeed, Jean Deprun has noted that d'Holbach borrows it from the *Delucidationes philosophicae de Deo, anima, mundo* of the German theologian Georg Bernhard Bilfinger, where essence is described as 'fons et radix

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<sup>359</sup> *Système*, p.182.

<sup>360</sup> *Système*, p.173.

<sup>361</sup> *Bon Sens*, p.235 (§41).

omnium rei proprietarum’, i.e. as the source and root of every property of a substance.<sup>362</sup> Whether d’Holbach conceives of a substance’s essence as the summation or source of that substance’s essential properties, the fact remains that what I term the ‘argument from essence *sensu stricto*’ and the ‘argument from essential properties’ are but two sides of the same coin. Thus, one often finds them joined together. For example: ‘De quelque nature que soient les mouvements des êtres, ils sont toujours des suites nécessaires de leurs essences ou des propriétés qui les constituent’.<sup>363</sup> In conclusion, to quote a Biblical maxim of which Diderot was fond, ‘nihil sub sole novum’: d’Holbach’s version of the argument from essence is nothing other than a restatement of the Aristotelian-Thomistic one.

#### Diderot: between the argument from essence and the argument from *cause une*

On several occasions, Diderot too turns to Aristotle and Aquinas’s version of the argument from essence, both in its traditional form and in the one that rests on essential properties. He employs the argument from essence *sensu stricto* with some frequency in the *Observation sur Hemsterhuis*, whereas in the *Pensées sur l’interprétation de la nature* he sometimes turns to the argument from essential properties: ‘l’univers n’est qu’un corps élastique: le chaos est une impossibilité; car il est un ordre essentiellement conséquent aux qualités primitives de la matière’.<sup>364</sup> More often, however, in order to account for the equivalence of Causal and Logical Necessitation, Diderot prefers his own original version of the argument from essence. This version is based upon an interesting notion that has already drawn the attention of Jacques Chouillet and Gerhardt Stenger: the notion of ‘cause une’.<sup>365</sup> Broadly speaking,

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<sup>362</sup> Paul-Henri Thiry d’Holbach, *Le Bon Sens, ou idée naturelles opposées aux idées surnaturelles*, ed. by Jean Deprun, Paris: Editions rationalistes, 1971, p 241.

<sup>363</sup> *Système*, p.176.

<sup>364</sup> *Interprétation*, p.60.

<sup>365</sup> See Jacques Chouillet, ‘Des causes propres à l’homme’, in *Approches des Lumières: Mélanges offerts à Jean Fabre*, Paris: Klincksiek, 1974, p.57 and Stenger, *Nature et liberté*, p.224-237.

according to what one may call Diderot's 'argument from *cause une*', an individual substance (that is, a 'cause une') necessarily does what it does because it is that specific individual substance. The following passage from the *Observations sur Hemsterhuis* is in this sense revealing: 'J'ai tout à l'heure soixante ans. Quelle que soit la multitude des causes qui aient concurrencé [sic] à me faire ce que je suis, je suis une cause une. Je n'ai jamais, au moment où je parle, qu'un effet à produire. Cet effet est le résultat nécessaire de ce que j'ai été depuis l'instant le plus éloigné de l'instant présent, jusqu'à cet instant présent'.<sup>366</sup>

In as much as the notion of a 'cause une' is indissolubly linked to that of an individual substance (in this case, the 'je'), Diderot's argument from 'cause une' is remarkably close to the argument from essence. Indeed, both arguments can be roughly summed up by stating that individual substances cannot conceivably act any differently from how they do because, if they did, they would not be what they are. However, when compared to the Aristotelian-Thomistic argument from essence, Diderot's argument from 'cause une' exhibits a more dynamic nature. The passage from the *Observations sur Hemsterhuis* quoted above already shows that, contrary to d'Holbach's 'essence', that which Diderot calls 'cause une' is not simply the sum or source of all the essential qualities of a given individual substance. Rather, it is the summation of all the essential qualities of an individual substance plus all its previous actions, thoughts, and perceptions.<sup>367</sup> As a consequence, Diderot's argument from 'cause une' might be interpreted as the result of an original compromise between the traditional Aristotelian-Thomistic argument from essence and what Marc Bobro and Kenneth Clatterbaugh call Leibniz's 'efficacious perception view' of causation, that is, the view that 'the cause of each perceptual state of a monad is to be found in the previous perceptions of

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<sup>366</sup> *Hemsterhuis*, p.301. See also *Hemsterhuis*, p.302: 'L'acquiescement à produire l'effet qu'on produit nécessairement, comme cause une, n'est autre chose que la conscience de ce qu'on est au moment où l'on agit. Alors je veux est synonyme à je suis tel'.

<sup>367</sup> *Hemsterhuis*, p.301.

that monad'.<sup>368</sup> As Leibniz puts it in the *Discours de Métaphysique*, 'toutes nos pensées et perceptions futures ne sont que des suites quoique contingentes de nos pensées et perceptions précédentes'.<sup>369</sup> Diderot was well acquainted with this notion and discusses it in his entry 'Léibnitzianisme ou philosophie de Léibnitz' in the *Encyclopédie*, where he presents the German philosopher as claiming that 'l'état présent d'une substance simple procède naturellement de son état précédent'.<sup>370</sup> Unlike Leibniz, however, Diderot is insistent that all the effects that a 'cause une' brings about are not contingent but *logically* necessary. Take the following passage in the *Rêve de d'Alembert*, where Bordeu and Mlle de Lespinasse discuss the question of human freedom:

Bordeu: Je ne vous dirai de la liberté qu'un mot; c'est que la dernière de nos actions est l'effet nécessaire d'une cause une, nous, très compliquée, mais une.

Mlle de Lespinasse: Nécessaire?

Bordeu: Sans doute. Tâchez de concevoir la production d'une autre action, en supposant que l'être agissant soit le même.

Mlle de Lespinasse: Il a raison. Puisque c'est moi qui agis ainsi, celui qui peut agir autrement n'est plus moi; et assurer qu'au moment où je fais ou dis une chose j'en puis dire ou faire une autre, c'est assurer que je suis moi et que je suis une autre.<sup>371</sup>

Not only does this passage demonstrate beyond any reasonable doubt that Diderot conceives of 'causes unes' as logically necessitating their effects; it also confirms what has been asserted previously concerning the argument from 'cause une' and its dependency on the Law of Identity – the principle according to which any proposition that states the identity of the subject to itself is true. Diderot's endorsement of this basic law of logic has been questioned by Amor Cherni: 'Diderot', he writes, 'apparaît comme l'un des premiers modernes à avoir

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<sup>368</sup> Bobro and Clatterbaugh, 'Unpacking the Monad', p.409.

<sup>369</sup> Gottfried Wilhelm Leibniz, *Discours de Métaphysique*, in Leibniz, *Philosophischen Schriften*, vol.4, p.440.

<sup>370</sup> *Encyclopédie*, 9:374.

<sup>371</sup> *Rêve*, p.185-186.

sérieusement secoué le principe d'identité, puisque, pour lui, rien n'est fixe, rien ne reste ce qu'il est; rien ne reste tel qu'il est'.<sup>372</sup> Cherni's error here is to suppose that Diderot's insistence on change is incompatible with belief in individual identity. In fact, Diderot is clear in his works that these concepts are easily reconciled. This is precisely the point of a famous metaphor in the *Rêve*, which compares individuals to monasteries: 'l'esprit monastique', Mlle de Lespinasse says (and Bordeu immediately agrees), 'se conserve parce que le monastère se refait peu à peu, et quand il entre un moine nouveau, il en trouve une centaine de vieux qui l'entraînent à penser et à sentir comme eux. Une abeille s'en va, il en succède dans la grappe une autre qui se met bientôt au courant'.<sup>373</sup>

Besides the *Observations sur Hemsterhuis* and the *Rêve*, Diderot's argument from 'cause une' also appears in the *Réfutation d'Helvétius* as well as in *Jacques le fataliste*:

[Jacques] croyait qu'un homme s'acheminait aussi nécessairement à la gloire ou à l'ignominie, qu'une boule qui aurait la conscience d'elle-même suit la pente d'une montagne; et que, si l'enchaînement des causes et des effets qui forment la vie d'un homme depuis le premier instant de sa naissance jusqu'à son dernier soupir nous était connu, nous resterions convaincus qu'il n'a fait que ce qu'il était nécessaire de faire. Je l'ai plusieurs fois contredit, mais sans avantage et sans fruit. En effet, que répliquer à celui qui vous dit: « Quelle que soit la somme des éléments dont je suis composé, je suis un; or, une cause n'a qu'un effet; j'ai toujours été une cause une; je n'ai donc jamais eu qu'un effet à produire; ma durée n'est donc qu'une suite d'effets nécessaires. »<sup>374</sup>

In this passage, the argument from 'cause une' is enunciated by Jacques, rather than by the narrator, who, in fact, initially appears rather vexed at his speech. Basing their conclusions on

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<sup>372</sup> Cherni, *Diderot: L'Ordre et le devenir*, p.12.

<sup>373</sup> *Rêve*, p.165.

<sup>374</sup> *Jacques*, p.189-190. See also p.28: 'JACQUES: [...] Puis-je n'être pas moi? Et étant moi, puis-je faire autrement que moi? Puis-je être moi et un autre? Et depuis que je suis au monde, y a-t-il eu un seul instant où cela n'ait été vrai? Prêchez tant qu'il vous plaira, vos raisons seront peut-être bonnes; mais s'il est écrit en moi ou là-haut que je les trouverai mauvaises, que voulez-vous que j'y fasse?'

this passage, arguably the most widely quoted from *Jacques le fataliste*, and mostly ignoring the narrator's ultimate acknowledgement of the soundness of Jacques's ideas ('En effet, que répliquer à celui qui vous dit...'), several critics have claimed to discern a clash between Jacques, the determinist, and Diderot, the supporter of freedom.<sup>375</sup> The analysis conducted in the previous pages, however, should weed out any doubt: Jacques's line of reasoning in the passage above is nothing other than a restatement of Diderot's argument from 'cause une'. This shows that, while it is certainly simplistic to say that Jacques is Diderot's spokesman, opposing their philosophies on this point is not a fruitful line to pursue.

It is worth mentioning that, although more frequent in Diderot's works, the argument from 'cause une' is not absent from d'Holbach's. Consider, for example, the following passage:

Ce que l'homme va faire est toujours une suite de ce qu'il a été, de ce qu'il est et de ce qu'il fait jusqu'au moment de l'action. Notre être actuel et total, considéré dans toutes ses circonstances possibles, renferme la somme de tous les motifs de l'action que nous allons faire; principe à la vérité duquel aucun être pensant ne peut se refuser. Notre vie est une suite d'instants nécessaires et notre conduite bonne ou mauvaise, vertueuse ou vicieuse, utile ou nuisible à nous-mêmes ou aux autres est un enchaînement d'actions aussi nécessaires que tous les instants de notre durée.<sup>376</sup>

After all, as will become clearer in Chapter V, the notions of change and complexity are just as important to d'Holbach as they are to Diderot, and the following passage, as well as many others that I shall examine in the next chapter, makes it perfectly clear that the Baron does not view essences as unchangeable: 'C'est donc le mouvement continué inhérent à la matière qui altère et détruit tous les êtres, qui leur enlève à chaque instant quelques-unes de leurs propriétés pour leur en substituer d'autres: c'est lui qui, en changeant ainsi leurs essences

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<sup>375</sup> Lecourt, 'La philosophie de *Jacques le fataliste*', p.139.

<sup>376</sup> *Système*, p.298.

actuelles, change aussi leurs ordres, leurs directions, leurs tendances, les lois qui règlent leurs façons d'être et d'agir'.<sup>377</sup>

### Causal Necessitation and theology

As stated earlier, Causal Necessitation was a moderately common stance in ancient, medieval, and early modern philosophy. It should now be emphasised that a tight link exists between endorsement of Causal Necessitation and theology, since many philosophers saw in God the Necessary Cause *par excellence*. Perhaps no one epitomises this tendency better than Malebranche. As previously pointed out, Malebranche may well be listed amongst the strongest critics of Causal Necessitation, and it is precisely on the No Necessary Connection argument that he grounds his Occasionalism. Yet, Malebranche is clear that the only 'cause véritable' he would admit, i.e. God, is indeed a necessitating cause and logically necessitates its effects:

Quand on examine l'idée que l'on a de tous les esprits finis, on ne voit point de liaison nécessaire entre leur volonté et le mouvement de quelque corps que ce soit, on voit au contraire qu'il n'y en a point, et qu'il n'y en peut avoir. On doit aussi conclure, si on veut raisonner selon ses lumières, qu'il n'y a aucun esprit créé qui puisse remuer quelque corps que ce soit comme cause véritable ou principale [...]. Mais lorsqu'on pense à l'idée de Dieu, c'est-à-dire d'un être infiniment parfait et par conséquent tout-puissant, on connaît qu'il y a une telle liaison entre sa volonté et le mouvement de tous les corps, qu'*il est impossible de concevoir* qu'il veuille qu'un corps soit mû, et que ce corps ne le soit pas.<sup>378</sup>

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<sup>377</sup> *Système*, p.189. See also p.203: 'Bien plus, chaque être particulier agit toujours dans l'ordre; toutes ses actions, tout le système de ses mouvements sont toujours une suite nécessaire de sa façon d'exister durable ou momentanée'.

<sup>378</sup> Malebranche, *Recherche de la vérité*, vol.2, p.313 (VI,II,III). Italics mine. See Charles J. McCracken, *Malebranche and British Philosophy*, Oxford: Clarendon Press, 1983, p.262: 'It is not in Locke, Berkeley, or even Descartes, that one finds emphasis placed on the indispensable role necessary connection plays in our idea

Another interesting case in this respect is offered by Spinoza, who regards his ‘Deus sive Natura’ as the only substance and as a logically necessitating cause:

From the necessity of the divine nature must follow an infinite number of things in infinite ways [...]. This proposition will be clear to everyone, who remembers that from the given *definition* of any thing the intellect infers several properties, which really *necessarily* follow therefrom (that is, from the actual *essence* of the thing defined); and it infers more properties in proportion as the definition of the thing expresses more reality [...]. Now, as the divine nature has absolutely infinite attributes [...], it follows that *from the necessity of its nature an infinite number of things [...] must necessarily follow*. Q.E.D. Hence it follows, that God is the *efficient cause* of all that can fall within the sphere of an infinite intellect.<sup>379</sup>

Conversely, Hume’s criticism of Causal Necessitation was immediately perceived by his contemporaries as pointing towards atheism. In 1745, when the Scottish philosopher applied for the chair of Moral Philosophy at the University of Edinburgh, his adversaries published a document which pointed out, among other things, the atheistic implications of the theory of causation that Hume had expounded in the *Treatise on Human Understanding*. Hume defended himself in the *Letter from a Gentleman to his Friends in Edinburgh*, but the die was cast, and Hume was not appointed.<sup>380</sup> Even today, atheism is often linked to indeterminism or, at least, to a weak conception of causation such as the Regularity Theory, which, as we have seen, is derived from Hume’s account of causation. The question then naturally arises: why do Diderot and d’Holbach endorse Causal Necessitation? Why do they not adopt Hume’s theory of causation instead?

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of causation; it is Malebranche alone who lays great stress on the doctrine that causality consists essentially in a necessary connection of things.’

<sup>379</sup> *Ethics*, p1p16.

<sup>380</sup> Kail, ‘Causation’, p.196.

### The reasons behind it all

One conceivable answer is that Diderot and d'Holbach were unfamiliar with Hume's ideas about causation or, at least, that they were unaware of its repercussions at the theological level. Perhaps one could even strengthen this hypothesis by claiming that references to causation are nowhere to be found in Hume's correspondence with either Diderot or d'Holbach. However, with the exception of the letters sent to Francis Hutcheson and a few others, Hume's surviving correspondence is strikingly poor in explicitly philosophical content. Moreover, over the two years during which he served as secretary to the Marquess of Hertford, the British ambassador to France, Hume regularly attended the salon of the Baron d'Holbach, and it is practically inconceivable that, over the course of those two years, the three philosophers never sat down to discuss the questions, so crucial to their philosophical enquiries, of causation and religion.<sup>381</sup> The explanation of their non-adoption of Hume's model of causation must therefore be found elsewhere.

One possible reason behind Diderot and d'Holbach's rejection of Hume's views on causation could be that both philosophers thought that the mechanism underpinning Hume's account of causation was in fact very similar to the one that is at the basis of superstition and religion itself. This is suggested by Diderot's discussion of haruspicy in the entry 'Philosophie des Étrusques et des Romains', as well as by the following extract from the *Système de la nature*, in which d'Holbach describes how superstition and religion may have emerged:<sup>382</sup>

Il est encore une disposition qui sert à tromper l'homme sauvage, et qui trompera tous ceux que la raison n'aura point désabusés des apparences, c'est le concours fortuit de

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<sup>381</sup> It is also important to note that, as reported in the *Catalogue des livres du feu M. le Baron d'Holbach* (Geneva: Slatkine Reprints, 1970, p.60), d'Holbach owned copies of both the 1739 London edition of the *Treatise* and the 1758 French translation of the *Enquiry*. The inventory of Diderot's library published by Sergueï V. Korolev (*La Bibliothèque de Diderot. Vers une reconstitution*, Ferney-Voltaire, Centre International d'Etude du XVIIIe Siècle, 2014) also includes a 1764 French translation of Hume's *Œuvres philosophiques* as well as the *Philosophical Essays Concerning Human Understanding* (London, Cooper, 1751).

<sup>382</sup> *Encyclopédie*, 14:338.

certaines effets avec des causes qui ne les ont point produits, ou la coexistence de ces effets avec de certaines causes qui n'ont avec eux aucunes liaisons véritables. C'est ainsi que le sauvage attribuera la bonté ou la volonté de lui faire du bien à quelque objet, soit inanimé soit animé, tel qu'une pierre d'une certaine forme, une roche, une montagne, un arbre, un serpent, un animal, etc., si toutes les fois qu'il a rencontré ces objets, les circonstances ont voulu qu'il eût un bon succès à la chasse à la pêche, à la guerre, ou dans toute autre entreprise.<sup>383</sup>

As this passage clearly shows, d'Holbach believes that superstition originates in the observation that a certain event – either positive or negative – regularly follows another. Thus, if a certain thing (say, a black cat) is regularly observed before a mysterious or otherwise inexplicable event (e.g., a volcanic eruption), people will begin to suspect that black cats actually cause eruptions. To return to Stathis Psillos's scheme quoted above, one will see that the similarities between the Regularity View of Causation and what d'Holbach believes to be the reasoning behind superstition and religious beliefs are striking. As a matter of fact, d'Holbach's hypothetical 'hommes sauvages' may regard black cats as causing eruptions because:

- a) they have seen a black cat in about the same place where and at about the same time when the eruption occurred;
- b) they spotted the black cat before the eruption began;
- c) they have experienced a regularity, i.e. they have spotted black cats every time there was an eruption.

The second reason that may have prompted d'Holbach and Diderot to reject Hume's theory of causation and to endorse Causal Necessitation instead is then, quite simply, that they needed Causal Necessitation in order to argue for determinism. And why was it so important for

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<sup>383</sup> *Systeme*, p.395.

Diderot and d'Holbach to argue for determinism? Because as Jean Erhard has already claimed, a deterministic universe is a universe that human beings can hope to understand:

Dans la mesure où l'univers de Jacques le Fataliste est rigoureusement déterminé, il est au moins partiellement intelligible. [...] Le propre d'un esprit clairvoyant est d'identifier ces différents chaînons, de remonter d'un effet à sa cause ou, à l'inverse, d'anticiper sur l'enchaînement des faits. [...] L'enchaînement nécessaire des causes et des effets exclut aussi bien le hasard que le miracle: c'est pourquoi il offre prise à l'observation, l'analyse et la prévision. Dans un monde cohérent la science est possible.<sup>384</sup>

Conversely, an indeterministic universe where causes produce their effects randomly, where any event can follow any other event, where, quoting Hume, 'the falling of a pebble [...] may extinguish the sun', is a universe in which making inferences about the future is simply impossible; it is a universe where science has no place.<sup>385</sup>

## Conclusion

This chapter has explored Diderot's and d'Holbach's views on Causal Necessitation and concluded that both philosophers believe that causes logically necessitate their effects. More precisely, d'Holbach has been shown to subscribe to a very traditional argument, the Aristotelo-Thomistic 'argument from essence', to argue for the equivalence of Causal and Logical Necessitation. Diderot, on the other hand, appears to vacillate between this argument and the more dynamic, Leibniz-inspired 'argument from *cause une*'. My investigation into the reasons behind Diderot and d'Holbach's acceptance of Causal Necessitation led me to conclude that they reject Hume's regularity view of causation because they perceive it as pointing towards superstition and incompatible with scientific enquiry. At the same time, the

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<sup>384</sup> Erhard, '*Lumières et roman*', p.143.

<sup>385</sup> Hume, *Enquiry*, p.122.

discussion also situated both d'Holbach and Diderot relative to other key figures in the broader historical field of philosophy. In particular, it called for a re-evaluation of their attitudes towards Malebranche, of whom, after all, Diderot writes: 'Ce fut un rêveur des plus profonds et des plus sublimes. Une page de Locke contient plus de vérités que tous les volumes de Malebranche. Mais une ligne de celui-ci montre plus de subtilité, de finesse et de génie peut-être que tout le gros livre de Locke'.<sup>386</sup>

There is more to say on Diderot's and d'Holbach's views on Causal Necessitation. Although d'Holbach and Diderot normally turn to the Aristotelo-Thomistic argument from essence in either its traditional or its more innovative 'cause une' version in order to claim that causes logically necessitate their effects, Hobbes's argument from total cause is not entirely absent from their works. It is true that d'Holbach never uses the phrase 'cause totale' and that the argument from total cause is only explicitly put forward once in Diderot's works (and even then, only in an *Encyclopédie* article that is significantly indebted to Brucker). Yet, the situation radically changes when one delves deeper. I shall return to this point in Chapter V, when I shall explore Diderot's and d'Holbach's stance on aesthetic experience, complexity, and predictability. The last pages of this thesis, moreover, will return to the issue of Causal Necessitation to show how my contention that Diderot embraces this theory can be reconciled with Marian Hobson's claim that Diderot puts forward a probabilistic notion of causation, and with Nicholas Cronk's Humean interpretation of *Jacques le fataliste*. In the meantime, the next chapter will focus on another crucial feature of Diderot and d'Holbach's theory of determinism: laws of nature.

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<sup>386</sup> *Encyclopédie*, 'Malebranchisme ou Philosophie de Malebranche', 9:943.

### Chapter III: Laws of Nature

The previous two chapters have shown that Diderot and d'Holbach's theory of determinism rests on two main pillars: the Causal Principle and Causal Necessitation. As such, Diderot and d'Holbach's theory differs significantly from contemporary explanations of determinism, which normally hinge upon the notion of 'laws of nature'. Helen Beebee, for instance, defines determinism as the theory according to which 'the state of the universe at any given time together with the laws of nature determines what the state of the universe will be at any future time'.<sup>387</sup> Carl Hoefer similarly states that 'Causal Determinism is [...] the idea that every event is necessitated by antecedent events and conditions together with the laws of nature'.<sup>388</sup>

It is the main aim of the present chapter to determine whether (or to what extent) Diderot and d'Holbach believe in the existence of laws of nature. Following Walter Ott, I distinguish two competing theories about the origins of laws of nature that were relatively common in the early modern period: the top-down view, which interprets laws of nature as divine decrees, and the bottom-up view, according to which laws of nature supervene on the causal powers instantiated by finite causes. In addition, I discuss Spinoza's view, which, interestingly, combines both of these models. Diderot's and d'Holbach's ideas on the laws of nature diverge from each other in important ways. Diderot is traditionally understood as rejecting the notion of there being laws of nature as overly simplistic. However, I argue that several passages in his works reveal support for the bottom-up view, and I contend that this commitment is not incompatible with his unwavering faith in the complexity of reality. D'Holbach, on the other hand, enthusiastically endorses both the top-down and the bottom-up

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<sup>387</sup> Helen Beebee, 'The Non-Governing Conception of Laws of Nature', *Philosophy and Phenomenological Research*, 61, 3 (2000), p.578.

<sup>388</sup> Hoefer, 'Causal Determinism'.

view. I attempt to understand how these two tendencies coexist within his work, and shall ultimately suggest that d’Holbach’s view on the laws of nature may be indebted to Spinoza’s.

### Laws of nature in eighteenth-century France

There is a consensus among scholars that the modern concept of ‘laws of nature’ is a product of the scientific revolution of the seventeenth century, and Descartes is normally identified as its most prominent populariser.<sup>389</sup> It is therefore unsurprising to learn that, in the eighteenth century, the notion of ‘laws of nature’ was still a highly ambiguous one. The situation was further complicated by the fact that the phrase *law of nature* (*loi de la nature*, in French) featured prominently – as it still does today – not only in scientific parlance, but also in juridical discourse, where it was employed as a synonym of *natural law* or *loi naturelle* (i.e. *ius gentium*).<sup>390</sup> The *Encyclopédie* reflects this double usage: whilst d’Alembert usually employs the formula ‘loi de la nature’ in its scientific sense, as in, for example, the articles ‘Changement’, ‘Légèreté’, and ‘Newtonianisme’, other collaborators use it in its juridical sense.<sup>391</sup> As a case in point, in the article ‘Etat de Nature’, Jaucourt uses both the phrases ‘lois naturelles’ and ‘lois de la nature’ in their legal acceptation: ‘un homme dans l’état de nature peut punir les diverses infractions des lois de la nature, de la même manière qu’elles peuvent être punies dans tout gouvernement policé. La plupart des lois municipales ne sont justes

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<sup>389</sup> See Milton, ‘Laws’, p. 686. Recent scholarship, however, has insisted on Descartes’s indebtedness to other traditions. See Friedrich Steinle, ‘Negotiating Experiment, Reason and Theology: The Concept of Laws of Nature in the Early Royal Society’, in Wolfgang Detel and Claus Zittel (eds.), *Wissensideale und Wissenskulturen in der frühen Neuzeit*, Berlin: Akademie Verlag, 2002, p.197-212. For a history of the concept of ‘laws of nature’ in the early modern period, see Friedrich Steinle, ‘From Principles to Regularities: Tracing “Laws of Nature” in Early Modern France and England’, in Lorraine Daston and Michael Stolleis (eds.), *Natural Law and Laws of Nature in Early Modern Europe. Jurisprudence, Theology, Moral and Natural Philosophy*, New York: Routledge, 2008, p.215-231.

<sup>390</sup> See Daston and Stolleis (eds.), *Natural Law and Laws of Nature*.

<sup>391</sup> See *Encyclopédie*, 3:132, 9:353, and 11:122. See also the articles ‘Antipéristase’ (*Encyclopédie*, 1:511), also by d’Alembert, and ‘Moussons’ (*Encyclopédie*, 10:824) by Formey: ‘La cause des moussons est assez inconnue; tout ce que les philosophes en ont dit n’est rien moins que satisfaisant; la plupart de leurs conjectures ne sont point du tout fondées, et il y en a même quelques-unes qui se trouvent contraires aux lois de la nature’.

qu'autant qu'elles sont fondées sur les lois naturelles'.<sup>392</sup> In the article 'Ionique, secte', Diderot uses the phrase 'lois de la nature' in this juridical sense.<sup>393</sup> The same applies to the much debated article 'Autorité politique', to which Chapter V will return: '[L]autorité [des princes] est bornée par les lois de la nature et de l'état. Les lois de la nature et de l'état sont les conditions sous lesquelles ils se sont soumis, ou sont censés s'être soumis à son gouvernement'.<sup>394</sup> Building on this ambiguity, in the *Supplément au Voyage de Bougainville* and elsewhere, Diderot employs the phrase 'code de la nature' to refer to the set of natural laws as a whole.<sup>395</sup> Given the frequency with which Diderot makes use of this formula, one begins to understand why scholars in the past were prepared to accept him as the author of the last chapter of the *Système de la nature* – the 'Abrégé du Code de la Nature' –, as well as of the anonymous *Code de la nature*, which appeared in a 1773 edition of Diderot's works but is today normally attributed to Etienne-Gabriel Morelly.<sup>396</sup>

If we now confine our analysis to the scientific field, we shall find that it is d'Alembert who provides one of the most precise eighteenth-century definitions of *loi(s) de la nature*. The *Encyclopédie* entry 'Nature, lois de la' defines laws of nature as 'des axiomes ou règles générales de mouvement et de repos qu'observent les corps naturels dans l'action qu'ils exercent les uns sur les autres, et dans tous les changements qui arrivent à leur état naturel'.<sup>397</sup> While the use of the verb 'observer' may not be casual, as I shall presently show, the fact of the matter is that, in providing the above definition, d'Alembert intentionally dodges the

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<sup>392</sup> *Encyclopédie*, 6:17. See also the articles 'Enfant, fils ou fille', 'Ennemi', and 'Esclavage' (respectively *Encyclopédie*, 5:653, 5:692, and 5:937), all by Jaucourt.

<sup>393</sup> *Encyclopédie*, 8:876.

<sup>394</sup> *Encyclopédie*, 1:898.

<sup>395</sup> Denis Diderot, *Supplément au Voyage de Bougainville ou Dialogue entre A et B sur l'inconvénient d'attacher des idées morales à certaines actions physiques qui n'en comportent pas*, ed. by Centre d'Etude du XVIII<sup>e</sup> Siècle de Montpellier, in DPV, vol.12 (hereafter *Supplément*), p.629. For more on Diderot's 'théorie des trois codes' see Gerhardt Stenger, 'Diderot et la théorie des trois codes', in Hisayasu Nakagawa, Shin-ichi Ichikawa, Yoichi Sumi, and Jun Okami (eds.), *Ici et Ailleurs: Le Dix-Huitième Siècle au présent*, Tokyo: 1996, p.139-158.

<sup>396</sup> See *Collection complète des Œuvres philosophiques, littéraires et dramatiques de M. Diderot*, London: 1773, 5 vols, vol.2, p.319-466.

<sup>397</sup> *Encyclopédie*, 11:41.

pivotal, yet tricky question of the origins of laws of nature, which had been the subject of much philosophical discussion since at least Descartes's time.<sup>398</sup>

Two main theories dominate early modern discussion about the origins of laws of nature. Following Walter Ott, I shall call 'top-down view' the idea – shared, among others, by Descartes and Malebranche – that laws of nature supervene on God's (free) will and 'float free of the matter whose behaviour they prescribe'; I shall call 'bottom-up view' the opposite claim that laws of nature supervene on the powers instantiated by finite substances.<sup>399</sup>

### The Top-Down View

Descartes's *Principia philosophiae* famously include three fundamental principles about the motion and collision of bodies that are referred to as 'leges naturæ':

- 1) Each and every thing, in so far as it can, always continues in the same state; and thus what is once in motion always continues to move;<sup>400</sup>
- 2) All motion is in itself rectilinear; and hence any body moving in a circle always tends to move away from the centre of the circle which it describes;<sup>401</sup>
- 3) If a body collides with another body that is stronger than itself, it loses none of its motion; but if it collides with a weaker body, it loses a quantity of motion equal to that which it imparts to the other body.<sup>402</sup>

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<sup>398</sup> Newton's writings are similarly very ambiguous about what he thinks the origins of the laws of nature may be, which is why I do not discuss his views in the present chapter.

<sup>399</sup> Ott, *Causation and Laws*, p.5.

<sup>400</sup> René Descartes, *Principles of Philosophy*, in *The Philosophical Writings of Descartes*, trans. by John Cottingham, Robert Stoothoff, and Dugald Murdoch, Cambridge: Cambridge University Press, 1984-1991, 3 vols, vol.1, p.240.

<sup>401</sup> Descartes, *Principles*, p.241.

<sup>402</sup> Descartes, *Principles*, p.242. For a detailed assessment of Descartes's three laws of nature see Ott, *Causation and Laws*, p.57-59. These three laws had already featured, albeit in a different order, in section 7 of Descartes's *Traité du Monde*. See Milton, 'Laws', p.687.

In *De motu corporum ex percussione* of 1656, the Dutch mathematician Christiaan Huygens demonstrates that Descartes's law of collision and all the secondary rules that the French philosopher derives from it are utterly unfounded.<sup>403</sup> Regardless of their correctness, the Cartesian laws of nature are of interest because of the reasoning that lies behind them. One of the main ideas behind the *Principia philosophiae* and Descartes's late writings more broadly is the outright rejection of Scholastic powers, which the French philosopher criticises as obscure and explanatorily impotent.<sup>404</sup> In keeping with this, Descartes reconsiders his ideas on causation: he distances himself from the version of causation that he previously advocated (the physical influx theory) and concentrates all causal powers in God, thus moving closer to Occasionalism. Now, it is precisely in order to fill the gap left by Scholastic powers and explain how God exercises his causal power that the late Descartes has recourse to laws of nature.<sup>405</sup> In Descartes's later thinking, laws of nature supervene directly on God's (free) will: they are nothing other than divine commands imposed on inert matter.<sup>406</sup> As Descartes writes in a letter to Marin Mersenne of 15 April 1630, which is quoted in Jean Pestré and d'Alembert's entry 'Cartésianisme' in the *Encyclopédie*, 'les vérités mathématiques [...] ont été établies de Dieu et en dépendent entièrement, aussi bien que tout le reste des créatures. [...] C'est Dieu qui a établi [l]es lois de la nature, ainsi qu'un roi établit des lois en son

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<sup>403</sup> Christiaan Huygens, *De motu corporum ex percussione*, in *Œuvres complètes de Christiaan Huygens*, The Hague: Nijhoff, 1888-1950, 22 vols, vol.16, p.29-91. As for Huygens's refutation of Descartes laws of collision see Milton, 'Laws', p.689. For Huygens' use of the phrase 'loy de la Nature' see Steinle, 'Negotiating Experiment', p.200.

<sup>404</sup> For more on Descartes's reasons for rejecting Scholastic powers, see Ott, *Causation and Laws*, ch. V, and Daniel Garber, *Descartes' Metaphysical Physics*, Chicago: The University of Chicago Press, 1992, ch. IV.

<sup>405</sup> See John Henry, 'The Theological Origins of the Concept of Laws of Nature and its Subsequent Secularisation', in Neil Spurway (ed.), *Laws of Nature, Laws of God? Proceedings of the Science and Religion Forum Conference, 2014*, Cambridge: Cambridge Scholars Publishing, 2015, p.69.

<sup>406</sup> On the question of whether Descartes's God could have chosen different laws, see Ott, *Causation and Laws*, p.52; Steinle, 'Negotiating Experiment', p.198; and Milton, 'Laws', p.693: 'Descartes had held such strongly voluntaristic views about God's ability to alter the truth or falsity of propositions in both mathematics and ethics that it might seem natural to suppose that he would also have held the view that God could ordain any laws of nature, without restriction. [...] One can, however, understand why Descartes avoided this apparently tempting line of thought. If God could choose any laws whatever, then there would seem to be no way in which anyone could work out by metaphysical reasoning what the laws of nature must be. Physics would have to be purely a posteriori, experimental enquiry, within which the kind of a priori arguments deployed in Part II of the *Principia Philosophiae* would have no place'. I shall return to the modal status of the laws of nature.

royaume'.<sup>407</sup> As the latter sentence plainly shows, the view that laws of nature supervene (i.e. depend) on God's will – that is, the top-down view – is connected to what later came to be known as the *metaphor of divine command*, i.e. the idea that an analogy can be established between laws of nature and civil laws.<sup>408</sup> John Milton has shown that this idea was ubiquitous in early modern culture. Francis Bacon, for example, quotes James I as saying that 'kings ruled by their laws as God did by the laws of nature, and ought as rarely to use their supreme prerogative as God doth his power of working miracles'.<sup>409</sup>

Interpreting laws of nature as divine decrees has at least two major implications. It means, first, that laws of nature share some of God's own features, e.g. immutability.<sup>410</sup> Secondly, and most importantly, it means that they can be known *a priori*, and that no observation of the natural world is strictly required in order to discover them.<sup>411</sup> As Descartes himself puts it in the *Principia*, the laws of nature can be inferred directly 'from God's immutability'.<sup>412</sup>

Given the tight link between acceptance of the top-down view on the one hand and the refusal of finite (as opposed to divine) causation on the other, it is not surprising that Malebranche followed Descartes in interpreting laws of nature as divine decrees.<sup>413</sup> He makes

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<sup>407</sup> See *Encyclopédie*, 2:724. Descartes's letter can be read in his *Letters*, in *The Philosophical Writings of Descartes*, vol.3, p.20-23.

