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Hobbes on the Scientific Study of the Human Mind

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Abstract: This paper considers Hobbes' scientific study of the human mind and the method that structures it. I argue that Hobbes approaches the mind – as he approaches the inanimate natural world – in accordance with the method of “physics” as set out in the fourth and last part of *De Corpore*. I discuss this method and show how and why it applies to the study of the human mind, in particular in his most famous exposition of the topic in *Leviathan*. This understanding of Hobbes' method allows us to reconsider and reject a number of criticisms of his work: first, that Hobbes' scientific study of the human mind is inconsistent because it also relies on introspection; second, that his approach fails because it is not, and cannot be, fully deductive, as a result of which the introduction of psychological concepts is unwarranted; and, finally, that his scientific study of the mind is superfluous because he never sufficiently shows it is important for his moral and political philosophy to understand the mind in accordance with the method of physics.

1 Introduction

In several of his most famous works, Thomas Hobbes provides an account of what today we would call a “philosophical psychology” or “theory of mind” in terms of the sizes, shapes, and movements of constellations of physical objects. In this paper, I analyse the methodological commitments that lead Hobbes to this puzzling and oft-discussed feature of his thought. While Hobbes himself emphasised the importance of method in philosophy,¹ the implications of his methodology in

¹ Only if we reason in accordance with a proper method, Hobbes maintains, can we make progress in knowledge and understanding. For instance, in *De Corpore* he warns that men generally “fall into error for want of method” (DCo, 1.1, 1) and professes the desire to proceed “by putting into a clear method the true foundations of natural philosophy” (DCo, ‘Epistle Dedicatory’, xi).

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this context have not been extensively studied before. The central claim I defend is that his mechanical psychology is part of what he calls “physics”, the study of the natural world.² This, I believe, throws considerable light on the nature of his mechanical psychology and on the conclusions he draws on its basis.

In what follows, I first outline the method of physics as it applies to the inanimate natural world (Section 2) and show how and why Hobbes applies this method to the study of the human mind (Section 3). Then I consider some of the implications of this view. First, I discuss the role of introspection that some commentators have identified as an important source of knowledge about the human mind but that seems inconsistent with his commitment to materialism and determinism (Section 4). As I outline, Hobbes does not take introspection to be incompatible with mechanical explanation but rather embraces it as an essential part of his scientific method. Second, I argue that the famous and still widely-held objection that Hobbes’ study of the mind fails as a fully deductive science does not hold (Section 5). Hobbes does not aim to deduce psychological phenomena and moral claims from statements about bodies in motion. On the contrary, psychological phenomena form the initial and self-evident material from which a scientific account of the human mind is fashioned. I will show, however, that Hobbes’ attempt to accomplish a mechanical reconstruction of those phenomena is unsuccessful. Finally, I argue that the interpretation I present supports the view that Hobbes derives conclusions that are relevant for his moral and political philosophy, contrary to the opinions of some recent commentators (Section 6). Specifically, I show that Hobbes’ meta-ethical views on the nature of goodness, of fundamental importance to his analysis of the laws of nature, are shaped by the method of physics.

2 Physics as it Applies to the Inanimate Natural World

Hobbes’ study of the natural world takes shape against the backdrop of an account of scientific knowledge that is substantially indebted to the Aristotelian tradition. In *Posterior Analytics*, Aristotle defines scientific understanding as

In *Leviathan*, he claims that “[t]he first cause of Absurd conclusions I ascribe to the want of method” (L 34).

² The term “mechanical” should be used with some caution. I use it to refer to Hobbes’ commitment to materialistic and deterministic explanation in natural philosophy and psychology. See Leijenhorst 2002, 6 f.; Gabbey 2004, *passim*.

knowledge of the causes of things derived through syllogistic deductions from self-evident principles. We have scientific, as opposed to accidental, knowledge if we know not only that something is the case (*to hoti*), but also know the reason why it is the case (*to dioti*).³ Hobbes adopts the same distinction and writes that true philosophy is “the science of causes, or as they call it, of the *dioti*. All other science, which is called the *hoti*, is either perception by sense, or the imagination, or memory remaining after such perception.”⁴ For Hobbes, philosophy or science (I will use these interchangeably from now on) is certain knowledge of the causes of things, deduced from self-evident principles. He does not deny that we can have knowledge from sense experience, aided by imagination and memory. But such knowledge is accidental knowledge, a mere catalogue of facts. A philosopher ought to provide an understanding of these facts by identifying the causes that produce them.⁵

Given this Aristotelian notion of scientific knowledge, Hobbes faces the challenge of accounting adequately for the peculiar nature of knowledge about the natural world. For him and many of his contemporaries it is clear that deductive certainty can be reached in some fields, geometry being an obvious candidate. In physics, however, reliance on observation and experience seems inevitable.⁶ Natural philosophers must therefore content themselves with knowledge that is a good deal less certain.⁷ In *Decameron Physiologicum*, published in 1678, Hobbes provides a clear exposition of the difficulty that the reliance on observation poses. We want to know, he explains,

[...] the entire progress of nature from the efficient cause to the effect produced. Which is always a hard question, and for the most part impossible for a man to answer to. For the alterations of the things we perceive by our five senses are made by the motion of bodies, for the most part, either for distance, smallness, or transparence, invisible.⁸

³ Aristotle 1984, 78a23.

⁴ DCo 6.1, 66. Cf. L 37. See also Leijenhorst 1996, 426.

⁵ As he notes, “although Sense and Memory of things, which are common to man and all living creatures, be knowledge, yet because they are given us immediately by nature, and not gotten by ratiocination, they are not philosophy” (DCo 1.2, 3).

⁶ I take “physics”, “natural philosophy”, and “natural science” to be synonymous and use them interchangeably for stylistic reasons.

⁷ Aristotelian natural philosophers were increasingly criticised for their use of supposedly self-evident principles. For instance, in *New Organon* (1620), Francis Bacon argues that these self-evident principles are in fact identified on the basis of cursory observations that are likely merely to replicate received opinion. He proposes a more systematic form of inquiry into the phenomena of nature (Bacon 2000, 38).

⁸ EW VII, 78. Cf. EW VII, 88.

As we cannot, through observation, determine the causes of the phenomena of nature, but knowing the cause is a requirement for scientific knowledge, the viability of a natural philosophy is threatened. Hobbes nevertheless shies away from concluding that knowledge of the natural world is always accidental and unscientific. His solution, set out most fully in *De Corpore* (1655), is a method that he takes to be consistent with both the general definition of scientific understanding and the acknowledgement of the necessary dependence on observation. In the fourth and last part of the book on “Physiques, or the Phaenomena of Nature” he explains that there are in fact two methods in science,

[...] one, from the generation of things to their possible effects; and the other, from their effects or appearances to some possible generation of the same. In the former of these the truth of the first principles of our ratiocination, namely definitions, is made and constituted by ourselves, whilst we consent and agree about the appellations of things. And this part I have finished in the foregoing chapters [...]. I now enter upon the other part; which is the finding out by the appearances or effects of nature, which we know by sense, some ways and means by which they may be, I do not say they are, generated.⁹

Thus, while a large part of science can be approached deductively from principles that are self-evident, in physics one must reason backwards from what he terms the “effects of nature” to the possible causes that might have generated them. His solution is thus to interpret *dioti* in physics, that is, the knowledge of the causes of natural phenomena, as the knowledge of their *possible* or *hypothetical* causes. As he concludes in the final pages of *De Corpore*, physics “depends on hypotheses; which unless we know them to be true, it is impossible for us to demonstrate that those causes, which I have there explicated, are the true causes of the things whose productions I have derived from them.”¹⁰

Hobbes identifies two conditions for sound hypothetical explanations in natural philosophy. First, explanations must be in conformity with the phenomena they purport to explain. This means that the quality of one’s explanations is in large part dependent on the quality of one’s observations. Explanations

⁹ DCo 25.1, 387 f. See also the Epistle Dedicatory to the *Six Lessons*: “because of natural bodies we know not the construction, but seek it from the effects, there lies no demonstration of what the causes be we seek for, but only of what they may be.” (EW VII, 184).