<sup>408</sup> Milton, 'Laws', p.684.

<sup>409</sup> Francis Bacon, *Works*, ed. by James Spedding, Robert Leslie Ellis and Douglas Denon Heath, London: Longmans, Green, Reader, and Dyer, 1857-1874, 14 vols, vol.3, p.429. On Francis Bacon's notion of laws of nature, see Milton, 'Laws', p.683-686.

<sup>410</sup> Descartes, *Principles*, p.240: 'We understand that God's perfection involves not only his being immutable in himself, but also his operating in a manner that is always utterly constant and immutable'. See also Milton, 'Laws', p.687 and Ott, *Causation and Laws*, p.54.

<sup>411</sup> See Ott, *Causation and Laws*, p.54. D'Alembert, too, believes that no observation is required in order to discover the laws of nature. See his *Essai sur les éléments de philosophie*, Paris: Fayard, 1986, p.180: 'la physique expérimentale n'est nullement nécessaire pour déterminer les lois du mouvement et de l'équilibre; si elle s'en occupe, ce doit être comme d'une recherche de simple curiosité, pour réveiller et soutenir l'attention des commençants'.

<sup>412</sup> Descartes, *Principles*, p.240. For more on Descartes and the laws of nature, see Tad M. Schmaltz, *Descartes on Causation*, New York and Oxford: Oxford University Press, 2008, ch. III.

<sup>413</sup> For more on Malebranche and the laws of nature, see Kenneth Clatterbaugh, 'The Early Moderns', in Beebe, Hitchcock and Menzies (eds.), *The Oxford Handbook of Causation*, p.62.

this clear in the *Réponses à Monsieur Arnauld*, when he writes that ‘il est clair que les lois de la Nature ne sont que les lois générales, ou les volontés pratiques générales de son Auteur’.<sup>414</sup> That he turns to the top-down view precisely with a view to strengthening his Occasionalism is shown by the following passage from the *Recherche de la vérité*: ‘Dieu [...] a voulu aussi certaines lois selon lesquelles les mouvements se communiquent à la rencontre des corps: et parce que ces lois sont efficaces, elles agissent, et les corps ne peuvent agir. Il n’y a donc point de forces, de puissances, de causes véritables dans le monde matériel et sensible’.<sup>415</sup> Robert Merrihew Adams, however, has argued that two different interpretations can be put forward to explain how, according to Malebranche, God and the laws of nature are related.<sup>416</sup> The first interpretation, which is more consistent with Occasionalism, and yet less easily reconciled with Malebranche’s claim that God is compelled always to act in the simplest possible way, posits that laws of nature are general policies that God has established and that he decides to follow whenever the right circumstances (the occasional causes) present themselves.<sup>417</sup> Meanwhile, according to the second interpretation, only a few decisions are required from God, who does nothing other than stating, once and for all, that whenever certain conditions obtain (i.e. whenever certain occasional causes occur), finite bodies must behave in a certain fashion:

Suppose God wills that whenever two bodies collide in way  $w_1$ , they rebound from each other in way  $w_2$ . This is a general volition, and is necessarily efficacious. It brings it about that whenever two bodies collide in way  $w_1$ , they rebound from each other in way  $w_2$ . [...] It is God that efficaciously acts on the bodies and genuinely causes the rebound, but there is no need for God to make an additional decision to cause the bodies to rebound in a

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<sup>414</sup> Nicolas Malebranche, *Réponses à Monsieur Arnauld*, in Malebranche, *Œuvres Complètes*, vol.8, p.704. See also Malebranche, *Réponses à Arnauld*, p.654.

<sup>415</sup> Malebranche, *Recherche de la vérité*, vol.2, p.314 (VI.ii.3).

<sup>416</sup> Robert Merrihew Adams, ‘Malebranche’s Causal Concepts’, in Eric Watkins (ed.), *The Divine Order, the Human Order, and the Order of Nature*, Oxford: Oxford University Press, 2013, p.67-104.

<sup>417</sup> Adams, ‘Malebranche’s Causal Concepts’, p.71-72. As for Malebranche’s contention that God always acts in the simplest possible way, see Malebranche, *Recherche de la vérité*, vol.1, p.438 (III.ii.6).

particular case. For God's general practical volition by itself is sufficient to necessitate the occurrence of the rebound when the occasional cause occurs.<sup>418</sup>

Unlike the first interpretation, the second does justice to God's wisdom and love of simplicity, but significantly limits his causal power, recognising a higher degree of efficacy in the laws of nature themselves.<sup>419</sup>

### The Bottom-Up View

Although Descartes, in his late writings, and Malebranche turned to laws of nature precisely with a view to replacing the ontologically problematic notion of power, nothing prevents the supporters of finite causation from believing in laws of nature. The philosopher who recognises genuine causal powers in finite bodies can turn to what Walter Ott terms the *bottom-up view*. According to this view, laws of nature do not supervene on God's will but rather on the powers instantiated by finite beings and objects. In other words, laws of nature (i.e. the way bodies and beings behave and interact) are not imposed by God, but are rather a function of the powers that those bodies and beings instantiate.<sup>420</sup> Therefore, the bottom-up view considers that laws of nature depend on causation: since As always cause Bs, it will be a law of nature that all As are followed by Bs.<sup>421</sup> Or to put it another way, laws of nature are merely summaries of causal connections. As a consequence, unlike the top-down view, the bottom-up view affirms that laws of nature cannot possibly be discovered *a priori*; instead, one needs to rely on observation to uncover the rules underpinning the natural world. Walter

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<sup>418</sup> Adams, 'Malebranche's Causal Concepts', p.72.

<sup>419</sup> As for the causal efficacy of the laws of nature see Ott, *Causation and Laws*, p.56.

<sup>420</sup> Ott, *Causation and Laws*, p.5: '[On the] "bottom-up" view [...] the course of nature is fixed by the properties of created beings. On this position, fire's tendency to burn dry wood under standard conditions is a function of the powers of the fire and wood; to create a world in which all of the conditions are right and yet the wood remains unburned, God would have to create a world in which neither fire nor wood exist. Once the relevant properties are instantiated, nature takes the course it does simply in virtue of the kinds of things that make it up'.

<sup>421</sup> See Hoefer, 'Causal Determinism'.

Ott lists amongst the most important supporters of this view Pierre-Sylvain Régis and John Locke, who both attempted to reconcile the Aristotelian-Thomistic notion of power with the new ontology of mechanism.<sup>422</sup> Modern versions of the bottom-up view are still being propounded today, for instance by John Bigelow, Brian Ellis, and Caroline Lierse:

Laws of nature [...] are truths whose necessity is grounded in the essential properties of this world and the things in it. Hence, it is not the relation between universals that constitutes the necessity of laws, but rather, their necessity results from the essential natures of the properties on which the nomological relation supervenes. [...] We argue that included among the essential properties of a property is the propensity or disposition of whatever possesses it to display a particular kind of behaviour in a specific kind of context. [...] Given the essential natures of the kinds of things said to be nomically connected, the supervenient relation (law) must necessarily follow. Hence, there is no possible world where things of these kinds exist, but the supervening (nomic) relation fails to hold.<sup>423</sup>

### Spinoza

One more view, Spinoza's, is worth describing here in addition to the top-down and the bottom-up theories, not only in recognition of its originality and complexity, but especially because of the influence that it had on d'Holbach. Walter Ott interprets Spinoza as a supporter of the 'bottom-up view'.<sup>424</sup> To support his argument, Ott quotes several passages, including one from the *Tractatus de Intellectus Emedatione*, in which Spinoza maintains that the laws 'according to which all singular things come to be, and are ordered' ('legibus [...] secundum

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<sup>422</sup> See Ott, *Causation and Laws*, ch. XIV and XVII.

<sup>423</sup> John Bigelow, Brian Ellis, and Caroline Lierse, 'The World as One of a Kind: Natural Necessity and Laws of Nature', *British Journal for the Philosophy of Science*, 43, 3 (1992), p.378. For more on this theory, see Friedel Weinert, 'Laws of Nature – Laws of Science', in Friedel Weinert, *Laws of Nature: Essays on the Philosophical, Scientific and Historical Dimensions*, Berlin: Walter de Gruyter, 1995, p.46-48, and Brian Ellis, 'Causal Powers and Laws of Nature', in Howard Sankey (ed.), *Causation and Laws of Nature*, Dordrecht: Kluwer Academic Publishers, 1999, p.19-34.

<sup>424</sup> Walter Ott, 'Leges sive natura: Bacon, Spinoza, and a Forgotten Concept of Law', in Walter Ott and Lydia Patton (eds.), *Laws of Nature*, Oxford: Oxford University Press, forthcoming.

quas omnia singularia et fiunt et ordinantur’) are ‘inscribed’ (‘inscriptis’) in ‘things, as in their true codes’ (‘in [...] rebus, tamquam in suis veris codicibus’).<sup>425</sup> Similarly, in the *Tractatus Theologico-Politicus*, after introducing a distinction between human laws (what he terms ‘jus’) and laws of nature, Spinoza defines a law of nature as ‘illa [lex] quae ex ipsa rei natura sive definitione necessario sequitur’, i.e. as that law ‘which necessarily follows from the nature or definition of things’.<sup>426</sup> Letter 32 to Oldenburg – the so-called *vermiculus* letter – goes so far as to identify *natura* and *leges*, that is the nature of a thing and the laws that are specific to it: ‘[b]y the coherence of parts’, Spinoza writes, ‘I understand nothing but that the laws or [sive] nature of the one part so adapt themselves to the laws or [sive] nature of the other part that they are opposed to each other as little as possible’.<sup>427</sup> Additionally, Ott remarks that the Dutch philosopher’s claim in the same letter that ‘plurimae [...] causae dantur, quae leges naturae sanguinis [...] moderantur’ (‘there are many [...] causes which restrain the laws of the nature of the blood’) could hardly fit with a Cartesian, top-down, model in which the laws of nature are unchangeable divine decrees and finite objects and minds are devoid of any causal power.<sup>428</sup> However, if one considers Spinoza’s commitment to the bottom-up view, this statement

makes perfect sense [for] the powers of distinct objects can compete against each other. The blood might be disposed to move in a certain direction, but this disposition can be interrupted [...] by the presence of competing causes. In just the same way, a match can be disposed to light when struck, and yet not light in an oxygen-free environment. Any given event, then, will be the result of the interplay among the *laws or dispositions* of the objects concerned.<sup>429</sup>

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<sup>425</sup> Baruch Spinoza, *Tractatus de Intellectus Emedatione*, in Spinoza, *Opera*, vol.2, p.37. The translation can be read in Baruch Spinoza, *Treatise on the Emendation of the Intellect*, in Spinoza, *Collected Works*, vol.1, p.41.

<sup>426</sup> See Miller, ‘Spinoza and the Notion of a Law of Nature’, p.260-261.

<sup>427</sup> Quoted in Ott, ‘*Leges sive natura*’. As for the meaning of the conjunction ‘sive’ in Spinoza see Chapter I.

<sup>428</sup> Quoted in Ott, ‘*Leges sive natura*’.

<sup>429</sup> Ott, ‘*Leges sive Natura*’.

This consideration is of the utmost importance and will be used in what follows to reject one of the two main arguments that are normally advanced against Diderot's belief in laws of nature.

However, it must be noted that, occasionally, Spinoza appears to depart from a rigid bottom-up perspective and incline towards the top-down model. An example of this can be found in the *Tractatus Theologico-Politicus*, where Spinoza makes the point that 'the universal laws of nature, according to which all things happen and are determined, are nothing but the eternal decrees of God, which always involve eternal truth and necessity'.<sup>430</sup> Most importantly for our present purposes, this is the position regarding the laws of nature that the *Encyclopédie* ascribes to Spinoza. The anonymous article 'Miracle' reads:

Spinoza [...] a nié qu'il pût [...] arriver [...] rien qui pût troubler l'ordre des choses: et la raison qu'il apporte pour contester la possibilité des miracles, est que les lois de la nature ne sont autre chose que les décrets de Dieu; or, ajoute-t-il, les décrets de Dieu ne peuvent changer, les lois de la nature ne peuvent donc changer. Donc les miracles sont impossibles, puisqu'un vrai miracle est contraire aux lois connues et ordinaires de la nature.<sup>431</sup>

In conclusion, the top-down and the bottom-up theories seem to coexist within Spinoza's work.<sup>432</sup> Their coexistence, however, is not necessarily contradictory, and John Miller has advanced the claim that, according to Spinoza, finite modes (i.e. objects and beings) are jointly governed by the laws inherent in their own natures and divine decrees. As he puts it, 'finite modes [are] structured by a set of laws that pertain just to [themselves]. In addition, there will be higher level laws setting limits on [their] movements'.<sup>433</sup>

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<sup>430</sup> Baruch Spinoza, *The Theological-Political Treatise*, in Spinoza, *Collected Works*, vol.2, p.112-113.

<sup>431</sup> *Encyclopédie*, 10:561.

<sup>432</sup> To be sure, things are further complicated by Spinoza's ontology, according to which God is the only true substance. See Spinoza, *Ethica*, p.56 (p1p14).

<sup>433</sup> Miller, 'Spinoza and the Notion of a Law of Nature', p.263.

## D'Holbach and the laws of nature

D'Holbach's works teem with references to the laws of nature.<sup>434</sup> Many of these appear in passages that are primarily concerned with miracles. Much like Spinoza (and Hume), d'Holbach views the existence of immutable laws of nature as indisputable evidence of the impossibility of miracles: 'Quant à ce que l'on nomme des miracles, c'est-à-dire des effets contraires aux lois immuables de la nature, on sent que de telles œuvres sont impossibles'.<sup>435</sup> He shows familiarity with the top-down view when, insisting on the absurdity of the notion of miracles, he poses the question as to why God would wish to infringe laws he himself has established.<sup>436</sup>

D'Holbach sees laws of nature as necessary.<sup>437</sup> As he asserts in Chapter I.4 of the *Système de la nature*, 'Tous les mouvements qui s'[excitent dans la nature] suivent des lois [...] nécessaires'.<sup>438</sup> This observation is not as trivial as it may sound. Early modern philosophers disagreed profoundly as to the modal status of laws of nature. In the *Théodicée*, Leibniz distinguishes three different approaches to this issue.<sup>439</sup> The first theory that he mentions, which he tacitly ascribes to Spinoza and which one finds here expressed in d'Holbach, states that laws of nature are absolutely necessary. Indeed, Leibniz insinuates that Spinoza attributed to the laws of nature the same degree of necessity that is normally recognised to mathematical or geometrical truths: 'une nécessité absolue, métaphysique ou

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<sup>434</sup> Some of the passages where d'Holbach refers to the laws of nature are listed in Naville, *D'Holbach*, p.236-239. A few remarks can also be found in Wickwar, *D'Holbach*, p.151-152.

<sup>435</sup> *Système*, p.201-202. Similar statements can be found in *Système*, p.527.

<sup>436</sup> *Système*, p.458.

<sup>437</sup> On the importance of distinguishing between the modal status of the laws of nature and that of their effects, see Miller, 'Spinoza and the Notion of a Law of Nature', p.265.

<sup>438</sup> *Système*, p.191. See also p.176: 'La communication du mouvement ou le passage de l'action d'un corps dans un autre se fait encore suivant des lois [...] nécessaires'.

<sup>439</sup> For Leibniz's views about the laws of nature, see Milton, 'Laws', p.690; Robert Merrihew Adams, *Leibniz: Determinist, Theist, Idealist*, New York: Oxford University Press, 1994, p.81; and Lin, 'Efficient Causation', p.185.

géométrique'.<sup>440</sup> The second theory, Leibniz's own view, maintains that laws of nature are *morally* rather than metaphysically necessary: they are necessary inasmuch as they are determined by God's choice of creating the best of all possible worlds, but they would have been different had God decided to create a different world. The third and last theory is then attributed to Bayle, whose writings Leibniz interprets as holding that laws of nature are entirely contingent as a result of God's freedom in choosing them.<sup>441</sup> In addition to employing the adjective 'nécessaire', d'Holbach also describes laws of nature as 'fixes', 'constantes', and 'déterminées'.<sup>442</sup>

According to d'Holbach, everything that happens in the universe – from the revolution of the planets around the Sun down to the behaviour of animals – is prescribed by strict laws of nature.<sup>443</sup> Human beings are no exception: 'L'homme est l'ouvrage de la nature, il existe dans la nature, il est soumis à ses lois, il ne peut s'en affranchir'.<sup>444</sup> D'Holbach's insistence that the same laws of nature apply to both the physical world and the moral domain has an interesting bearing on his lexical choices. Hence his frequent usage of the words 'attraction' and 'répulsion' in place of 'amour' and 'haine', respectively.<sup>445</sup> The following chapter, which will examine the question of ethics and moral freedom, will return to this point. What interests us here is to focus on the ontological roots of d'Holbach's laws of nature and to understand where his position falls along the top-down/bottom-up spectrum.

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<sup>440</sup> *Théodicée*, p.321. For more on the modal status of Spinoza's laws of nature see Miller, 'Spinoza and the Notion of a Law of Nature', p.265.

<sup>441</sup> For more on the modal status of the laws of nature according to early modern philosophers, see Milton, 'Laws', p.693. Newton and Clarke denied that the laws of nature were absolutely necessary. See also Henry, 'The Theological Origins', p.72 and d'Alembert, *Essai*, p.138-139.

<sup>442</sup> *Système*, p.189: 'nous ne verrons jamais que des matières diversement combinées, [...] réglés par des lois fixes et déterminées [...] qui leur font subir des changements nécessaires'.

<sup>443</sup> *Système*, p.200.

<sup>444</sup> *Système*, p.167.

<sup>445</sup> *Système*, p.193. See below Chapter V.

## D'Holbach and the Bottom-Up View

Rejecting both Occasionalism and Leibniz's theory of Pre-Established Harmony, d'Holbach and Diderot view finite objects and beings as causally active. Given the tight link, discussed previously, between commitment to the top-down view and rejection of finite causation, one would expect d'Holbach to embrace the bottom-up view. Several passages in his works confirm this hypothesis, of which the following is but one example:

Chaque être ne peut agir et se mouvoir que d'une façon particulière, c'est-à-dire suivant des lois qui dépendent de sa propre essence, de sa propre combinaison, de sa propre nature, en un mot de sa propre énergie et de celle des corps dont il reçoit l'impulsion. [...] C'est ainsi qu'un corps pesant doit nécessairement tomber, s'il ne rencontre un obstacle propre à l'arrêter dans sa chute. C'est ainsi qu'un être sensible doit nécessairement chercher le plaisir et fuir la douleur.<sup>446</sup>

As defined in Chapter II, according to d'Holbach, a substance's essence is nothing other than the summation or source of its essential properties. To claim that the laws according to which a substance moves 'dépendent de sa propre essence' is therefore to say that laws of nature supervene on, or are a function of, the essential properties of finite beings and objects. As d'Holbach repeats later on in the *Système*, 'les causes agissent suivant des lois fixes [...] dépendantes de leurs propriétés essentielles'.<sup>447</sup> Occasionally, d'Holbach replaces the notion of dependence with the stronger one of determination, arguing that essential properties determine what the laws are.<sup>448</sup> At least on one occasion, he presents laws of nature as inherent in the essence of finite beings, and in *Le Bon Sens* he goes so far as to maintain that laws of nature are nothing other than convenient ways of expressing necessary causal

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<sup>446</sup> *Système*, p.176.

<sup>447</sup> *Système*, p.206.

<sup>448</sup> *Système*, p.194.

connections: ‘tout [dans la Nature] suit des lois fixes [qui] ne sont que la liaison nécessaire de certains effets avec leurs causes’.<sup>449</sup>

These passages leave no doubt concerning d’Holbach’s commitment to the bottom-up view. In its full form, the title itself of d’Holbach’s *Système de la nature ou des lois du monde physique et du monde moral* appears to posit an equivalence between nature and laws that is reminiscent of Spinoza’s ‘*natura sive leges*’.

### D’Holbach and the Top-Down View

Nevertheless, close and unprejudiced analysis reveals that d’Holbach’s ideas concerning the laws of nature are much more complex than the above might suggest. While certainly abundant, the passages in which d’Holbach endorses the bottom-up view are outnumbered by those in which he appears to move towards the opposite end of the spectrum. On more than one occasion, he writes that the laws of nature are the rules according to which Nature *acts* (a capital N does not seem out of place). ‘[La nature] agit dans tout ce qu’elle fait d’après des lois certaines’, he claims in Chapter II.1 of the *Système*.<sup>450</sup> And again: ‘La nature agit par des lois simples, uniformes, invariables que l’expérience nous met à portée de connaître’.<sup>451</sup> Although the relative clause that ends this last sentence reveals that d’Holbach does not share Descartes’ and d’Alembert’s assertion that laws of nature can be discovered *a priori*, the fact remains that this and similar passages, with their personification of Nature, hardly fit within a bottom-up perspective. Perhaps even more surprising is the fact that d’Holbach sometimes turns to the verb ‘suivre’ when discussing Nature’s relations to the laws. In Chapter I.5 of the *Système*, for instance, one reads: ‘Il est aisé de conclure [que l’ordre et le désordre] n’existent

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<sup>449</sup> *Système*, p.174; *Bon Sens*, p.237.

<sup>450</sup> *Système*, p.402.

<sup>451</sup> *Système*, p.169. See also *Système*, p.487.

point réellement dans une nature où tout est nécessaire, qui suit des lois constantes'.<sup>452</sup> By doing so, d'Holbach appears to veer dangerously close to the first of the two theories about the laws of nature that Adams attributes to Malebranche, that is, the claim that laws are general policies that God decides to follow whenever the right circumstances present themselves.<sup>453</sup> The similarities between d'Holbach's stance on laws of nature and Malebranche's do not end here. In a very interesting passage, d'Holbach maintains that Nature cannot be blamed for not always pursuing the 'bien être' of living beings. The reason he provides is precisely that, in all its operations, Nature does but follow ('suivre') certain necessary laws: 'Les hommes n'ont point senti que cette nature, dépourvue de bonté comme de malice, ne fait que suivre des lois nécessaires et immuables en produisant et détruisant des êtres'.<sup>454</sup> Likewise, in Chapter I.12 of the *Système*, he writes: 'N'accusons donc point la nature d'être inexorable pour nous [...]. Cette nature suit des lois générales et nécessaires dans toutes ses opérations; le mal physique et le mal moral ne sont point dus à sa méchanceté, mais à la nécessité des choses'.<sup>455</sup> Sentences like these are clearly reminiscent of a theodicy argument that Malebranche used in the *Réponses à Monsieur Arnauld* to counter the accusation that Occasionalism makes God directly responsible for the existence of evil:

Certainement Dieu ne doit pas troubler la simplicité et l'uniformité de ses voies, pour empêcher qu'un assassin ne fasse un méchant usage de la puissance qu'il lui a donnée par les lois générales de l'union de l'âme et du corps. Dieu lui remuera donc le bras, puisqu'il a établi les lois dont ce mouvement est une suite. Mais ce n'est pas qu'il veuille positivement et directement cette action criminelle: car ce n'est point pour de semblables actions qu'il a établi les lois de l'union de l'âme et du corps, mais pour de meilleurs effets et plus dignes de sa sagesse et de sa bonté. Il *permet* donc ces sortes d'actions: mais à proprement parler il n'a

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<sup>452</sup> *Système*, p.199.

<sup>453</sup> See above p.113-114.

<sup>454</sup> *Système*, p.170. See also *Système*, p.315.

<sup>455</sup> *Système*, p.314.

pas dessein de les faire, quoi qu'il ait véritablement le dessein de les faire servir à sa gloire.<sup>456</sup>

### D'Holbach's compromise

D'Holbach's apparent acceptance of the top-down view alongside the bottom-up one poses serious difficulties: not only are the two models diametrically opposed; the top-down view also appears to contradict his strong atheistic beliefs. Two points, however, are worth considering. For one thing, d'Holbach's endorsement of both models is not unprecedented and Spinoza can also be interpreted as committing to both views. As remarked previously, Miller has advanced the claim that, in Spinoza's philosophy, top-down and bottom-up laws coexist quite harmoniously, for Spinoza sees finite beings and objects as simultaneously subject to the laws of their own nature (bottom-up laws) and the superior laws of Nature (top-down laws). It is interesting to note that the same argument also appears in the *Système de la nature*, where d'Holbach writes: 'Tous les corps agissent suivant des lois inhérentes à leur propre essence sans pouvoir s'écarter un seul instant de celles suivant lesquelles la nature agit elle-même'.<sup>457</sup> Secondly, and perhaps most importantly, d'Holbach advances a second solution to explain how top-down and bottom-up laws may coexist, according to which it is Nature that confers essential powers upon finite objects and beings and thus establishes what the bottom-up laws are going to be. In other words, top-down and bottom-up laws coincide. This seems to be what d'Holbach is alluding to in a *nota bene* in the *Système*, in which he defines as 'naturel' 'ce qui est conforme à l'essence des choses ou aux lois que la nature

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<sup>456</sup> Malebranche, *Réponses à Arnauld*, p.653. See also *Encyclopédie*, 'Cause', 2:788: 'C'est bien une volonté efficace de Dieu qui me fait marcher: mais il ne veut me faire marcher qu'en conséquence de ce qu'il a voulu une fois pour toutes, que les mouvements de mon corps suivissent les désirs de mon âme'. For more on how Malebranche has recourse to the laws of nature in his theodicy, see Adams, 'Malebranche's Causal Concepts', p.7.

<sup>457</sup> *Système*, p.197.

prescrit à tous les êtres qu'elle renferme'.<sup>458</sup> As was also the case with the phrase 'causa sive ratio' analysed in Chapter I, the 'ou' here is arguably used to connect two synonyms rather than to introduce an alternative.

Whatever the solution proposed in order to account for the coexistence of bottom-up and top-down laws, the fact remains that the top-down view points to the existence of a divine ruler, which clearly undermines d'Holbach's proclaimed atheism. The top-down view of the laws of nature should therefore be listed among the features of the Christian philosophical tradition that d'Holbach does not entirely succeed in eradicating, or, rather, that he deliberately preserves.

### Diderot and the laws of nature

There is a widespread consensus among scholars that Diderot was highly sceptical about the existence of laws of nature. This tendency is perhaps best epitomised by Colm Kiernan, who proclaimed that, for Diderot, laws of nature are simply 'out of the question'.<sup>459</sup> In his influential *Diderot, homme de science*, Jean Mayer similarly claims that Diderot 'rest[a] toujours hostile à la notion de loi physique'.<sup>460</sup> More cautiously, Gerhardt Stenger presents Diderot as a forerunner of a certain contemporary dissatisfaction with the *universality* of laws of physics: 'Les lois prétendument universelles de la physique classique sont de nos jours déclarées sans valeur [...]. Il appartient à Diderot d'avoir anticipé [...] sur ces orientations'.<sup>461</sup> The text that is normally taken as the zenith of Diderot's anti-nomic tendency is a short mathematical essay of 1761: the *Réflexions sur une difficulté proposée contre la manière dont les Newtoniens expliquent la cohésion des corps, et les autres phénomènes qui s'y*

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<sup>458</sup> *Système*, p.173.

<sup>459</sup> Colm Kiernan, 'Additional Reflections on Diderot and Science', *DS*, 14 (1971), p.136.

<sup>460</sup> Jean Mayer, *Diderot: Homme de science*, Rennes: Imprimerie bretonne, 1959, p.200.

<sup>461</sup> Stenger, *Nature et liberté*, p.128.

*rapportent*.<sup>462</sup> Kiernan claims that, in this short essay, ‘Diderot simply disagree[s] that the inverse square law of attraction applies to earth’.<sup>463</sup> This interpretation, however, is questionable. In the *Réflexions sur une difficulté*, Diderot wonders whether the force by which small bodies cohere can be explained with reference to Newton’s law of universal gravitation. In so doing, he discusses the theory, advanced by Alexis-Claude Clairaut, Euler, and d’Alembert, that Newton’s inverse square law cannot be equally applied to celestial and terrestrial bodies.<sup>464</sup>

quelques newtoniens [...] ont pris le parti de borner le principe de l’attraction aux seuls phénomènes célestes, auxquels il s’applique avec une facilité merveilleuse. D’autres ont mieux aimé chercher à la résoudre, que d’admettre des bornes dans un principe dont l’universalité est prouvée par des raisons au moins très plausibles. Dans cette vue quelques-uns ont cru que la loi générale de l’attraction pouvait n’être pas celle de la raison inverse du carré, mais celle de la raison inverse du carré plus la raison inverse du cube.<sup>465</sup>

Diderot does not agree with Clairaut and the others. Instead, he argues that Newton’s inverse square law is correct and that its mathematical formula perfectly applies to both the cohesion of small bodies and the motion of celestial ones.<sup>466</sup> As he puts it: ‘il ne paraît pas impossible que la force qu’on observe dans les cohésions etc. et celle de la pesanteur, quelque disproportion qu’il y ait entre elles, ne puissent être produites par une même attraction agissant en raison inverse du carré’.<sup>467</sup> Only, certain ‘circonstances particulières’, to which I

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<sup>462</sup> Denis Diderot, *Réflexions sur une difficulté proposée contre la manière dont les Newtoniens expliquent la cohésion des corps, et les autres phénomènes qui s’y rapportent*, ed. by Jean Varloot, in DPV, vol.9, p.331-351. The attribution of this mathematical essay to Diderot is not in fact entirely certain. See p.337-338.

<sup>463</sup> Kiernan, ‘Additional Reflections’, p.136. See also Stenger, *Nature et liberté*, p.130-132.

<sup>464</sup> See, for example, d’Alembert, *Essai*, p.156-157: ‘L’expérience prouve invinciblement que la force attractive entre les corps terrestres doit avoir d’autres lois que celles de l’attraction planétaire; et c’est peut-être une raison de douter qu’elle existe en effet; car il n’est pas naturel de penser que la loi d’attraction, si cette loi est un principe primitif, ne soit pas uniforme et absolument la même pour toutes les parties de la matière’. For more on this dispute, see Kurt Ballstadt, *Diderot: Natural Philosopher*, SVEC, 2008:09, p.19.

<sup>465</sup> Diderot, *Réflexions sur une difficulté*, p.342.

<sup>466</sup> Ballstadt, *Diderot: Natural Philosopher*, p.19.

<sup>467</sup> Diderot, *Réflexions sur une difficulté*, p.345.

shall return towards the end of this chapter, can interfere with the general law and produce unexpected results – the ‘disproportion’ of the sentence just quoted. Thus, contrary to what Kiernan argues, the *Réflexions sur une difficulté* is best described as a defence of the universality of Newton’s inverse square law, however cautious, rather than an anti-nomic text.<sup>468</sup> Indeed, it is the solid Newtonianism of the *Réflexions sur une difficulté* – which may appear to contradict Diderot’s life-long interest in the natural sciences and vitalism – that causes Paolo Casini to claim that this text is difficult to fit into the framework of Diderot’s intellectual development.<sup>469</sup>

It should be noted in passing that Gerhard Stenger is mistaken when he claims that Diderot’s inclusion of the ‘extrême petitesse’ of bodies amongst the ‘circonstances particulières’ that may account for the apparent variation of Newton’s inverse square law should be taken as evidence of his dissatisfaction with determinism.<sup>470</sup> Stenger’s claim is dictated by an anachronistic reading of Diderot’s text in the light of James Clerk Maxwell’s discoveries.<sup>471</sup> On the contrary, Diderot is clear that the effects of small causes are perfectly quantifiable.<sup>472</sup> This is in keeping with his attempt, which I analysed in Chapter I, to reconsider the importance of apparently negligible circumstances.

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<sup>468</sup> For a different interpretation, see Stenger, *Nature et liberté*, p.130: ‘[Dans les *Réflexions*], Diderot nie l’universalité des lois de la nature, en prenant exemple sur la loi d’attraction’.

<sup>469</sup> Diderot, *Réflexions sur une difficulté*, p.336. On Diderot’s anti-newtonianism, see Jean-Claude Guédon, ‘Chimie et matérialisme: la stratégie anti-newtonienne de Diderot’, *DHS*, 2 (1979), p.185-200.

<sup>470</sup> Diderot, *Réflexions sur une difficulté*, p.345. See also Stenger, *Nature et liberté*, p.131: ‘Il est en effet facile de comprendre que le déterminisme a besoin d’un univers stable où tout est établi une fois pour toutes et d’où l’aléatoire est rigoureusement exclu. Or admettre des « circonstances particulières » qui informent des lois prétendument universelles dans le domaine de la microphysique revient à introduire la contingence dans la nature’.

<sup>471</sup> *Nature et liberté*, p.131: ‘Mettre en cause l’extrême petitesse des corps revient à postuler des exceptions dans le domaine de la microphysique par rapport à celui de la « bande moyenne »’.

<sup>472</sup> Diderot, *Réflexions sur une difficulté*, p.346-347: ‘Si chaque particule infiniment petite de la sphère, D, O etc., est supposée exercer sur le corpuscule P une attraction qui soit en raison inverse du carré de sa distance au corpuscule, il est démontré par la prop[osition] 71<sup>e</sup> du liv. I de Newton, que ce corpuscule sera mû vers le centre C de la sphère, avec une force réciproquement proportionnelle au carré de sa distance à ce centre’.

## Two arguments against Diderot's belief in the laws of nature

In addition to the alleged anti-nomic character of the *Réflexions sur une difficulté*, two further arguments are often advanced in order to deny Diderot's belief in the laws of nature. To begin with, an acceptance of such laws appears to be utterly incompatible with Diderot's alleged scepticism about mathematics. Indisputably, Diderot sometimes makes negative comments about this discipline, which he charges with being overly abstract and therefore incapable of mirroring the complexity of reality.<sup>473</sup> 'Il n'y a pas un point, une ligne, une surface, un solide dans la nature', he states in the *Suite à l'Apologie de l'abbé de Prades*, 'tels que la géométrie les suppose'.<sup>474</sup> A famous passage in the *Pensées sur l'interprétation de la nature* announces in a semi-facetious, semi-prophetic tone the imminent extinction of mathematicians:

Nous touchons au moment d'une grande révolution dans les sciences. [...] J'oserais presque assurer qu'avant qu'il soit cent ans, on ne comptera pas trois grands géomètres en Europe. Cette science s'arrêtera tout court, où l'auront laissée les Bernoulli, les Euler, les Maupertuis, les Clairaut, les Fontaine et les D'Alembert. Ils auront posé les colonnes d'Hercule. On n'ira point au-delà. Leurs ouvrages subsisteront dans les siècles à venir, comme ces pyramides d'Egypte dont les masses chargées d'hiéroglyphes réveillent en nous une idée effrayante de la puissance, et des ressources des hommes qui les ont élevées.<sup>475</sup>

Alongside Buffon and Louis-Jean-Marie Daubenton, and unlike d'Alembert and Condorcet, Diderot shows more interest for the nascent life sciences rather than mathematics.<sup>476</sup> His fascination with biology hardly requires any comment, and Diderot's attitude towards

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<sup>473</sup> Ballstadt, *Diderot: Natural Philosopher*, p.23-24: 'Diderot maintained that mathematicians abstract away the qualities of individual objects, and that they conceive of things in such a general fashion that the items in question are stripped of everything that makes them unique'.

<sup>474</sup> Denis Diderot, *Suite de l'Apologie de l'abbé de Prades*, in DPV, vol.4, p.335.

<sup>475</sup> *Interprétation*, p.717-718.

<sup>476</sup> On Diderot and the life sciences, see, for example, Ballstadt, *Diderot: Natural Philosopher*, ch. 4 (natural history) and 5 (medicine); Charles T. Wolfe, 'Epigenesis as Spinozism in Diderot's Biological Project', in Ohad Nachtomy and Justin E. H. Smith (eds.), *The Life Sciences in Early Modern Philosophy*, Oxford: Oxford University Press, 2014, p.181-201; Jacques Roger, *Les Sciences de la vie dans la pensée française au XVIIIe siècle*, Paris: Armand Colin, 1963, p.585-682; and Roselyne Rey, 'Diderot et les sciences de la vie dans l'*Encyclopédie*', *RDE*, 18, 1 (1995), p.47-53.

chemistry has recently been the subject of essays by Fumie Kawamura, Stéphane Lojkine, and François Pépin.<sup>477</sup>

A second, closely related, reason behind many scholars' claims that Diderot did not and could not believe in the existence of laws of nature is connected to his well-known belief that reality is complex and dynamic.<sup>478</sup> To be sure, it does seem difficult to allow for fixed and immutable laws of nature in a universe, like Diderot's, in which 'tout [est] en action et en réaction; tout se détruisant sous une forme, tout se recomposant sous une autre'; a universe that is best described as heterogeneous and diverse: 'Si on ne s'obstine pas à considérer les choses dans sa tête, mais dans l'univers, on se convaincra par la diversité des phénomènes, de la diversité des matières élémentaires, de la diversité des forces, de la diversité des actions et des réactions'.<sup>479</sup>

### A glance at the texts

Taken together, the two arguments just presented offer fairly compelling evidence of Diderot's scepticism about the existence of laws of nature. It is nevertheless the case that, alongside the *Réflexions sur une difficulté*, many other texts by Diderot contain references to these laws. While the *Plan d'une université* may be influenced by widespread views about basic education, and therefore may not exactly mirror Diderot's own priorities, it is worthwhile to note that the laws of motion, conceived as the foundations of mechanics, are given great importance in this text.<sup>480</sup> References to laws of nature are also numerous in the

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<sup>477</sup> Fumie Kawamura and Stéphane Lojkine, *Diderot et la chimie: Science, pensée et écriture*, Paris: Garnier, 2013; François Pépin, *La Philosophie expérimentale de Diderot et la chimie: Philosophie, sciences et arts*, Paris: Garnier, 2012.

<sup>478</sup> This is the reason put forward, for example, by Wilda Anderson in *Diderot's Dream*, Baltimore and London: Johns Hopkins University Press, 1990, p.21.

<sup>479</sup> *Matière et mouvement*, p.613-615.

<sup>480</sup> Diderot, *Plan d'une Université*, p.438-439.

*Pensées sur l'interprétation de la nature*, which many interpreters present as the apogee of Diderot's anti-mathematical tendencies. 'Pensée XXXIII', for instance, turns to the 'lois de la force centrifuge' to explain Earth's magnetism and auroras.<sup>481</sup> Meanwhile, 'Pensée XXXVI' contains the crucial claim that there exists a general – one might say *universal* – law regulating the behaviour of bodies upon collision, regardless of their shape or nature: 'Le géomètre n'a [...] qu'à étendre le calcul de la corde vibrante au prisme, à la sphère, au cylindre, pour trouver la loi générale de la distribution du mouvement dans un corps choqué'.<sup>482</sup> What is more, 'Pensée XXXII' suggests that even biological entities abide by the laws of nature:

Il est un corps que l'on appelle môle. [...] Mais si la môle est le résultat d'une combinaison telle que je la suppose, cette combinaison aura ses lois aussi invariables que celles de la génération. La môle aura donc une organisation constante. [...] Les êtres [ne sont] jamais ni dans leur génération, ni dans leur conformation, ni dans leur usage, que ce que les résistances, les lois du mouvement et l'ordre universel les déterminent à être.<sup>483</sup>

After all, the existence of general or universal statements is perfectly in keeping with Diderot's holistic approach to reality, which constitutes the thematic centre of gravity of the *Rêve de d'Alembert* and frequently crops up even in other texts. In the *Pensées sur l'interprétation de la nature*, for example, a diatribe against the gnoseological boundaries that humans artificially erect 'où il n'y a aucune division réelle' leads to the assertion that the extreme variety of reality conceals, in fact, substantial homogeneity; as Diderot puts it: 'Il semble que la nature se soit plu à varier le même mécanisme d'une infinité de manières

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<sup>481</sup> *Interprétation*, p.52.

<sup>482</sup> *Interprétation*, p.58-59.

<sup>483</sup> *Interprétation*, p.49-51. See Wolfe, 'Epigenesis as Spinozism', p.181: '[Diderot's] project is motivated by the desire [...] to understand the laws governing organic beings'.

différentes'.<sup>484</sup> This consideration is, importantly, the basis on which Diderot's interest in comparative anatomy and his pre-evolutionism ultimately rest:

Quand on considère le règne animal, et qu'on s'aperçoit que parmi les quadrupèdes, il n'y en a pas un qui n'ait les fonctions et les parties, surtout intérieures, entièrement semblables à un autre quadrupède, ne croirait-on pas volontiers qu'il n'y a jamais eu qu'un premier animal prototype de tous les animaux dont la nature n'a fait qu'allonger, raccourcir, transformer, multiplier, oblitérer certains organes? Imaginez les doigts de la main réunis, et la matière des ongles si abondante que venant à s'étendre et à se gonfler, elle enveloppe et couvre le tout; au lieu de la main d'un homme, vous aurez le pied d'un cheval.<sup>485</sup>

As Eric-Emmanuel Schmitt has noted, moreover, holism, together with the belief in the existence of general rules underlying the apparently chaotic variety of reality, lies at the very root of Diderot's encyclopaedic project: far from being a simple list of isolated definitions, the *Encyclopédie* is an organic whole, the coherence of which is guaranteed by a tight web of links and cross-references, the importance of which recent scholarship is gradually unveiling.<sup>486</sup>

That said, it is necessary to return to the two objections that are normally made to deny Diderot's belief in the existence of laws of nature, beginning with his supposed scepticism about mathematics.

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<sup>484</sup> *Interprétation*, p.36-37. See also *Physiologie*, p.651: 'La nature n'a fait qu'un très petit nombre d'êtres qu'elle a variés à l'infini, peut-être qu'un seul par la combinaison, mixtion, dissolution duquel tous les autres ont été formés'.

<sup>485</sup> *Interprétation*, p.36-37.

<sup>486</sup> Schmitt, *Diderot, ou la philosophie de la séduction*, p.202-203.

## Diderot and mathematics

As remarked previously, several passages in Diderot's works suggest that he saw mathematics as an abstract human construct, fundamentally incapable of mirroring the extreme complexity of reality. However, Kurt Ballstadt suggests that to portray Diderot as a mathematical anti-hero is 'rather facile, if not wholly incorrect'.<sup>487</sup> Many passages in his works testify to his penchant for or even fascination with mathematics. Mathematics and geometry are given a pivotal role in the *Premières Notions sur les mathématiques à l'usage des enfants*, as well as in the *Plan d'une université*: 'Je commence l'enseignement', Diderot writes, 'par l'arithmétique, l'algèbre et la géométrie, parce que dans toutes les conditions de la vie, depuis la plus relevée jusqu'au dernier des arts mécaniques, on a besoin de ces connaissances'.<sup>488</sup> Furthermore, several texts penned between the 1740s and the early 1760s testify to Diderot's solid grasp of both algebra and analysis.<sup>489</sup> Krakeur and Krueger have shown that Diderot considered geometry 'as the principal means of solution of physical questions'.<sup>490</sup> This is particularly evident in *Sur la tension des cordes*, the *Lettre sur la résistance de l'air au mouvement des pendules*, and especially in the *Principes généraux d'acoustique*, where logarithms are employed to discover what intervals may produce harmonious sounds.<sup>491</sup>

Not only can mathematics be employed to solve purely physical problems; it may also be applied to the study of society. Evidence for this can be found in the article 'Arithmétique politique', to which Chapter V shall return: 'je ne doute point qu'on ne parvînt à se

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<sup>487</sup> Ballstadt, *Diderot: Natural Philosopher*, p.27.

<sup>488</sup> Diderot, *Plan d'une université*, p.435, and Denis Diderot, *Premières Notions sur les mathématiques à l'usage des enfants*, in DPV, vol.2, p.365. See also Ballstadt, *Diderot: Natural Philosopher*, p.28.

<sup>489</sup> See Ballstadt, *Diderot: Natural Philosopher*, p.27, and Lester Gilbert Krauker and Raymond Leslie Krueger, 'The Mathematical Writings of Diderot', *Isis*, 33, 2 (1941), p.219-232.

<sup>490</sup> Krauker and Krueger, 'The Mathematical Writings', p.227. See, instead, Stenger, *Nature et liberté*, p.119-120: 'Si Diderot ne s'est jamais départi de son goût pour les mathématiques, il trouve cependant inadmissible leur extension à ce qu'il appelle la « physique expérimentale »'.

<sup>491</sup> See DPV, vol.2, p.233-333. For an assessment of these works, see Ballstadt, *Diderot: Natural Philosopher*, p.14-16, Mayer, *Diderot: Homme de science*, p.76-78, and Krauker and Krueger, 'The Mathematical Writings', p.226.

convaincre que le monde politique, aussi-bien que le monde physique, peut se régler à beaucoup d'égards par poids, nombre et mesure'.<sup>492</sup> In the *Supplément au Voyage de Bougainville* as well as in *Jacques le fataliste*, Diderot describes trivial aspects of everyday life in geometrical terms: 'Ce qui reste de tabac le soir dans ma tabatière', explains the narrator in *Jacques le fataliste*, 'est en raison directe de l'amusement, ou l'inverse de l'ennui de ma journée'.<sup>493</sup> Diderot returns to this idea in the *Plan d'une université*, where he affirms that 'Si l'on croit que la méthode des géomètres n'est pas applicable à tout, on se trompe'.<sup>494</sup> Most importantly, a fragment in the *Inventaire du Fonds Vandeul* shows that Diderot did not conceive of the complexity of reality as preventing its description in purely mathematical or geometric terms: 'qu'importe qu'il y ait ou qu'il n'y ait aucun corps parfaitement régulier, aucun parfaitement semblable, les actions et les réactions, quel que soit leur nombre, leur énergie, n'en sont pas moins géométriques. L'assertion contraire n'est pas assez réfléchie, pas assez philosophique'.<sup>495</sup> In conclusion, one could say with Kurt Ballstadt that 'Diderot is [...] not against abstraction per se, but merely the consideration of reality in terms of purely abstract entities that are taken to precede experience'.<sup>496</sup> Therefore, the first reason that scholars normally advance against Diderot's belief in laws of nature can be rejected.

### Diderot and the Bottom-Up View

But what about the second line of reasoning that is normally advanced against Diderot's belief in laws of nature? It cannot be denied that Diderot saw reality as complex. Nevertheless, one may question the assumption that a belief in laws of nature and an understanding of the

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<sup>492</sup> *Encyclopédie*, 1:678. The same idea appears in Diderot, *Plan d'une université*, p.435: 'tout se compte, tout se mesure'.

<sup>493</sup> *Jacques*, p.46.

<sup>494</sup> Diderot, *Plan d'une université*, p.436-437.

<sup>495</sup> Herbert Dieckmann, *Inventaire du Fonds Vandeul et inédits de Diderot*, Geneva: Droz-Giard, 1951, p.255.

<sup>496</sup> Ballstadt, *Diderot: Natural Philosopher*, p.30-31.

complexity of reality are incompatible. In the distinction previously introduced between the top-down and the bottom-up views about laws of nature, it was stated that, according to the bottom-up view, laws of nature supervene on the powers instantiated by finite beings and objects rather than on God's will: they are, therefore, mere summaries of causal connections. Now, if laws of nature are nothing more than convenient ways of expressing causal connections, then the apparent incompatibility between laws and complexity is suddenly overcome. But is there any evidence that Diderot actually subscribes to the bottom-up view? Diderot places far less explicit emphasis than d'Holbach on the foundation of laws of nature. However, Marx Wartofsky has already suggested that Diderot conceives of laws of nature as 'inherent in matter itself'.<sup>497</sup> Indeed, on at least one occasion Diderot explicitly endorses the bottom-up view. In the *Principes philosophiques sur la matière et le mouvement*, Diderot makes the point that: 'Il y a autant de lois diverses qu'il y a de variétés dans la force propre et intime de chaque molécule élémentaire et constitutive des corps'.<sup>498</sup> This statement is all the more interesting if one takes into account that it is advanced precisely to overcome the difficulties posed by the study of 'agrégats hétérogènes', which appear to contradict the laws that infallibly apply to 'agrégats homogènes'.<sup>499</sup> It is similarly noteworthy that Diderot repeatedly makes the point that laws of nature can be modified by finite objects. An instance of this has already been discussed: in the *Réflexions sur une difficulté*, Diderot advances the claim that the inverse square law can be slightly altered by certain 'circonstances particulières'.<sup>500</sup> Consider now the following excerpt from the *Pensées sur l'interprétation de la nature*:

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<sup>497</sup> See Wartofsky, 'Diderot and the Development of Materialist Monism', p.280. See also Ballstadt, *Diderot: Natural Philosopher*, p.87.

<sup>498</sup> *Matière et mouvement*, p.16. See also Fauvergue, *Diderot, lecteur et interprète de Leibniz*, p.26.

<sup>499</sup> *Matière et mouvement*, p.16

<sup>500</sup> See above p.126.

Si l'on parvient par quelques opérations à simplifier le système composé, en en chassant toutes les particules d'une espèce de matière coordonnée, ou à le composer davantage, en y introduisant une matière nouvelle dont les particules se coordonnent entre celles du système et changent la loi commune à toutes; la dureté, l'élasticité, la compressibilité, la rarescibilité, et les autres affections qui dépendent, dans le système composé, de la différente coordination des particules, augmenteront ou diminueront, etc.<sup>501</sup>

Likewise, in the *Rêve*, Bordeu advances the hypothesis that 'Les lois les plus constantes de la nature seraient interrompues par des agents naturels'.<sup>502</sup> The point that Diderot is making in these and similar passages is precisely the same that Spinoza makes in letter 32 to Oldenburg when he claims that laws of nature can be modified by competing causes. Now, just as in Spinoza's case, similar statements can only be understood in the framework of a bottom-up view, where laws of nature are nothing more than mere summaries of causal connections. If one then accepts that Diderot can be considered an advocate of the bottom-up view, the apparent contradiction between his endorsement of laws of nature and his commitment to an understanding of reality as complex disappears.

### Conclusion

This chapter has shown that both Diderot and d'Holbach believe in the existence of laws of nature. D'Holbach rather surprisingly endorses both the bottom-up view and the top-down one, which had been advanced by Descartes and Malebranche and has clear theological implications. Meanwhile, Diderot proves very reticent about the foundations of said laws of nature. However, the few passages in which he does address the question seem to point to his endorsement of the bottom-up perspective. Diderot does not seem to attribute to the laws of

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<sup>501</sup> *Interprétation*, p.63.

<sup>502</sup> *Rêve*, p.102-103

nature as crucial a role in his deterministic theory as does d'Holbach. This, however, should not be taken as a weakness in Diderot's deterministic theory, for the Causal Principle and Causal Necessitation are jointly sufficient to establish a thoroughgoing determinism.

## Chapter IV: Moral Freedom

In previous chapters, I focused on the inner workings of Diderot and d'Holbach's theory of determinism: I showed that it rests on two fundamental ideas (the Causal Principle and Causal Necessitation) and that it is further strengthened by Diderot and d'Holbach's belief in the existence of laws of nature.

Just how profoundly deterministic d'Holbach's and Diderot's views of the physical world really are clearly emerges from two passages that mirror each other: one from the *Systeme de la nature* and the other from the *Salon de 1767*. In a *tacit a fortiori* argument, both use the image of an apparently deeply chaotic whirlwind of dust to epitomise physical determinism. The passage in the *Systeme de la nature* reads as follows:

Dans un tourbillon de poussière qu'élève un vent impétueux, quelque confus qu'il paraisse à nos yeux, [...] il n'y a pas une seule molécule de poussière [...] qui soit placée au hasard, qui n'ait sa cause suffisante pour occuper le lieu où elle se trouve et qui n'agisse rigoureusement de la manière dont elle doit agir. Un géomètre qui connaîtrait exactement les différentes forces qui agissent [dans ce tourbillon] et les propriétés des molécules qui sont mues, démontrerait que, d'après des causes données, chaque molécule agit précisément comme elle doit agir et ne peut agir autrement qu'elle ne fait.<sup>503</sup>

Diderot's version of the vortex example, which has already received some scholarly attention and which I have already mentioned in Chapter I due to the reference it contains to the Principle of Sufficient Reason, is to be found in the 'Deuxième site' of the 'Promenade Vernet'.<sup>504</sup> Here, Diderot's fictional alter ego exploits his interlocutor's (momentarily

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<sup>503</sup> *Systeme*, p.196.

<sup>504</sup> Thierry Belleguic, 'L'Œil et le tourbillon: épistémologie et poétique du *pathos* dans la *Promenade Vernet*', *DHS*, 32 (2000), p.485-502.

unsteady) faith in the orderliness of reality to make his point about determinism, thus exposing an otherwise concealed connection between the deistic and the deterministic world-view:

Pourquoi l'univers vous paraît-il si bien ordonné; c'est que tout y est enchaîné à sa place, et qu'il n'y a pas un seul être qui n'ait dans sa position, sa production, son effet, une raison suffisante ignorée ou connue? est-ce qu'il y a une exception pour le vent d'ouest? est-ce qu'il y a une exception pour les grains de sable? une autre pour les tourbillons? si toutes les forces qui animaient chacune des molécules qui formaient celui qui nous a enveloppés étaient données, un géomètre vous démontrerait que celle qui est engagée entre votre œil et sa paupière est précisément à sa place....<sup>505</sup>

In a variation on the mathematician Saunderson's experience in the *Lettre sur les aveugles*, it is here a momentary physical blindness that helps the abbé to arrive at a clearer understanding of how the world works.

In addition to the 'tourbillon' image, another element unites the two passages just quoted, namely the concluding consideration that it would not be impossible for a sufficiently instructed (human) being to predict future events with utmost precision. It is hard not to be reminded of what Laplace was later to write in his *Essai philosophique sur les probabilités*:

Une intelligence qui pour un instant donné, connaîtrait toutes les forces dont la nature est animée, et la situation respective des êtres qui la composent, si d'ailleurs elle était assez vaste pour soumettre ces données à l'analyse, embrasserait dans la même formule, les mouvements des plus grands corps de l'univers et ceux du plus léger atome: rien ne serait incertain pour elle, et l'avenir comme le passé, serait présent à ses yeux.<sup>506</sup>

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<sup>505</sup> *Salon 1767*, p.186-187. An 'ouragan qui nous remplit les yeux de poussière' is also mentioned in the *Lettre à Landois*. See *Landois*, p.258.

<sup>506</sup> Laplace, *Essai philosophique sur les probabilités*, p.3-4.

The issue of Diderot's and d'Holbach's thoughts regarding predictability is a fascinating one that will be treated in more detail in Chapter V; for the time being, another question appears more urgent: does Diderot and d'Holbach's theory of determinism also extend to the moral world?

To begin, it is useful to review some of the meanings that were attributed to the French word *liberté* in the eighteenth century. Following the *Encyclopédie*, four different acceptations of this term will be singled out, namely 'liberté (morale)', 'liberté naturelle', 'liberté civile', and 'liberté politique'. While I shall briefly discuss the last three kinds, moral freedom is the most important for the purposes of the present analysis.<sup>507</sup> This is the sort of freedom that is required in order to be held morally responsible for one's actions, and determinism is often regarded as threatening it.<sup>508</sup> Two different, not mutually exclusive interpretations of moral freedom will be presented, namely the 'Alternative Possibilities Model' and the 'Source Model'. As I shall show, neither option is incompatible with determinism *per se*. When it comes to the relationship between determinism and moral freedom, philosophers tend to fall into two broad categories: compatibilists and incompatibilists. Hobbes and Hume, amongst others, believe that moral freedom and determinism are compatible; Diderot and d'Holbach, as I shall show, do not. In fact, they reject both the Alternative Possibilities and the Source models, and thus develop a fully deterministic moral philosophy that covers all aspects of human life.

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<sup>507</sup> For a discussion of Diderot's attitude towards natural, civil, and political freedom, see Stenger, *Nature et liberté*, p.241-315.

<sup>508</sup> Following a general trend in contemporary scholarship, I shall not use the phrase 'free will'. See, for instance, Robert Kane, *The Significance of Free Will*, New York and Oxford: Oxford University Press, 1996, p.3 and Roy Weatherford, *The Implications of Determinism*, London: Routledge, 1991, p.12.

‘Liberté naturelle’, ‘liberté civile’, and ‘liberté politique’

As was already the case with the notion of laws of nature discussed in Chapter III, the idea of freedom was a rather ambiguous one in the eighteenth century. The *Encyclopédie* alone contains no fewer than thirteen entries under the headword ‘liberté’, covering such a wide variety of topics such as ethics, clockmaking, jurisprudence, and painting.<sup>509</sup> To complicate matters further still, the subject of freedom broadly speaking is tackled in myriad other articles, ranging from the one that Diderot devotes to ‘libertinage’ to the one that the chevalier de Jaucourt writes on slavery.<sup>510</sup> Given the breadth of the subject, it is logical to concentrate on those of these thirteen articles that are more interesting from a philosophical perspective, namely the entries ‘Liberté (Morale)’, ‘Liberté naturelle’, ‘Liberté civile’, and ‘Liberté politique’. Colas Duflo has already drawn attention to the importance of distinguishing amongst these four eighteenth-century acceptations of the term ‘liberté’.<sup>511</sup> Nevertheless, it is worth addressing this issue again, for scholars continue to show a certain propensity to collapse the four aforementioned forms of liberty into a single notion and especially tend to overlook what is unique about moral freedom.

Let us begin with *liberté naturelle*. In the anonymous entry of the same title, *liberté naturelle* is defined as ‘[le] droit que la nature donne à tous les hommes de disposer de leurs personnes et de leurs biens, de la manière qu’ils jugent la plus convenable à leur bonheur’.<sup>512</sup> In other words, *liberté naturelle* is the sort of freedom of which slaves are deprived, that which, in the sixteenth century, made the core of the famous dispute between Bartolomé de las Casas and Juan Ginés de Sepúlveda. This interpretation is confirmed by the article ‘Liberté naturelle’ itself, in which it is explained that, in Roman times, human beings could lose their

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<sup>509</sup> *Encyclopédie*, 9:462-476.

<sup>510</sup> *Encyclopédie*, 9:476 and 5:934 (‘Esclavage’), respectively.

<sup>511</sup> Duflo, *Diderot philosophe*, p.421.

<sup>512</sup> *Encyclopédie*, 9:471.

natural freedom if captured in battle or following the perpetration of certain crimes.<sup>513</sup> Without going so far back in time, the anonymous author of the entry continues, natural freedom is the sort of freedom that is still denied to black people working in the American plantations.<sup>514</sup> It is called ‘naturelle’ because every human being is theoretically born with it: ‘naturellement tous les hommes naissent libres, c’est-à-dire, qu’ils ne sont pas soumis à la puissance d’un maître, et que personne n’a sur eux un droit de propriété’.<sup>515</sup> That Diderot shares this interpretation of the phrase ‘liberté naturelle’ can be seen in a passage of the *Observations sur le Nakaz* in which he identifies the persistence of serfdom in Russia as the cause of this nation’s under-development: ‘Pourquoi la Russie est-elle moins bien gouvernée que la France? C’est que la liberté naturelle de l’individu y est réduite à rien, et que l’autorité souveraine y est illimitée’.<sup>516</sup>

*Liberté civile* is instead defined in the *Encyclopédie* as ‘le droit de faire tout ce que les lois permettent’.<sup>517</sup> Thus, for instance, in a nation in which it is not a legal requirement for women to wear the burqa in public spaces, walking bare-faced into a public building is part and parcel of women’s civil freedom. As a result, the fewer behaviours a nation’s legal system prescribes/forbids, the greater the civil freedom of its citizens. Interestingly, this definition of civil freedom as ‘le droit de faire tout ce que les lois permettent’ is borrowed from Montesquieu’s *De l’esprit des lois*. Nevertheless, it is freedom in the general sense, and not ‘liberté civile’ specifically, that the philosopher of La Brède defines as the right to do all that is allowed by the law.<sup>518</sup> On the other hand, Montesquieu employs the phrase ‘liberté civile’ to

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<sup>513</sup> *Encyclopédie*, 9:471.

<sup>514</sup> *Encyclopédie*, 9:471-472.

<sup>515</sup> *Encyclopédie*, 9:471.

<sup>516</sup> Denis Diderot, *Observations sur le Nakaz*, in Diderot, *Œuvres complètes*, ed. by Versini, vol.3 (hereafter *Nakaz*), p.515. In the *Histoire des deux Indes*, Diderot puts forward several arguments in favour of the abolition of the slave trade. For more on this see Ann Thomson, ‘Diderot, Roubaud et l’esclavage’, *RDE*, 35 (2003), p.69-94, and Yves Benot, *Diderot: De l’Athéisme à l’anticolonialisme*, Paris: Maspero, 1981.

<sup>517</sup> *Encyclopédie*, ‘Liberté civile’, 9:472.

<sup>518</sup> Montesquieu, *De l’Esprit des lois*, Paris: Flammarion, 1936, 2 vols, vol.1, p.168 (XI,3).

refer to a notion very similar to what the *Encyclopédie* terms ‘liberté naturelle’.<sup>519</sup> There is therefore considerable variation in meaning, which would be worth investigating elsewhere.

The third variety of freedom of pertinence here is political freedom. As the chevalier de Jaucourt writes in the *Encyclopédie*, this is the sort of freedom that characterises every nation in which the legislative, executive, and judiciary powers are separate and opportunely balanced: ‘la liberté politique d’un état est formée par des lois fondamentales qui y établissent la distribution de la puissance législative, de la puissance exécutrice des choses qui dépendent du droit des gens, et de la puissance exécutrice de celles qui dépendent du droit civil, de manière que ces trois pouvoirs sont liés les uns par les autres’.<sup>520</sup> More generally, ‘liberté politique’ is the sort of freedom that pertains to non-autocratic governments: oligarchies and republics. Thus, it is exactly political freedom that the compiler of the entry ‘Liberté’ in the *Dictionnaire de l’Académie Française* has in mind when writing that ‘en parlant [...] d’un pays, liberté se prend pour une forme de gouvernement, dans lequel la noblesse ou le peuple a la souveraine autorité’.<sup>521</sup>

Before moving on to discuss moral freedom, two observations are necessary. First, it is important to note that, although the definitions of natural, civil, and political freedom provided in the *Encyclopédie* are not universally shared in eighteenth-century France, they can nevertheless be retained in this context, for they mirror quite closely Diderot’s understanding of these notions.<sup>522</sup> I have already quoted an excerpt from the *Observations sur le Nakaz* in which Diderot conforms to the interpretation of ‘liberté naturelle’ provided in the *Encyclopédie*. The following passage in the *Histoire des deux Indes* confirms this claim and

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<sup>519</sup> Montesquieu, *Esprit des lois*, vol.1, p.270 (XV,9).

<sup>520</sup> *Encyclopédie*, ‘Liberté politique’, 9:472.

<sup>521</sup> *Dictionnaire de l’Académie française*, Paris: Bernard Brunet, 1762 (4th Edition), 2 vols, vol.2, p.32.

<sup>522</sup> The case with d’Holbach is admittedly more complicated as he tends to refrain from using any of the phrases discussed. Without conflating natural and civil freedom, in the *Système social* he refers to both these varieties of freedom as ‘liberté’ *tout court*. See d’Holbach, *Système social*, p.263-271.

shows that Diderot's notion of civil and political freedom is also similar to that offered in the *Encyclopédie*:

On distingue trois sortes de liberté. La liberté naturelle, la liberté civile, la liberté politique: c'est-à-dire, la liberté de l'homme, celle du citoyen et celle d'un peuple. La liberté naturelle, est le droit que la nature a donné à tout homme de disposer de soi, à sa volonté. La liberté civile, est le droit que la société doit garantir à chaque citoyen de pouvoir faire tout ce qui n'est pas contraire aux lois. La liberté politique, est l'état d'un peuple qui n'a point aliéné sa souveraineté, et qui fait ses propres lois, ou est associé, en partie, à sa législation.<sup>523</sup>

Secondly, and even more importantly, all the aforementioned varieties of freedom are perfectly compatible with determinism. Someone who believes in determinism has no reason to suppose that it abruptly stopped being true in the United States of America in 1865, when, *pace* Roy Moore, the Thirteenth Amendment to the United States Constitution was ratified. She similarly has no reason to believe that determinism is more valid in Pyongyang than in Seoul, or that it was stronger in the Kingdom of France than in the Republic of Lucca.

### Moral freedom

But let us now move on to moral freedom, that is, as previously mentioned, the sort of freedom that is required in order to be held morally responsible for one's actions.<sup>524</sup> This notion is at the core of the article 'Liberté (Morale)', in which Nageon discusses with Yvon (in Voltaire's words, 'un pauvre docteur de Sorbonne qui se tue à déclamer à tort et à travers contre le matérialisme') whether human beings should be understood to be automata or rather

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<sup>523</sup> Denis Diderot, *Extraits de l'Histoire des deux Indes*, in Diderot, *Œuvres Complètes*, Paris: Club du livre, vol.15, p.501.

<sup>524</sup> Michael McKenna and D. Justin Coates, 'Compatibilism', in *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), URL = <<https://plato.stanford.edu/archives/win2016/entries/compatibilism/>>.

be invested with moral responsibility.<sup>525</sup> In so doing, they review the various hypotheses advanced on this subject by the Swiss theologian Francis Turretin, Spinoza, and ‘les Turcs’, among others. But what exactly is required of an agent in order to be regarded as morally free and, thereby, as morally responsible? As reflected in the *Encyclopédie*, supporters of moral freedom have traditionally provided two different, not mutually exclusive answers to this question.<sup>526</sup> I shall refer to the first one as the ‘Alternative Possibilities Model’; following Michael McKenna and D. Justin Coates, I shall call the second the ‘Source Model’.<sup>527</sup>

### The Alternative Possibilities Model

On the Alternative Possibilities Model – which McKenna and Coates memorably call the ‘Garden of Forking Paths Model’ – what is required in order for an agent’s actions to be free is that she be able to choose between alternative courses of action.<sup>528</sup> In other words, an agent A performs a certain action freely only if she could have acted otherwise than she did. If I walk down rue du Petit Musc, pass by the Boulangerie Patrick et Christine, and see a slice of *tarte normande*, I can choose whether to stop and buy it or not. If I stop, I stop freely, a friend of the Alternative Possibilities Model would say, precisely because I was able not to stop.

This notion of moral freedom has a long history and Francesco Piro has noted that it can already be found in the writings of thirteenth-century scholastic philosopher Henry of Ghent.<sup>529</sup> In the early modern period the Alternative Possibilities Model was embraced,

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<sup>525</sup> *Encyclopédie*, 9:462-471 and Voltaire, *Mémoires pour servir à la vie de Monsieur de Voltaire, écrits par lui-même*, ed. by Jonathan Mallinson, in *OCV*, vol.45C, p.434. Assézat and Tourneux attributed the article ‘Liberté (Morale)’ to Diderot. Franco Venturi (*Le Origini dell’Enciclopedia*, p.139) was among the first to cast doubt on this attribution, which was subsequently rejected by Jacques Proust (*Diderot et l’Encyclopédie*, p.120).

<sup>526</sup> See Robert Kane, ‘The Contours of Contemporary Free Will Debates’, in Kane (ed.), *The Oxford Handbook of Free Will*, Oxford: Oxford University Press, 2002, p.5.

<sup>527</sup> McKenna and Coates, ‘Compatibilism’.

<sup>528</sup> See McKenna and Coates, ‘Compatibilism’ and Kane, ‘The Contours’, p.11.

<sup>529</sup> Francesco Piro, ‘The Philosophical Impact of Molinism in the 17<sup>th</sup> Century’, in Matthias Kaufmann and Alexander Aichele (eds.), *A Companion to Luis de Molina*, Leiden-Boston: Brill, 2014, p.368.

among others, by Locke, who maintained that ‘so far as a Man has a power to think, or not to think; to move, or not to move, according to the preference or direction of his own mind, so far is a Man *Free*. Wherever any performance or forbearance are not equally in a man’s power; wherever doing or not doing will not equally follow upon the preference of his mind directing it, there he is not free’.<sup>530</sup> Locke exemplifies this claim thus:

Suppose a Man be carried, whilst fast asleep, into a Room, where is a Person he longs to see and speak with; and be there locked fast in, beyond his Power to get out: he awakes, and is glad to find himself in so desirable Company, which he stays willingly in, *i.e.* prefers [sic] his stay to going away. I ask, Is not this stay voluntary? I think, no Body will doubt it: and yet being locked fast in, ’tis evident he is not at liberty not to stay, he has not freedom to be gone. So that *Liberty is not an Idea belonging to Volition*, or preferring; but to the Person having the Power of doing, or forbearing to do, according as the Mind shall chuse or direct.<sup>531</sup>

The thinker who pushed the Alternative Possibilities Model to its extreme was the Spanish Jesuit Luis de Molina.<sup>532</sup> Molina defined a free agent as one who, ‘with all the prerequisites for acting posited, is able to act and able not to act’ and claimed that ‘a free action does not lose the *power of the alternatives* [...] until it is completed’.<sup>533</sup> Molina’s notion of freedom is normally referred to as ‘freedom of indifference’ (French: ‘liberté d’indifférence’) and is amply discussed in the *Encyclopédie* article ‘Liberté (Morale)’.<sup>534</sup> It was famously rejected by the Jansenists as well as by Leibniz who, in the *Conversatio cum Domino Episcopo Stenonio*,

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<sup>530</sup> Locke, *Essay Concerning Human Understanding*, p.237 (I,21,8).

<sup>531</sup> Locke, *Essay Concerning Human Understanding*, p.238 (I,21,10).

<sup>532</sup> On Molina and alternative possibilities, see Christopher J. Kosciuk, ‘Human Freedom in a World Full of Providence: An Ockhamist-Molinist Account of the Compatibility of Divine Foreknowledge and Creaturely Free Will’, unpublished thesis, University of Massachusetts – Amherst, 2010, p.14-15.

<sup>533</sup> Luis de Molina, *Liberi Arbitrii cum Gratiae Donis, Divina Praescientia, Praedestinatione et Reprobatione Concordia*, ed. by Johannes Rabeneck, Oña-Madrid: Collegium Maximum, 1953, p.14, quoted in Luis de Molina, *On Divine Foreknowledge*, trans. by Alfred J. Freddoso, Ithaca and London: Cornell University Press, 1988, p.25. See also Piro, ‘The Philosophical Impact’, p.368.

<sup>534</sup> *Encyclopédie*, 9:470.

affirmed that it was contrary to the Principle of Sufficient Reason and dismissed it as a chimera.<sup>535</sup> For the same reason, freedom of indifference was also rejected by Du Châtelet.<sup>536</sup>

### The Source Model

At the core of the Source Model is instead the idea that agents are free insofar as their own volitions are the ultimate source of their actions, insofar as what they do is up to them.<sup>537</sup> In Robert Kane's words, agents are free when they are 'the ultimate creators (or originators) and sustainers of their own ends or purposes'.<sup>538</sup> To understand this, consider the case of a child (Stephen) who is forced by another child (Luana) to throw the rubber belonging to one of their classmates out of the window. In this case, Stephen is not the real source of the action: had it not been for Luana, he would have never thrown any rubber out of the window. For this reason, according to the Source Model, Stephen was not morally free when throwing his classmate's rubber out of the window, and a hypothetical teacher who reprimanded him rather than Luana should be regarded as unjust. Conversely, had Stephen thrown his classmate's

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<sup>535</sup> Gottfried Wilhelm Leibniz, *Conversatio cum Domino Episcopo Stenonio de Libertate*, in Leibniz, *Sämtliche Schriften und Briefe*, VI.4,B, p.1380: 'Definitio libertatis, quod sit potestas agendi aut non agendi positus omnibus ad agendum requisitis, omnibusque tam in objecto quam in agente, existentibus paribus est chimaera impossibilis, quae contra [...] principium [rationis sufficientis] pugnat'. For more on Leibniz's attitude towards Molinism, see Sean Greenberg, 'Leibniz Against Molinism: Freedom, Indifference, and the Nature of the Will', in Donald Rutherford and Jan A. Cover (eds.), *Leibniz: Nature and Freedom*, Oxford: Oxford University Press, 2005, p.217-233.