¹⁰ DCo, 30.15, 531. In *Decameron Physiologicum* Hobbes explains that physics one has to “derive the cause you seek for from your supposition. If you can, it is all that is expected [...]. For there is no effect in nature which the Author of nature cannot bring to pass by more ways than one” (EW VII, 88). In *Seven Philosophical Problems*, he states that “[i]n natural causes all you are to expect, is but probability” (EW VII, 11).

must be such “as no certayne experience can confute”,¹¹ but this means, as he puts it succinctly in *Decameron physiologicum* (1678) that “you must furnish yourself with as many experiments (which they call phenomenon) as you can.”¹² He even suggests the possibility of falsifying experiments.¹³ For example, one of the conclusions of his explanation of gravity in *De Corpore* is that the farther bodies are removed from the equator, the lower will be their velocity when they fall to the earth. After having mentioned this result, he admits that “whether it be true or false, experience must determine.”¹⁴ He continues to wonder whether an experiment would be devisable to test this result, but does not seriously consider it on account of the difficulties of measuring falling bodies with sufficient exactness and of travelling close enough to the poles to be able to see any effect. Nevertheless, he accepts the possibility that subsequent experience would contradict his hypothesis and that he would have to devise a new explanation of the movement of free falling bodies.

The second requirement for hypothetical explanations in physics is that they must be “conceivable”,¹⁵ by which Hobbes means that they must be in agreement with the metaphysical commitments he identifies in those parts of *De Corpore* that do not rely on observation.¹⁶ We may determine the truth of the “first principles of our ratiocination” without recourse to observation because they are dependent on the way we define the words we use. These principles are self-evident, like the axioms of Euclid that “have by the consent of all men gotten the authority of principles, because they need not be demonstrated.”¹⁷ A large part of *De Corpore* consists of the identification of such *a priori* principles, which together demarcate his corpuscular worldview and lead Hobbes to conclude that everything that exists necessarily consists of some constellation of moving bodies.¹⁸ Revealingly, he calls the resulting principles the “first principles by which we know the *dioti* of

11 Hobbes to William Cavendish, Earl of Newcastle, July 29/Aug. 8 1636, Cor. vol. I, 33 f.

12 EW VII, 88. For the equation of experience and experiment, see also EL 4.6.15: “To have had many experiments, is that we call EXPERIENCE”.

13 Contrary to Brandt’s (1928, 198) claim that in Hobbes’ physics “the confirmation of experience is entirely dispensed with”.

14 DCo 30.4, 513.

15 DCo 30.15, 531.

16 Hobbes prefers the term ‘first philosophy’ over ‘metaphysics’ because he associates the latter with the scholastic custom of taking it as the study of that which is beyond nature and what is immaterial. See, Leijenhorst 2002, 19. However, because his first philosophy is, in all but name, metaphysics, I will for simplicity refer to it as such.

17 DCo 6.13, 82.

18 DCo 7–14. See also Leijenhorst 2002, 3.

things”,¹⁹ implying that they are the foundations of scientific knowledge. Only if we form hypotheses in conformity with these first principles are they conceivable and thereby explain natural phenomena.

Hobbes’ method in physics thus proceeds by close observation of phenomena and by putting forward hypothetical causes for their occurrence, in conformity with metaphysical presuppositions. Hobbes applies this method to the study of a large variety of natural phenomena, including gravity, magnetism, and the motions of celestial bodies. To give one example, when he investigates the “possible cause” of thunder and lightning he starts with the observable phenomena of the clap of thunder, the subsequent rumbling, as well as the lightning that we observe when a thunderstorm breaks. His hypothesis is that clouds can freeze while they enclose pockets of air, which, when “the compression is great enough” will cause the clouds to “be broken; and this breaking of the cloud produceth the first clap of thunder”.²⁰ Lightning is produced as the result of “the same air breaking through the clouds and with concussion falling upon the eye [...] which causes in us the perception of that light”.²¹ This hypothetical account of the generation of thunder and lightning Hobbes takes to be in conformity with both observed experience and his materialistic metaphysics. That is why it provides us with *dioti* or scientific understanding.

3 Physics as it Applies to the Human Mind

The central claim of this paper is that Hobbes applies the method of physics not only to the natural world but also to the human mind. He supposes, in other words, that correct scientific explanation in the study of the mind consists in providing hypothetical mechanical causes for observed phenomena. We sense, we remember, we contemplate purposefully in relation to the world around us, we experience longing, desire, fear, and a great variety of other passions, we use language to communicate our thoughts, and we act on the basis of deliberations over our wants and needs. This rich texture of introspective experience forms the starting point of Hobbes’ scientific study of the human mind. The knowledge we have of these experiences is undeniable, but it is mere *hoti* or knowledge of fact.²²

¹⁹ DCo 6.6, 70.

²⁰ DCo 28.14, 481.

²¹ DCo 28.14, 481.

²² As Hobbes explains: “[T]he first beginnings, therefore, of knowledge, are [the phantasms of sense and imagination; and that there be such phantasms we know well enough by nature; but to know why they be, or from what causes they proceed, is the work of ratiocination” (DCo 6.1, 66).

The task of the philosopher is to provide *dioti* by giving plausible explanations of the generation of these phenomena.

Hobbes' famous mechanical account of the human mind from *Leviathan* (1651) can serve as an example. He explains that sensation is caused by some object that strikes the sense organ and produces a motion within it.²³ Imagination is caused by the motion of a sensation that has continued after the original object is no longer present.²⁴ Trains of thought are caused by a series of such motions where the one follows the other "by coherence of the matter moved".²⁵ Phenomena, such as speech, deliberation, reasoning and willing have similar explanations. In accordance with the methodological commitments set out in the previous section, Hobbes must admit that these explanations are hypothetical. He cannot be certain whether the precise mechanisms for these phenomena that he proposes are accurate. There might be altogether different mechanisms at work. They are also provisional in the sense that we might come to have experiences that would falsify the hypotheses. What is certain, however, is that the phenomena are caused, and caused necessarily, by *some* movement of *some* body. The reasons Hobbes has for supposing this are based on his analytical metaphysics that cannot be falsified by experiment.

There are two features of his approach worth emphasising. First, Hobbes is careful to allow our language to refer to introspective phenomena. One might think that Hobbes, concerned as he is with the dangers of "insignificant speech", maintains that the only valid objects of language are bodies in motion. That would imply that introspective experience could not form a legitimate object of scientific study. But this is plainly mistaken. He distinguishes several kinds of words including "names of Matter", which are names referring to bodies, and "names of fancies", "as when any thing is *Seen* by us, we reckon not the thing it selfe, but the *sight*, the *Colour*, the *Idea* of it in the fancy".²⁶ The latter are the names he uses to describe the phenomena as they appear to him in introspection. This is what one would expect given his claim that we can have knowledge (*hoti*) of sense experience.