<sup>536</sup> Du Châtelet, *Institutions*, p.22. Voltaire, on the other hand, recognised freedom of indifference to human beings in 1736. See his *Eléments de la philosophie de Newton*, ed. by Robert L. Walters and William H. Barber, in *OCV*, vol.15, p.214-215: 'Il me semble pour moi, que si l'on peut trouver un seul cas où l'homme soit véritablement libre d'une liberté d'indifférence, cela seul suffit pour décider la question. Or quel cas prendrons-nous, sinon celui où l'on voudra éprouver notre liberté? Par exemple, on me propose de me tourner à droite ou à gauche, ou de faire telle autre action, à laquelle aucun plaisir ne m'entraîne, et dont aucun dégoût ne me détourne. Je choisis alors, et certainement je ne suis pas le *dictamen* de mon entendement, qui me représente le meilleur; car il n'y a ici ni meilleur, ni pire. Que fais-je donc? J'exerce le droit que m'a donné le créateur de vouloir, et d'agir en certains cas sans autre raison que ma volonté même. J'ai le droit et le pouvoir de commencer le mouvement, et de le commencer du côté que je veux. [...] Il paraît donc probable que nous avons la liberté d'indifférence dans les choses indifférentes'. Voltaire's position, however, is different in the *Traité de métaphysique* of 1737. See Voltaire, *Traité de métaphysique*, ed. by William H. Barber, in *OCV*, vol.14, p.492-493.

<sup>537</sup> See McKenna and Coates, 'Compatibilism' and Beebe, *Free Will*, ch.4.

<sup>538</sup> Kane, *The Significance*, p.4.

rubber out of the window without anyone compelling him to do so, he would have been entirely to blame for what we could now describe as *his* action.

In the early modern period, the Source Model was normally referred to as ‘liberty of spontaneity’ (French: ‘liberté de spontanéité’). Archbishop John Bramhall committed to this interpretation of moral freedom and defended it against Hobbes, claiming that an action ‘done by an extrinsical cause, without the concurrence of the will’, cannot be said to be free.<sup>539</sup> In eighteenth-century France, the Source Model was shared, for instance, by Du Châtelet, who, in a letter to Maupertuis of 9 May 1738, writes: ‘si je suis libre, il faut absolument que je puisse commencer le mouvement’.<sup>540</sup> She expresses the same idea in the *Institutions*, claiming that to be free is to act according to the choices of one’s own will.<sup>541</sup> Freedom of spontaneity is also contemplated in the entry ‘Liberté (Morale)’, where it is claimed that ‘il faut de toute nécessité reconnaître un commencement d’action, c’est-à-dire un pouvoir d’agir indépendamment d’aucune action précédente, et que ce pouvoir peut être et est effectivement dans l’homme’.<sup>542</sup>

### Moral freedom and determinism

Whereas natural, civil, and political freedom are perfectly compatible with determinism, the relationship between this theory and moral freedom, however one conceives of it, is certainly not one of easy coexistence.<sup>543</sup> The Alternative Possibilities Model of moral freedom, in

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<sup>539</sup> Hobbes, *Questions Concerning Liberty*, ch.19, p.253.

<sup>540</sup> Voltaire, *Correspondence*, D1496.

<sup>541</sup> Du Châtelet, *Institutions*, p.46.

<sup>542</sup> *Encyclopédie*, 9:464.

<sup>543</sup> See Ted Honderich, *A Theory of Determinism*, Oxford: Clarendon Press, 1990, 2 vols, vol.1, p.2: ‘The problem [...] is the one most considered by philosophers [...]. The question has been asked whether, if determinism is true, we are free in such a way that we are morally responsible for our actions. One tradition answers no, the other yes. To that question has occasionally been attached another closely related moral issue, that of the justification of punishment’.

particular, appears to be utterly irreconcilable with determinism, for the simple reason that determinism states that the way things are arranged in a certain system, S, at a given time,  $t_0$ , is only compatible with *one* certain arrangement of things in S at a future time,  $t_1$ , thus ruling out alternative possibilities. This line of reasoning is variously referred to in the secondary literature as the ‘Consequence Argument’ or the ‘Classical Incompatibilist Argument’.<sup>544</sup>

Determinism appears to be equally incompatible with the Source Model. If determinism, as defined in this thesis, is true, then events are produced by an endless series of causes, and actions cannot have their ultimate source in an agent.<sup>545</sup> Thus, even if Stephen threw his classmate’s rubber out of the window without Luana having compelled him to do so, a determinist would say that Stephen was nonetheless forced to do so by something. Perhaps, his parents always told him that throwing people’s rubbers out of windows is a praiseworthy habit; maybe he is affected by some mental illness that compels him to throw any rubbers that he spots out of the closest window; or, more likely, the rubber’s (former) owner did something that upset him. The incompatibility of determinism and the Source Model is discussed in the article ‘Liberté (Morale)’, where we find the concept of ‘external cause’, to which this chapter will return:

Spinoza et ses sectateurs [... disent que] tout effet présuppose une cause, et que, de la même manière [...] chaque détermination de la volonté de l’homme, doit nécessairement être produite par quelque cause extérieure, et celle-ci par une troisième; d’où ils concluent que la liberté de la volonté n’est qu’une chimère.<sup>546</sup>

In spite of this, many argue that moral freedom is not incompatible with determinism. According to some philosophers – unsurprisingly called ‘compatibilists’ – the Source Model,

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<sup>544</sup> See Beebe, *Free Will*, ch.3; Kane, ‘The Contours’, p.6; McKenna and Coates, ‘Compatibilism’; and Peter van Inwagen, ‘The Incompatibility of Free Will and Determinism’, *Philosophical Studies*, 27 (1975), p.191.

<sup>545</sup> See Kane, *The Significance*, p.4. See also Galen Strawson, ‘The Impossibility of Moral Responsibility’, *Philosophical Studies*, 75 (1994), p.5-24.

<sup>546</sup> *Encyclopédie*, 9:463.

at least, can be made to fit within a deterministic system. The key lies in the meaning that one ascribes to the concept of ‘being the source of one’s actions’. If one thinks that agents must be the *ultimate* sources of their actions in order to be morally responsible for them and therefore morally free, then, as shown above, the Source Model and determinism are plainly incompatible. However, if one assumes that an agent must only *participate* in the production of her actions in order to be regarded as their source, then – it seems – the clash between determinism and moral freedom disappears.

Compatibilists have also followed other paths to show that moral freedom and determinism are not mutually exclusive. In the twentieth century, Harry Frankfurt has proposed a thought experiment to demonstrate that Alternative Possibilities are not an indispensable precondition for acting freely and being morally responsible for one’s actions.<sup>547</sup> A Frankfurt case could be as follows. Suppose that Italians are voting to elect a new Prime Minister. There are three candidates: a representative of the Democratic Party, an exponent of the Right, and a spokesman of the Five Stars Movement. Davide, an adult Italian citizen, has always been a big fan of the latter since its foundation in 2009, and is firmly resolved to vote for the representative of the Five Stars Movement. The leader of this ‘political party’, however, being the big fan of democracy that he is, decides to secretly implant a chip in the brain of millions of Italians, so as to win the elections. This chip forces the people in whose brain it is implanted to vote for the Five Stars Movement and is designed to activate itself only if the voter is about to opt for a party other than the Five Stars Movement. Davide, totally unaware of the chip in his brain, goes to the polls and draws a cross next to the name of the Five Stars Movement’s candidate. The chip implanted in Davide’s brain never activated itself. Therefore, it seems, Davide did vote freely although, in

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<sup>547</sup> Harry Frankfurt, ‘Alternate Possibilities and Moral Responsibility’, *The Journal of Philosophy*, 66 (1969), p.829-839. See also Kane, ‘The Contours’, p.15-17, and John Martin Fisher, ‘Frankfurt-Type Examples and Semi-Compatibilism’, in Kane (ed.), *Oxford Handbook of Free Will*, p.281-308.

reality, he had no other option. Therefore, Frankfurt concludes, moral freedom and moral responsibility are compatible with the absence of alternative possibilities. They are compatible, in other words, with determinism.

Another compatibilist approach that was present in eighteenth-century discourse consists of redefining moral freedom.<sup>548</sup> This is the path taken by Hobbes, who attacks the Source Model on the grounds that human beings are part and parcel of an all-encompassing causal chain, and yet argues that they are morally free ‘when nothing prevents them from doing what they will (or intend or desire to do)’.<sup>549</sup> As Hobbes himself puts it in the *Leviathan*, ‘Liberty, or Freedome, signifieth (properly) the absence of Opposition; (by Opposition, I mean externall Impediments of motion;) and may be applyed no lesse to Irrationall, and Inanimate creatures, than to Rationall’.<sup>550</sup> Diderot reveals himself to be perfectly familiar with Hobbes’s stance on moral freedom when, in the article ‘Hobbisme’, he writes that, according to the philosopher of Malmesbury, ‘la liberté est l’absence des obstacles extérieurs’.<sup>551</sup> Unsurprisingly, Hobbes’s conception of moral freedom was immediately perceived as extremely ‘thin and insubstantial’ – Archbishop Bramhall branded it ‘brutish’ –, and although Hobbes is still regarded as one of the earliest compatibilists, his argument for compatibilism is normally viewed as unusable.<sup>552</sup>

One may wonder why a philosopher as strongly committed to determinism as Hobbes would leave himself open to such criticisms, all for the sake of allowing some room for moral liberty within his philosophical system. The answer is that, as noted above, the notion of

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<sup>548</sup> In ‘Frankfurt-Type Examples and Semi-Compatibilism’ (p.282), Fisher treats Locke’s example of the man who willingly remains in the room where he was locked as ‘the first “Frankfurt-type case”’. As noted above, however, Locke does not regard the man who willingly remains in the room where he is locked as free.

<sup>549</sup> Kane, *The Significance*, p.10.

<sup>550</sup> Thomas Hobbes, *Leviathan*, ed. by Noel Malcolm, in Thomas Hobbes, *Works*, Oxford: Clarendon Press, 1994-, 27 vols, vol.4, p.324 (ch.21).

<sup>551</sup> *Encyclopédie*, 8:239.

<sup>552</sup> Paul Russell, ‘The Free Will Problem’, in Desmond M. Clarke and Catherine Wilson (eds.), *The Oxford Handbook of Philosophy in Early Modern Europe*, p.425.

moral freedom is closely linked to that of moral responsibility, to the extent that, under normal circumstances, people are not regarded as morally responsible for their actions – be they good or bad – unless they commit them freely.<sup>553</sup> A denial of moral freedom without a careful mitigating clause about responsibility, in other words, will imply that people are not accountable for the crimes that they commit. This is a conclusion that Hobbes simply could not admit.<sup>554</sup> And he was far from alone in this! In the article ‘Liberté (Morale)’, Yvon discusses at length the relationship between moral freedom and moral responsibility, ultimately deciding that the former notion must be retained precisely because, were it to be rejected, the concepts of virtue, vice, praise, and blame would lose any meaning.<sup>555</sup>

#### Diderot and d’Holbach on the Source Model

With all this in mind, we may proceed to examine Diderot’s and d’Holbach’s position towards moral freedom, beginning with the Source Model. As remarked previously, according to the Source Model an agent performs a certain action freely in so far as her volitions are the ultimate source of that specific action. In Robert Kane words, ‘when we trace the causal or explanatory chains of action back to their sources in the purposes of free agents, these causal chains must come to an end or terminate in the willings (choices, decisions, or efforts) of the agents, which cause or bring about their purposes’.<sup>556</sup> If the causal chain leading to a certain action does not originate in the volitions of the agent performing it, and can instead be traced

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<sup>553</sup> See Ted Honderich, *How Free Are You? The Determinism Problem*, Oxford: Oxford University Press, 2002, p.110: ‘A free choice is necessary for holding the person responsible’. See also Bernstein, *Fatalism*, p.65: ‘If, as many believe, [moral] freedom is necessary for the justified ascription of moral responsibility, then there can be no legitimate attributions of moral responsibility. As a result, the common assessments of persons being praiseworthy and blameworthy are unwarranted’.

<sup>554</sup> Moreover, Paul Russell has argued that it is absolutely crucial to Hobbes’s political theory that people be free when giving their consent to the creation of the sovereign authority. See Russell, ‘The Free Will Problem’, p.430-431.

<sup>555</sup> *Encyclopédie*, 9:462.

<sup>556</sup> Kane, *The Significance*, p.4.

back to something else, then, in the Source Model, the action under consideration was not performed freely. Therefore, the question one needs to ask is: do Diderot and d'Holbach believe that the causal chains culminating in human actions can only be traced back to human volitions, and no further?

Christian thinkers traditionally insisted on the alterity between body and soul, the first normally being portrayed as corruptible and sinful, the second as immortal. In the seventeenth century, Descartes rekindled this discussion by describing the body and the soul as two different substances ('res extensa' and 'res cogitans') and identifying their sole attributes as extension and thought, respectively. Arguably prompted by Locke's suggestion, which Voltaire popularised in the *Lettres philosophiques*, that it would not be impossible for God to endow the material substance with the attribute of thought, Diderot and d'Holbach vehemently challenged Descartes's dualism and advanced a monistic interpretation of reality that, unlike Berkeley's, was deeply materialistic.<sup>557</sup> D'Holbach's *Système de la nature* contains a very clear enunciation of this:

[L]'homme [...] distingua deux substances en lui-même: l'une [...] fut nommée *corps*; l'autre [...] fut nommée *âme* [...]. Ces distinctions adoptées aujourd'hui par la plupart des philosophes, ne sont fondées que sur des suppositions gratuites. [...] Si, dégagés de préjugés, nous voulons envisager notre âme [...], nous demeurerons convaincus qu'elle fait partie de notre corps, qu'elle ne peut être distinguée de lui que par l'abstraction, qu'elle n'est que le corps lui-même considéré relativement à quelques-unes des fonctions ou facultés dont sa nature et son organisation particulière le rendent susceptible.<sup>558</sup>

That Diderot equally subscribes to materialistic monism is testified, for example, by his claim

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<sup>557</sup> See John W. Yolton, *Locke and French Materialism*, Oxford: Clarendon Press, 1991. For more on Voltaire and Locke's theory of thinking matter, see Voltaire, *Lettres philosophiques*, ed. by Nicholas Cronk, in *OCV*, vol.6, forthcoming. On Diderot and Berkeley, see Kate E. Tunstall, 'Eyes Wide Shut: *Le Rêve de d'Alembert*', in Fowler (ed.), *New Essays on Diderot*, p.141-157, and Eliane Martin-Haag, 'Droit naturel et histoire dans la philosophie de Diderot', *RDE*, 26 (1999), p.42.

<sup>558</sup> *Système*, p.212-222.

in the *Observations sur Hemsterhuis* that the term ‘soul’ is entirely devoid of meaning, his discussion of conjoined twins in the *Rêve*, and several enthusiastic comments on the experiments conducted by Abraham Trembley and other scientists on animal regeneration.<sup>559</sup> As remarked in previous chapters, Diderot then has recourse to his well-known hypothesis about ‘sensibilité active’ and ‘sensibilité inerte’ in order to account for the difference between living and non-living things.<sup>560</sup>

D’Holbach and Diderot’s rejection of the traditional body/soul dichotomy has at least two significant consequences. First, it prompts both philosophers to deny the existence of any purported gaps between human beings and nature. ‘L’homme’, as d’Holbach puts it, ‘se trouve dans la nature et en fait une partie’.<sup>561</sup> In the *Rêve*, Diderot condenses his belief in the permeability of both the sets of living and non-living things in a memorable phrase: ‘On fait du marbre avec de la chair, et de la chair avec du marbre’.<sup>562</sup> By insisting on the unity of the human and the natural spheres, d’Holbach and Diderot deal a severe blow to anthropocentric prejudice. The idea that human beings are the pivot of the universe and that they were conferred absolute power over the rest of creation was the norm in medieval and Renaissance Europe, but was often ridiculed in late-seventeenth- and eighteenth-century texts. For examples of this mockery, one need go no further than Fontenelle’s famous tale of the roses in the *Entretiens sur la pluralité des mondes* or Voltaire’s ‘Sixième Discours’ in the *Discours en vers sur l’homme*. In one of his rare excursions into the domain of aesthetics, d’Holbach draws from the rejection of the traditional dichotomy between man and nature the interesting corollary that human and natural productions are ultimately indistinguishable: ‘l’art’, he

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<sup>559</sup> See *Physiologie*, p.678; *Hemsterhuis*, p.292-298; *Rêve*, p.161-162. As for Diderot and Trembley’s polyp, see Aram Vartanian, ‘Trembley’s Polyp, La Mettrie, and Eighteenth-Century French Materialism’, *Journal of the History of Ideas*, 11, 3 (1950), p.259-286. For more on Diderot’s monism, see, for instance, Wartofsky, ‘Diderot and the Development of Materialist Monism’. On Diderot’s opinion on the soul, see Charles T. Wolfe, ‘Machine et organisme chez Diderot’, *RDE*, 26 (1999), p.220.

<sup>560</sup> *Rêve*, p.92.

<sup>561</sup> *Système*, p.196. See also p.213.

<sup>562</sup> *Rêve*, p.91.

claims, ‘n’est que la nature agissant à l’aide des instruments qu’elle a faits’.<sup>563</sup>

Secondly and most importantly to our present discussion, by rejecting Descartes’s dualism, Diderot and d’Holbach also blur the line traditionally drawn between physics and ethics. ‘On a visiblement abusé’, d’Holbach writes, ‘de la distinction que l’on a faite si souvent de l’homme *physique* et de l’homme *moral*. L’homme est un être purement physique; l’homme moral n’est que cet être physique considéré sous un certain point de vue’.<sup>564</sup> In Diderot’s *Paradoxe sur le comédien*, then, the claim is jointly made by the two interlocutors that the two worlds with which writers, and especially playwrights, concern themselves – the physical and the moral world – are in fact one and the same.<sup>565</sup> One finds the same considerations in *Dieu et l’homme*, where Diderot writes: ‘Le monde moral est tellement lié au monde physique qu’il n’y a guère d’apparence que ce ne soit une seule et même machine’.<sup>566</sup> One cannot stress enough the importance of this rejection of the physical/moral dichotomy in the context of Diderot’s and d’Holbach’s philosophy. After all, it is not by chance that Jean-Claude Bourdin presents it as one of the core ideas behind eighteenth-century French materialism as a whole.<sup>567</sup> Nevertheless, this idea was not unprecedented. On the contrary, by rejecting the physical/moral dichotomy, Diderot and d’Holbach joined a long tradition that had had its most prominent exponents in Epicurus and Spinoza.

It is consistent with their rejection of the distinction between physics and ethics that d’Holbach and Diderot maintain that the Causal Principle, to which Chapter I was devoted, holds equally true in the physical and moral world, so that no human action can be performed without there being a cause. Evidence for this can be found in the *Eléments de physiologie*, more precisely in the chapter that Diderot devotes to discussing the will (‘Volonté’), where it

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<sup>563</sup> *Système*, p.168.

<sup>564</sup> *Système*, p.168.

<sup>565</sup> Denis Diderot, *Paradoxe sur le comédien*, ed. by Jane Marsch Dieckmann, in DPV, vol.20, p.53.

<sup>566</sup> Denis Diderot, *Dieu et l’homme par M. de Valmire*, in DPV, vol.20, p.655. See also *Jacques*, p.190.

<sup>567</sup> Bourdin, *Diderot: le matérialisme*, p.16.

is plainly stated that ‘un acte de volonté sans cause est une chimère’.<sup>568</sup> The same idea is expressed in the *Observations sur Hemsterhuis*, where the word ‘cause’ is occasionally replaced by the more accurate ‘motif’, which, as d’Holbach explains in a passage of the *Système* that will be quoted presently, does not indicate a final cause as much as the cause considered in its relation to the human will: ‘Un animal, qui agirait sans motif’, Diderot writes, ‘ne se conçoit non plus qu’une action sans cause’.<sup>569</sup> The term ‘motif’ also appears in a passage of the *Lettre à Landois* in which, through the image of the scales, Diderot silently references the most recent writings on the Principle of Sufficient Reason, including Leibniz’s correspondence with Clarke, Wolff’s *Ontologia*, and Du Châtelet’s *Institutions*: ‘On ne conçoit non plus qu’un être agisse sans motifs, qu’un des bras d’une balance se meuve sans l’action d’un poids’.<sup>570</sup> Likewise, in the *Système de la nature*, d’Holbach denies that human beings can ever make a decision without having previously been prompted to do so by some cause: as he puts it, ‘dès que ma volonté se détermine, je dois avoir senti fortement ou faiblement, sans quoi je serais déterminé sans motif’.<sup>571</sup>

These passages show that, according to Diderot and d’Holbach, the Source Model is untenable. However, we may want to push our enquiry further and analyse in more detail the causes that, according to both thinkers, may impact on human behaviour. Amongst these causes, some are explicitly defined by Diderot and d’Holbach as ‘internal’, and this may prompt some to believe that, at least to a certain extent, Diderot and d’Holbach actually think that the causal chains culminating in human actions may originate from within human beings

<sup>568</sup> *Physiologie*, p.483. See Duflo, *Diderot philosophe*, p.406.

<sup>569</sup> *Hemsterhuis*, p.68. I have already remarked in Chapter I that eighteenth-century French dictionaries list the term ‘motif’ as a synonym of both ‘cause’ and ‘reason’.

<sup>570</sup> *Landois*, p.256-258. See also *Streitschriften zwischen Leibniz und Clarke*; Christian Wolff, *Philosophia Prima sive Ontologia Methodo Scientifica Pertractata*, Frankfurt and Leipzig: 1730, p.52 (§73); and Du Châtelet, *Institutions*, p.25. The same image is also present in Diderot’s entry ‘Volonté’ in the *Encyclopédie* (17:454): ‘[Les hommes] sont tous également emportés tout entiers par l’impression d’un objet qui les attire ou qui les repousse. S’ils veulent subitement le contraire de ce qu’ils voulaient, c’est qu’il est tombé un atome sur le bras de la balance, qui l’a fait pencher du côté opposé’.

<sup>571</sup> *Système*, p.285. See also p.263. The verb ‘se déterminer’ is of course used here as a synonym of ‘se résoudre’ and is in no way suggestive of causal necessitation.

themselves.

### Internal and external causes

The factors that, in d'Holbach and Diderot's view, may affect human behaviour and determine the will are myriad. On a general basis, both thinkers distinguish between internal and external causes. In the *Eléments de physiologie*, for example, Diderot writes: 'J'ai faim, j'ai des aliments à ma portée, j'étends le bras pour les prendre [...]. Le principe de ce mouvement nous est caché, mais quelle qu'en soit la cause, cette cause est mise en action par une impulsion quelconque intérieure, ou extérieure à l'animal'.<sup>572</sup> In Chapter I.8 of the *Système*, where he defines the term 'volonté', d'Holbach similarly reasons: '*Vouloir*, c'est être disposé à l'action. Les objets extérieurs ou les idées intérieures qui font naître cette disposition dans notre cerveau s'appellent *motifs*, parce que ce sont les ressorts ou mobiles qui le déterminent à l'action'.<sup>573</sup>

In 1974, Jacques Chouillet advanced the idea that Diderot's views about internal and external causes changed markedly over time.<sup>574</sup> The crucial date in this scenario is, according to him, 1769: prior to the composition of the *Rêve*, Chouillet maintains, Diderot believed that only external factors may influence the 'volonté'; from 1769 onwards, he consistently turns to internal causes.<sup>575</sup> This idea has since been taken up by Gerhardt Stenger: 'En 1756, [Diderot] croyait encore que le motif qui nous détermine « nous est toujours extérieur ». A partir de 1769 et dans tous les textes suivants, il fait remonter la cause initiale de toutes nos

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<sup>572</sup> *Physiologie*, p.316-317.

<sup>573</sup> *Système*, p.235. This acceptance of the verb 'déterminer' is already recorded in the first edition of the *Dictionnaire de l'Académie Française* (1694), where it is indicated that, in philosophical jargon, this verb may mean 'donner une certaine qualité, une certaine façon d'être, à ce qui de soi-même n'a pas plutôt celle-là qu'une autre'. See also *Système*, p.231.

<sup>574</sup> Chouillet, 'Des Causes'.

<sup>575</sup> See also Ann Thomson, 'Déterminisme et passions', in Pierre-François Moreau and Ann Thomson (eds), *Matérialisme et passions*, Lyon: ENS Editions, 2004, p.94.

déterminations à ce que nous sommes et non à ce qui nous est extérieur'.<sup>576</sup> Chouillet and Stenger, however, diverge significantly when it comes to explaining Diderot's change of attitude. While Stenger interprets the preference of the late Diderot for internal causes as evidence of his wish to distance himself from the deterministic position he had embraced in the *Lettre à Landois*, Chouillet's argument is quite different: 'Tant qu'il maintenait la causalité à l'extérieur de l'homme, Diderot pouvait à la rigueur laisser croire qu'il entendait préserver une zone privilégiée, un certain « nous », dont le propre serait justement d'échapper à la causalité. A partir du *Rêve* au contraire, toute illusion devient impossible: ce « nous » [...] est soumis lui-même à la plus rigoureuse des lois, celle qui conditionne son propre devenir'.<sup>577</sup>

As is often the case with such alleged turning points, however, Diderot's supposed second thoughts on internal and external causes are not supported by the texts. It has already been pointed out that, in the *Eléments de physiologie* (1769-1784) Diderot maintained that the source of human actions must be found in some impulse, either internal *or* external. We find the same idea in another late work, the *Observations sur Hemsterhuis*: 'L'homme ne fait rien de lui-même. C'est toujours une cause ou qui lui est intérieure ou qui lui est extérieure qui le meut'.<sup>578</sup> Even in the *Rêve de d'Alembert* – which, as previously noted, is often regarded as the text in which Diderot's dissatisfaction with the notion of external causes first becomes apparent – internal and external causes seem to coexist in perfect harmony:

Nous sommes des instruments doués de sensibilité et de mémoire. Nos sens sont autant de touches qui sont pincées par la nature qui nous environne, et qui se pincet souvent elles-mêmes; et voici, à mon jugement, tout ce qui se passe dans un clavecin organisé comme

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<sup>576</sup> *Nature et liberté*, p.229.

<sup>577</sup> Chouillet, 'Des Causes', p.57-58. See also Wolfe, 'Machine et organisme', p.228-229: 'tant que la causalité était pleinement externe à l'homme, elle pouvait laisser subsister à l'intérieur une zone d'intimité, de non-droit, en quelque sorte [...]. Mais une fois qu'on arrive au *Rêve*, le déterminisme est intériorisé. L'approfondissement des connaissances biologiques de Diderot, avec le faisceau ou réseau unitaire qui se démultiplie dans les organes différents, facilite cet apprentissage du micro-déterminisme'.

<sup>578</sup> *Hemsterhuis*, p.276.

vous et moi. Il y a une impression qui a *sa cause au-dedans ou au-dehors* de l'instrument, une sensation qui naît de cette impression, une sensation qui dure; car il est impossible d'imaginer qu'elle se fasse et qu'elle s'éteigne dans un instant indivisible; une autre impression qui lui succède et qui a pareillement sa *cause au-dedans ou au-dehors de l'animal*; une seconde sensation et des voix qui les désignent par des sons naturels ou conventionnels.<sup>579</sup>

Conversely, references to internal causes are not absent from pre-1769 texts and, in the *Lettre à Landois* itself, Diderot mentions the 'organisation' of each human being (that is, as will be shown shortly, the internal cause *par excellence*) amongst the factors that may affect the human will.<sup>580</sup>

### External causes

But of what sort exactly are the causes that affect human behaviour? Let us begin our survey with external causes. Amongst them, both Diderot and d'Holbach grant a pivotal role to nutrition. D'Holbach claims that the soul (by which he means the character) is, just like the body, constantly altered by what we eat.<sup>581</sup> In the *Eléments de physiologie*, Diderot epitomises this by conjecturing that if a man were to be fed meat only, his character would start to resemble that of a carnivore.<sup>582</sup> This idea was already present in *L'Homme machine*, where La Mettrie had argued that the ferocity that is often observed in English people is likely an effect of this nation's habit of eating rare meat.<sup>583</sup> In the *Rêve*, Bordeu pushes this line of reasoning

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<sup>579</sup> *Rêve*, p.102-103 (italics mine). See also p.185-186: 'Est-ce qu'on veut de soi? La volonté naît toujours de quelque motif intérieur ou extérieur, de quelque impression présente, de quelque réminiscence du passé, de quelque passion, de quelque projet dans l'avenir?'

<sup>580</sup> *Landois*, p.257.

<sup>581</sup> *Système*, p.223.

<sup>582</sup> *Physiologie*, p.402.

<sup>583</sup> Julien Offray de La Mettrie, *L'Homme-machine*, Paris: Folio, 1981, p.152: 'La viande crue rend les animaux féroces, les hommes le deviendraient par la même nourriture; cela est si vrai que la nation anglaise, qui ne mange

further and suggests that interspecific breeding, for instance between human beings and goats, is not *per se* impossible, and could in fact be facilitated by feeding the man on goat's milk and the goat on bread.<sup>584</sup> More immediately tangible than the effects produced by food are those for which wine and spirits are responsible.<sup>585</sup> In d'Holbach's works, alcohol is often praised for its alleged capacity to rekindle people's courage. At one point, however, d'Holbach seems to ponder – without nevertheless showing any apprehension – the impact that this consideration may have on his faith in the Nihil ex Nihilo Principle and his theory of causation, more broadly: 'Le vin n'a pas les qualités que nous appelons *esprit* ou *courage*, cependant nous voyons qu'il en donne quelquefois à des hommes que nous en supposons totalement dépourvus'.<sup>586</sup> Whilst this ostensible lack of concern may be in keeping with d'Holbach's attempts to present his philosophy as wholly systematic, the Baron may also be reassured by the idea, which he later expresses, that wine's effects could be explained with reference to the presence, both in it and in courageous people, of a 'fire'. Borrowing from Bordeu's vocabulary, one could say that a 'latus', connexion, or analogy can be identified between the two: 'C'est [l]e feu contenu dans le vin et dans les liqueurs fortes qui donne aux hommes les plus engourdis une vivacité dont sans lui ils seraient incapables'.<sup>587</sup> The effects of non-alcoholic beverages ought not to be underestimated. As a matter of fact, nothing – not even a chapter of Seneca – is as effective against the voluptuousness of young boys as a

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pas la chair si cuite que nous, mais rouge et sanglante, paraît participer de cette férocité plus ou moins grande, qui vient en partie de tels aliments et d'autres causes, que l'éducation peut seule rendre impuissantes'. The same idea can be found in Montesquieu, *Essai sur les causes qui peuvent affecter les esprits et les caractères*, in Montesquieu, *Œuvres Complètes*, Oxford-Naples-Lyon-Paris: Voltaire Foundation, Istituto Italiano per gli Studi Filosofici, ENS Editions, Classiques Garnier, 1998-, vol.9, p.227-228.

<sup>584</sup> *Rêve*, p.205. See Hobson, 'Jacques le fataliste: the art of the probable', p.144: 'The mischievous and risqué Bordeu no doubt enjoys emphasising the undesirable moral consequences of his materialism, but we cannot simply write off what he says as being deliberately designed to shock'.

<sup>585</sup> See, for example, *Physiologie*, p.357. See also La Mettrie, *L'Homme-machine*, p.152: 'Nourrissez le corps, versez dans ses tuyaux des suc vigoureux, des liqueurs fortes: alors l'âme, généreuse comme elles, s'arme d'un fier courage, et le soldat que l'eau eût fait fuir, devenu féroce, court gaiement à la mort au bruit des tambours'.

<sup>586</sup> *Système*, p.206.

<sup>587</sup> *Système*, p.242.

decoction of water-lilies, Diderot guarantees.<sup>588</sup>

Another factor that may affect human behaviour is the climate. It is hardly necessary to point out that this idea can be traced back to Montesquieu who, in his *Essai sur les causes qui peuvent affecter les esprits et les caractères*, insists on the effects that wind, sun exposure, temperature, and the like may have on the ‘caractère’ of single individuals and entire peoples. As a case in point, Montesquieu claims that the occasionally odd behaviour of southern Italians is partly ascribable to the Scirocco, a dry wind blowing from the Sahara.<sup>589</sup> Following Montesquieu, d’Holbach insists on the role that the climate plays in shaping personality.<sup>590</sup> However, in keeping with his belief in the existence of an infinite causal chain, he also indicates that the characteristics of each climate can be traced back to other causes: ‘les hommes varient dans les différents climats pour la couleur, pour la taille, pour la conformation, [...] pour les facultés de l’esprit: mais qu’est-ce qui constitue le climat? C’est la différente position des parties du même globe relativement au soleil’.<sup>591</sup> In the *Réfutation d’Helvétius*, Diderot devotes considerable space to the climate’s influence on human behaviour, and claims, as Germaine de Staël was later to do in *Corinne ou l’Italie*, that those living in sunny places tend to be merrier than those inhabiting cold lands.<sup>592</sup> He further suggests that, just as high-altitude plants differ markedly from those one encounters at sea-level, mountain-dwellers differ from people living in the plains.<sup>593</sup> A few passages in the *Observations sur le Nakaz* (‘On est esclave sous le pôle où il fait très froid; on est esclave à Constantinople où il fait très chaud’) have been interpreted as evidence of Diderot’s

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<sup>588</sup> *Helvétius*, p.494.

<sup>589</sup> Montesquieu, *Essai sur les causes*, p.235-236.

<sup>590</sup> See *Système*, p.497: ‘Enfin, il est de l’essence de certains climats, de produire des hommes tellement organisés et modifiés qu’ils deviennent ou très utiles ou très nuisibles à leur espèce, de même que c’est le propre de certaines portions de sol de faire naître des fruits agréables ou des poisons dangereux’.

<sup>591</sup> *Système*, p.215.

<sup>592</sup> *Helvétius*, p.552-555.

<sup>593</sup> *Helvétius*, p.554.

dissatisfaction with Montesquieu's *théorie des climats*.<sup>594</sup> Nevertheless, such passages ought to be read in light of what Diderot argues in the *Observations* itself and elsewhere, namely that the climate is but one of the innumerable factors that may contribute to shaping a person's or a people's character: as is claimed in the *Réfutation d'Helvétius*, 'ne donnons pas trop d'énergie à ces causes; mais n'en réduisons pas l'effet à rien'.<sup>595</sup> While it is correct to say that a given climate has this or that effect on the people who live in it, Diderot reasons, one cannot infer from the former anyone's character, for human personality is the result of the concomitant action of a wide variety of factors. I shall return to the issue of causal complexity in Chapter V.

Another crucial external cause, at least in d'Holbach's opinion, is education. This is illustrated in the passage below, which reinterprets a common analogy between agriculture and education:

L'agriculture est fondée sur l'assurance que l'expérience nous donne de pouvoir forcer la terre cultivée et ensemencée d'une certaine façon, quand elle a d'ailleurs les qualités requises, à nous fournir des grains ou des fruits [...]. Si l'on considérait les choses sans préjugé, on verrait que [...] l'éducation n'est autre chose que l'agriculture de l'esprit, et que, semblable à la terre, en raison de ses dispositions naturelles, de la culture qu'on lui donne, des fruits que l'on y sème, des saisons plus ou moins favorables qui les conduisent à la maturité, nous sommes assurés que l'âme produira des vices ou des vertus, des fruits moraux utiles ou nuisibles à la société.<sup>596</sup>

D'Holbach's faith in the power of education – which, however, is tempered by his insistence

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<sup>594</sup> Nakaz, p.511.

<sup>595</sup> *Helvétius*, p.553.

<sup>596</sup> *Système*, p.293. See also p.293: 'Si dans le monde moral, ainsi que dans le monde physique, une cause, dont l'action n'est point troublée, est nécessairement suivie de son effet, une éducation raisonnable et fondée sur la vérité des lois sages, des principes honnêtes inspirés dans la jeunesse, des exemples vertueux, l'estime et les récompenses accordées au mérite et aux belles actions, la honte, le mépris, les châtements rigoureusement attachés au vice et au crime, sont des causes qui agiraient nécessairement sur les volontés des hommes, qui détermineraient le plus grand nombre d'entre eux à montrer des vertus'.

on people's 'naturel': 'quand elle a d'ailleurs les qualités requises', 'en raison de ses dispositions naturelles', etc. – is all the more important if one considers that, in his opinion, virtue and happiness are inextricably linked to one another and both heavily dependent on education. It is therefore one of the most important duties of any authority, the Baron argues, to make sure that people are adequately educated:

Lorsque notre éducation, les exemples qu'on nous donne, les moyens que l'on nous fournit sont approuvés par la raison, tout concourt à nous rendre vertueux, l'habitude fortifie en nous ces dispositions et nous devenons des membres utiles de la société, à laquelle tout devrait nous prouver que notre bien-être durable est nécessairement lié. Si au contraire notre éducation, nos institutions, les exemples qu'on nous donne, les opinions qu'on nous suggère dès l'enfance nous montrent la vertu comme inutile ou contraire, et le vice comme utile et favorable à notre propre bonheur, alors nous deviendrons vicieux et nous nous croirons intéressés à nuire à nos associés.<sup>597</sup>

As discussed at length by Jean-Marie Dolle, Diderot vacillates on the role of education in shaping one's personality.<sup>598</sup> Whereas in the *Lettre à Landois* Diderot agrees with d'Holbach and includes education among the factors 'qui dispose[nt] de nous invinciblement', in other texts he appears significantly more sceptical about the power of education.<sup>599</sup> As is well known, Diderot adopts the second position in the *Réfutation d'Helvétius*, where he sets out to reject Helvétius's claim that, of all the causes that may affect human beings, 'l'organisation est la moindre'.<sup>600</sup> Diderot's educational scepticism surfaces in many other works. In a review published in the *Correspondance littéraire*, for instance, Diderot rages against the author of the *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit et du*

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<sup>597</sup> *Système*, p.256. I have discussed this issue in more detail in coursework that I have written in 2011 as part of my Master of Philosophy (supervisor: Dr Caroline Warman).

<sup>598</sup> Jean-Marie Dolle, *Diderot et les problèmes de l'éducation*, Paris: Vrin, 1973.

<sup>599</sup> *Landois*, p.257.

<sup>600</sup> Diderot, *Réflexions sur le livre De l'Esprit*, p.308.

*cœur humain*, whom he charges with superficiality for having assumed that a simple anthology of moral sentences could lead corrupted adolescents back onto the right path:

Ce compilateur prétend que les jeunes gens trouveront dans les sentences qu'il a ramassées de droite et de gauche, un supplément à l'expérience qui leur manque. Il ne sait pas que c'est par une suite nécessaire de ce défaut d'expérience, que les enfants prennent pour du radotage toutes les sages leçons que nous autres pères ne cessons de leur adresser; et vous verrez qu'une page imprimée fera sur eux ce que notre exemple et nos remontrances ne peuvent faire!<sup>601</sup>

The same argument is also in the *Paradoxe sur le comédien*, in which 'Le premier interlocuteur' maintains that the 'brochure intitulée: Garrick, ou les Acteurs anglais' could not possibly help untalented actors to improve their poor performance skills, as well as in the *Essai sur les règnes de Claude et de Néron*, where the case of Nero is adduced to prove that even the best preceptors can do nothing with a corrupted nature.<sup>602</sup> As was also the case with the climate, Diderot's scepticism about education is linked to his belief that innumerable factors together shape a person's character, and to his idea that, as we shall see shortly, 'organisation' holds a preeminent position amongst them.<sup>603</sup>

Many other external causes could be mentioned that, in Diderot and d'Holbach's opinion, might impact on human life and behaviour, including sleep, physical exercise, illness, social environment, etc.<sup>604</sup> But let us now consider internal causes.

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<sup>601</sup> Diderot, *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit*, p.181-182.

<sup>602</sup> Diderot, *Paradoxe sur le comédien*, p.45, and *Sénèque*, p.85. See also *Sénèque*, p.86: 'C'est en vain qu[e Sénèque] se propose de lier son élève, pour l'avenir, à l'exercice de la clémence et à la pratique des vertus; cette ruse innocente, capable de donner à un jeune souverain, et à ses propres yeux et aux yeux de sa nation, un caractère qu'il n'oserait démentir tant qu'il lui resterait quelque pudeur, ne prévaudra pas sur une nature aussi perverse que celle de Néron'.

<sup>603</sup> In the *Anti-Sénèque*, La Mettrie had also claimed that education is not as powerful a factor as human nature. See Ann Thomson, *Bodies of Thought: Science, Religion, and the Soul in the Early Enlightenment*, Oxford: Oxford University Press, 2008, p.210-211.

<sup>604</sup> See, for example, *Système*, p.240-241 and *Physiologie*, p.329.

## Internal causes

The notion of an internal cause may not be as clear as that of an external cause. In order to understand what exactly is meant by ‘internal causes’, we may find it useful to note – as Chouillet and Stenger have already done – that, in a passage of the *Réfutation d’Helvétius*, Diderot refers to them as to the ‘causes propres à l’homme’.<sup>605</sup> Nevertheless, this definition, which Diderot arguably borrows from La Mettrie’s *Anti-Sénèque* (‘les causes internes du Bonheur sont propres et individuelles à l’homme’) leaves the question unanswered as to where humans’ uniqueness lies.<sup>606</sup> Confronted with this query, d’Holbach and Diderot would arguably answer as one: in their ‘organisation’.<sup>607</sup> This is confirmed, for example, by a passage in the *Réflexions sur le livre De l’Esprit* in which Diderot enthusiastically supports Helvétius’ statement, which, however, he finds difficult to reconcile with Helvétius’ overall argument, that ‘toute la différence de l’homme à la bête [consiste] dans l’organisation’.<sup>608</sup> That ‘organisation’ should be regarded as the internal cause *par excellence*, is supported by several passages in the works of both Diderot and d’Holbach. As already noted, much space is devoted in the *Réfutation d’Helvétius* to demonstrating that Helvétius’ utopia of universal learning is impracticable precisely because every human being is differently organised.<sup>609</sup> Thus, Diderot maintains, only certain human beings, organised in a certain manner (‘des hommes organisés d’une certaine manière’) can achieve the same results as Vaucanson, Milton, Shakespeare, or Corneille.<sup>610</sup> And again:

M<sup>f</sup> Helvetius, une petite question? Voilà cinq cents enfants qui viennent de naître. On va

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<sup>605</sup> *Helvétius*, p.523.

<sup>606</sup> Julien Offray de La Mettrie, *Anti-Sénèque*, Paris, Desjonquères, 1996, p.31.

<sup>607</sup> In *L’Homme-machine*, La Mettrie had already emphasised the importance of the ‘organisation’ in the determination of people’s character. See Thomson, *Bodies of Thought*, p.209.

<sup>608</sup> Diderot, *Réflexions sur le livre De l’esprit*, p.309.

<sup>609</sup> Whether Diderot accurately portrayed Helvétius’ views here may be worth exploring.

<sup>610</sup> *Helvétius*, p.495-496. See Maartin-Haag, ‘Droit naturel et histoire’, p.38 and 40.

vous les abandonner pour être élevés à votre discrétion. Dites-moi; combien nous rendrez-vous d'hommes de génie. Pourquoi pas cinq cents? Pressez bien toutes vos réponses; et vous trouverez qu'en dernière analyse, elles se résoudreont dans la différence d'organisation.<sup>611</sup>

We find the same considerations in the *Système de la nature*, where d'Holbach writes that the way in which human beings act is due to their 'organisation particulière'.<sup>612</sup>

But what exactly is meant by 'organisation'? Jacques Chouillet has remarked that the term 'organisation' does not appear in the first edition of the *Dictionnaire de l'Académie Française*.<sup>613</sup> In fact, it is only in the fourth edition of 1762 that this lemma appears amongst those recognised by the *immortels*.<sup>614</sup> Nevertheless, at the beginning of the eighteenth century, the word 'organisation' had already begun to occur sporadically, and one finds it, for instance, in the 1727 edition of Furetière's *Dictionnaire universel*.<sup>615</sup> A very short entry 'Organisation' can also be found in the *Encyclopédie*. Here, 'organisation' is defined as 'l'arrangement des parties qui constituent les corps animés'.<sup>616</sup> A similar definition, also involving the word 'arrangement', can be found in d'Holbach's *Système*, where it is claimed that 'l'homme est un tout résultant des combinaisons de certaines matières douées de propriétés particulières, dont l'arrangement se nomme *organisation*'.<sup>617</sup> 'Organisation', therefore, appears to be an overarching term that can be employed equally to label a variety of interrelated factors and the relationship of the factors themselves. But what factors? In the *Eléments de physiologie*, Diderot mentions the size of the heart amongst the numerous causes that may influence a person's behaviour. Specifically, he claims, the smaller the heart compared to the other organs, the more courageous the person, which allows him to conclude that 'le cœur n'est pas

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<sup>611</sup> *Helvétius*, p.488.

<sup>612</sup> *Système*, p.168. See also p.243: 'L'esprit juste est celui qui aperçoit les objets et les rapports tels qu'ils sont: l'esprit faux est celui qui ne saisit que de faux rapports, ce qui vient de quelque vice dans l'organisation'.

<sup>613</sup> Chouillet, 'Des Causes', p.59.

<sup>614</sup> 'Organisation', in *Dictionnaire de l'Académie Française*, 1762.

<sup>615</sup> See Chouillet, 'Des Causes', p.59.

<sup>616</sup> *Encyclopédie*, 11:629.

<sup>617</sup> *Système*, p.172.

tout à fait indépendant de la volonté'.<sup>618</sup> The diaphragm is also given a crucial role in the shaping of personality, partly because of its role in sighing, but also in keeping with Buffon's claim that this organ is the seat of 'a sort of sensorial memory' and in accordance with the precepts of Ménuret de Chambaud, physician and collaborator on the *Encyclopédie*:

Le diaphragme est le siège de toutes nos peines, et de tous nos plaisirs. [...] C'est la différence du diaphragme qui fait les âmes pusillanimes et les âmes fortes: [...] la tête fait les hommes sages, le diaphragme les hommes compatissants, et moraux. Ce sont les deux grands ressorts de la machine humaine.<sup>619</sup>

In a famous passage of the *Rêve de d'Alembert* which will illustrate a point that I shall make in Chapter V about art and determinism, emphasis is instead placed on the relationship between what modern scientists would call the central and the peripheral nervous systems:

Mlle de Lespinasse: [La raison, le jugement, l'imagination, la folie, l'imbécillité, la férocité, l'instinct], ne sont que des conséquences du rapport originel ou contracté par l'habitude de l'origine du faisceau à ses ramifications.

Bordeu: A merveille. Le principe ou le tronc est-il trop vigoureux relativement aux branches? de là les poètes, les artistes, les gens à imagination, les hommes pusillanimes, les enthousiastes, les fous. Trop faible? de là ce que nous appelons les brutes, les bêtes féroces. Le système entier lâche, mou, sans énergie? de là les imbéciles. Le système entier énergique, bien d'accord, bien ordonné? de là les bons penseurs, les philosophes, les sages.<sup>620</sup>

It is precisely because of the crucial role that these and various other parts of the anatomy play in the shaping of human personality that Diderot often observes that none better than a doctor

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<sup>618</sup> *Physiologie*, p.374.

<sup>619</sup> *Physiologie*, p.392. See also *Helvétius*, p.621; Jacques Roger, *Buffon: Un Philosophe au jardin du roi*, Paris: Fayard, 1989, p.322 and 329; and Colas Duflo, 'Diderot et Ménuret de Chambaud', *RDE*, 34 (2003), p.33.

<sup>620</sup> *Rêve*, p.176-177.

can understand how the human psyche functions: ‘il est bien difficile de faire de la bonne métaphysique et de la bonne morale, sans être anatomiste, naturaliste, physiologiste et médecin’.<sup>621</sup>

Similar observations are made by d’Holbach, who repeatedly argues that human beings are necessitated by a wide variety of internal factors, ranging from the temperature of their blood to the relaxation of the nerves. As he affirms in a rhetorical question: ‘[Le] sang plus ou moins abondant ou échauffé [d’un homme], ses nerfs et ses fibres plus ou moins tendus ou relâchés [...] ne décident-[ils] pas à chaque instant de ses idées, de ses pensées, de ses désirs et de ses craintes?’<sup>622</sup>

#### Internal and external causes reconsidered

As has just been shown, the dichotomy between internal and external causes is ubiquitous in Diderot’s and d’Holbach’s works. Contrary to what Chouillet and Stenger argue, moreover, it accompanies Diderot throughout his philosophical career. That said, it would be a mistake to overestimate its importance and consider external and internal causes as two completely separate categories. Diderot and d’Holbach suggest that internal causes can always be traced back to some external factor. In the *Système de la nature*, d’Holbach sets out to discover some of the nexuses linking a person’s ‘organisation’ to the external world, and unsurprisingly identifies as one of the most prominent the figure of the mother:

Mais d’où vient cette organisation, sinon des parents desquels nous recevons les éléments d’une machine nécessairement analogue à la leur? D’où vient le plus ou le moins de matière

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<sup>621</sup> *Helvétius*, p.555. See also p.644: ‘Si l’homme apporte en naissant des dispositions ou nulle disposition à tous les vices, et à toutes les vertus, c’est ce que j’ignore. C’est le médecin que je consulerais sur ce point, préférablement à tous les livres du monde’.

<sup>622</sup> *Système*, p.210. See also p.208. Blood is also mentioned as a key internal cause by Diderot in *Helvétius*, p.621.

ignée ou de chaleur vivifiante qui décide de nos qualités mentales? C'est de la mère qui nous a porté dans son sein, qui nous a communiqué une portion du feu dont elle fut animée elle-même, et qui avec son sang circulait dans ses veines. C'est des aliments qui nous ont nourris, c'est du climat où nous vivons, c'est de l'atmosphère qui nous entoure; toutes ces causes influent sur nos fluides et nos solides et décident de nos dispositions naturelles.<sup>623</sup>

Unsurprising though it may be, the importance attributed by d'Holbach to the role that mothers play in the shaping of their offspring's 'organisation' is not utterly devoid of interest, for the idea was widespread in Aristotelian circles that the paternal contribution to a new living being was in fact more significant than the maternal one. In the *Eléments de physiologie*, Diderot also discusses the links between a person's character and the mother's behaviour during pregnancy, and whilst he casts doubt on the idea that birthmarks may stem from the mothers' cravings, he writes that:

Il est certain qu'il passe d'étranges sensations de la mère à l'enfant [...]. Nier les effets de l'imagination de la mère sur l'enfant par des raisonnements mécaniques, c'est oublier qu'on fait mourir un homme en lui chatouillant la plante des pieds, ou les côtes. [...] Haller [...] avoue que des enfants ont été sujets pendant toute leur vie à des convulsions occasionnées par des terreurs, et autres affections violentes éprouvées par la mère pendant la grossesse; bien qu'il n'y ait aucune communication nerveuse de celle-ci à son enfant. Je ne voudrais pas qu'une mère fût exposée à voir pendant toute sa grossesse un visage grimacier. La grimace est contagieuse, nous la prenons; pourquoi la mère la prenant, l'enfant ne la prendrait-il pas; cet enfant est pendant neuf mois partie triste ou gaie d'un système qui souffre, ou se réjouit.<sup>624</sup>

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<sup>623</sup> *Système*, p.242. See also p.240: 'C'est de la nature, c'est de nos parents, c'est des causes qui sans cesse et depuis le premier moment de notre existence nous ont modifiés, que nous avons reçu notre tempérament. C'est dans le sein de sa mère que chacun de nous a puisé les matières qui influenceront toute la vie sur ses facultés intellectuelles, sur son énergie, sur ses passions, sur sa conduite'.

<sup>624</sup> *Physiologie*, p.443-444. See also *Helvétius*, p.680: 'l'homme apporte-t-il en naissant des dispositions organiques et naturelles, à dire et faire des sottises, à se nuire à lui-même et à ses semblables, à écouter ou

It is precisely because of the dependence of internal causes on external ones that, in the *Lettre à Landois*, Diderot writes that ‘le[s] motif[s] [de nos actions] nous [sont] toujours extérieur[s], étranger[s], attaché[s] ou par la nature, ou par une cause quelconque *qui n’est pas nous*’.<sup>625</sup> Moreover, in the *Observations sur Hemsterhuis* Diderot is absolutely clear that internal and external causes are alike in so far as they are both beyond human control: ‘tout motif, soit qu’il nous soit extérieur ou intérieur *est indépendant de nous*’.<sup>626</sup>

Although internal causes may always be traced back to external factors, it would be inaccurate to attribute to either Diderot or d’Holbach the claim that human beings are solely passive and never active, as several commentators have done. Conversely, human beings are part and parcel of that endless, all-encompassing causal chain that has been described in Chapter I. In the *Système de la nature*, d’Holbach illustrates this with a reference to Muhammad.<sup>627</sup> In a remarkably short time, d’Holbach writes, the ‘*législateur des musulmans*’ succeeded in dramatically changing the culture and religious habits of his people. He created a system of beliefs that was to spread rapidly, impacting on the lives of hundreds of thousands, and drastically changing the course of history. He could hardly have chosen a better example of an active moral force. Nevertheless, d’Holbach goes on to say, none of this would ever have happened, had Muhammad’s temperament, his muscles, his nerves, his blood, in short, his organisation, been different.<sup>628</sup> And all these characteristics are in turn but the necessary effects of various external causes, such as his diet, the climate, his parents’ ‘organisation’, etc. Such considerations show that d’Holbach thought of the religious systems against which he so

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négliger les conseils de ses parents, à la diligence ou à la paresse, à la justice ou à la colère, au respect ou au mépris des lois; il n’y a que celui qui n’a jamais vu deux enfants en sa vie et qui n’entendit jamais leurs cris au berceau qui puisse en douter. L’homme ne naît rien; mais chaque homme naît avec une aptitude propre à une chose’.

<sup>625</sup> *Landois*, p.257. Italics mine.

<sup>626</sup> *Hemsterhuis*, p.308. Italics mine.

<sup>627</sup> *Système*, p.316-317.

<sup>628</sup> *Helvétius*, p.482: ‘L’éducation ou les hasards rendront-ils passionnés les hommes nés froids? Les passions ne sont-elles pas des effets du tempérament, et le tempérament est-il autre chose qu’un résultat de l’organisation? Vous aurez beau prêcher celui qui ne sent pas; vous soufflez sur des charbons éteints. S’il y a une étincelle, votre souffle pourra susciter de la flamme. Mais il faut que la première étincelle y soit’.

vehemently fulminates as necessarily produced. In spite of what many of his contemporaries claimed, however, d'Holbach's anti-religious crusade is not inconsistent with his determinism, and as we shall see in the next chapter, such criticisms ultimately arise from an erroneous equating of the doctrines of fatalism with that of determinism.

### Diderot, d'Holbach, and the Alternative Possibilities Model

Since Diderot and d'Holbach believe that human volitions always have causes, and since they further believe that these causes, be they internal or external, are connected in a never-ending chain and are beyond human control, we may conclude that Diderot and d'Holbach firmly reject the Source Model of moral freedom.<sup>629</sup> This is clearly expressed in the *Système de la nature*, where d'Holbach writes:

L'action étant toujours un effet de la volonté une fois déterminée, et la volonté ne pouvant être déterminée que par le motif qui n'est point en notre pouvoir, il s'ensuit que nous ne sommes jamais les maîtres des déterminations de notre volonté propre, et que par conséquent jamais nous n'agissons librement. On a cru que nous étions libres, parce que nous avons une volonté et le pouvoir de choisir; mais on n'a point fait attention que notre volonté est mue par des causes indépendantes de nous, inhérentes à notre organisation ou qui tiennent à la nature des êtres qui nous remuent.<sup>630</sup>

Besides rejecting the Source Model, d'Holbach and Diderot also refute the Alternative Possibilities Model, arguing that human beings are never able to choose amongst alternative courses of action.<sup>631</sup> In the *Système de la nature*, d'Holbach considers the example, fairly common in the literature on moral freedom, of a man who, lost in a desert and excruciatingly

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<sup>629</sup> See Duflo, *Diderot philosophe*, p.387, and Schmitt, *Diderot ou la Philosophie de la séduction*, p.70.

<sup>630</sup> *Système*, p.284.

<sup>631</sup> Schmitt, *Diderot ou la Philosophie de la séduction*, p.70.

thirsty, suddenly comes across a fountain. Certainly, d'Holbach argues, this man will not refrain from quenching his thirst at the fountain. But what if he were to discover that the fountain is poisoned? In that case, he would no doubt abstain from drinking. And yet:

l'on en conclura faussement qu'il est] libre. En effet, de même que la soif [l]e déterminait nécessairement à boire avant que de savoir que cette eau fût empoisonnée, de même cette nouvelle découverte [l]e détermine nécessairement à ne pas boire; alors le désir de [s]e conserver anéantit ou suspend l'impulsion primitive que la soif donnait à [s]a volonté; ce second motif devient plus fort que le premier, la crainte de la mort l'emporte nécessairement sur la sensation pénible que la soif [lui] faisait éprouver. Mais, direz-vous, si la soif est bien ardente, sans avoir égard au danger, un imprudent pourra risquer de boire cette eau; dans ce cas la première impulsion reprendra le dessus et le fera agir nécessairement, vu qu'elle se trouvera plus forte que la seconde.<sup>632</sup>

In other words, the illusion of alternative possibilities only arises from our incapacity to see that the circumstances in which we act ceaselessly change: had the man in the example not learned that the source was contaminated, he would not have refrained from swallowing its water. Contrary to what John Robert Loy appears to suggest, Diderot, too, denies that human beings are able to choose amongst alternative courses of action.<sup>633</sup> Consider, for instance, what he writes in the *Observations sur Hemsterhuis*:

Vous demandez, est-ce que je ne suis pas libre de prendre A ou B. Je vous répons, non. Vous ne pouvez prendre que B. A l'instant, vous portez votre main sur A: et vous me dites, je suis libre; et moi, je ris de votre exclamation. Ce n'est pas vous qui avez pris A. C'est moi qui me suis emparé par ma contradiction de votre main, et qui en ai disposé.

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<sup>632</sup> *Système*, p.281.

<sup>633</sup> John Robert Loy, 'Diderot's Determined Fatalist: A Critical Appreciation of *Jacques le Fataliste*', doctoral thesis, Columbia University, 1950, p.136-137: 'What Diderot is definitely denying is the *libre arbitre* (a term he never uses), the unmotivated ability to do as one pleases. What he is trying desperately to keep is the freedom to choose rationally between very stringently limited and necessary possibilities, which is something quite different'.

Quoi, je ne suis pas le maître de me jeter par cette fenêtre?... Non... Et si je m'y jette?...

Vous me prouvez que vous êtes un fou et non pas un homme libre...

Lorsque, sur ma contradiction, vous vous précipitez; c'est moi qui vous précipite, et aussi violemment que si j'y employais la force.<sup>634</sup>

Several other examples could be cited in this context. I shall only quote one more from *Jacques le fataliste* simply to show that, even in this respect, the latter work does not differ from Diderot's other productions:

Le maître: ... il me semble que je sens au-dedans de moi-même que je suis libre [...].

Jacques: Mon capitaine disait: Oui, à présent que vous ne voulez rien; mais veuillez vous précipiter de votre cheval?

Le maître: Eh bien, je me précipiterai.

Jacques: Gaiement, sans répugnance, sans effort, comme lorsqu'il vous plaît d'en descendre à la porte d'une auberge?

Le maître: Pas tout à fait, mais qu'importe, pourvu que je me précipite et que je prouve que je suis libre?

Jacques: Mon capitaine disait: Quoi, vous ne voyez pas que sans ma contradiction il ne vous serait jamais venu en fantaisie de vous rompre le cou? C'est donc moi qui vous prends par le pied et qui vous jette hors de selle. Si votre chute prouve quelque chose, ce n'est donc pas que vous soyez libre, mais que vous êtes fou.<sup>635</sup>

On this subject, I should mention that the argument from cause une, discussed in Chapter II and to which Diderot and d'Holbach both subscribe – although, perhaps, not with the same enthusiasm – is also incompatible with the Alternative Possibilities Model of moral

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<sup>634</sup> Hemsterhuis, p.310. This passage is a summary of a paragraph in the *Système de la nature*. See *Système*, p.289.

<sup>635</sup> *Jacques*, p.270-271.

freedom.<sup>636</sup> According to this argument, in fact, agents can only act in a certain way in any given circumstances, because what they do is the necessary result of what they are and of their previous sensations, actions, and thoughts, to the point that it would be contradictory for them to act otherwise than they do.<sup>637</sup>

### Outright rejection of moral freedom

By rejecting both the Source and the Alternative Possibilities Model, Diderot and d'Holbach reject moral freedom *tout court* – they put forward, in Schmitt's words, 'un déterminisme psychologique radical'.<sup>638</sup> In a passage of the *Lettre à Landois* to which Colas Duflo has already drawn attention, Diderot dismisses moral freedom as a meaningless term: 'Regardez-y de près, et vous verrez que le mot liberté est un mot vide de sens; qu'il n'y a point, et qu'il ne peut y avoir d'êtres libres'.<sup>639</sup> This idea is echoed in d'Holbach's *Système de la nature*: 'Pour peu que chaque homme veuille examiner ses propres actions [...], il demeurera convaincu que ce sentiment qu'il a de sa propre liberté est une chimère que l'expérience doit bientôt détruire'.<sup>640</sup> Through his works, Diderot attempts to discover how the illusion of moral freedom originates in the human mind and concludes that it should arguably be regarded as the product of a simple misunderstanding. Human beings, he explains, tend to take as freely made those actions that, in reality, they simply make voluntarily:

Ce qui nous trompe c'est la prodigieuse variété de nos actions, jointe à l'habitude que nous avons prise tout en naissant de confondre le volontaire avec le libre. Nous faisons tant de choses, et nous sentons depuis si longtemps que nous les voulons toutes. Nous avons tant

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<sup>636</sup> See above p.95-100.

<sup>637</sup> See *Rêve*, p.186.

<sup>638</sup> Schmitt, *Diderot ou la Philosophie de la séduction*, p.70. See also Duflo, *Diderot philosophe*, p.406 and Alice M. Laborde, *Diderot et l'amour*, Saratoga: Anma Libri, 1979, p.42.

<sup>639</sup> *Landois*, p.256-257. See Duflo, *Diderot philosophe*, p.406.

<sup>640</sup> *Système*, p.292.

loué, tant repris et nous l'avons été tant de fois que c'est un préjugé bien vieux que celui de croire que nous et les autres voulons, agissons librement.<sup>641</sup>

On the contrary, Diderot is very insistent that the notions of voluntariness and freedom be kept distinct, and that voluntary actions are in no way freer than involuntary ones. He treats this issue most explicitly in the *Eléments de physiologie*, where he argues that extending an arm is in no way freer than the beating of the heart.<sup>642</sup> He further explains that what today we would call voluntary or skeletal muscles often operate independently of the will and that, conversely, some muscles that normally act autonomously can at times be controlled: 'Les mouvements volontaires ne le sont pas toujours; j'étends involontairement mon bras à l'approche d'un objet dont je suis menacé: [...] je suis alternativement, ou je cesse d'être le maître de mes paupières'.<sup>643</sup>

### Moral responsibility

From the definition of moral freedom as the sort of freedom that is required in order to be accountable for one's actions, it appears that the notions of moral freedom and moral responsibility are inextricably linked together. This is confirmed by the entry 'Cause' in the *Encyclopédie*, in which the abbé Yvon, showing himself to be perfectly acquainted with both the notions of 'liberté d'indifférence' and 'liberté de spontanéité', writes that: 'Pour rendre les hommes responsables de leurs actions, il importe beaucoup qu'ils soient [...] libres, [...] que l'âme ait un tel empire sur ses propres actes, qu'elle puisse à son gré vouloir ou ne vouloir pas ces mouvements corporels qui suivent nécessairement sa volonté'.<sup>644</sup> Given the aversion that

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<sup>641</sup> Landois, p.257. See also *Système*, p.284: 'On a cru que nous étions libres, parce que nous avons une volonté et le pouvoir de choisir'.

<sup>642</sup> *Physiologie*, p.316-317.

<sup>643</sup> *Physiologie*, p.317.

<sup>644</sup> *Encyclopédie*, 2:788.

Diderot and d'Holbach show for both the Alternative Possibilities and the Source models, one would expect them to dismiss moral responsibility, too, and reject outright words such as blame- and praiseworthiness.<sup>645</sup> Despite the serious consequences that this view obviously entails, Diderot audaciously takes this further step and repeatedly asserts that, since human beings are determined, they cannot be held responsible for anything they do, be it good or bad. In the *Rêve de d'Alembert*, Mademoiselle de Lespinasse, puzzled and yet intrigued by Bordeu's statement that human beings, *qua* 'causes unes', cannot act any differently from how they do, poses the crucial question as to what becomes of virtue and vice in a world from which moral freedom is banned.<sup>646</sup> Cool as a cucumber, Bordeu replies that they should simply be replaced by the terms 'bienfaisance' and 'malfaisance', which, as the text suggests, are meant to indicate in a morally neutral way the performance of actions that respectively increase or decrease the well-being of others.<sup>647</sup> Good and evil people, Bordeu continues, are better described as 'heureusement' and 'malheureusement nés', respectively, and regret should be dismissed as a childish feeling ultimately arising from the foolish and pretentious conviction that our actions are free.<sup>648</sup> The same ideas are present in the review of the *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit et du cœur humain* ('On est bien ou mal né'), in the *Lettre à Landois* ('il n'y a ni vice, ni vertu. [...] [Ce] qui distingue [...] les hommes [c'est] la bienfaisance et la malfaisance') and in *Jacques le*

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<sup>645</sup> Indeed, determinism was often perceived as a threat to social order. See Voltaire, *Correspondence*, D8985 (Charles Palissot de Montenoy to Voltaire - 17 juin 1760): 'tout système qui conduit au fatalisme peut servir d'apologie aux plus grands crimes'.

<sup>646</sup> One finds the same question in *Jacques le fataliste* (p.28) where the master thus questions Jacques: 'Le maître: Mais en raisonnant à ta façon, il n'y a point de crime qu'on ne commît sans remords. / Jacques: Ce que vous m'objectez là m'a plus d'une fois chiffonné la cervelle; mais avec tout cela, malgré que j'en aie, j'en reviens toujours au mot de mon capitaine: Tout ce qui nous arrive de bien et de mal ici-bas est écrit là-haut. Savez-vous, monsieur, quelque moyen d'effacer cette écriture? Puis-je n'être pas moi? Et étant moi, puis-je faire autrement que moi? Puis-je être moi en un autre? Et depuis que je suis au monde, y a-t-il eu un seul instant où cela n'ait été vrai? Prêchez tant qu'il vous plaira, vos raisons seront peut-être bonnes; mais s'il est écrit en moi ou là-haut que je les trouverai mauvaises, que voulez-vous que j'y fasse?'.

<sup>647</sup> *Rêve*, p.186. See also the *Encyclopédie* article 'Liberté' (9:463): 'Il n'y a donc plus de vicieux et de vertueux? non, si vous le voulez; mais il y a des êtres heureux ou malheureux, bienfaisants et malfaisants'.

<sup>648</sup> *Rêve*, p.186-187. According to Jacques Proust, Diderot is likely the author of the article 'Remords' in the *Encyclopédie* (14:98).

*fataliste* ('Jacques ne connaissait ni le nom de vice, ni le nom de vertu; il prétendait qu'on était heureusement ou malheureusement né').<sup>649</sup>

D'Holbach appears much more reluctant than Diderot to abandon the terms 'vice' and 'virtue'. His terminological conservatism, however, conceals a profound rupture with tradition. In the *Système*, d'Holbach provides the following definitions: 'la vertu est tout ce qui est vraiment et constamment utile aux êtres de l'espèce humaine vivant en société; [...] le vice est tout ce qui leur est nuisible'.<sup>650</sup> What stands out here is the emphasis placed on society: in order to be virtuous, an action has to benefit someone else. 'Être vertueux', the Baron writes on a different occasion, 'c'est jouir des bienfaits et des plaisirs que l'on répand sur [les autres]'.<sup>651</sup> By insisting on the social nature of virtue, d'Holbach obviously breaks with the Christian tradition, whose Theological and Cardinal Virtues (Hope, Prudence, Temperance, etc.) have a clear focus on the individual. After all, dissatisfaction with the 'private virtues' of Christianity was extremely common in eighteenth-century France, perhaps nowhere more forcefully expressed than in Voltaire's dialogue in the *Questions sur l'Encyclopédie* between 'un honnête homme' and 'un excrément de théologie': 'Si tu [...] as [de la prudence, de la tempérance]', the 'honnête homme' says, 'tant mieux pour toi; mais si tu es juste, tant mieux pour les autres'.<sup>652</sup> A further element of rupture with tradition is the fact that, much like Diderot's 'bienfaisance' and 'malfaisance', d'Holbach's 'vertu' and 'vice' are ultimately morally neutral notions. In Chapter I.12 of the *Système*, a parallel is drawn between a vicious man and a river that overflows and inundates the fields of a farmer, to show that people are not morally accountable for the crimes they perpetrate. Yet, this parallel also allows d'Holbach to show that society is in a position to prevent criminals from reiterating their

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<sup>649</sup> *Jacques*, p.189. See also Diderot, *Principes philosophiques pour servir d'introduction à la connaissance de l'esprit*, p.182. Landois, p.257.

<sup>650</sup> *Système*, p.247.

<sup>651</sup> *Système*, p.358.

<sup>652</sup> Voltaire, *Questions sur l'Encyclopédie*, article 'Vertu', in *OCV*, vol.43, p.466.

actions: ‘Quelle que soit la cause qui fait agir les hommes, on est en droit d’arrêter les effets de leurs actions, de même que celui dont un fleuve pourrait entraîner le champ est en droit de contenir ses eaux par une digue ou même, s’il peut, de détourner son cours’.<sup>653</sup> Room is thus made for legal punishment within a fully deterministic system. In fact, the Baron maintains that only a society whose laws are such that they ensure that punishment always follows a crime will be able to improve and attain public happiness: ‘la honte, le mépris, les châtimens rigoureusement attachés au vice et au crime, sont des causes qui agiraient nécessairement sur les volontés des hommes, qui détermineraient le plus grand nombre d’entre eux à montrer des vertus’.<sup>654</sup> And if on the one hand d’Holbach shows himself to be sensitive to Cesare Beccaria’s pleas, and argues in favour of the abolition of overly painful forms of punishment, on the other he maintains that the death penalty should not be abolished and that an execution should be made as frightful a public event as possible. As he puts it in the *Ethocratie*:

Si l’on croit devoir remuer l’imagination du peuple par le spectacle d’un châtiment plus mémorable pour des délits rares ou remarquables par leur atrocité, la mort, sans être en effet plus douloureuse pour le coupable, ne pourrait-elle pas être accompagnée d’un appareil propre à frapper très vivement l’esprit des spectateurs étonnés de la nouveauté du supplice? Peut-être même serait-il bon que, sans augmenter les tourmens réels de la victime, la loi décernât des supplices variés suivant les crimes différens, afin que les esprits fussent plus fortement remués par des circonstances auxquelles les yeux ne sont pas accoutumés.<sup>655</sup>

D’Holbach’s apprehension about the legal implications of determinism is not unfamiliar to Diderot. Even before he fully developed his determinism, Diderot had addressed this problem in the *Promenade du sceptique* of 1747, where the story is told of how Athéos (a fictional character whose religious beliefs are not difficult to guess) fell into the deepest despair after

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<sup>653</sup> *Système*, p.302.

<sup>654</sup> *Système*, p.293-294.

<sup>655</sup> D’Holbach, *Ethocratie*, p.684-685.

considering that he could not blame anyone for his wife's abduction and his children's slaughter without contravening his deterministic creed.<sup>656</sup> A famous letter to Voltaire immediately following the publication of the *Lettre sur les aveugles*, shows that, by 1749, Diderot was already attempting to show that to commit to atheism and determinism is not automatically to make an apology of crime and social disorder: 'selon [les athées] un homme qui les offense, ne les offense pas plus librement que ne les blesse une tuile qui se détache et qui leur tombe sur la tête; mais ils ne confondent point ces causes, et jamais ils ne s'indignent contre la tuile'.<sup>657</sup> In the *Lettre à Landois*, a different solution is offered, which is very similar to d'Holbach's and more consistent with the rejection of the notions of moral freedom, vice, and virtue: since criminals perform their actions necessarily, it would be contradictory to be angry with them; that notwithstanding, lawbreakers must be prevented from reiterating their illicit actions, and their 'punishment' should be public, for the sight of it will have an impact on bystanders and discourage them from breaking the laws: 'Le malfaisant', Diderot writes, 'est un homme qu'il faut détruire [sur une place publique], mais non punir'.<sup>658</sup> (Note that the opposition between the verbs 'détruire' and 'punir' is symmetrical to the one between 'malfaisance' and 'vice'). The same ideas, yet in a less extreme form, appear in the *Rêve de d'Alembert*, where 'châtiment' and 'récompense' are defined as 'des moyens de corriger l'être modifiable qu'on appelle méchant, et d'encourager celui qu'on appelle bon', as well as in *Jacques le fataliste* ('Selon [Jacques] la récompense était l'encouragement des bons, le châtiment l'effroi des méchants').<sup>659</sup>

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<sup>656</sup> Diderot, *La Promenade du sceptique*, p.138-139.