Second, the various mental phenomena that Hobbes discusses in *Leviathan* and elsewhere are immediately accessible though introspection. We have experiences of sensation, imagination, trains of thought, and other phenomena in the mind. It is not a requirement of his method to start his investigation with

²³ L, 13.

²⁴ L, 15.

²⁵ L, 20.

²⁶ L, 29.

sense, which he takes to be “[t]he Originall of them all”,²⁷ and discuss phenomena of increasing complexity afterwards. That he does so is sometimes taken as evidence that he proceeds deductively and somehow derives the more complex phenomena of the human mind from the simpler ones. However, this is false. He could have started with any of the phenomena that we know intimately through introspective experience. That he sees it as appropriate to start with sense tells us that he has concluded *on the basis of observation* that sense is constitutive of these other phenomena, which makes it prudent to discuss sense first. He makes this point expressly in his debate with Bishop John Bramhall when he writes that:

I do indeed conceive that deliberation is an act of imagination or fancy; nay more, that reason and understanding also are acts of the imagination, that is to say, they are imaginations. I find it so by considering my own ratiocination; and he might find it so in this if he did consider his own thoughts [...]²⁸

It is on the basis of introspective experience of deliberating and reasoning that Hobbes concludes that these phenomena consist only of successive fancies. It is an observational fact analogous to our experiential knowledge that lightning generally precedes the rumbling of a thunderstorm. A good scientific explanation would have to take such facts into account.

Hobbes’ application of the method of physics to the human mind implies that he sees no fundamental distinction between phenomena in inanimate nature and psychological phenomena. This curious position may be partly explained by biographical considerations. In his autobiography, written late in life, he recounts that the sudden realisation that the cause of sensation can be nothing more than some corporeal motion first awoke his interest in scientific questions and set him on the path to explain all nature’s phenomena in mechanical terms.²⁹ Accordingly he seems to have initially applied the mechanical mode of explanation only to questions of human psychology, subsequently broadening the scope of his investigations to include the natural world.³⁰ This may also be why he barely con-

²⁷ L, 13.

²⁸ EW V, 401.

²⁹ OL I, xviii–xix. See also Brandt, 1928, 53, 73; Leijenhorst, 2002, 57.

³⁰ Cf. Jesseph 2004, 201. This is also apparent in early letters written by Hobbes, in which he is primarily concerned with psychological questions. See, e.g., Hobbes to ?, Oct. 21/31 1634 in Cor. vol. I, 22 f., on the question “Why a Man remembers lesse his owne Face, [...] then the Face of a Friend”; Hobbes to William Cavendish, Earl of Newcastle, Aug. 15/25 1635, in Cor. vol. I., 28 f., where Hobbes expresses the wish to “speake sense” on the subject of “y^e facultyes & passions of y^e soule”; Hobbes to William Cavendish, Earl of Newcastle, Jul. 29/Aug. 8 1636, Cor. vol. I., 33 f. Finally, it can be noted that the view that Hobbes first applied mechanical explanation in

fronts the question as to why it would be appropriate to subsume the phenomena of the mind under the phenomena of nature and to study them in conformity with the method of physics. In *De Corpore*, his implied view is that a mechanical study of the phenomena of the mind is a prerequisite for a completed natural philosophy, a view that Hobbes, in outline, shared with Galileo and Descartes. A brief comparison with those authors, however, helps to bring out the peculiarity of Hobbes' position.

In *The Assayer* (1623), Galileo explains that he could not imagine material bodies to exist that do not have extension, as being in motion or at rest, and as touching or impacting other bodies. However, the qualities of material bodies – such as colour, taste, odour or touch – seem to him entirely accidental to the constitution of these bodies. This leads him to suppose that these qualities might be dependent on the human mind for their existence.³¹ Galileo does not attempt to detail the way in which such sensations, of what (following John Locke) we have come to call 'secondary qualities', might be produced.³² But this perspective opens up an explanatory gap between the supposition of the existence of moving particles on the one hand and the sensation of heat, odour, or colour on the other. For, even if one assumes that within the mechanical framework one can successfully explain such phenomena as wind, magnetism, gravity, and thunder, the question remains what causes us to hear the thunder and why objects appear colourful, warm or cold, and odorous. If one defends the suitability of mechanical explanation in the realm of the inanimate world, one must confront also those phenomena that do not seem easily reducible to matter in motion. This is the problem that leads Descartes to admit at the end of the *Principles of Philosophy* (1644) that the work, as it stands, is incomplete because, among other things, it omits a study of man. He notes that he has given an account of the entire visible universe in terms of the shapes, sizes and motions of bodies, but that a critical reader may still justifiably doubt the success of the method of physics. For "our senses show us much else besides [the various shapes and movements of bodies] – namely colours, smells, sounds and such-like; and if I were to say nothing about these it might be thought that I had left out the most important part of the explanation of the things in nature".³³ While the supposition of mechanical causes explains

psychology is consistent with the hypothesis that Hobbes wrote the so-called *Short Tract on First Principles*. The principles laid down in its first chapter, comprising what could be called a brief mechanical metaphysics, all seem explicitly designed to be able to help explain sense as well as other psychological phenomena such as understanding and will (see Brandt, 1928, 12f.; 32).

31 Galileo 1957, 273 f.

32 Locke 1976, II.8.10, 135.

33 Descartes 1985, 279.

much about nature, it does not explain the various sensible qualities and that is why, argues Descartes, he must proceed to develop a mechanical psychology. Only after he has in the very last pages of the work provided such an account (a much condensed discussion of the arguments also found in *Optics* and *Treatise on Man*), is he satisfied that his project is successful.³⁴

Hobbes is concerned with the same problem. But his approach is more radical than that of Galileo and Descartes as he does not distinguish between primary and secondary qualities. He considers no qualities in perception to be representative of the things as they are in themselves.³⁵ Not only the perception of colour, smell, or taste must therefore be explained mechanically by reference to some motion in the human body, all perception, including the perception of bodies and their so-called primary qualities, must be similarly explained. Therefore he states at the start of his account of physics in *De Corpore* that we must study “the causes of our perception” in natural philosophy, for the simple reason that “the appearances be the principles by which we know all other things”.³⁶ For example, when he provides a “possible cause of the light of the sun” he does not only describe how the sun produces a motion that is propagated through space, but also how this motion presses on the eye, causing a motion in the human body that, in turn, produces the appearance of light. This amounts to an explanation of the cause of the light of the sun, Hobbes concludes, because “it is by reason of this phantasm that an object is called lucid.”³⁷ A full explanation of the natural world therefore requires an account of how humans come to experience the world, which is, in Hobbes method, to give a mechanical account of the human mind.³⁸

These considerations provide robust support for the claim that Hobbes, at least in *De Corpore*, applies the method of physics in his study of the human mind. One may object that this does not show that Hobbes also followed the same method in his other works.

This question may be raised with regard to *De Homine*, which forms the second section of his tripartite philosophical system (although it was published last) and in addition to a number of chapters on optics (a revised translation of the second part of “A Minute or First Draught of the Optiques” (1646)) consists of a mechanical psychology. Although Hobbes does not outline the methodo-

³⁴ Descartes 1985, 285 f.

³⁵ Cf. EL 2.10, 7: “whatsoever accidents or qualities our senses make us think there be in the world, they are not there, but are seemings and appearances only. The things that really are in the world without us, are those motions by which these seemings are caused.”