<sup>657</sup> Voltaire, *Correspondence*, D3945.

<sup>658</sup> *Landois*, p.257. See also Anthony Strugnell, *Diderot's Politics: A Study of the Evolution of Diderot's Political Thought after the Encyclopédie*, The Hague: Nijhoff, 1973, p.20, and *Nakaz*, p.540: 'On ne saurait rendre l'appareil des supplices trop effrayant. Un cadavre que l'on déchire fait plus d'impression que l'homme vivant à qui on coupe la tête'.

<sup>659</sup> *Rêve*, p.187 and *Jacques*, p.189.

## Conclusion

In this chapter I have shown that Diderot and d'Holbach reject both the accounts of moral freedom that were known to eighteenth-century philosophers: the Source and the Alternative Possibilities models. Their theory of determinism has thus been shown equally to apply to the physical and moral spheres.

In the next and final chapter, I shall examine how Diderot and d'Holbach's rejection of moral freedom affects their conception of human life. I shall show that their theory of determinism covers every aspect of human life, from love and friendship to the aesthetic experience, from how one dreams to literary production. I shall also discuss how d'Holbach and Diderot's determinism permeates their conception of society and history, and this will lead me to discuss such crucial issues as predictability, complexity, and change.

## Chapter V: Individuals and Society

The previous chapter showed that Diderot and d'Holbach regard determinism as incompatible with moral freedom. As a consequence, Diderot and d'Holbach reject both the Alternative Possibilities and the Source models of moral freedom. Their denial of moral freedom, however, does not entail a rejection of other varieties of freedom (namely natural, civil, and political freedom), which do not represent a threat to determinism, and to which both thinkers enthusiastically subscribe.<sup>660</sup>

In keeping with their rejection of moral freedom, d'Holbach and Diderot put forward an entirely deterministic theory of human life. It is specifically on this aspect of their thought that the first half of the present chapter will focus. Given the extent of the subject, I shall limit my enquiry to a few key notions that are particularly worthy of attention, especially in the context of Diderot's writings: the thinking process, dreaming and madness, love, artistic and literary production, and the aesthetic experience. Progressing from the ontogenetic to the phylogenetic level, I shall then look at how determinism affects Diderot's and d'Holbach's ideas about society and history. This discussion will lead me to address the pivotal issue of Diderot's and d'Holbach's faith in predictability. The importance of this discussion lies in the fact that, while some critics have argued that a system has to be predictable in order to be deterministic, Diderot's name can hardly be disassociated from the notions of complexity and change. He is, in André Tosel's words, 'un penseur du devenir et de la métamorphose'.<sup>661</sup> I shall show that Diderot vacillates in his treatment of predictability: while some passages in his works suggest that he thought of it as an impossibility, others appear almost to anticipate the

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<sup>660</sup> D'Holbach's most heartfelt defence of freedom, interpreted as 'la faculté de faire pour son bonheur tout ce que permet la nature de l'homme en société', can be read in the 'Discours sixième' ('De la liberté') in *Politique naturelle*, p.482-504.

<sup>661</sup> André Tosel, 'Diderot: Un matérialisme entre nominalisme et conjecture', *RDE*, 26 (1999), p.2.

ideas that Pierre-Simon de Laplace expressed in the *Essai philosophique sur les probabilités*. Moreover, I contend that d'Holbach fully shares Diderot's hesitation on the subject of predictability because, contrary to received ideas on this subject, his understanding of reality is no less complex than Diderot's. To conclude, I shall make the point that a deterministic system need not be predictable. To take Diderot and d'Holbach's (partial) rejection of the notion of predictability to mean that they are not determinists is to confuse ontology with epistemology.

#### A deterministic theory of human life

Building on their rejection of moral freedom, Diderot and d'Holbach put forward a theory of human life that is entirely deterministic. In Diderot's works, this is often expressed through evocative images, such as the famous rock simile in *Jacques le fataliste*, which compares human beings to conscious rocks rolling down the slopes of a mountain. Diderot is generally thought to have borrowed this image from a letter that Spinoza addressed to Georg Hermann Schuller in 1674, but it should be noted that this simile also appears in other sources, such as Aulus Gellius's *Attic Nights*.<sup>662</sup> The fact that this simile is attributed by the narrator to Jacques and introduced by the phrase 'il croyait' has led more than one scholar to conjecture that Diderot was deeply dissatisfied with Jacques's deterministic account of ethics. Nevertheless, as was also the case with the notion of *cause une* discussed in Chapter II, an analysis of Diderot's other texts reveals this interpretation to be erroneous. In an almost exact replica of Jacques's simile, one of the notes scribbled on the margins of Hemsterhuis's *Lettre sur l'homme* states that human actions are as necessary as the fall of an object along an inclined

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<sup>662</sup> *Jacques*, p.189-190. It is, however, conceivable that Diderot read Spinoza's letter, which appeared in print in 1677.

plane.<sup>663</sup> In the *Rêve* and in the *Eléments de physiologie*, Diderot has recourse to another striking image, that of the daily routine of a geometer, to make exactly the same point about human life. In the *Eléments*, in particular, this discussion almost takes the form of a Socratic dialogue:

Un géomètre [...] s'éveille: tout en rouvrant les yeux, il se remet à la solution du problème, qu'il avait entamé la veille; [...] il prend sa règle, et son compas; il trace des lignes: il écrit des équations, il combine, il calcule sans savoir ce qu'il fait. Sa pendule sonne [...] il s'habille, il sort, il va dîner chez son ami. [...] On parle de la liberté, et il soutient à cor et à cri que l'homme est libre; je le laisse dire, mais à la chute du jour, je le tire en un coin, et je lui demande compte de ses actions. Il ne sait rien, mais rien du tout de ce qu'il a fait, et je vois que machine pure, simple, et passive de différents motifs qui l'ont mû, loin d'avoir été libre, il n'a pas même produit un seul acte exprès de sa volonté: il a pensé, il a senti, mais il n'a pas agi plus librement qu'un corps inerte, qu'un automate de bois, qui aurait exécuté les mêmes choses que lui.<sup>664</sup>

### Pensées décousues

There are, however, a few elements that may appear to jeopardise the stability of Diderot and d'Holbach's deterministic account of human life. It is not uncommon in Diderot's works, for instance, to spot references to the indomitable and volcanic nature of the mind, effortlessly jumping from one consideration to a very different one, in an endless series of seemingly

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<sup>663</sup> *Hemsterhuis*, p.259. See also *Nakaz*, p.543: 'Au moral ainsi qu'au physique, il est plus facile de descendre que de remonter. Le corps qui descend suit sa pente naturelle, et c'est contre sa nature, par l'effet d'un choc accidentel et violent, qu'il remonte pour un moment'.

<sup>664</sup> *Physiologie*, p.485. See also *Rêve*, p.184-185. The very same example also appears in *Hemsterhuis*, p.68, where the geometer is replaced by a metaphysician – Hemsterhuis himself: 'M. Hemsterhuis [...] sort de chez lui la tête occupée d'optique ou de métaphysique; sans vouloir sortir, il est poussé hors de sa maison par un souvenir; chemin faisant, il évite des obstacles, sans y penser; il se rappelle un oubli qui le ramène chez lui, il y revient; et il exécute la chose qu'il avait oublié de faire, toujours à sa pensée. C'est alors qu'il est bien évidemment un automate chassé, détourné, ramené par des causes qui disposent de lui aussi impérieusement qu'un choc dispose d'un corps choqué'.

disconnected ideas.<sup>665</sup> The incipit of the *Neveu de Rameau*, where Diderot, much like Horace at the beginning of *Satires*, I.9, walks in leisurely fashion and allows his thoughts to flow ‘freely’, is well-known:

Qu’il fasse beau, qu’il fasse laid, c’est mon habitude d’aller sur les cinq heures du soir me promener au Palais-Royal. C’est moi qu’on voit, toujours seul, rêvant sur le banc d’Argenson. Je m’entretiens avec moi-même de politique, d’amour, de goût ou de philosophie. J’abandonne mon esprit à tout son libertinage. Je le laisse maître de suivre la première idée sage ou folle qui se présente, comme on voit dans l’allée de Foy nos jeunes dissolus marcher sur les pas d’une courtisane à l’air éventé, au visage riant, à l’œil vif, au nez retroussé, quitter celle-ci pour une autre, les attaquant toutes et ne s’attachant à aucune. Mes pensées, ce sont mes catins.<sup>666</sup>

What is presented here as a personal habit becomes, in other works, literary technique. At the beginning of the *Pensées sur l’interprétation de la nature*, Diderot states: ‘Je laisserai les pensées se succéder sous ma plume [...], parce qu’elles n’en représenteront que mieux les mouvements et la marche de mon esprit’.<sup>667</sup> The same *modus philosophandi ac scribendi* is employed in the *Eléments de physiologie*, where ideas and theories are presented in such a tumultuous succession that many commentators consider this work to be simply sketched out and unfinished. Nevertheless, in several passages scattered throughout his works, Diderot is clear that, however unfettered or exuberant, the flow of thoughts is actually never free:

Tout tient dans l’entendement humain ainsi que dans l’univers[. ... L]’idée la plus disparate qui semble venir étourdiment croiser ma méditation actuelle, a son fil très délié, qui la lie soit à l’idée qui m’occupe, soit à quelque phénomène qui se passe au-dedans ou au dehors de moi; [...] avec un peu d’attention je démêlerais ce fil et reconnaîtrais la cause du

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<sup>665</sup> For a discussion of how a genius’ mind works according to Diderot see Schmitt, *Diderot ou la Philosophie de la seduction*, p.172-196.

<sup>666</sup> *Neveu*, p.299-300.

<sup>667</sup> *Interprétation*, p.715.

rapprochement subit et du point de contact de l'idée présente et de l'idée survenue[. ... L]a petite secousse qui réveille l'insecte tapi à une grande distance dans un recoin obscur de l'appartement et l'accélère près de moi, est aussi nécessaire que la conséquence la plus immédiate aux deux prémisses du syllogisme le plus serré.<sup>668</sup>

Diderot's materialism is here at its most extreme: like dodgem cars or billiard balls, ideas swirl in the mind of human beings, ram each other, and trigger a chain reaction that it is nonetheless possible to follow. The reader well-acquainted with Diderot's works will also recognise in the concluding sentence the image of the spider, which Diderot is likely to have borrowed from the entry 'Spinoza' in Bayle's *Dictionnaire critique*, and which is used in the *Rêve de d'Alembert* to describe how the nervous system functions: the 'petite secousse' stands for any external cause, while the 'insecte' represents the idea that the aforementioned external cause elicits in the mind of a bystander.<sup>669</sup> The final sentence of the quotation above should therefore be read as affirming that the necessity with which an external input evokes an idea in a mind is akin to that which exists between the two premisses of a syllogism and its conclusion; using the terminology employed in Chapter II, one could say that external inputs logically necessitate the ideas that they elicit.

In a letter to Sophie Volland of 20 October 1760, Diderot uses the same image of the web to make the point that, not unlike a person's thoughts, the ideas in a conversation are also tightly linked to one another:

tout se tient [...] dans la conversation; mais il serait quelquefois bien difficile de retrouver les chaînons imperceptibles qui ont attiré tant d'idées disparates. Un homme jette un mot qu'il détache de ce qui a précédé et suivi dans sa tête; un autre en fait autant, et puis attrape

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<sup>668</sup> *Helvétius*, p.635-636. See also *Helvétius*, p.636: 'Dans l'homme qui réfléchit enchaînement nécessaire d'idées; dans l'homme attaché à telle ou telle profession, enchaînement nécessaire de telles ou telles idées'. In *Système*, p.290, d'Holbach too subscribes to Diderot's claim that a person's thoughts never arise out of nothing, but are instead necessitated by either internal or external causes.

<sup>669</sup> Sandrier, *Le Style philosophique*, p.519.

qui pourra. Une seule qualité physique peut conduire l'esprit qui s'en occupe à une infinité de choses diverses. Prenons une couleur, le jaune, par exemple: l'or est jaune, la soie est jaune, le souci est jaune, la bile est jaune, la paille est jaune; à combien d'autres *films* ce fil ne répond-il pas? La folie, le rêve, le décousu de la conversation consistent à passer d'un objet à un autre par l'entremise d'une qualité commune.<sup>670</sup>

This has an obvious repercussion on the interpretation of such texts as the *Eléments de physiologie* or the *Pensée sur l'interprétation de la nature*, which, as just noted, Diderot claims to have written almost absent-mindedly (or, one could perhaps say, *per intervalla insaniae*). It only takes some familiarity with Diderot's style and ideas to understand how carefully planned these works actually are and, upon careful examination, the occasionally hidden connections between a given idea and those that follow can often be identified. It should also be borne in mind that, by the eighteenth century, it had become fairly common to affect disjointedness and disorganisation in literary works, and Montaigne's *Essais* – Diderot's admiration of which need not be discussed here – had played no little role in the diffusion of this literary practice.<sup>671</sup> 'Je vais au change, indiscrètement et tumultueusement: mon style, et mon esprit, vont vagabondant de même', writes Montaigne in 'De la vanité', adding, however, the following short clause: 'c'est l'indiligent lecteur qui perd mon sujet, non pas moi'.<sup>672</sup> Montaigne, moreover, is only one influence, and many other literary models can be put forward to account for the apparent disjointedness of Diderot's texts. Caroline Warman has identified in Pascal's *Pensées* one of the most influential models of Diderot's *écriture*

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<sup>670</sup> *Correspondance*, vol.3, p.173. See also *Physiologie*, p.335: 'Toutes les pensées naissent les unes des autres; cela me semble évident. Les opinions intellectuelles sont également enchaînées: la perception naît de la sensation. De la perception la réflexion, la méditation, le jugement. Il n'y a rien de libre dans les opérations intellectuelles, ni dans la sensation, ni dans la perception ou la vue des rapports des sensations entre elles, ni dans la réflexion ou la méditation ou l'attention plus ou moins forte à ces rapports, ni dans le jugement ou l'acquiescement à ce qui paraît vrai'.

<sup>671</sup> See Jerome Schwartz, *Diderot and Montaigne: The 'Essais' and the Shaping of Diderot's Humanism*, Geneva: Droz, 1966; Philip Knee, 'Diderot et Montaigne: Scepticisme et morale dans *Le Neveu de Rameau*', *DS*, 29 (2003), p.35-51; and Kate E. Tunstall, 'Paradoxe sur le portrait: Autoportrait de Diderot en Montaigne', *DS*, 30 (2007), p.195-207.

<sup>672</sup> Montaigne, *Essais*, ed. Jean Balsamo, Michel Magnien and Catherine Magnien-Simonin, Paris: Gallimard (Pléiade), 2007, p.1041.

*fragmentaire*, and Pierre Chartier has traced the style of the *Essai sur les règnes de Claude et de Néron* back to La Rochefoucauld and La Bruyère.<sup>673</sup> The *Leçons de clavecin et principes d'harmonie* suggests that another literary model – the Italian chivalric poem *Orlando furioso* – may lie behind the apparently chaotic and stammering structure of *Jacques le fataliste*.<sup>674</sup> Regardless of its literary sources, the artificial disconnectedness of some of Diderot's works is no doubt dictated by particular rhetorical intentions, and the incipit of the *Essai sur les règnes*, which, interestingly, again compares *écriture* to *promenade*, indicates that Diderot's desire to retain the reader's attention may be at the root of his *varietas* and fragmentary style: 'Ce livre, si c'en est un, ressemble à mes promenades: rencontré-je un beau point de vue? je m'arrête et j'en jouis. Je hâte ou je ralentis mes pas, selon la richesse ou la stérilité des sites: toujours conduit par ma rêverie, je n'ai d'autre soin que de prévenir le moment de la lassitude'.<sup>675</sup>

### Dreaming and madness

Another phenomenon that may seem not to be perfectly compatible with Diderot and d'Holbach's theory of determinism is dreaming. Dreams may represent a threat for determinism because, as Du Châtelet suggests, they appear to contravene the Principle of Sufficient Reason: 'Je rêve que je suis dans ma chambre, occupé à écrire; tout d'un coup ma chaise se change en un cheval ailé, et je me trouve en un instant à cent lieues de l'endroit où j'étais [...]. Tout cela ne peut arriver dans ce monde, puisqu'il n'y aurait point de raison

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<sup>673</sup> Caroline Warman, 'De l'Elément à la physiologie: une théorie de l'homme?', in François Pépin and Guillaume Lecointre (eds.), *Diderot, l'humain et la science*, Paris: Editions Matériologiques, 2017, p.167-180; Pierre Chartier, '« Je ne compose point, je ne suis point auteur... »', *RDE*, 36 (2004), p.7-15.

<sup>674</sup> Denis Diderot, *Leçons de clavecin et principes d'harmonie*, in *Œuvres complètes*, Paris: Le Club du Livre, vol.9, p.415.

<sup>675</sup> *Sénèque*, p.37. See Chartier, '« Je ne compose point »'.

suffisante de tous ces effets'.<sup>676</sup> Diderot and d'Holbach's response to this problem is to bridge the gap between a person's dreams and normal thoughts (Diderot insists on their identity in the *Encyclopédie* article 'Pyrrhonienne ou sceptique philosophie') and to maintain that, however unrealistic, the images that present themselves to the mind of sleepers are nothing other than a combination of daytime impressions: 'le songe', Diderot writes, 'ne nous rend jamais que les idées ou les combinaisons diverses d'idées ou d'images reçues pendant la veille'.<sup>677</sup> The same notion surfaces in Diderot's entry 'Rêve' in the *Encyclopédie* as well as, in the case of d'Holbach, in the *Système de la nature*: 'durant le sommeil [...] notre cerveau est meublé d'une foule d'idées que la veille lui a fournies; ces idées lui ont été portées par les objets extérieurs et corporels, qui l'ont modifié'.<sup>678</sup> The idea that we find here expressed is connected to that pivotal tenet of empiricism which, normally referred to as 'Peripatetic Axiom', or 'Copy Principle' in Humean scholarship, affirms that all our ideas are derived from impressions. So complete is the analogy between dreams and daytime thoughts that, in Diderot's opinion, even the ideas of sleepers are indissolubly linked together, to the point that it is not impossible for a wise-enough person to follow them or even predict their course. The obvious reference is to the *Rêve de d'Alembert*, in particular to the section in which Bordeu, much to Madame de Lespinasse's surprise, succeeds in predicting sleeping d'Alembert's train of thought:

Bordeu: Eh bien, savez-vous que ce rêve est fort beau, et que vous avez bien fait de l'écrire.

Mlle de Lespinasse: Rêvez-vous aussi?

Bordeu: Si peu, que je m'engagerais presque à vous dire la suite.

Mlle de Lespinasse: Je vous en défie. [...]

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<sup>676</sup> Du Châtelet, *Institutions*, p.24.

<sup>677</sup> *Hemsterhuis*, p.295 and *Encyclopédie*, 13:612. See also *Hemsterhuis*, p.268.

<sup>678</sup> *Système*, p.262-263. See also *Encyclopédie*, 'Rêve', 14:223: 'Les choses qui nous ont le plus frappé durant le jour, apparaissent à notre âme lorsqu'elle est en repos'.

Bordeu: Et si je rencontre.

Mlle de Lespinasse: Si vous rencontrez, je vous promets [...] de vous tenir pour le plus grand fou qu'il y ait au monde.<sup>679</sup>

Mlle de Lespinasse's eagerness to label Bordeu as a madman should not deceive anyone: not differently from dreaming people, madmen are in fact fully integrated into Diderot and d'Holbach's theory of determinism.<sup>680</sup> Diderot often insists on the absence of any real difference between mad and sane people. His attempts at normalising madness are most apparent in the *Neveu de Rameau*. Much like Jacques and his *maître*, Moi and Lui are often contrasted by the critics, who are prepared to see an incarnation of wisdom in the first and a madman in the other. In fact, the opposition between the two figures is only superficial. A beard is the only thing that Lui lacks in order to look like (or be) a wise man, whilst Moi is in no way a stranger to the emotional fluctuations that constitute the clearest sign of Lui's madness: 'l'âme agitée de deux mouvements opposés, je ne savais si je m'abandonnerais à l'envie de rire, ou au transport de l'indignation. Je souffrais. Vingt fois un éclat de rire empêcha ma colère d'éclater; vingt fois la colère qui s'élevait au fond de mon cœur se termina par un éclat de rire'.<sup>681</sup> This series of parallels culminates in Lui's very Shakespearean claim, which anticipates the master-slave dialectic in Hegel's *Phänomenologie des Geistes*, that to employ a fool is to put oneself in a very ambiguous position, for one never knows who is whose fool: 'Moi je suis le fou de Bertin et de beaucoup d'autres, le vôtre peut-être dans ce moment; ou peut-être vous, le mien. Celui qui serait sage n'aurait point de fou. Celui donc qui a un fou n'est pas sage; s'il n'est pas sage, il est fou, et peut-être, fût-il roi, le fou de son

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<sup>679</sup> *Rêve*, p.121.

<sup>680</sup> *Hemsterhuis*, p.268: 'Il y a bien de la ressemblance entre le rêve et la folie'. See also *Correspondance*, vol.3, p.172-173: 'Il n'y a rien de décousu ni dans la tête d'un homme qui rêve, ni dans celle d'un fou'.

<sup>681</sup> *Neveu*, p.75 and 95.

fou'.<sup>682</sup> Although most apparent in the *Neveu de Rameau*, Diderot's attempts to normalise the figure of the mad person are in fact ubiquitous. Diderot echoes Seneca's *De Tranquillitate Animi* when, on recounting the story of Jacques's captain and his best friend – or mortal enemy, depending on the circumstances –, he writes that everyone has their 'coin de folie'.<sup>683</sup> A myth recounted in the *Réfutation d'Helvétius*, which Dominique Quéro has discussed at length, makes the point that the human species is the product of the secret love between Minerva, the Greek goddess of reason, and Momus, traditionally identified as the god of mockery and satire, whom, however, Diderot regards as a personification of madness: 'l'homme', he writes, '[c'est] le bâtard de la Folie et de la Sagesse'.<sup>684</sup> To use a term that Diderot might well have found in Lucian or Erasmus, human beings are *μωρόσοφοι*, foolish wise-men.

However blurred, the line separating wise and mad people does not disappear altogether. Diderot recognises that wise people have a higher degree of self-control, whereas mad ones are better at analogical reasoning: 'Le fou [...] tient un brin de paille jaune et luisante à la main, et il crie qu'il a saisi un rayon du soleil'.<sup>685</sup> Yet, these differences are but the necessary effects of different organisations. That mad people are every bit as subject to determinism in their operations as anyone else is most clearly stated in a passage of the article 'Pyrrhonienne ou sceptique philosophie', which beautifully summarises many of the points made thus far in this chapter:

La chose qu[e Montaigne] dit, c'est celle qui l'affecte dans le moment. Il n'est ni plus lié, ni

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<sup>682</sup> *Neveu*, p.139.

<sup>683</sup> *Jacques*, p.85.

<sup>684</sup> *Helvétius*, p.676. For more on the figure of Momus in Diderot's works, see Dominique Quéro, *Momus philosophe: Recherches sur une figure littéraire du XVIII<sup>e</sup> siècle*, Paris: Champion, 1995, p.455-485. Diderot's mythological tale in the *Réfutation d'Helvétius* is also discussed in Roland Desné, 'Diderot philosophe et conteur: Le Travail de l'écrivain d'après le manuscrit de la *Réfutation de l'Homme d'Helvétius*', in Peter France and Anthony Strugnell (eds), *Diderot: Les Dernières Années, 1770-84: colloque du bicentenaire, 2-5 septembre 1984*, Edinburgh: Edinburgh University Press, 1985, p.221.

<sup>685</sup> *Correspondance*, vol.3, p.173. See Thomson, *Déterminisme et passions*, p.94-95.

plus décousu en écrivant, qu'en pensant ou en rêvant. Or il est impossible que l'homme qui pense ou qui rêve, soit tout-à-fait décousu. Il faudrait qu'un effet pût cesser sans cause, et qu'un autre effet pût commencer subitement et de lui-même. Il y a une liaison nécessaire entre les deux pensées les plus disparates; cette liaison est, ou dans la sensation, ou dans les mots, ou dans la mémoire, ou au dedans, ou en dehors de l'homme. C'est une règle à laquelle les fous mêmes sont assujettis dans leur plus grand désordre de raison. Si nous avions l'histoire complète de tout ce qui se passe en eux, nous verrions que tout y tient, ainsi que dans l'homme le plus sage et le plus sensé.<sup>686</sup>

Although the figure of the mad person arguably has a more marginal role in d'Holbach's work than in Diderot's, a few sporadic remarks in the *Système de la nature* and elsewhere show that d'Holbach did not regard madness as a threat to determinism either: 'les actions des insensés', he writes, 'sont aussi nécessaires que celles des gens les plus prudents'.<sup>687</sup>

## Love

Lester G. Crocker and many others cite, as clear evidence of Diderot's profound dissatisfaction with determinism, a letter of 1769 that was long thought to be addressed to Sophie Volland but which was more likely sent to Mme de Maux.<sup>688</sup> In this letter, sometimes referred to as the 'Lettre sur la comète', Diderot expresses his regret at being caught up in a philosophical doctrine that he cannot help finding correct, but that his heart can hardly resolve to accept: 'J'enrage d'être empêtré d'une diable de philosophie que mon esprit ne peut s'empêcher d'approuver, et mon cœur de démentir'.<sup>689</sup> The reasons behind Diderot's alleged dissatisfaction with determinism are easily explained: if determinism is true, then human

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<sup>686</sup> *Encyclopédie*, 13:608.

<sup>687</sup> *Système*, p.281.

<sup>688</sup> Crocker, *Diderot: The Embattled Philosopher*, p.310.

<sup>689</sup> *Correspondance*, vol.9, p.154.

beings are determined even in their sentimental life, the proverbial butterflies in the stomach are nothing other than the necessary effect of some external or internal cause, and ‘lovers’ cannot be held responsible for being unfaithful: ‘O le beau système pour les ingrats!’<sup>690</sup> David Langdon, however, has shown that Crocker’s interpretation should be rejected.<sup>691</sup> Diderot’s need to disavow a philosophical system that could cast doubt on the genuine nature of his passion is required by the gallant nature of his letter. Moreover, even if one took Diderot’s concerns in this letter as real – as is plausible, given his often-voiced preoccupation with the interplay between moral responsibility and determinism – that would only attest to his awareness of the unfortunate consequences of this doctrine. After all, the ‘Lettre sur la comète’ itself suggests that, all his concerns notwithstanding, Diderot believes human beings to be utterly determined even in their love life: ‘Si je crois que je vous aime librement, je me trompe. Il n’en est rien’.<sup>692</sup> Further evidence in support of this interpretation comes from *Jacques le fataliste*, from a passage in which Jacques defends himself from the unfounded accusation, which his master levels at him, of having seduced the wife of the man with whom he was staying while still convalescent:

Le maître: Ah! malheureux! ah! coquin! .... Infâme, je te vois arriver.

Jacques: Mon maître, je crois que vous ne voyez rien.

Le maître: N’est-ce pas de cette femme que tu vas devenir amoureux?

Jacques: Et quand je serais devenu amoureux d’elle, qu’est-ce qu’il y aurait à dire? Est-ce qu’on est maître de devenir ou de ne pas devenir amoureux? et quand on l’est, est-on maître d’agir comme si on ne l’était pas? Si cela eût été écrit là-haut, tout ce que vous vous disposez à me dire je me le serais dit, je me serais souffleté, je me serais cogné la tête contre

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<sup>690</sup> *Correspondance*, vol.9, p.154.

<sup>691</sup> Langdon, ‘Diderot and Determinism’, p.176: ‘[Diderot’s] writings provide no solid evidence of a deep emotional dissatisfaction with determinism in either its metaphysical or its ethical ramifications’.

<sup>692</sup> *Correspondance*, vol.9, p.154. See Ehrard, ‘Lumières et roman’, p.139.

le mur, [...] et mon bienfaiteur eût été cocu.<sup>693</sup>

Other texts like *Les Bijoux indiscrets*, *Madame de La Carlière*, or the fable of the sheath and the knife in *Jacques le fataliste* make all too clear that Diderot did not conceive of infidelity as a ‘crime affreux’ and that, conversely, he saw lifetime monogamy as ultimately unnatural.<sup>694</sup>

Not unlike Diderot, d’Holbach conceives of determinism as controlling people’s emotional life, to the extent that he often describes love and friendship, as well as their opposites (hatred and enmity) in purely physical terms:

Les êtres primitifs ou les éléments des corps ont besoin de s’étayer, pour ainsi dire, les uns les autres afin de se conserver [...]; vérité également constante dans ce qu’on appelle le *physique* et dans ce qu’on appelle le *moral*. C’est sur cette disposition des matières et des corps les uns relativement aux autres que sont fondées les façons d’agir que les physiciens désignent sous les noms *d’attraction* et de *répulsion*, de *sympathie* et *d’antipathie*, *d’affinités* ou de *rappports*. Les moralistes désignent cette disposition et les effets qu’elle produit sous le nom *d’amour* et de *haine*, *d’amitié* ou *d’aversion*. Les hommes, comme tous les êtres de la nature, éprouvent des mouvements d’attraction et de répulsion.<sup>695</sup>

At least on one occasion, in the *Supplément au Voyage de Bougainville*, Diderot also describes love in purely geometrical terms. Whilst discussing the matter of sexual attraction and who should declare their passion first, the man or the woman, Diderot writes: ‘L’impulsion naturelle de la femme vers l’homme, dirait un géomètre, est en raison composée de la directe

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<sup>693</sup> *Jacques*, p.28.

<sup>694</sup> Denis Diderot, *Les Bijoux indiscrets*, ed. by Jean Macary and Aram Vartanian, in DPV, vol.3, p.1-290; Denis Diderot, *Madame de La Carlière*, ed. by Centre d’étude d XVIII<sup>e</sup> siècle de Montpellier, in DPV, vol.12, p.549-575; *Jacques*, p.129-130.

<sup>695</sup> *Système*, p.192-193; see also p.194-195: ‘La conservation est donc le but commun vers lequel toutes les énergies, les forces, les facultés des êtres semblent continuellement dirigées. Les physiciens ont nommé cette tendance ou direction, gravitation sur soi. Newton l’appelle force d’inertie; les moralistes l’ont appelé dans l’homme amour de soi; qui n’est que la tendance à se conserver, le désir du bonheur, l’amour du bien-être et du plaisir, la promptitude à saisir tout ce qui paraît favorable à son être, et l’aversion marquée pour tout ce qui le trouble ou le menace’. For more on this subject, see Di Domenico, *Natura, uomo, Dio*, p.46.

de la passion et de l'inverse de la crainte, raison qui se complique d'une multitude d'éléments divers dans nos sociétés'.<sup>696</sup>

### Artistic production

It is mostly because of the lasting influence of Romanticism that some today still think of writers and artists as almost god-like creatures, as *Übermenschen* capable of surpassing the limits imposed on other human beings. While believing in the uniqueness and rarity of true (artistic) genius – a pre-Romantic trait that is ultimately at the root of the whole controversy with Helvétius –, Diderot conceives of artistic production as an entirely natural process, and of the work of art as its necessary result.<sup>697</sup> Rejecting the universality of the idea of beauty – as Voltaire also does in the article 'Beau' of the *Questions sur l'Encyclopédie*, calling a male toad to testify<sup>698</sup> – Diderot maintains that every artist conceives of the *καλόν* in a different manner, which is highly dependent on the climate in which they were born, on the laws that were effective during their lifetime, and on a wide variety of other factors.<sup>699</sup> In the *Préface* to the *Salon de 1767* as well as in the *Réfutation d'Helvétius*, particular emphasis is placed on the influence of the climate on artistic production and on the quality of the colouring more specifically: young artists may return from the Grand Tour with a lively colour palette, but after two years back in Paris, they start once more painting everything in hues of grey.<sup>700</sup> The reader of the *Essais sur la peinture* similarly learns that the colouring of an artist can vary according to their 'organisation' and psychology:

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<sup>696</sup> *Supplément*, p.635.

<sup>697</sup> Caroline Warman, 'Pre-Romantic French Thought', in Paul Hamilton (ed.), *The Oxford Handbook of European Romanticism*, Oxford: Oxford University Press, 2016, p.17-32. See also Strugnell, *Diderot's Politics*, p.23.

<sup>698</sup> *OCV*, vol.39, p.336-337.

<sup>699</sup> See *Salon 1767*, p.71: 'Modèle idéal de la beauté, ligne vraie dont l'homme de génie aura la notion la plus correcte selon le climat, le gouvernement, les lois, les circonstances qui l'auront vu naître'.

<sup>700</sup> *Salon 1767*, p.72 and *Helvétius*, p.553.

Pourquoi cette variété de coloristes, tandis que la couleur est une en nature? La disposition de l'organe y fait sans doute. L'œil tendre et faible ne sera pas ami des couleurs vives et fortes. [...] Il n'aimera ni les rouges éclatants, ni les grands blancs. [...] Mais pourquoi le caractère, l'humeur même de l'homme n'influeraient-ils pas sur son coloris? Si sa pensée habituelle est triste, sombre et noire, s'il fait toujours nuit dans sa tête mélancolique et dans son lugubre atelier, [...] n'aurez-vous pas raison de vous attendre à une scène vigoureuse peut-être, mais obscure, terne et sombre? S'il est icterique et qu'il voie tout jaune, comment s'empêchera-t-il de jeter sur sa composition le même voile jaune que son organe vicié jette sur les objets de la nature [...]?<sup>701</sup>

Perhaps more obviously, the quality of portraits is significantly affected by the mood of the sitters, which may in turn be influenced by the conditions in which they were made to pose. Diderot appears moderately pleased with the portrait that Louis-Michel Van Loo made of him in 1767. Two things, however, do not entirely convince him: his posture, which is reminiscent of a secretary rather than a philosopher, and his expression: 'Joli comme une femme, lorgnant, souriant, mignard, faisant le petit bec, la bouche en cœur. [J'ai] l'air d'une vieille coquette qui fait encore l'aimable'.<sup>702</sup> Both faults could have easily been avoided had Madame Van Loo refrained from letting her guests enter the painter's studio and had she played, instead, a piece by Domenico Sarro.<sup>703</sup>

Where Diderot's deterministic account of artistic production reaches its culmination is however in the 'Premier Site' of the *Promenade Vernet*, where Raphael is described as a rare painting machine the allure of which entirely depends on its uniqueness:

Si l'on inventait une machine qui produisit des tableaux tels que ceux de Raphael, ces tableaux continueraient-ils d'être beaux? Non ... Et la machine? Lorsqu'elle serait

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<sup>701</sup> Diderot, *Essais sur la peinture*, p.351-352.

<sup>702</sup> *Salon 1767*, p.81-82. For an insightful analysis of Diderot's reaction to this portrait see Tunstall, 'Paradoxe sur le portrait'.

<sup>703</sup> *Salon 1767*, p.81-82.

commune, elle ne serait pas plus belle que les tableaux... Mais d'après vos principes, Raphael n'est-il pas lui-même cette machine à tableaux .... Il est vrai. Mais la machine Raphael n'a jamais été commune; mais les ouvrages de cette machine ne sont pas aussi communs que les feuilles de chêne.<sup>704</sup>

The point just made about artworks can also be made about literary productions. In the *Essai sur les règnes*, Diderot proposes a challenge to those of his readers who meet the sole criterion of being the same age as he is: retire in a lonely place and bring with you the works of Tacitus, Suetonius, and Seneca; read them and, as you proceed, note down the passages that arouse your curiosity and that you wish to retain, alongside any reflections that they may prompt you to do. Follow these instructions, Diderot writes, and what you come up with will be almost certainly identical to what you are about to read: 'je suis presque sûr que, [t]'arrêtant aux endroits où je me suis arrêté, comparant [t]on siècle aux siècles passés, [...] [tu] referai[s] cet ouvrage à peu près tel qu'il est'.<sup>705</sup> The idea that literary works are not unique, but can be produced by similarly organised individuals in analogous circumstances is also found in *Jacques le fataliste*. When Jacques refuses to recount the story of his captain's comrade and adduces as a reason its lack of verisimilitude, which depends in turn on its having happened to someone else – the soldier de Guerchy – besides his captain's comrade, the *maître* replies: 'Eh bien! je dirai comme un poète français qui avait fait une assez bonne épigramme disait à quelqu'un qui se l'attribuait en sa présence: Pourquoi Monsieur ne l'aurait-il pas faite? Je l'ai bien faite, moi...'.<sup>706</sup> This statement and the one in the *Essai sur les règnes* can certainly be taken as late responses to the accusation of plagiarism that was levelled against Diderot after the performance of *Le Fils naturel*. In these passages, however, Diderot also returns to an idea that he had first expressed in 1746. The *Pensées*

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<sup>704</sup> *Salon 1767*, p.179-180.

<sup>705</sup> *Sénèque*, p.36.

<sup>706</sup> *Jacques*, p.132.

*philosophiques* contain the consideration that the text of Homer's *Iliad* could eventually be obtained by shuffling an indefinite number of pieces of metal type: 'Quelle que fût la somme finie des caractères avec laquelle on me proposerait d'engendrer fortuitement l'*Iliade*, il y a telle somme finie de jets qui me rendrait la proposition avantageuse: mon avantage serait même infini, si la quantité de jets accordée était infinie'.<sup>707</sup> Eric-Emmanuel Schmitt has shown that Diderot borrows this example from Fénelon's *Démonstration de l'existence de Dieu*, which was in turn inspired by similar passages in Montaigne's *Essais* and Cicero's *De Natura Deorum*.<sup>708</sup> Regardless, this example serves Diderot's materialistic and atheistic contention that the universe need not be regarded as the production of an omnipotent god. A distinction ought to be made, however, between the text of the *Pensées philosophiques*, which dates back to a time when Diderot's philosophy was still taking shape, and the abovementioned passages in the *Essai sur les règnes* and *Jacques le fataliste*: whereas 'Pensée XXI' openly rests on the notion of chance, which is intentionally opposed to God's rationality, the other two texts link the possibility that a work of literature be replicated to purely deterministic causes. Interestingly, the gap is bridged by d'Holbach, who also chooses the example of the *Iliad* to make the same point that Diderot makes in (and about) the *Essai sur les règnes*: 'Une tête organisée comme celle d'Homère, pourvue de la même vigueur et de la même imagination, enrichie des mêmes connaissances, placée dans les mêmes circonstances, produira nécessairement, et non pas au hasard, le poème de *L'Iliade*'.<sup>709</sup> It cannot be ruled out, however, that the word 'fortuit' in 'Pensée XXI', much like the term 'hazard' in *Jacques le fataliste*, is in fact to be understood in purely epistemological terms and therefore as having absolutely no implications for the actual determined nature of reality. I shall return to this point towards the end of this chapter and again in the conclusions.

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<sup>707</sup> *Pensées philosophiques*, p.28.

<sup>708</sup> Schmitt, *Diderot ou la Philosophie de la séduction*, p.109.

<sup>709</sup> *Système*, p.488.

### Aesthetic experience

In the entry ‘Affection’ in the *Encyclopédie* as well as in the article ‘Beau’ – which, due to its length and argumentative rigour, is sometimes given the title *Traité du beau* – Diderot insists on the subjective nature of the aesthetic judgment and recognises that people may respond in a variety of ways to the same external stimuli.<sup>710</sup> The sight of, say, a lion, has readily identifiable effects on the human machine, on blood pressure, skin colour, and facial expression; yet, Diderot argues, some individuals will be affected more strongly than others and, in some, the reaction will be almost imperceptible. The same idea is present in the *Réfutation d’Helvétius*: ‘les objets ne nous frappent point dans une proportion constante et uniforme; et c’est là ce qui constitue la différence des êtres robustes et délicats. L’un s’évanouit et perd la tête, lorsqu’un autre est à peine ému’.<sup>711</sup> So varied is the spectrum of reactions that external objects can trigger in human beings that, were people free to designate external objects with newly-invented terms, communication among them would become utterly impossible.<sup>712</sup> The question therefore arises: how to conciliate this extreme variety of effects with my claim in Chapter II that Diderot subscribes to the notion of Causal Necessitation? The difficulty disappears when one considers this matter in light of what I termed Hobbes’s argument from total cause. External objects – paintings, for instance – produce an impression on the observer; nevertheless, each observer’s *reaction* to a given painting depends as much on this impression as on their individual nature or ‘organisation’. To put it differently, each person’s reaction to a given external object is the necessary effect of a total cause, which represents the summation of all the predicates both of the object and the person, put together. Taking this into consideration, Diderot’s eagerness to discard traditional

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<sup>710</sup> *Encyclopédie*, 2:169-181.

<sup>711</sup> *Helvétius*, p.567.

<sup>712</sup> *Helvétius*, p.560.

definitions of the *καλόν* in terms of symmetry or unity, and his choice to replace them with the notion of ‘rapport’, become perfectly understandable.<sup>713</sup> That Diderot conceives of the aesthetic experience thus is already evident from the passage in the *Essais sur la peinture* quoted above, where the point is made that the way painters perceive a landscape’s colours depends on their mood as well as the ‘organisation’ of their eyes. The same idea is in the *Encyclopédie* entry ‘Affection’:

c’est dans le mécanisme du corps qu’il faut chercher la cause de la différence de sensibilité dans différents hommes, à l’occasion du même objet. Nous ressemblons en cela à des instruments de musique dont les cordes sont diversement tendues; les objets extérieurs font la fonction d’archets sur ces cordes, et nous rendons tous des sons plus ou moins aigus. Une piqure d’épingle fait jeter des cris à une femme mollement élevée; un coup de bâton rompt la jambe à Epictète sans presque l’émouvoir.<sup>714</sup>

In the concluding section of the article ‘Beau’, Diderot provides a list of what he calls ‘[les] source[s] de [la] diversité dans les jugements’.<sup>715</sup> He includes in this catalogue ‘l’intérêt, les passions, l’ignorance, les préjugés, les usages, les mœurs, les climats, les coutumes, les gouvernements, les cultes’, etc.<sup>716</sup> Diderot’s stance on the role that education plays in the appreciation of a work of art is particularly worthy of note, for it appears to vary over time. In the article ‘Beau’, to illustrate his faith that learning significantly adds to the enjoyment of a literary text, Diderot relates an example concerning Corneille’s *Horace* that had been formerly used by Nicolas Boileau-Despréaux in his ‘translation’ of Longinus’ *On the Sublime*: while the phrase ‘qu’il mourût’, taken out of context, may appear anodyne, a better knowledge of the circumstances in which it was uttered, which Diderot gradually discloses to his reader,

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<sup>713</sup> *Encyclopédie*, 2:176-179.

<sup>714</sup> *Encyclopédie*, 1:158.

<sup>715</sup> *Encyclopédie*, 2:179.

<sup>716</sup> *Encyclopédie*, 2:179.

makes it impossible not to be moved.<sup>717</sup> Since the perceived beauty of an object increases with the number of links ('rapports') binding the observer to it, learning necessarily affects our disposition towards a work of art. In the *Réfutation d'Helvétius*, however, Diderot criticises Helvétius' statement that a foreigner is unlikely to be moved by the sight of a European play, affirming instead that 'c'est prononcer bien légèrement que d'assurer qu'il n'en serait point ému, tandis qu'on est assis sur la même banquette, à côté du courtisan qui vient admirer Burrhus, après avoir fait à la cour le rôle de Narcisse'.<sup>718</sup> This change in attitude is consistent with Diderot's objective in the *Réfutation d'Helvétius* to re-evaluate 'organisation' over education.<sup>719</sup> It should also be noted that the late Diderot appears to reconsider the relativity of the categories of beauty and good and to conceive of them in more universal terms.<sup>720</sup>

### Socio-politics

As previously mentioned, the image of the automaton is a frequent one in Diderot's and d'Holbach's discussion of human life. If we now shift our focus from the level of the individual to look at society more broadly, we shall observe that the simile of the automaton does not disappear entirely. At least once in the *Système de la nature*, society is explicitly described as an extremely complex machine.<sup>721</sup> B expresses the same idea in the 'Jugement du Voyage de Bougainville' ('nos sociétés sont des machines si compliquées...') and comes back to it towards the end of the *Supplément*.<sup>722</sup> More than twenty years previously, Diderot

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<sup>717</sup> *Encyclopédie*, 2:177. For an analysis of the fortune of Corneille's 'qu'il mourût' in eighteenth-century French texts on aesthetics and the sublime, see Nicholas Cronk, *The Classical Sublime: French Neoclassicism and the Language of Literature*, Charlottesville: Rookwood Press, 2002, p.159.

<sup>718</sup> *Helvétius*, p.658.

<sup>719</sup> See Chapter IV.

<sup>720</sup> Duflo, *Diderot philosophe*, p.386.

<sup>721</sup> *Système*, p.632.

<sup>722</sup> *Supplément*, p.587.

had already claimed that collecting data about population, commerce, and consumption will eventually prove the social world to be describable in purely mathematical terms.<sup>723</sup> An interesting geometrical account of democratic and monarchical societies can be found in Diderot's commentary on Catherine the Great's *Nakaz*:

L'Etat démocratique peut être représenté par une grande multitude de boules à peu près égales posées sur un même plan et pressées les unes contre les autres [...]. Dans l'Etat monarchique, les boules sont en pyramide; la boule du sommet presse sur trois ou quatre qui forment le plan au-dessous d'elle; ce plan presse sur un autre plan; sous celui-ci en est un troisième; et ainsi jusqu'à la base ou au dernier plan qui touche à la terre, et qui est écrasé du poids de tous les autres.<sup>724</sup>

Democratic societies, Diderot continues, have a centre; monarchical ones have a vertex. Spheres in democratic systems tend to move along a horizontal trajectory whilst, in hierarchical societies, vertical movements prevail. Undoubtedly reminiscent of Livy's relation in *Ab urbe condita* of the turmoil that arose in Rome in 494 BC, Diderot further explains that, in democratic realities, revolutions take the shape of secessions; in monarchical nations, instead, they shake the social pyramid and threaten its stability. This image, which also appears in the *Mélanges philosophiques et historiques*, shows that, in the 1780s as in the 1750s, Diderot thought of society in terms of 'poids, nombre et mesure'.<sup>725</sup> Diderot's statement in an undated excerpt of a letter possibly addressed to Madame de Maux ('[les géomètres] doivent être mauvais politiques. [...] Cela ne s'explique pas en x ou en y') may seem to contradict this interpretation, but should arguably be read as arising from the awareness of the complexity of the social machine.<sup>726</sup>

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<sup>723</sup> *Encyclopédie*, 'Arithmétique politique', 1:678.

<sup>724</sup> *Nakaz*, p.529.

<sup>725</sup> *Encyclopédie*, 'Arithmétique politique', 1:678.

<sup>726</sup> *Correspondance*, vol.9, p.246.

Regardless of the extent to which societies can be described as machines, the fact remains that Diderot and d'Holbach conceive of them in deterministic terms. Perhaps nowhere is this more explicit than in the following excerpt from the *Système de la nature*, which immediately follows – and perfectly mirrors – the whirlwind passage discussed in the opening paragraphs of Chapter IV:

Dans les convulsions terribles qui agitent quelquefois les sociétés politiques, et qui produisent souvent le renversement d'un empire, il n'y a pas une seule action, une seule parole, une seule pensée, une seule volonté, une seule passion dans les agents qui concourent à la révolution comme destructeurs ou comme victimes, qui ne soit nécessaire, qui n'agisse comme elle doit agir, qui n'opère infailliblement les effets qu'elle doit opérer, suivant la place qu'occupent ces agents dans ce tourbillon moral. Cela paraîtrait évident pour une intelligence qui serait en état de saisir et d'apprécier toutes les actions et réactions des esprits et des corps de ceux qui contribuent à cette révolution.<sup>727</sup>

Diderot and d'Holbach often insist on the existence of rigid laws that describe how societies evolve through time. In *Politique naturelle*, d'Holbach maintains that stratocracies infallibly degenerate into despotic regimes: 'Toute nation que sa position ou les volontés de son chef obligeront de tenir de grandes armées sur pied finira bientôt par être totalement asservie. Tout Etat qui fait des conquêtes n'est pas loin de sa chute'.<sup>728</sup> In the *Réfutation d'Helvétius* and in the *Fragments politiques*, Diderot tacitly employs a well-known distich from Horace's *Satires* to affirm that precise limits exist to the people's suffering, beyond which either death or rebellion will necessarily occur.<sup>729</sup> Another law is enunciated in the *Supplément au Voyage de Bougainville*, where B affirms that, when confronted with external obstacles such as an invasion or a famine, societies tend to develop remarkably through the invention of new

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<sup>727</sup> *Système*, p.196.

<sup>728</sup> D'Holbach, *Politique naturelle*, p.466.

<sup>729</sup> *Helvétius*, p.483.

technologies, which, once the peril is overcome, are often used to produce unnecessary goods.<sup>730</sup>

As was also the case in the lives of single individuals, the social world is influenced by a great variety of factors. Responding to article 47 of the *Nakaz*, Diderot writes:

J'ai bien de la peine à croire que le climat n'ait pas une grande influence sur le caractère des nations, que l'Américain que la chaleur accable puisse avoir le même caractère que l'habitant du Nord que le froid endurecit [...]. Croyez-vous que les paysans d'une contrée qui a huit mois d'hiver puissent ressembler aux paysans d'une contrée qui en a à peine deux ou trois et fort doux? Cette cause permanente produira son effet sur tout, sans en excepter les productions des arts, sur les régimes, sur les mets, sur les goûts, sur les amusements, etc.<sup>731</sup>

This comment may arise from a misunderstanding of Catherine the Great's article, which reads 'La nature et le climat dominant presque seuls les sauvages', and which Diderot must have interpreted as meaning that the effects of the climate on sophisticated societies are almost nonexistent.<sup>732</sup> Article 45 of the *Nakaz*, however, lists the climate amongst the various factors that may have an impact on societies (e.g. religion, laws, etc.), thus suggesting that the article to which Diderot is responding should in fact be taken as meaning that, although the climate has an influence on any society, it entirely dominates 'primitive' ones.<sup>733</sup>

Habits and religious beliefs are also influenced by the geography of the land in which each society develops. In the *Supplément*, for instance, Diderot makes the point that the scarcity of arable land in islets and the subsequent penury of food are factors that necessarily prompt the inhabitants to turn to human sacrifices, castration, infibulation, and other devices

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<sup>730</sup> See Peter Jimack, *Diderot: Supplément au Voyage de Bougainville*, London: Grant & Cutler, 1988, p.36.

<sup>731</sup> *Nakaz*, p.524.

<sup>732</sup> *Instruction de Sa Majesté Impériale Catherine II*, Amsterdam: Marc Michel Rey, 1771, p.15.

<sup>733</sup> *Instruction de Sa Majesté Impériale*, p.14.

similarly aimed to reduce the birth rate.<sup>734</sup> This idea is put forward in a paragraph of the *Histoire des deux Indes* attributed to Diderot, where the list of deplorable habits that must have originated in small islands or other places characterised by a chronic scarcity of food is further expanded.<sup>735</sup>

While certainly significant, the influence of geography and the climate on society is outweighed by that of governments. Absolute monarchs (or *despotes*) exercise on their subjects an influence that is commensurate with their powers. In the *Essai sur les règnes*, Diderot devotes considerable space to the despicable impact that tyranny has on the arts, especially on rhetoric, and even on the language: ‘La tyrannie’, he concludes, ‘imprime un caractère de bassesse à toutes sortes de productions’.<sup>736</sup> Similar considerations are proposed in *Politique naturelle*, where d’Holbach identifies effects not only on the arts and the press, but also on commerce and wealth.<sup>737</sup> Crucially, this power to mould society is not a prerogative of tyrants, for good sovereigns also affect the people whom they govern. A passage in the *Système de la nature* makes this particularly clear by borrowing the famous simile of the vineyard from Isaiah 5:7: ‘C’est dans un terrain cultivé par les mains d’un Lycurgue que l’on voit naître des citoyens intrépides, fiers, désintéressés, étrangers aux plaisirs; dans un champ cultivé par un Tibère l’on ne trouvera que des scélérats, des âmes basses, des délateurs et des traîtres’.<sup>738</sup>

An exception to the general rule that good rulers always benefit their subjects is to be found, according to Diderot, in what modern historiographers would call ‘enlightened monarchs’. Diderot affirms in the *Réfutation d’Helvétius* and the *Observations sur le Nakaz*

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<sup>734</sup> *Supplément*, p.583.

<sup>735</sup> See Denis Diderot, *Pensées détachées: Contributions à l’Histoire des deux Indes*, ed. by Gianluigi Goggi, Siena: Università degli Studi di Siena, 1976, p.286.

<sup>736</sup> *Sénèque*, p.50.

<sup>737</sup> D’Holbach, *Politique naturelle*, p.455-481.

<sup>738</sup> *Système*, p.312.

that the reign of an enlightened monarch is absolutely nefarious, for it instils in the people a positive image of autocracy and leaves them completely defenceless against any unenlightened despot who may follow: ‘si l’Angleterre avait eu trois souverains de suite, tels qu’Elizabeth, l’Angleterre était asservie pour des siècles’.<sup>739</sup> D’Holbach generally proves better disposed towards enlightened monarchs. The following excerpt from *Politique naturelle* illustrates this, although one notes that d’Holbach’s praise is significantly mitigated by the modifiers he uses (*quelquefois, passager, etc.*). Moreover, in compliance with one of the golden rules of ancient rhetoric – *venenum in cauda* – the concluding clauses may appear to overturn the meaning of the whole paragraph:

[le] despotisme [...] peut quelquefois procurer un bien-être passager à un peuple. Donnez des Trajan, des Antonin, des Marc-Aurèle au monde, et alors il ne sera pas nécessaire de limiter leur pouvoir. Plus leur autorité sera grande, plus leurs sujets seront fortunés [...]. Mais l’histoire nous montre à chaque page que les plus sages sont très souvent remplacés par des monstres, enfin que la puissance illimitée corrompt l’esprit et le cœur et vient à bout de pervertir les hommes les mieux disposés. Néron fut un prodige au commencement de son règne.<sup>740</sup>

If nations are affected by their rulers, the same is true of any group of people, regardless of its size. In the *Salon de 1767*, Diderot reprimands François Boucher for having abstained from displaying his works at that year’s Salon: as first painter to the king, Boucher will inevitably be emulated by other artists, to the extent that his desertion of the exhibition could prompt other artists to follow his lead and could eventually result in a general impoverishment of the arts. It is worthwhile to quote the passage in question, for the quick succession of the propositions beautifully illustrates how tight causal links may be, in Diderot’s opinion, even in the social world:

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<sup>739</sup> Nakaz, p.515.

<sup>740</sup> D’Holbach, *Politique naturelle*, p.481.

Vous n'avez pas conçu quelle pouvait être la suite de votre exemple! Si les grands maîtres se retirent, les subalternes se retireront, ne fût-ce que pour se donner un air de grands maîtres; bientôt les murs du Louvre seront tout nus, ou ne seront couverts que du barbouillage de polissons qui ne s'exposeront que parce qu'ils n'ont rien à perdre à se laisser voir; et cette lutte annuelle et publique des artistes venant à cesser, l'art s'acheminera rapidement à sa décadence.<sup>741</sup>

The same insistence on the concatenation of social causes can be found in a passage from the *Système de la nature* in which d'Holbach discusses the heinous effects of the conditions of extreme ignorance in which people are often forced to live:

[Le fataliste] verra que l'ignorance est nécessaire, que la crédulité en est la suite nécessaire, que l'asservissement est une suite nécessaire de l'ignorance crédule, que la corruption des mœurs est une suite nécessaire de l'asservissement; enfin que les malheurs des sociétés et de leurs membres sont des suites nécessaires de cette corruption.<sup>742</sup>

Two things should be noted here. First, that when d'Holbach writes that ignorance is necessary, this adjective should not be taken to mean 'modally necessary', but rather 'necessitated by previous events': a modally necessary ignorance would not be consistent with d'Holbach's plan of reform. Second element to retain: the reiteration of the phrase 'suite nécessaire', which I have already analysed in Chapter II as indicative of d'Holbach's commitment to Causal Necessitation. This phrase recurs in d'Holbach's discussions about society and is occasionally replaced by the analogous formula 'influence nécessaire': 'le gouvernement, dispensateur des grandeurs, des richesses, des récompenses et des châtiments, [...] acquiert une influence nécessaire sur [la] conduite [des hommes]; il allume leurs

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<sup>741</sup> *Salon 1767*, p.57.

<sup>742</sup> *Système*, p.311.

passions, [...] il les modifie et détermine leurs mœurs'.<sup>743</sup> In *Politique naturelle*, the Aristotelo-Thomistic image of the fire that d'Holbach employs elsewhere to argue for Causal Necessitation in the physical and moral world is reinterpreted and applied to the social sphere: 'Le feu de la révolte ne s'allume que lorsqu'il rencontre dans les esprits des matières combustibles'.<sup>744</sup> Diderot's usage, in the *Observations sur le Nakaz* and elsewhere, of the word 'conséquence' instead of the more neutral 'effet' ('Je crois que les mœurs sont des conséquences des lois'; 'Les mœurs sont partout des conséquences de la législation et du gouvernement') suggests that, like d'Holbach, he views social causes as logically necessitating their effects.<sup>745</sup>

With some knowledge of what we may call the 'laws of society', a smattering of 'arithmétique politique', and a significant amount of experience, Diderot and d'Holbach argue, human beings may conjecture about the future developments of any given society. Diderot, for one, puts his political knowledge to work in a letter to Princess Dashkova of 3 April 1771 in which he affirms that the socio-political circumstances of the time only allowed two possible outcomes: 'Nous touchons à une crise qui aboutira à l'esclavage ou à la liberté'.<sup>746</sup> Very much like the *esprit de divination* that, as shall be discussed below, characterises the most brilliant scientists, this political insight ought to be employed to society's benefit:

On conçoit aisément que ces découvertes et beaucoup d'autres de la même nature, étant acquises par des calculs fondés sur quelques expériences bien constatées, un ministre habile en tirerait une foule de conséquences pour la perfection de l'agriculture, pour le commerce,

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<sup>743</sup> *Système*, p.253.

<sup>744</sup> D'Holbach, *Politique naturelle*, p.424. See above p.87.

<sup>745</sup> *Nakaz*, p.511.

<sup>746</sup> *Correspondance*, vol.11, p.20.

tant intérieur qu'extérieur, pour les colonies, pour le cours et l'emploi de l'argent, etc.<sup>747</sup>

In *Politique naturelle* and the *Système de la nature* d'Holbach makes the identical claim that rulers should make the most of the expertise that some of their subjects possess in the field of what we might call 'political and social sciences'.<sup>748</sup> Through his works, d'Holbach pursues a plan of drastic social reform and paves the way for the creation of a fairer social system from which religion is banished completely.<sup>749</sup> This attitude and aspiration to social change was perceived by d'Holbach's contemporaries as being fundamentally at odds with determinism. In his refutation of the *Système de la nature*, for instance, Frederick the Great writes:

L'auteur du *Système de la nature*, après avoir épuisé tous les arguments [...] pour prouver qu'une nécessité fatale enchaîne et dirige absolument les hommes dans toutes leurs actions, devait donc en conclure que nous ne sommes que des espèces de machines, ou [...] des marionnettes mues par les mains d'un agent aveugle. Cependant il s'empporte contre les prêtres, contre les gouvernements et contre l'éducation [...]. Quelle absurdité! quelle contradiction! Si tout est mû par des causes nécessaires, les avis, les instructions, les lois, les peines, les récompenses deviennent aussi superflues qu'inutiles; [...] autant vaudrait-il sermonner un chêne pour le persuader de se transformer en oranger.<sup>750</sup>

Frederick's criticism, however, errs in that it misses the absolutely crucial distinction, discussed above, between fatalism and determinism. Whereas in a fatalistic system, in Ricardo Salles's words, 'there is no explanatory relation between past, present, and future', determinism prescribes that events obtain as a necessary result of previous ones.<sup>751</sup> The

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<sup>747</sup> *Encyclopédie*, 'Arithmétique politique', 1:678.

<sup>748</sup> D'Holbach, *Politique naturelle*, p.345: 'Que le bon citoyen communique donc ses idées à sa patrie, qu'il la console des maux présents par l'espoir d'un avenir plus agréable, qu'il lui fasse entrevoir dans cet avenir des princes fatigués de leurs tristes folies et des peuples lassés du joug de l'esclavage'.

<sup>749</sup> See *Système*, p.343: 'Si la politique plus éclairée elle-même s'occupait sérieusement de l'instruction et du bien-être du peuple, si les lois étaient plus équitables, [...] on ne verrait point un si grand nombre de malfaiteurs, de voleurs, de meurtriers infecter la société'.

<sup>750</sup> Frederick the Great, *Examen critique du Système de la nature*, in *Œuvres de Frédéric le Grand*, Berlin: Imprimerie royale, 1848, 31 vols, vol.9, p.184-185.

<sup>751</sup> Salles, *The Stoics*, p.xv.

distinction is even starker if one considers a version of determinism like Diderot and d'Holbach's, which is deeply anchored in the notion of causation. Within such a system, unlike in a fatalistic one, rulers' attempts to reform their states are, at one and the same time, necessary effects and active causes operating alongside a plethora of other factors, and their success depends on their own strength as well as on that of the other factors involved. Contrary to what Ernst Cassirer maintains in his pioneering volume on the philosophy of the Enlightenment, moreover, d'Holbach does anticipate criticisms like Frederick's and is careful to point out that there is no inconsistency in advocating social reform in a deterministic world: 'Quoique je sois intimement convaincu que les maux dont je suis témoin sont des suites nécessaires des erreurs primitives dont mes concitoyens sont imbus, si la nature m'a donné le courage de le faire, j'oserai leur montrer la vérité; s'ils l'écoutent, elle deviendra peu à peu le remède assuré de leurs peines; elle produira les effets qu'il est de son essence d'opérer'.<sup>752</sup>

### Against predictability

At least two passages have already been quoted in the present chapter in which Diderot openly suggests that it would not be impossible for a clever and sufficiently informed person to predict the unfolding of future events: the first was a passage from the *Rêve* in which Bordeu successfully anticipates d'Alembert's sequence of dreams; the second was the extract from the letter to Princess Dashkova. Diderot's faith in humans' ability to foresee future events, however, seems questionable. Stenger has claimed that in *Jacques le fataliste* everything happens, if not chaotically, at least contrary to human expectations.<sup>753</sup> The *maître*

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<sup>752</sup> *Système*, p.310. See also p.302: 'Les lois pénales sont des motifs que l'expérience nous montre comme capables de contenir ou d'anéantir les impulsions que les passions donnent aux volontés des hommes; de quelque cause nécessaire que ces passions leur viennent, le législateur se propose d'en arrêter l'effet; et quand il s'y prend d'une façon convenable, il est sûr du succès'. See Ernst Cassirer, *The Philosophy of the Enlightenment*, Princeton: Princeton University Press, 1951, p.71.

<sup>753</sup> *Nature et liberté*, p.209.

is famously giddy with an irrepressible ‘fureur de deviner’, and his attempts to anticipate Jacques’s narration often prove vain: ‘Eh! non, non, de par tous les diables! non. Mon maître, il est écrit là-haut que vous en avez pour le reste de vos jours; tant que vous vivrez vous devinerez [...] et vous devinerez de travers’.<sup>754</sup> A most comical passage, openly inspired by Rabelais, similarly mocks Jacques’s habit of always consulting his ‘Pythie portative’ before taking any decisions:

A Delphes, la Pythie, ses cotillons retroussés, assise à cul nu sur le trépied, recevait son inspiration de bas en haut; Jacques, sur son cheval, la tête tournée vers le ciel, sa gourde débouchée et le goulot incliné vers sa bouche, recevait son inspiration de haut en bas. Lorsque la Pythie et Jacques prononçaient leurs oracles, ils étaient ivres tous les deux. Il prétendait que l’Esprit saint était descendu sur les apôtres dans une gourde; il appelait la Pentecôte la fête des gourdes.<sup>755</sup>

Stenger’s discussion of Diderot’s opposition to predictability is instrumental to his argument that Diderot does not endorse determinism. This conclusion is drawn on the basis of a somewhat problematic definition that was fairly common in mid-twentieth-century sources responding to the articulation of Heisenberg’s uncertainty principle, and that anchors determinism in the notion of predictability.<sup>756</sup> In *Continu et discontinu*, for example, Louis De Broglie writes that ‘il y a déterminisme lorsque la connaissance d’un certain nombre de faits observés à l’instant présent ou aux instants antérieurs, jointe à la connaissance de certaines lois de la Nature, [...] permet de prévoir rigoureusement que tel ou tel phénomène observable aura lieu à telle époque postérieure’.<sup>757</sup> But to what extent does Diderot actually reject the

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<sup>754</sup> *Jacques*, p.211. Ehrard, ‘Lumières et roman’, p.144.

<sup>755</sup> *Jacques*, p.232.

<sup>756</sup> Stenger, *Nature et liberté*, p.188: ‘La catégorie du déterminisme est [...] essentiellement définie par la prévisibilité’.

<sup>757</sup> Louis De Broglie, *Continu et discontinu en physique moderne*, Paris: Albin Michel, 1941, p.59 (quoted in Stenger, *Nature et liberté*, p.188).

notion of predictability? And is it correct to infer from his often-voiced scepticism about humans' ability to foresee future events a non-adherence to determinism?

### Diderot's faith in predictability

To begin with, it is worth noting that several passages, in addition to the two quoted above, suggest that Diderot did not conceive of predictability as an utter impossibility. Even in *Jacques le fataliste*, already mentioned as the work in which the satire of omens and premonitions is at its highest, Diderot appears to hesitate regarding predictability. The rule according to which the maître's attempts at predicting the thread of Jacques's narrations are always unsuccessful is broken on at least one occasion: at the very beginning of the 'novel', when Jacques mentions having fought at Fontenoy in 1745, his master immediately exclaims: 'Et tu reçois la balle à ton adresse', to which Jacques replies with his most famous: 'Vous l'avez deviné, un coup de feu au genou; et Dieu sait les bonnes et mauvaises aventures amenées par ce coup de feu'.<sup>758</sup> Without wishing to provide supplementary evidence to the all too widespread interpretation that a deep intellectual gap exists between the two characters, I should mention that Jacques seems to have a natural gift for anticipating the course of his master's narrations. So much so that the latter, deprived of the pleasure of telling his tale uninterrupted, eventually snaps: 'Tu vas anticipant sur le raconteur, et tu lui ôtes le plaisir qu'il s'est promis de ta surprise; en sorte qu'ayant, par une ostentation de sagacité très déplacée, deviné ce qu'il avait à te dire, il ne lui reste plus qu'à se taire, et je me tais'.<sup>759</sup> *Jacques le fataliste* is not the only work in which Diderot shows an interest in predictability. In the *Pensées sur l'interprétation de la nature*, upon introducing a Bacon-inspired distinction between *philosophie rationnelle* and *philosophie expérimentale*, he maintains that those who

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<sup>758</sup> *Jacques*, p.24.

<sup>759</sup> *Jacques*, p.252.

excel in the latter possess something of a prophetic spirit that allows them to predict with relative precision the outcomes of their experiments:

La grande habitude de faire des expériences donne aux manouvriers d'opérations les plus grossiers un pressentiment qui a le caractère de l'inspiration. [...] Ils ont vu si souvent et de si près la nature dans ses opérations, qu'ils devinent avec assez de précision le cours qu'elle pourra suivre dans le cas où il leur prend envie de la provoquer par les essais les plus bizarres. Ainsi le service le plus important qu'ils aient à rendre à ceux qu'ils initient à la philosophie expérimentale, c'est bien moins de les instruire du procédé et du résultat, que de faire passer en eux cet esprit de divination par lequel on subodore, pour ainsi dire, des procédés inconnus, des expériences nouvelles, des résultats ignorés.<sup>760</sup>

In the moral sphere too, Diderot remarks that for a person with a remarkable degree of experience (such as Socrates), it becomes possible to predict how human beings are more likely to react in given situations.<sup>761</sup> Where Diderot's flirtation with the notion of predictability peaks, however, is in the following fragment from the *Fonds Vandeul*:

Si la somme peut-être infinie des attributs, de la multitude peut-être infinie des molécules de la nature nous était parfaitement connue, il m'est évident que nous verrions tous les phénomènes s'exécuter par des lois rigoureusement géométriques.<sup>762</sup>

Stenger rightly claims to discern in the passage above the spirit of the Laplacean demon. Yet, prompted perhaps by its fragmentary nature, he interprets it as a momentary outlier in Diderot's philosophical career, a one-time *défaillance* that only proves the general rule of Diderot's scepticism about predictability.<sup>763</sup> This interpretation fails to take into account not only the passages cited above, but also another in the *Salon de 1767*, already quoted in Chapter IV. Here Diderot reprimands his fictional fellow traveller for complaining about a

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<sup>760</sup> *Interprétation*, p.47-48.

<sup>761</sup> *Interprétation*, p.48.

<sup>762</sup> Dieckmann, *Inventaire du Fonds Vandeul*, p.255.

<sup>763</sup> Stenger, *Nature et liberté*, p.208.

tiny speck of dust in his eye after singing the praises of God's creation: 'si toutes les forces qui animaient chacune des molécules qui formaient [le tourbillon] qui nous a enveloppés étaient données', he writes, 'un géomètre vous démontrerait que celle qui est engagée entre votre œil et sa paupière est précisément à sa place'.<sup>764</sup> In this sentence, the Laplacean spirit is already fully discernible.

However numerous, these passages are not sufficient positively to affirm that Diderot fully embraces predictability. Instead, they need to be assessed in light of many others that cast doubts on or reject entirely human ability to foresee future events. In particular, one may wonder how to reconcile Diderot's occasional endorsements of predictability with his unwavering adherence to the notion of 'complexité', which Pierre Saint-Amand has very convincingly discussed in *Diderot: Le Labyrinthe de la relation*. This issue is all the more important because, as rightly observed by Stenger and as illustrated by several of Diderot's remarks quoted in this chapter (e.g. on education or on the influence of the climate on the development of societies), the philosopher's notion of causation bears the marks of his fascination with complexity.<sup>765</sup> In an extremely interesting fragment from the Fonds Vandeul Diderot suggests that, since events are caused by a multiplicity of factors and since they cause, in turn, an infinite number of effects, human minds cannot possibly infer with accuracy from one single cause to its effect: 'On ne peut rien prononcer sur la marche d'un phénomène compris entre une seule cause et un seul effet; parce qu'il ne peut être que le résultat d'une infinité de causes, et la cause d'une infinité d'effets'.<sup>766</sup> But does a complex understanding of causal nexuses actually stand in the way of a deterministic *Weltanschauung*? Before answering this question, let us consider d'Holbach's stance on predictability, which, contrary to what is normally believed, shows interesting resemblances to that of Diderot.

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<sup>764</sup> *Salon 1767*, p.186-187.

<sup>765</sup> Stenger, *Nature et liberté*, p.215; see also p.212.

<sup>766</sup> Dieckmann, *Inventaire du Fonds Vandeul*, p.256.