³⁶ DCo 25.1, 389.

³⁷ DCo 27.2, 448.

³⁸ Cf. Brandt 1928, 343.

logical underpinnings of the work, the fact that *De Homine* belongs to a trilogy gives us reason to think it shares a method with *De Corpore*.³⁹ As he had already accounted for the method of such a psychology in *De Corpore*, the first part of the trilogy, it was not necessary to repeat the same in the second part. In *De Corpore* Hobbes indicates that *De Homine* will include a more thorough discussion of the human mind that he has already started in the last part of *De Corpore*: “because the passions and perturbations of the mind are innumerable, and many of them not to be discerned in any creatures besides men; I will speak of them more at large in that section which is concerning *man*.”⁴⁰ Accordingly, when he discusses appetite and aversion in *De Homine* and argues that “the causes, as of sense, so of appetite and aversion, delight and annoyance, are these same objects of the sense”,⁴¹ he seemingly refers to the account of sense given in *De Corpore*.

The question is more pertinent with regard to *Leviathan*, generally considered to contain the most developed version of Hobbes’ psychology.⁴² Although the hypothetical nature of the psychology in *Leviathan* is not lost on one seventeenth-century critic who calls Hobbes “the great Patron of the *Hypothesis*”,⁴³ one may argue that in *Leviathan* Hobbes does not explicitly maintain that the study of the human mind is part of physics or recognises the hypothetical character of the mechanical reconstruction of psychological phenomena. One may further observe that physics is not even acknowledged as a distinct discipline in the account of science in *Leviathan*.⁴⁴ Science simply is “the knowledge of Consequences, and dependence of one fact upon another” and this would seem to suggest that all such knowledge is demonstrative and certain.⁴⁵

These observations may explain why commentators have not appreciated the importance of the method of physics and the hypothetical nature of Hobbes’ scientific study of the human mind.⁴⁶ It should, however, be emphasised that

39 Hobbes does give a brief account of the hypothetical nature of physics and notes that “since the causes of natural things are not in our power, but in the divine will, and since the greatest part of them, namely the ether, is invisible; we, that do not see them, cannot deduce their qualities from their causes. Of course, we can, by deducing as far as possible the consequences of those qualities that we do see, demonstrate that such and such could have been their causes. This kind of demonstration is called *a posteriori*, and its science, physics” (DH, 42).

40 DCo 25.13, 410.

41 DH, 46.

42 See, for example, Sacksteder 1990, 37.

43 Joseph Glanvill, *Lux Orientalis* (1682), quoted in Mintz 1962, 70.

44 Physics is, however, mentioned in the table of the sciences, and there it is also made clear that “Ethiques”, the “consequences from the Passions of Men”, are part of physics (L, 61).

45 L, 35.

46 See, for example, McNeilly 1968, 85.

Hobbes' recognition that the study of natural phenomena is hypothetical is a consistent feature in his work from his earliest writings on the subject until his very last.⁴⁷ The question is thus why he would not express this same view in *Leviathan*. Several reasons can be provided. First, he considers the first part on man in *Leviathan* a summary of more elaborate work in a different place. "I have elsewhere written of the same at large", he maintains about his account of the causes of sensation. He does not clarify where that is, but it is likely a reference to the study of sensation in *De Corpore*.⁴⁸ He may therefore have decided in the summary-account of *Leviathan* to emphasise his findings rather than the method that underpins them. Second, this is all the more plausible if we take *Leviathan* to be written for a wide audience and with the intention to influence public opinion and political debate.⁴⁹ From that perspective, removing complicating methodological concerns that might distract readers from the political message can only be seen as a sensible tactic. Finally, in response to the claim that Hobbes does not mention "physics" as a distinctive discipline in *Leviathan*, it should be noted that he does take scientific knowledge to be attainable in two ways, in much the same way as he does in *De Corpore*. It can be attained by "Reasoning, from the Manner of the generation of any thing, to the Properties; or from the Properties, to some possible Way of Generation of the same".⁵⁰ He also obliquely refers to the fact that some matters in science do not allow for demonstrative certainty. Some science is "certain and infallible; some, uncertain".⁵¹ In the case of uncertain science, he explains, "only some particular events answer to his pretence, and upon many occasions prove so as he says they must".⁵² It seems likely that these are references to his account of the method of physics.

4 The Role of Introspection

Emphasising that the method of physics structures Hobbes' study of the human mind, I submit, allows us to resolve some difficulties that have troubled interpreters of his work. The first difficulty I wish to discuss is the worry that Hobbes' use of introspection and observation renders his philosophy inconsistent. In

⁴⁷ Horstmann 2001, 498.

⁴⁸ Leijenhorst 2007, 87.

⁴⁹ Johnston 1986, 89. Cf. Vaughan 2001.

⁵⁰ L, 458, italics removed.

⁵¹ L, 37.

⁵² L, 37.

the introduction to *Leviathan*, Hobbes famously emphasises the importance of the saying “read thyself”. In the study of man, he maintains, one “looketh into himself, and considereth what he doth, when he does *think, opine, reason, hope, fear*, etc. and upon what grounds”.⁵³ In his exchange with John Bramhall, he is perhaps even more explicit about the importance of introspection. He maintains that whether the will is the last appetite in deliberation or whether actions informed by practical deliberation are always voluntary and chosen, are questions decided by “sense and memory”, and he continues that for these claims “no other proof be offered but man’s own experience”.⁵⁴ Some of the more notorious elements from Hobbes’ account of the human mind, usually thought to be the product of Hobbes’ mechanical mode of explanation, are thus in fact established on the basis of introspective experience.

This has puzzled commentators and has led some to question the consistency of his view. For example, Bernard Gert has argued that this emphasis on introspection implies that Hobbes’ psychology is not mechanical in nature. He writes that Hobbes’ “account of the individual passions completely ignores the relation between human behavior and his materialist philosophy” because he “simply proceeds by way of introspection and experience”.⁵⁵ In a similar vein, Richard Peters has proposed that Hobbes employs a second method, independent of his mechanical philosophy and grounded in introspection and empirical generalisation, that makes civil philosophy a self-contained discipline.⁵⁶ Others have suggested or implied similar views.⁵⁷

⁵³ L, 10.

⁵⁴ LN, 37f.

⁵⁵ Gert 1996, 160. And he concludes that “Hobbes is quite clear that introspection and experience, not a materialist philosophy, provide the key to understanding human behavior” (Gert 1996, 161). In an earlier article, Gert made a similar point: “Though Hobbes does offer a mechanical account of appetite and aversion he completely ignores this account when providing his analysis of more complex psychological phenomena” (Gert 1967, 504).

⁵⁶ Peters maintained that the emphasis on introspection in *Leviathan* implied that Hobbes did not base it on his scientific approach, in which one “might attain knowledge of the passions and perturbations of the mind by reasoning synthetically from the first principles of philosophy” (Peters 1956, 75), but rather, that he developed a second method, an “almost self-contained civil philosophy depending only on certain axioms of moral philosophy”, in which certain principles were derived from introspection (Peters 1956, 76).

⁵⁷ The most famous version of this point of view is perhaps presented by Leo Strauss (Strauss 1952, 3–5). More recently, Marshall Missner maintains that Hobbes proceeded by “qualified introspection”, that is, introspection qualified by empirical observation of others, an approach he takes to be in opposition to scientific reasoning (Missner 1977, 615). Leijenhorst implies a similar distinction when he writes that: “Interestingly, Hobbes not only offers a mechanical explanation

Once we understand that Hobbes' study of the human mind is structured by the method of physics, however, the reliance on introspection is no longer puzzling. It is not incompatible with mechanical explanation nor does it point to a second method that is independent of mechanical explanation.⁵⁸ Rather, observation is an indispensable part of the method of physics and a prerequisite for any mechanical explanation. In physics, one proceeds by careful observation of the relevant phenomena after which one attempts to explain their existence by hypothesising their material and efficient causes. This is the approach Hobbes takes when it comes to his study of such phenomena as thunder or sunlight, and his approach is no different when it comes to the human mind. By means of observation through introspection he identifies the psychological phenomena such as sense, endeavour, thought, and will, and in *Leviathan* and elsewhere proceeds to provide mechanical explanations for these observations. This further means that, as with other applications of the method of physics, the success of the method depends on close scrutiny of the available evidence. In the same way that the quality of experiments in the study of the natural world determines the quality of the subsequent explanations, his account of psychological phenomena as introspective experience determines in part the quality of his theory of mind. That could be why he admits in the *Leviathan* that others should confirm by introspection whether they observe what he has observed. "[T]he pains left another", he writes, "will be only to consider, if he also find not the same in himself. For this kind of Doctrine, admitteth no other Demonstration."⁵⁹ These acknowledgements of the necessary reliance on introspection are entirely consistent with his methodological commitments as laid out above.

5 The Role of Deduction

The claim that the method of physics structures Hobbes' study of the human mind also suggests an answer to those critics who have objected that Hobbes' philosophical system fails because it is not, and cannot be, fully deductive. These critics maintain that Hobbes attempted to deduce all his philosophical positions, including an account of human psychology and a moral and political philoso-

of why we perceive sensible qualities in the external world, but he also gives empirical arguments" (Leijenhorst 2007, 91).

⁵⁸ There might, of course, be other reasons to suppose that civil science is a self-contained discipline. The point is that Hobbes' use of introspection is not one of them.

⁵⁹ L, 11.

phy, by proceeding from simple postulates in physics about the general laws that govern the motions of bodies. On this view, as A. E. Taylor observes, “a completed philosophy would amount to a vast system of deductions by which all the truths of physical and mental science would be shown to be logical consequences of the ultimate simple laws of motion laid down by mechanics.”⁶⁰ In particular, Hobbes is thought to be aiming to deduce claims about human psychology from claims about mere matter in motion. For example, it has sometimes been argued that he deduces psychological egoism – the view that humans always desire or are moved to do that which is best for themselves – from his mechanical account of the mind. Hobbes claims in *Elements of Law* that pleasure, which is a motion in the body, helps the “vital motion” of the body, the vital motion being that motion that supports and causes the vital functions of the human body.⁶¹ This can be interpreted as implying that we only desire things and aim for them if they are conducive to our self-preservation and our well-being more generally. The argument thus seems to move from premises about motions in the body to conclusions about the motivations on which humans act.

This egoistic interpretation of Hobbes’ account of the human mind has been challenged as an early view that Hobbes discarded in his mature works.⁶² The more fundamental objection is that such deductions from premises about bodies in motion to conclusions about the human mind can never succeed. Hobbes is unable to deduce psychological egoism, or any other claim involving psychological concepts, from a mechanical account of the mind, because there is a fundamental logical gap between the psychological and physical realm.⁶³

One way of thinking about this logical gap is in terms of what, after Franz Brentano, we call intentionality.⁶⁴ In the psychological realm, we deal with phenomena that include something as their object. For instance, desires are *for* something that is desired and perceptions are *of* something that is perceived. (Hobbes himself describes this feature of perception when he introduces appearance as “most admirable” because it has in itself “the patterns almost of all things”.⁶⁵) Similarly, the claim that humans are egoistic includes intentional-

⁶⁰ Taylor 1908, 43. This interpretation is echoed in the work of many more recent interpreters, including Ryan 1970, 102f., quoted in Malcolm 2002, 145f.; Bird 1996, 218; Berns 1987, 397; Macpherson 1985, 29.

⁶¹ EL 7.1, 28.

⁶² McNeilly 1966.

⁶³ Gert 1965; Peters/Tajfel 1957.

⁶⁴ Brentano 1924, 88f. Another way to think of this gap is in terms of *qualia*, the “what-it-is-likeness” of such things as desires and perceptions. See, for example, Nagel 1974, esp. 436f.

⁶⁵ DCo 25.1, 389.

ity because egoism is a theory about motives, and motives include a reference to something the person is aiming at, namely that which is best for oneself. In the physical realm, conversely, we do not find intentionality. Hobbes repeatedly criticises scholastic-Aristotelian natural philosophers for including what we would call intentionality in their descriptions of inanimate phenomena. These accounts follow Aristotle in explaining natural change by referring to the goal of the change, whereby one could for example explain the motion of a falling body by reference to its inner tendency to reach its natural place, which is the centre of the cosmos.⁶⁶ Hobbes emphatically rejects such descriptions of the world as meaningless, and in one pointed passage writes that “the Schooles say, Heavy bodies fall downwards, out of an appetite to rest, and to conserve their nature in that place which is most proper for them; ascribing appetite, and Knowledge of what is good for their conservation, (which is more than man has) to things inanimate, absurdly”.⁶⁷ But if Hobbes would agree that the world, understood as consisting merely of bodies in motion, does not include intentionality, it seems impossible to close the gap between the physical and the psychological. Hobbes must abandon his deductive method when he introduces psychological phenomena into his system, and simply assume the existence of such things as perceptions, thoughts and desires. In Taylor’s words, “the fundamental passions, like the simple, sensible qualities of things, have to be treated as unexplained given facts”.⁶⁸

The view that Hobbes’ philosophy is a vast system of deductions has not gone unchallenged, and several commentators have pointed out that this is not what Hobbes does or claims to be doing.⁶⁹ None of the versions of this argument, however, have taken into account the central claim of this paper, namely that the study of the human mind is structured by the method of physics. This is necessary to be able to accurately assess the critique that Hobbes illegitimately crosses a logical gap in his study of the human mind. Once we do, we can defend Hobbes from the critique that the introduction of the phenomena of the mind in his philo-

⁶⁶ Aristotle maintains that “it is the goal rather than the starting point of motion that gives its name to a particular process of change” (*Physics*, 5.1 224b, quoted in Spragens 1973, 57).

⁶⁷ L, 15. Cf. DCo 30.2, 509f. This is one of the reasons why Hobbes remarks that “[t]he naturall Philosophy of those Schools, was rather a Dream than Science, and set forth in senselesse and insignificant Language” (L 461).

⁶⁸ Taylor 1908, 44.

⁶⁹ Most explicitly by Barnouw 1980; Barnouw 1989a; Barnouw 1989b. See also Herbert 1989 and Sacksteder 1988. These interpretations have, however, been criticised for not taking Hobbes’ scientific reductionism seriously enough. As Leijenhorst puts it, Barnouw “completely disregards Hobbes’ explicit subsumation [sic.] of sense perception to the general laws of motion” (Leijenhorst 2002, 79).

sophical system is unwarranted by pointing out that Hobbes sets apart the method of physics from the rest of his scientific method. It is true that, in most parts of science, one proceeds deductively from “the generation of things to their possible effects”. However, in physics one proceeds backwards by finding out “some ways and means” by which the effects may be generated. This suggests that those who argue that Hobbes must have made an error when he introduced phenomena with intentionality are mistaken. These phenomena in fact form the very starting point of Hobbes’ study of the human mind. Hobbes takes their existence as self-evident to anyone who “looketh into himself”. What is not self-evident (and that is why we need to study them scientifically) is what their causes are.