### D'Holbach on predictability

In his discussion of predictability, Stenger diametrically opposes Diderot to d'Holbach, whose insistence on human ability to foresee future events, he reasons, plainly reveals his acceptance of determinism.<sup>767</sup> Even if one were to disregard the example of the *tourbillon*, quoted at the beginning of the previous chapter, countless other passages testify to d'Holbach's belief that, through reiterated experiences, human beings can develop a sense of how a given situation will evolve: 'tâchons donc de découvrir les matières qui entrent dans [l]a combinaison [d'un homme] et qui constituent son tempérament; ces découvertes serviront à [...] pressentir sa conduite dans des occasions données'.<sup>768</sup> Whereas, in the passage from the *Pensées sur l'interprétation de la nature* quoted earlier, Diderot draws extensively on religious parlance to describe the 'esprit de divination' and its repositories, d'Holbach trivialises this capacity, to the extent that he presents it as a natural faculty of any rational being.<sup>769</sup> In the *Système*, he even defines reason as 'la faculté que nous avons de faire des expériences, de nous les rappeler, de pressentir les effets afin d'écarter ceux qui peuvent nous nuire ou de nous procurer ceux qui sont utiles à la conservation de notre être et à la félicité'.<sup>770</sup> Given this line of reasoning, one understands why Naville presents d'Holbach as a forerunner of Laplace and Dubois-Reymond.<sup>771</sup>

As is also the case with Diderot, however, d'Holbach's conviction is at times mitigated by opposite considerations. Possibly, but not necessarily, a mark of Diderot's influence, the notion of complexity plays a crucial role in d'Holbach's philosophical system, a fact which seems to have escaped scholars. If Diderot, as Claire Fauvergue has shown, is fully

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<sup>767</sup> Stenger, *Nature et liberté*, p.195.

<sup>768</sup> *Système*, p.241.

<sup>769</sup> *Système*, p.244-245.

<sup>770</sup> *Système*, p.245.

<sup>771</sup> Naville, *D'Holbach*, p.236.

convinced of the soundness of Leibniz's Principle of Identity of Indiscernibles – the principle, that is, according to which no two things may differ *solo numero* – d'Holbach is hardly less so.<sup>772</sup>

Parmi les individus que nous connaissons dans une même espèce, il n'en est point qui se ressemblent exactement, et cela doit être ainsi; la seule différence du site doit nécessairement entraîner une diversité plus ou moins sensible, non seulement dans les modifications, mais encore dans l'essence, dans les propriétés, dans le système entier des êtres.<sup>773</sup>

D'Holbach and Diderot's endorsement of this principle is likely to have played a significant role in their opposition, discussed in Chapter IV, to the supposedly widespread idea in pre-Revolutionary French thought that all human beings are equal. It is similarly conceivable that Diderot and d'Holbach's commitment to the Principle of Identity of Indiscernibles should be added to the reasons proposed in Chapter II for their rejection of Hume's Regularity View of Causation, since the latter theory rests on the consideration that minds can observe a constant conjunction between certain types of events, and the Principle of Identity of Indiscernibles clearly stands in the way of any synthetic attitude towards reality. Building on the Principle of Identity of Indiscernibles, d'Holbach maintains that, strictly speaking, no being or object can ever be said to be identical to itself at two different moments in time: '[Les corps] ne peuvent être rigoureusement les mêmes dans deux instants successifs de leur durée; ils sont à chaque moment [...] obligés de subir des variations continues dans leurs essences [et] dans leurs propriétés'.<sup>774</sup> D'Holbach's universe, like Diderot's, is therefore a Heraclitean universe that is

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<sup>772</sup> Fauvergue, *Diderot, lecteur et interprète de Leibniz*, p.124. For more on the Principle of the Identity of Indiscernibles see Gonzalo Rodriguez-Pereyra, *Leibniz's Principle of Identity of Indiscernibles*, Oxford: Oxford University Press, 2014.

<sup>773</sup> *Système*, p.182-183.

<sup>774</sup> *Système*, p.186.

ultimately defined by constant change. Needless to say, the latter idea is hardly compatible with that of predictability:

Tout ne change-t-il pas autour de nous? Ne changeons-nous pas nous-mêmes? N'est-il pas évident que l'univers entier n'a pas été dans son éternelle durée antérieure, rigoureusement le même qu'il est, et qu'il n'est pas possible que dans son éternelle durée postérieure il soit à la rigueur un instant le même qu'il est? Comment donc prétendre deviner ce que la succession infinie de destructions et de reproductions, de combinaisons et de dissolutions, de métamorphoses, de changements, de transpositions pourra par la suite amener?<sup>775</sup>

On other occasions, d'Holbach's doubts about predictability are directly linked to the Diderotian notion of complexity. D'Holbach distinguishes, for example, between simple and complex movements ('mouvements simples [et] composés'), where the former are produced by a single cause and the latter by a conglomerate of factors that can either be conspiring or competing, simultaneous or not.<sup>776</sup> Just as the trajectory of a moving object and its speed are the resultant of an extremely complex system of forces, human deliberations arise from a huge variety of causes that render any prediction impossible: 'Si la volonté de chaque individu n'était, dans un temps donné, mue que par une seule cause ou passion, rien ne serait plus aisé que de pressentir ses actions; mais son cœur est souvent assailli par des motifs ou des forces contraires, qui agissent à la fois ou successivement sur lui'.<sup>777</sup>

### Complexity and determinism

Crucially, this belief in the complexity of reality that we have observed, not only in Diderot's

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<sup>775</sup> *Système*, p.217.

<sup>776</sup> *Système*, p.176.

<sup>777</sup> *Système*, p.283. See also p.284: 'Les forces diverses et souvent compliquées qui agissent successivement ou simultanément sur le cerveau des hommes et qui les modifient si diversement dans les différentes périodes de leur durée, sont les vraies causes de l'obscurité de la morale et des difficultés que nous trouvons lorsque nous voulons démêler les ressorts cachés de leur conduite énigmatique'.

works, but also in d'Holbach's, is not at odds with determinism. That the notions of complexity and determinism are easily reconciled is confirmed, for example, by the case of Hobbes, examined in Chapter II and briefly recalled in the section of this chapter in which the aesthetic experience is discussed. Hobbes's argument for Causal Necessitation – what I have dubbed 'argument from total cause' – states that every event is the necessary effect of a complex and virtually infinite set of either concurring or contrasting causes. In *The Questions Concerning Liberty*, Hobbes epitomises this with reference to the cast of a pair of dice:

let us [...] suppose any event never so casual, as for example, the throwing ambs-ace upon a pair of dice; and see if it must not have been necessary before it was thrown. For, seeing it was thrown, it had a beginning, and consequently a sufficient cause to produce it; consisting partly in the dice, partly in the outward things, as the posture of the party's hand, the measure of force applied by the caster, the posture of the parts of the table, and the like. In sum, there was nothing wanting that was necessarily requisite to the producing of that particular cast; and consequently, that cast was necessarily thrown.<sup>778</sup>

As remarked previously, neither Diderot nor d'Holbach explicitly turns to this line of reasoning to argue for Causal Necessitation, instead basing the equivalence of Causal and Logical Necessitation on the Aristotelo-Thomistic argument from essence. This is not to say that Hobbes's argument is altogether absent from their works. I remarked previously that Diderot's article 'Hobbisme' contains a very detailed account of Hobbes's argument. Moreover, in the anonymous entry 'Hazard', an example suspiciously similar to that of the dice, above, is put forward to demonstrate that every event is produced necessarily:

Ce qui arriva à un peintre, qui ne pouvant représenter l'écume à la bouche d'un cheval qu'il avait peint, jeta de dépit son éponge sur le tableau, et fit par *hasard* ce dont il n'avait pu venir à bout lorsqu'il en avait le dessein, nous fournit un exemple remarquable du pouvoir

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<sup>778</sup> Hobbes, *Questions Concerning Liberty*, ch.34, p.406.

du *hasard*; cependant il est évident [...] qu'en faisant attention à la direction dans laquelle il jeta l'éponge, à la force avec laquelle il la lança, ainsi qu'à la forme de l'éponge, à sa gravité spécifique, aux couleurs dont elle était imbibée, à la distance de la main au tableau; l'on trouverait en calculant bien qu'il était absolument impossible [...] que l'effet n'arrivât point.<sup>779</sup>

Regardless of Diderot's and d'Holbach's acquaintance with Hobbes's argument from total cause, but especially given their familiarity with it, it would be simplistic to claim that their insistence on the complexity of reality necessarily disproves their faith in determinism. Highly complex systems can be as entirely determined as simple ones, and Diderot's assertion in a fragment from the Fonds Vandeul that every phenomenon depends on the present state of the whole ('tout phénomène dépend de l'état actuel du tout') should not be interpreted as an anti-deterministic statement, but rather as stating that the whole system wherein an event occurs participates in the production of the event in question and necessitates it.<sup>780</sup> Similarly, in the passage from the Fonds Vandeul quoted above in which Diderot acknowledges that humans are unable to trace a single event back to a single cause, the emphasis is not so much on the impossibility of understanding how the causal relation functions as on the non-existence of causal links connecting a single cause to a single effect.<sup>781</sup> After all, in a passage from the *Observations sur Hemsterhuis*, Diderot is unambiguous that he does not perceive the complexity of reality and the heterogeneity of matter as contradicting determinism:

Je crois que la forme actuelle sous laquelle la matière existe est nécessaire et déterminée, ainsi que toutes les formes diverses qu'elle prendra successivement à toute éternité. Mais cette vicissitude, ce développement qui est en flux perpétuel est nécessaire. C'est une suite

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<sup>779</sup> *Encyclopédie*, 8:74-75.

<sup>780</sup> Dieckmann, *Inventaire du Fonds Vandeul*, p.256. See, on the other hand, Stenger, *Nature et liberté*, p.205: 'La complexité du Tout contredit le déterminisme'.

<sup>781</sup> See Hobson, 'Diderot, Jacobi et le spinozastreit', p.347: 'l'identification de causes séparées et individuelles est impossible'.

de son essence et de son hétérogénéité. Et je ne vois nulle contradiction à cette supposition.

Si elle est essentiellement hétérogène, elle est essentiellement en vicissitude.<sup>782</sup>

### Negation of predictability and determinism

To conclude, it is important to recognise that determinism is also perfectly compatible with the negation of predictability. I have already introduced the pivotal distinction between ontology and epistemology, between reality and the human perception of it, when considering, in Chapter II, a passage of the *Rêve* in which Diderot and d'Alembert debate the nature of causal links and whether the effects of moral causes are produced contingently or necessarily, as is the case with physical causes. My contention there was that, as the text itself suggests, the distinction between physical and moral causes is only apparent, and ultimately depends on people's better understanding of the workings of physical causes. An eagerness to conflate ontology and epistemology similarly lies at the root of the mistaken notion that a deterministic system is, by definition, predictable.<sup>783</sup> A system, S, can in fact be entirely determined regardless of human ability to understand it and predict its evolution. As Kevin Timpe puts it: 'A system's being determined is different from its being predictable. It is possible for determinism to be true and for no one to be able to predict the future'.<sup>784</sup> Starting from a definition of determinism that rests, like many modern ones, on the laws of nature, Kadri Vihvelin makes the same point in his entry on incompatibilism in the *Stanford Encyclopedia of Philosophy*:

Determinism is not a thesis about predictability. Determinism is a thesis about the statements of law that correctly describe our world; it says nothing about whether these

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<sup>782</sup> Hemsterhuis, p.45.

<sup>783</sup> Earman, *A Primer*, p.7: 'I would [recommend] that the notion of prediction with all of its epistemological connotations be dropped altogether. The history of philosophy is littered with examples where ontology and epistemology have been stirred together into a confused and confusing brew'.

<sup>784</sup> Kevin Timpe, 'Free Will', in *The Internet Encyclopedia of Philosophy*, URL = <<http://www.iep.utm.edu/freewill/>>.

statements are knowable by finite beings, let alone whether they could, even in principle, be used to predict all future events. Chaos theory tells us that some deterministic systems are very difficult to predict. Quantum mechanics tells us, at least according to some interpretations, that the behavior of probabilistic systems is, in some respects, easy to predict.<sup>785</sup>

Unlike some modern commentators, Diderot and d'Holbach are perfectly aware of the distinction between the ontological and the epistemological, and are actually insistent that the two should not be conflated. In the *Encyclopédie* entry 'Beau', Diderot clearly distinguishes between these two facets:

il faut bien distinguer les formes qui sont dans les objets, et la notion que j'en ai. Mon entendement ne met rien dans les choses, et n'en ôte rien. Que je pense ou ne pense point à la façade du Louvre, toutes les parties qui la composent n'en ont pas moins telle ou telle forme, et tel et tel arrangement entre elles.<sup>786</sup>

Likewise, in the *Système de la nature*, d'Holbach openly distinguishes ontology from epistemology: 'tous les effets que nous voyons découlent nécessairement de leurs causes soit que nous les connaissions, soit que nous ne les connaissions pas'.<sup>787</sup> It is precisely in light of this distinction that the frequent references to chance in Diderot's and d'Holbach's works should be interpreted – an argument that I shall make in my Conclusions.

## Conclusion

The present chapter has expanded the claim made in Chapter IV concerning Diderot and d'Holbach's rejection of moral freedom and their subsequent elaboration of a deterministic ethics. As I have shown, both philosophers put forward an entirely deterministic account of

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<sup>785</sup> Vihvelin, 'Arguments for Incompatibilism'.

<sup>786</sup> *Encyclopédie*, 2:176.

<sup>787</sup> *Système*, p.487.

human life: in individuals' inner, psychological life, as well as in their relations with the external world – in love, social behaviour, aesthetic judgment, etc. – their view is that human beings are utterly determined.

Most importantly, this chapter has shown that Diderot and d'Holbach's occasional hesitations regarding predictability do not in the least affect their commitment to determinism. This world-view is perfectly compatible with the notion of complexity, and a deterministic system is not necessarily a predictable one.

## Conclusion

Whilst the French Enlightenment is universally recognised as a key period from a social and political point of view, its importance to the history of philosophy has often been questioned, and of all the brilliant minds that occupy the eighteenth-century French philosophical scene, Jean-Jacques Rousseau alone is normally thought to equal such towering figures as Leibniz or Kant.

This thesis is, first and foremost, an attempt to restore Diderot and d'Holbach to their rightful position in the history of philosophy. Taking as a case study their theory of determinism, my work has shown that both thinkers actively engaged with key metaphysical questions, including those concerning the nature of causation and human freedom. Whilst their views on these and other topics will certainly prove of interest to intellectual historians working to reconstruct early modern debates, they may also fuel the curiosity of modern philosophers and metaphysicians, for they represent original and articulate responses to questions that are still discussed today. Diderot and d'Holbach's argument for determinism, for instance, which is heavily based on the idea of the necessity of a cause for every event and the notion that causes necessarily bring about their effects, represents an interesting alternative to modern versions of this theory, which, as a general rule, are grounded in the notion of laws of nature alone.

Both Diderot and d'Holbach have been shown to share with Spinoza a strong faith in the ultimate explicability of everything, which is grounded in the Principle of Sufficient Reason, and best interpreted as arising from a desire to fight religion and reigning superstitious beliefs. A desire to eradicate superstition is furthermore likely to be at the root of Diderot and d'Holbach's hostility towards Hume's regularity view of causation. To the latter,

both philosophers oppose a rather traditional interpretation of the causal process as necessary production. Even so, d'Holbach and Diderot's theory of causation is in many ways original, and it bears the marks of a resolute attempt to reconcile the often-contrasted notions of necessity and becoming. Diderot's 'argument from cause une' for the equivalence of causal and logical necessitation is in this sense revealing, for it successfully transforms the diachronic and amoeboid notion of an individual into a necessitating cause. Diderot and d'Holbach's commitment to the bottom-up view of the laws of nature, which interprets laws as supervening on the powers instantiated by finite beings and objects, is also dictated by their desire to reconcile determinism with change and complexity. Whilst acknowledging humans' limited understanding of the working of moral and social causes, Diderot and d'Holbach put forward an entirely deterministic theory of human life, which proceeds from an utter rejection of both the Source and the Alternative Possibilities Model of moral freedom. They accordingly reject the traditional notions of virtue and vice, but are extremely careful to leave room within their system for punishment and social justice.

Pursuing a vein of thought inspired by Jean Ehrard and Pierre Naville, I have highlighted several affinities between Diderot's and d'Holbach's philosophy. Whilst the two thinkers may turn to different arguments to make the point that causes necessarily bring about their effects, and while their views concerning the laws of nature may not overlap entirely, their argument for determinism is ultimately one and the same. Moreover, the point is made in Chapter V that the notion of complexity, with which Diderot is fascinated, as has been amply discussed by Pierre Saint-Amand, is absolutely crucial to d'Holbach's thought, too, and if the Baron occasionally proves less sceptical than Diderot about the limits of human understanding or humans' ability to foresee future events, it must be understood that this confidence does not arise from a simplistic attitude towards reality, but rather is dictated by

the didactic nature of d'Holbach's works, which prescribes that difficulties be opportunely concealed.

It is to be hoped that, in the future, the tools offered by digital humanities may be used to uncover further similarities between Diderot's and d'Holbach's works, thereby casting much-needed light on Diderot's intervention in the Baron's texts.<sup>788</sup> Nevertheless, the striking similarities unearthed here between Diderot and d'Holbach's argument for determinism suggest that the collaboration between both thinkers preceded the composition of their works and is therefore of a kind that may only partially be gauged with the help of digital tools. Diderot's and d'Holbach's works, as a whole, are the product of an extremely interesting collaborative philosophical enquiry, and it is crucial to bear in mind that when Diderot sat down to read d'Holbach's *Système de la nature*, he was reading a work to which he had already significantly contributed during its gestation, a work which he could, in many ways, have regarded as his own. This close collaboration could only be the product of a period, such as the Enlightenment, which regarded sociability and collaboration as almost irreplaceable means of intellectual production.

Nicholas Cronk has pointed to Diderot's habit of obscuring his main philosophical sources and interlocutors, thereby showing the difficulties that any analysis of Diderot's (philosophical) culture based solely on the identification of overt references is doomed to face.<sup>789</sup> In keeping with this observation, my work has uncovered a number of hidden references in Diderot's and d'Holbach's works to a range of philosophical texts, from the ancient world to the eighteenth century. While it is a well-known fact that Diderot and d'Holbach drew extensively on Hobbes, I have revealed as yet unnoticed connections between

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<sup>788</sup> Glenn Roe is currently leading a similar project aiming to gauge the extent of Diderot's and other writers' contribution in Raynal's *Histoire des deux Indes*. See <http://cdhr-projects.anu.edu.au/raynal/>.

<sup>789</sup> Nicholas Cronk, 'Hobbes and Hume: determining voices in *Jacques le fataliste et son maître*', in Frédéric Ogé and Anthony Strugnell (eds.), *Diderot and European Culture*, SVEC, 2006:09, p.174.

these philosophers. As shown in Chapters II and V, Diderot and d'Holbach are well acquainted with Hobbes's 'argument from total cause' and, although they never explicitly turn to it to argue for the equivalence of causal and logical necessitation, knowledge of this line of reasoning must certainly have reassured them about the non-mutual exclusivity of the concepts of determinism and complexity. Likewise, the study conducted in Chapter I on the Principle of Sufficient Reason and my analysis of the Diderotian notion of 'cause une' debunk the often-voiced claim that the *philosophes* proved utterly hostile towards Leibnizianism, and confirm, instead, ideas recently put forward by Claire Fauvergue and Anne-Lise Rey, among others.

Perhaps even more importantly, I have brought to light Diderot's and d'Holbach's links with the Christian philosophical tradition in general, and with figures like Aquinas and Malebranche in particular. My work has shown that the ideas on which d'Holbach and Diderot's determinism rests – the Causal Principle and Causal Necessitation – were very popular amongst Christian thinkers: as shown by Francis Xavier Meehan, Aquinas subscribes to both, and in spite of being one of the strongest advocates of the No Necessary Connection Argument, Malebranche is adamant that the only true cause he would recognise as such, God, is a necessitating cause. Similar observations are extremely interesting from the perspective of an intellectual historian, for they show that ideas can be made to fit within radically diverging systems. By identifying direct, yet tacit quotations from the works of both Aquinas and Malebranche, my work joins France Marchal's in arguing for a reconsideration of the Christian component of Diderot's and d'Holbach's culture.<sup>790</sup> D'Holbach's endorsement of the top-down view of the laws of nature alongside the bottom-up one, in particular, raises important difficulties and appears almost to question the integrity of his atheism, which has

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<sup>790</sup> France Marchal, *La Culture de Diderot*, Paris: Champion, 1999, p.33-34 and 37-38. See also Jean Deprun, 'Diderot et Malebranche: de l'amour de l'ordre au goût de l'ordre', in Anne-Marie Chouillet (ed.), *Actes du colloque international Diderot (1713-1784) – 4-11 juillet 1984*, Paris: Aux Amateurs de Livres, 1985, p.45-50.

been heretofore regarded as a given.<sup>791</sup> After all, d'Holbach himself identifies connections between his theory of determinism and religion when he writes that 'la religion est [...] la nécessité montrée à des hommes ignorants et pusillanimes'.<sup>792</sup> It is similarly worth pointing out that, in the 'Abrégé du Code de la Nature', where d'Holbach's rhetoric perhaps reaches its culmination, the atheist is often referred to as an 'apôtre de la nature' and an 'adorateur de la vérité', and the system of determinism as 'la seule religion'.<sup>793</sup>

If d'Holbach is prepared to draw links between his theory of determinism and religion, and even toys with religious vocabulary, Diderot proves both disconcerted and delighted when unveiling hidden resemblances between determinism and superstition. Diderot may reject Hume's regularity view of causation because of its closeness to superstition, but in a passage of the *Encyclopédie* entry 'Romains, Philosophie des Etrusques et des Romains', he shows his own determinism to be grounded on essentially the same principles as the practices of Etruscan haruspices and Roman augurs:

Que répondrions-nous à un augure qui nous dirait: écoute philosophe incrédule, et humilie-toi. Ne conviens-tu pas que tout est lié dans la nature?... *J'en conviens* .... Pourquoi donc oses-tu nier qu'il y ait entre la conformation de ce foie et cet événement, un rapport qui m'éclaire? [...] Le hasard te conduisit à une première observation, et moi aussi. J'en fis une seconde, une troisième; et je conclus de ces observations réitérées, une concomitance constante et peut-être nécessaire entre des effets très éloignés et très disparates. Mon esprit n'eut point une autre marche que le tien. Viens donc. Approche-toi de l'autel. Interrogeons ensemble les entrailles des victimes, et si la vérité accompagne toujours leurs réponses, adore mon art et garde le silence.... Et voilà, mon philosophe, s'il est un peu sincère, réduit à

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<sup>791</sup> See Topazio, *D'Holbach's Moral Philosophy*, p.14: 'The principal difference between d'Holbach and his contemporaries was that he always maintained a definite goal, the complete destruction of religion'. See also Alan Charles Kors, 'The atheism of d'Holbach and Naigeon', in *Atheism from the Reformation to the Enlightenment*, Oxford: Clarendon Press, 1992, p.273-300.

<sup>792</sup> *Système*, p.296.

<sup>793</sup> *Système*, p.642. See Karis Muller, 'D'Holbach, determined fatalist', in *SVEC*, 284 (1991), p.294.

laisser de côté sa raison, et à prendre le couteau du sacrificateur, ou à abandonner un principe incontestable; c'est que tout tient dans la nature par un enchaînement nécessaire; ou à réfuter par l'expérience même, la plus absurde de toutes les idées; c'est qu'il y a une liaison ineffable et secrète, entre le sort de l'empire et l'appétit ou le dégoût des poulets sacrés. S'ils mangent, tout va bien; tout est perdu, s'ils ne mangent pas. Qu'on rende le philosophe si subtil que l'on voudra, si l'augure n'est pas un imbécile, il répondra à tout, et ramènera le philosophe, malgré qu'il en ait, à l'expérience.<sup>794</sup>

Such remarks are not rare. Instead, they appear with some frequency in Diderot's works and especially in his correspondence. Evidence for this can be found in the so-called 'Lettre sur la comète' analysed in Chapter V, as well as in a letter of 1769, similarly addressed to Mme de Maux, which also shows that Diderot's concerns were shared entirely by d'Holbach.<sup>795</sup> Even the maître's line in *Jacques le fataliste* ('J'en ris, mais j'avoue que c'est en tremblant'), which immediately follows the episode of the executioner's horse discussed in previous chapters, is most convincingly interpreted as arising from similar considerations.<sup>796</sup>

Observations like these concerning the relation between determinism, religion, and superstition clearly reveal the artificiality of Jonathan Israel's notion of Radical Enlightenment. While it cannot be denied that Diderot's and d'Holbach's thought is deeply indebted to Spinoza, the radical or revolutionary nature of their philosophy can and should be partly reconsidered. When it comes to causation, after all, it is to Hume, and not to Spinoza,

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<sup>794</sup> *Encyclopédie*, 14:338.

<sup>795</sup> *Correspondance*, vol.9, p.154 ('Votre question sur la comète m'a fait faire une réflexion singulière; c'est que l'athéisme est tout voisin d'une espèce de superstition presque aussi puérile que l'autre. Rien n'est indifférent dans un ordre de choses qu'une loi générale lie et entraîne; il semble que tout soit également important. Il n'y a point de grands ni de petits phénomènes. La constitution *Unigenitus* est aussi nécessaire que le lever et le coucher du soleil') and 94 ('J'allai dîner chez le baron... Il défendit avec la modération que vous lui connaissez la cause du Boulainvilliers et de l'astrologie judiciaire, et je convins que Saturne faisait à peu près sur nous l'effet d'un atome de poussière sur une horloge de clocher'). See also Ehrard, 'Lumières et roman', p.144; Schmitt, *Diderot, ou la philosophie de la séduction*, p.242; and Hobson, '*Jacques le fataliste*: the art of the probable', p.158: 'If we leave out the intermediary links in a causal series, astrology and determinism, and superstition and atheism look very much alike'.

<sup>796</sup> *Jacques*, p.91. See above p.65-66.

that one must turn if one wishes to find something ‘revolutionary’, utterly breaking with tradition and threatening established orthodoxy. In fact, even in Hume’s case, the adjective ‘revolutionary’ could easily be labelled as inappropriate, for Hume’s ideas were not born ‘per conceptionem immaculatam’ as Stephen Nadler has rightly observed, but rather were rooted in Locke’s empiricism as well as in Malebranche’s Occasionalism.<sup>797</sup> Moreover, the notion of ‘revolution’ is utterly foreign to the domain of intellectual history, and Israel’s insistence on the existence of a necessary connection between the cultural fervour of late seventeenth-century Holland, the Enlightenment, and the notion of ‘revolution’ forgets, for example, cultural phenomena such as Italian Humanism, which plainly anticipated many of the ideas often associated with Spinozism and the Radical Enlightenment.<sup>798</sup>

The parallels drawn in previous chapters between d’Holbach’s *Système de la nature* and Voltaire’s works (especially the *Questions sur l’Encyclopédie* and the *Lettres de Memmius à Cicéron*) also reveal the arbitrariness of Israel’s distinction between Radical and Moderate Enlightenment.<sup>799</sup> It is entirely conceivable that Voltaire’s silence on several thorny philosophical questions may in fact conceal a secret fascination with them. In particular, his response to Buffon’s theory of natural history, Diderot’s notion of change, and La Mettrie’s materialism is in need of reconsideration, and the publication of the Oxford edition of the *Complete Works of Voltaire*, now approaching its end, offers an unprecedented opportunity to undertake such a study.

Having discussed the similarities between d’Holbach and Diderot’s determinism on the one hand, and religion and superstition on the other, it is with another ‘paradox’, that of the relationship between determinism and chance, that I would like to conclude.

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<sup>797</sup> Nadler, “‘No Necessary Connection’”, p.448.

<sup>798</sup> Jonathan I. Israel, *Democratic Enlightenment: Philosophy, Revolution, and Human Rights, 1750-1790*, Oxford: Oxford University Press, 2011, p.7: ‘All Enlightenment by definition is closely linked to revolution’. See also p.11.

<sup>799</sup> See above p.33 and 85.

Emphasis was placed in previous chapters on the similarities between *Jacques le fataliste et son maître* and other Diderotian works. It must be admitted, however, that this text occasionally appears to question some of the points made here. In one of the very few existing explorations of Diderot's views on causation, Marian Hobson has shown that, in *Jacques le fataliste*, causes are often presented as possibly leading to 'two contrasting outcomes [...], as though the possibility of the events was equal and their effects were too'.<sup>800</sup> Thus, for example, as already mentioned in Chapter V, an encounter between Jacques's captain and his comrade may either result in a pleasant conversation or a fierce duel; likewise, when the story is told of how Jacques and his master were forced to spend the night at the Grand-Cerf and listen to the story of Mme de La Pommeraye, emphasis is placed on the utter unpredictability of weather conditions.<sup>801</sup> The same considerations appear at the very beginning of the *Supplément au Voyage de Bougainville*:

A. Cette superbe voûte étoilée sous laquelle nous revînmes hier et qui semblait nous garantir un beau jour, ne nous a pas tenu parole.

B. Qu'en savez-vous?

A. Le brouillard est si épais qu'il nous dérobe la vue des arbres voisins.

B. Il est vrai; mais si ce brouillard qui ne reste dans la partie inférieure de l'atmosphère que parce qu'elle est suffisamment chargée d'humidité, retombe sur la terre?

A. Mais si au contraire il traverse l'éponge, s'élève et gagne la région supérieure où l'air est moins dense, et peut, comme disent les chimistes, n'être pas saturé?<sup>802</sup>

Several narratorial interventions in *Jacques le fataliste*, moreover, include open references to chance (the word 'hasard' appears at least seven times in the text, without considering set

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<sup>800</sup> Hobson, 'Jacques le fataliste: the art of the probable', p.154.

<sup>801</sup> *Jacques*, p.112.

<sup>802</sup> *Supplément*, p. 579.

phrases such as ‘au hasard de’, ‘à tout hasard’, etc.) and this seems to cast doubt on the *philosophe*’s endorsement of the Causal Principle.<sup>803</sup> The obvious reference is to the incipit of the ‘novel’ (‘Comment s’étaient-ils rencontrés? Par hasard, comme tout le monde’), but many other examples could be mentioned: at the very end of the text, for instance, the somewhat tragic encounter between the *maître* and the chevalier de Saint-Ouin, resulting in the latter’s death and in Jacques’s imprisonment, is said to have happened by chance: ‘L’homme tué était le chevalier de Saint-Ouin que le hasard avait conduit précisément ce jour-là avec Agathe chez la nourrice de leur enfant’.<sup>804</sup> The narrator’s ostensible scepticism about the Causal Principle and Causal Necessitation plunges the characters into a universe wherein events can be said to be causally connected only as a result of repeated observations. Jacques himself, on one occasion, reports that his captain used to affirm that ‘la prudence est une supposition dans laquelle l’expérience nous autorise à regarder les circonstances où nous nous trouvons comme causes de certains effets à espérer ou à craindre pour l’avenir’.<sup>805</sup> Indeed, as noted by Nicholas Cronk, Hume’s philosophy represents a prominent subtext to *Jacques le fataliste* and has ‘an important role in determining both [its] philosophical voice and [...] narrative structure’.<sup>806</sup>

However surprising, d’Holbach’s determinism too occasionally takes on a Humean hue. The following passage, with its plain references to the notions of experience, analogy, and ‘prudence’, could not make this point more clearly:

Mais comment pressentir des effets que nous n’avons point encore éprouvés? C’est [...] à l’aide de l’expérience. Nous savons par son secours que des causes analogues ou semblables produisent des effets analogues et semblables; la mémoire, en nous rappelant les effets que nous avons éprouvés, nous met à portée de juger de ceux que nous pouvons attendre, soit

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<sup>803</sup> See Anne Deneys-Tunney, ‘La Critique de la métaphysique dans les *Bijoux indiscrets* et *Jacques le fataliste de Diderot*’, *RDE*, 26 (1999), p.147: ‘*Jacques le Fataliste*, de son côté, représente sous forme de roman picaresque, l’errance d’un valet et de son Maître, dans un monde régi par la contingence’.

<sup>804</sup> *Jacques*, p.287.

<sup>805</sup> *Jacques*, p.33.

<sup>806</sup> Cronk, ‘Reading expectations: the narration of Hume in *Jacques le fataliste*’, p.332.

des mêmes causes, soit des causes qui ont du rapport avec celles qui ont agi sur nous. D'où l'on voit que la *prudence*, la *prévoyance* sont des facultés qui sont dues à l'expérience. J'ai senti que le feu excitait dans mes organes une sensation douloureuse: cette expérience suffit pour me faire pressentir que le feu appliqué à quelques-uns de mes organes y excitera par la suite la même sensation.<sup>807</sup>

But do these remarks invalidate everything that has been advanced thus far? I would argue that this is not the case.

I have, in the preceding chapters, highlighted the existence in Diderot's and d'Holbach's philosophy of a sharp fracture between reality and epistemology. Whilst this issue was addressed more directly in the last chapter, where the complex nature of causal nexuses was discussed, and the question was asked whether deterministic theories must necessarily rely on the concept of predictability, scattered considerations on this subject were also present in previous sections. Emphasis has been placed, for example, on Diderot's decision to quote, in his article 'Leibnitzianisme ou Philosophie de Leibnitz', a formulation of the Principle of Sufficient Reason that contains a final caveat on humans' capacity of identifying the reasons of events, as well as on d'Holbach's introduction of an interesting distinction between 'causes cachées' and 'causes visibles'. Similarly, I have emphasised Diderot and d'Holbach's claim that the most basic laws of nature remain to be discovered and the fact that both philosophers present humans' understanding of the moral world as particularly nebulous. Suffice it to recall Diderot's statement in the *Rêve de d'Alembert* that moral causes seem to produce their effects contingently, rather than necessarily.

This dichotomy between ontology and epistemology provides the key to understanding how the points raised in the last few pages can be made to fit with my overall argument

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<sup>807</sup> *Système*, p.244-245.

concerning Diderot and d'Holbach's determinism. Whilst both the physical and the moral worlds are absolutely determined, human understanding of how they function is regrettably incomplete, with the result that reality often looks chaotic and as if ruled by chance. This is the lesson of *Jacques le fataliste et son maître*, where, as perceptively argued by Marian Hobson, 'chance and necessity [...] start strangely to resemble one another'.<sup>808</sup>

In the works of d'Holbach and Diderot, the word 'hasard' always has an epistemological meaning. '[O]n s'est servi du mot *hasard*', writes the Baron in the *Système*, 'pour désigner les effets que nous ne pouvons pressentir ou dont nous ignorons la liaison nécessaire avec leurs causes'.<sup>809</sup> The anonymous *Encyclopédie* article 'Hasard' could hardly be more explicit:

Nous sommes portés à attribuer au *hasard* les choses qui ne sont point produites nécessairement comme effets naturels d'une cause particulière: mais c'est notre ignorance et notre précipitation qui nous font attribuer de la sorte au *hasard* des effets qui ont aussi bien que les autres, des causes nécessaires et déterminées. Quand nous disons qu'une chose arrive par *hasard*, nous n'entendons autre chose, sinon que la cause nous en est inconnue.<sup>810</sup>

Just like religion and superstition, chance is thus created by ignorance. Reality, in itself, is entirely determined.

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<sup>808</sup> Hobson, 'Jacques le fataliste: the art of the probable', p.151. See also Aram Vartanian, 'Jacques le fataliste: a journey into the ramifications of a dilemma', in John Pappas (ed.), *Essays on Diderot and the Enlightenment in Honor of Otis Fellows*, Geneva: Droz, 1974, p.325-347. Whilst identifying in *Jacques le fataliste* a dichotomy between determinism and what he calls 'freedom', however, Vartanian appears to miss its real basis.

<sup>809</sup> *Système*, p.386.

<sup>810</sup> *Encyclopédie*, 8:74. The similarities between the following passage of Laplace's *Recherches sur l'intégration des équations différentielles aux différences finies* (in *Mémoires de mathématique et de physique*, Paris: Imprimerie royale, 1773, p.114) and the ideas expressed by Diderot and d'Holbach are indeed remarkable and beg a reconsideration of Laplace's indebtedness to both thinkers: 'Nous regardons une chose comme l'effet du hasard, lorsqu'elle n'offre à nos yeux rien de régulier, ou qui annonce un dessein, et que nous ignorons d'ailleurs les causes qui l'ont produite. Le hasard n'a donc aucune réalité en lui-même; ce n'est qu'un terme propre à désigner notre ignorance sur la manière dont les différentes parties d'un phénomène se coordonnent entr'elles et avec le reste de la Nature'.



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