While this answers the particular objection raised by Taylor, Watkins, and others, it is unlikely to completely rehabilitate Hobbes’ mechanical psychology. One may raise an objection based on Hobbes’ requirement that scientific explanations must be in agreement with observation and “as no certaine experience can confute”. If intentionality is present in psychological phenomena known by introspection but absent in the mechanical reconstruction of these phenomena, then the explanation does not fully cohere with the observation. There is an aspect of introspective experience unaccounted for in its scientific reconstruction, and the reconstruction therefore does not fully explain that experience. Or, to put the same objection in different words, Hobbes claims of his explanations in physics that “though the causes I have here supposed be not the true causes of these phenomena, yet I have demonstrated that they are sufficient to produce them, according to what I at first propounded.”⁷⁰ But to the extent that Hobbes wants to give an account of intentionality present in introspective experience he has failed to do so. He has not demonstrated that the causes he has proposed are sufficient for the production of intentionality. That itself is an unproven hypothesis.

Even though this seems a fundamental objection to Hobbes’ method, it does not necessarily lead to a further objection made in the literature that Hobbes’ study of the human mind, to the extent that it is mechanical, is of no consequence for our understanding of human nature in the context of his moral and political philosophy. It is to that objection I will now turn.

⁷⁰ DCo 26.11, 444.

6 The Relevance to his Moral and Political Philosophy

Those that raise this objection think that Hobbes' study of the human mind, to the extent that it is mechanical, is superfluous. If there is a logical gap between claims about matter in motion and claims about such things as sensation and thought, then Hobbes' mechanical psychology cannot be relevant for his moral and political philosophy. Whatever conclusions he draws about psychology, about the thoughts, passions, desires people have, they cannot have been derived from his scientific study of the human mind. As J. W. N. Watkins puts it, "Hobbes must have made a fresh start when he turned from nature to psychology and politics".⁷¹ From this argument it is only a small step to concluding that Hobbes' scientific account of the human mind, to the extent that it is mechanical, is irrelevant for the rest of his philosophy and can therefore be ignored.⁷² Thus, Tom Sorell maintains, it "seems doubtful that any inkling of the supposed mechanical nature of the passions is in fact necessary for grasping the politics".⁷³

Taking into consideration Hobbes' methodology allows us to better assess the relevance of the mechanical psychology for his moral and political philosophy. In the rest of this section I argue that Hobbes' method in the study of mind determines his account of the nature of goodness, which in turn shapes his views on the nature of morality and political association.

In Chapter 6 of *Leviathan*, Hobbes explains the perception of value, of finding something good, valuable or desirable, as the effect of some mechanical cause. He writes that a motion in the heart called "endeavour" causes the "appearance, or sense of Good".⁷⁴ He also explains how it can be that we not only perceive goodness but also perceive things *as good*. This occurs when the motion that causes a sensation of something "is continued from the Eyes, Eares, and other

⁷¹ Watkins, 1965, 238. Taylor says about passions and thoughts that "the assertion that they are really motions of particles of the body, and nothing more, remains a mere unproved assertion which is of no significance for the further development of Hobbes' ethical scheme" (Taylor 1908, 44).

⁷² McNeilly 1966, 206, claims that Hobbes' "mechanism is in any case an unimportant part of his philosophy". Raphael 1977, 63, notes that "Hobbes' metaphysical theory of strict materialism quickly breaks down" but that fortunately enough, "[w]e need not spend much time in criticism of it, since the weakness of Hobbes' metaphysics does not really affect the force of his moral and political theories". Gert 1967, 503, maintains that "Hobbes' psychology is almost completely independent of his mechanism".

⁷³ Sorell 1996, 56.

⁷⁴ L, 40.

organs to the Heart” where it causes an endeavour.⁷⁵ This scientific explanation of the perception of goodness is thus consistent with the method of physics, in which one starts with some phenomenon that is immediately accessible through introspective experience – in this case, the appearance of goodness – and subsequently one provides a hypothetical mechanical cause.

As argued above, one may object that such mechanical explanations fall short because they do not provide an account of the intentionality of appearances of goodness. This does not mean, however, that Hobbes makes a fresh start when he turns from natural philosophy to psychology, morality, and politics. Nor does it mean that there is nothing to be inferred from understanding thoughts and passions as being produced by corporeal motion. Hobbes’ conclusion, based on his mechanical account of the appearance of goodness, is that it is subjective and does not represent some objective feature of the things in themselves.⁷⁶ Hobbes puts this argument in terms of a reduction of final to efficient causation:

The writers of metaphysics reckon up two other causes besides the *efficient* and the *material*, namely, the ESSENCE, which some call the *formal cause*, and the END, or *final cause*; both which are nevertheless efficient causes.⁷⁷

Some commentators have taken this to signify that Hobbes relegates (or unsuccessfully aims to relegate) all talk of final causality to the realm of meaningless speech.⁷⁸ But the preceding discussion suggests otherwise. Hobbes recognises the reality and meaning of final causes in introspective experience. It is from introspection that we come to know final causes as ends we deem valuable and therefore worth pursuing. This experience is undeniable. Hobbes accordingly acknowledges that we can identify final causes for humans, for example, when he writes that “a *final cause* has no place but in such things as have sense and will”.⁷⁹ What we cannot assume, in Hobbes’ view, is that the experience of such final causes are representative of objective features of reality, or that the normative force of these ends is inherent in the things themselves. On the contrary, Hobbes takes his scientific study of the human mind to show that these final causes are in fact efficient causes, meaning that our perceptions of desirable or valuable ends are in fact caused by nothing but matter in motion. Hence, “these

⁷⁵ L, 40.

⁷⁶ I use the term ‘subjectivity’ in this context to denote the view outlined in the subsequent paragraph, and as consistent with the projectivist reading of Darwall.

⁷⁷ DCo 10.7, 131.

⁷⁸ For example, Overhoff 2000, 24; Spragens 1973, 64–74. Cf. Arp 2002, 22.

⁷⁹ DCo 10.7, 132. Cf. EW VII, 82: “The fourth is the final cause, and hath place only in moral philosophy.”

words of Good, Evil” are only used “with relation to the person that useth them: There being nothing simply and absolutely so; nor any common Rule of Good and Evil, to be taken from the nature of the objects themselves”.⁸⁰ There is “no such [...] *Summum Bonum*, (greatest Good,) as is spoken of in the Books of the old Morall Philosophers”.⁸¹ Hobbes, then, does not deny that we may perceive things as good and as worthy of pursuit, but he denies that this perception is anchored in an objective teleological metaphysics.⁸²

This conclusion is of exceeding importance for Hobbes’ project in *Leviathan*, not least because it establishes the subjectivity of goodness in the condition of war. In this condition, “private Appetite is the measure of Good, and Evil”.⁸³ Sorell suggests that Hobbes’ characterisation of the natural condition of mankind can be based on the observation of passions and on introspection alone and that there is no need to consider Hobbes’ materialist ontology. “What one needs to know to get political knowledge”, he writes, “is that the passions can cause people to go after the same thing; that they lead people to overvalue their intellectual and bodily prowess; that in some people certain passions lead them ruthlessly to appropriate a very large share of goods if there is nothing to stop them”.⁸⁴ But this account of the condition of war is incomplete. Hobbes not only describes human dispositions and behaviour; he also gives an account of the normative principles that those who inhabit the state of nature are subject to. For instance, the condition of war is not the result of ignorant or sinful individuals who fail to take into account authoritative principles of morality. In the state of nature there are no such authoritative principles and instead “every one is governed by his own Reason”.⁸⁵ Indeed, this subjectivity of goodness forms an additional

80 L, 39.

81 L, 70.

82 Stephen Darwall, who calls it a form of projectivism, has also observed this treatment of value. (Darwall 2000, esp. 324–26.. For earlier projectivist readings, see Hampton 1992, 336; Tuck 1989, 53; Peters 1965, 162). What Darwall does not show is why Hobbes is led to this understanding of goodness. He likens Hobbes’ treatment of value to his treatment of colour (Darwall 2000, 321) but that is only to push the question further back, because we can ask why Hobbes treated value like colour. The answer that naturally follows from the preceding discussion is that he applies the method of physics to introspective phenomena. The starting point of Hobbes’ psychology is introspective experience, which includes experiences of colour and of goodness. The subsequent explanation of this phenomenon provides a generative cause in terms of matter in motion. On that basis, Hobbes concludes that the perception of goodness must in fact be, in Darwall’s terms, a projection and not a feature inherent in the objects themselves.

83 L, 111. See also L, 110: “Good, and Evil, are names that signifie our Appetites, and Aversions; which in different tempers, customes, and doctrines of men, are different”.

84 Sorell 1996, 56.

85 L, 91.

reason why the absence of a powerful sovereign is likely to amount to a condition of war.⁸⁶ These normative aspects of the state of nature cannot be derived from observation and introspection but require an account of, in Sorell's words, "the supposed mechanical nature of the passions". It is Hobbes' scientific study of the human mind that determines his views on the nature of goodness.

For the same reason, Hobbes' study of the human mind shapes the character of his account of natural law.⁸⁷ Hobbes maintains that the laws of nature are "Dictates of *Naturall Reason*".⁸⁸ But how, precisely, do the laws of nature 'dictate' or prescribe actions? Or in other words, what is the nature of the normative demands that these laws put on us? One influential answer to this question has been that the laws of nature prescribe actions to the extent that they identify the means to ends we desire. Reason provides us with factual observations about the causal relationships between actions and our purposes; desires move us to act. For instance, Noel Malcolm maintains that "[r]eason could only calculate means to ends, applying the merely formal principles of ratiocination to the brute facts of sense-experience and desire. The ends themselves were supplied by the causal mechanism of desire and aversion".⁸⁹ The laws of nature are "dictates of Reason" as they identify the means to ends one desires, and having a desire implies that one is disposed or motivated to act in accordance with those laws of nature.

There are two difficulties with this interpretation. First, the laws of nature can be said to be dictates only because of the presence of desires that have motivating force. This view, then, entails that the laws of nature are not strictly speaking "dictates of Reason", but are more aptly called "dictates of desire". Moreover, one may ask in what sense having a desire for something gives one a reason for pursuing it.⁹⁰ The interpretation suggests that the very fact that one has a desire gives one a reason to act. Hobbes maintains that deliberation consists of a process in which "in the mind of man, Appetites, and Aversions, Hopes, and Feares, concerning one and the same thing, arise alternately".⁹¹ These appetites and desires are the object of deliberation. That is to say, when we deliberate we consider and reflect on what appetites and aversions we have. If, in deliberation,

86 L, 110 f.

87 In the subsequent discussion I loosely follow Darwall (2000), who has considered in greater detail the implications of the projectivist reading for Hobbes' account of natural law. The purpose of this discussion is not to repeat his argument but to show the implications of Hobbes' scientific study of the human mind for his moral philosophy.

88 L, 246.

89 Malcolm 2002, 30 f.

90 Here, and in what follows, I use the word "reason" to refer to the prescriptive quality that the laws of nature supposedly have as "dictates of Reason".

91 L, 44.

we identify something as an object of our desire, we consider it good and have reason to pursue it.⁹² (This is how one may read Hobbes' claim that "whatsoever is the object of any mans Appetite or Desire; that is it, which he for his part calleth *Good*".⁹³) But here caution is in order. It may be true, as Hobbes certainly seems to think, that in having a desire for something one is necessarily motivated or disposed favourably to the thing that one desires. But this does not entail the further claim that one therefore has a reason to pursue it. The fact that one desires something does not itself give one a reason to desire it. One may justifiably ask whether one *should* desire it, and restating the fact that one desires it begs the question.

There are then reasons to be hesitant to attribute this position to Hobbes, and his scientific study of the human mind entails an alternative interpretation. As noted above, Hobbes does not deny us the capacity to experience the "appearance, or sense of Good". It is an experience we have, known to us from introspection, and one of the "appearances or effects of nature" that he wishes to explain as a natural philosopher. His explanation takes the form of the hypothesis that some motion (an 'endeavour') in the body causes the appearance. That is why "all Appetite, Desire, and Love, is accompanied with some Delight [that is, sense of Good]".⁹⁴ The appetites and aversions that feature so prominently in Hobbes' definition of deliberation, then, belong primarily to the mechanical explanation of the appearance of goodness. What one considers in deliberation are the good and evil consequences of the contemplated actions, the possible courses of action in light of their apparent goodness or evilness. As Hobbes puts it in his debate with Bramhall, "deliberation is nothing else but so many wills alternatively changed, according as a man understandeth or fancieth the good and evil sequels of the thing concerning which he deliberateth".⁹⁵ Deliberation *consists in* endeavours or "wills", but deliberation is not *about* these endeavours. To think so is to ignore Hobbes' method and the distinction between the "appearances or effects of nature", known from introspection, and generative explanations of those appearances in a mechanical account of "some ways and means" by which they may be produced.

This answers the question in what sense having a desire for something gives one a reason to pursue it. Hobbes gives an account of the prescriptive nature of passions in terms of the appearance of goodness. We take ourselves to have reason to pursue the object of our appetite because and to the extent that it appears good to us. This in turn answers the question in what sense the laws of

⁹² Gauthier 1969, 7; Hampton 1986, 29. Similarly, Gauthier 1979, 548.

⁹³ L, 39.

⁹⁴ L, 40.

⁹⁵ EW V, 401f.

nature are “dictates of Reason”. Reason can “dictate” because it produces considerations about good and evil prospects of one’s actions: it prescribes certain actions as means to ends *that we apprehend as good* and worthy of pursuit.⁹⁶ We know the normativity associated with the laws of nature from introspection and its existence is therefore self-evident. Hobbes’ scientific explanation of the appearance of goodness, though, shows that it does not have a correlate in the way things are in themselves.⁹⁷ This account of the prescriptive quality of the laws of nature, grounding Hobbes’ moral and political philosophy, is shaped in fundamental respects by Hobbes’ scientific study of the human mind.

7 Concluding Remarks

I have argued that Hobbes’ study of the human mind is structured by the method of what he calls “physics”, which proceeds by providing hypothetical mechanical causes for manifest experiences. This method can be understood as an attempt to save the Aristotelian definition of scientific knowledge while taking into consideration the importance of observation and experience. Hobbes applies this method both to the inanimate natural world and to mental phenomena known through introspection. By outlining Hobbes’ methodological commitments in psychology, it becomes possible to dispel some longstanding difficulties in the literature. First, I have shown that Hobbes’ reliance on introspection is not, as maintained by some commentators, inconsistent with his commitment to mechanical explanation because it forms a constitutive element of the method of physics. Second, I have shown that the introduction of psychological phenomena into his philosophical system is not unwarranted, as claimed by those who thought that Hobbes proceeded by deduction. I also rephrased the objection of these commentators by arguing that Hobbes’ approach to the human mind fails because Hobbes cannot demonstrate that the mechanical causes he identifies are sufficient to produce intentionality. Finally, I have shown how Hobbes derives a meta-ethical claim about the nature of goodness from his mechanical study of the human mind. This should give pause to those commentators who have thought

⁹⁶ As Hobbes summarises his derivation of the laws of nature: “all men agree on this, that Peace is Good, and therefore also the way, or means of Peace, which (as I have shewed before) are *Justice, Gratitude, Modesty, Equity, Mercy*, & the rest of the Laws of Nature, are good” (L, 111).

⁹⁷ See Darwall 2000, 330, for further discussion on whether “knowledge of the projective character of ethical judgments undermine ethical thought and practice”.

that it is obvious that no mechanical reconstruction can be relevant for the study of the intentional psychological realm.⁹⁸

Works by Hobbes

- Cor Thomas Hobbes. 1994. *The Correspondence*, in two volumes. Ed. N. Malcolm. Oxford.
- DCo Thomas Hobbes. 1841. “Elements of Philosophy”. In *The English Works of Thomas Hobbes*, vol. I. Ed. W. Molesworth. London.
- DH Thomas Hobbes. Hobbes, 1972. “On Man”. In *Man and Citizen*. Ed. B. Gert. New York.
- EL Thomas Hobbes. 1969. *The Elements of Law: Natural and Politic*. Ed. F. Tönnies. London.
- EW Thomas Hobbes. 1839–45. *The English Works of Thomas Hobbes of Malmesbury*, in 11 volumes. Ed. W. Molesworth. London.
- L Thomas Hobbes. 1996. *Leviathan*. Ed. R. Tuck. Cambridge.
- LN Thomas Hobbes. 1999. “Of Liberty and Necessity”. In *Hobbes and Bramhall on Liberty and Necessity*. Ed. V. Chappell. Cambridge.
- OL Thomas Hobbes. 1839–45. *Thomae Hobbes Malmesburiensis Opera Philosophica Quae Latine Scripsit Omnia*. Ed. W. Molesworth. London.

Aristotle. 1984. *Posterior Analytics*. In *The Complete Works of Aristotle* (The Revised Oxford Translation, vol. 1). Ed. J. Barnes. Princeton.

Arp, R. 2002. “Re-thinking Hobbes’s Materialistic and Mechanistic Projects”. *Hobbes Studies* 15, 3–31.

Bacon, F. 2000. *Francis Bacon: The New Organon*. Eds. L. Jardine/M. Silverthorne. Cambridge.

Barnouw, J. 1980. “Hobbes’s Causal Account of Sensation”. *Journal of the History of Philosophy* 18, 115–30.

–. 1989a. “Hobbes’s Psychology of Thought: Endeavours, Purpose and Curiosity”. *History of European Ideas* 10, 519–45.

–. 1989b. “Respice Finem: The Importance of Purpose in Hobbes’s Psychology”. In *Thomas Hobbes de la Metaphysique à la Politique*. Ed. M. Bertman/M. Malherbe. Paris, 47–61.

Berns, L. 1987. “Thomas Hobbes”. In *History of Political Philosophy*. Eds. L. Strauss/J. Cropsey. Chicago, 370–94.

Bird, A. 1996. “Squaring the Circle: Hobbes on Philosophy and Geometry”. *Journal of the History of Ideas* 57, 217–31.

⁹⁸ I would like to thank George Hoare, Noel Malcolm, Johan Olsthoorn, Mark Philp, Thomas Pink, and Klem Ryan, the participants of the Hobbes Session of the Manchester Political Theory Workshop 2011, and the anonymous reviewers for this journal for very helpful comments on earlier drafts of this paper.

- Brandt, F. 1928. *Thomas Hobbes' Mechanical Conception of Nature*. Copenhagen.
- Brentano, F. 1924. *Psychologie vom empirischen Standpunkt*. Hamburg.
- Darwall, S. 2000. "Normativity and Projection in Hobbes' 'Leviathan'". *Philosophical Review* 109, 313–47.
- Descartes, R. 1985. *The Philosophical Writings of Descartes, Vol. 1*. Eds. R. Stoothoff/R. Cottingham/D. Murdoch. Cambridge.
- Gabbey, A. 2004. "What was 'Mechanical' about 'The Mechanical Philosophy'?" In *The Reception of the Galilean Science of Motion in Seventeenth-Century Europe*. Ed. C. R. Palmerino/J. Hijssen. Dordrecht, 11–23.
- Galileo. 1957. "The Assayer". In *Discoveries and Opinions of Galileo*. Ed. S. Drake. New York.
- Gauthier, D. P. 1969. *The Logic of Leviathan*. Oxford.
- . 1979. "Thomas Hobbes: Moral Theorist". *The Journal of Philosophy* 76, 547–59.
- Gert, B. 1965. "Hobbes, Mechanism, and Egoism". *The Philosophical Quarterly* 15, 341–9.
- . 1967. "Hobbes and Psychological Egoism". *Journal of the History of Ideas* 28, 503–20.
- . 1996. "Hobbes's Psychology". In *The Cambridge Companion to Hobbes*. Ed. T. Sorell. Cambridge, 157–74.
- Hampton, J. 1986. *Hobbes and the Social Contract Tradition*. Cambridge.
- . 1992. "Hobbes and Ethical Naturalism". *Philosophical Perspectives* 6, 333–53.
- Herbert, G. B. 1989. *Thomas Hobbes: The Unity of Scientific and Moral Wisdom*. Vancouver.
- Horstmann, F. 2001. "Hobbes on Hypotheses in Natural Philosophy". *The Monist* 84, 487–501.
- Jesseph, D. 2004. "Galileo, Hobbes, and the Book of Nature". *Perspectives on Science* 12, 191–211.
- Johnston, D. 1986. *The Rhetoric of Leviathan: Thomas Hobbes and the Politics of Cultural Transformation*. Princeton.
- Leijenhorst, C. 1996. "Hobbes's Theory of Causality and its Aristotelian Background". *The Monist* 79, 426–48.
- . 2002. *The Mechanization of Aristotelianism: The Late Aristotelian Setting of Thomas Hobbes' Natural Philosophy*. Leiden.
- . 2007. "Sense and Nonsense about Sense: Hobbes and the Aristotelians on Sense Perception and Imagination". In *The Cambridge Companion to Hobbes' Leviathan*. Ed. P. Springborg. Cambridge, 82–108.
- Locke, J. 1976. *An Essay Concerning Human Understanding*. Ed. P. H. Nidditch. Oxford.
- Macpherson, C. B. 1985. "Introduction" to *Thomas Hobbes' Leviathan*. New York.
- Malcolm, N. 2002. *Aspects of Hobbes*. Oxford.
- Mintz, S. 1962. *The Hunting of Leviathan*. Cambridge.
- McNeilly, F. S. 1966. "Egoism in Hobbes". *The Philosophical Quarterly* 16, 193–206.
- . 1968. *The Anatomy of Leviathan*. London.
- Missner, M. 1977. "Hobbes's Method in Leviathan". *Journal of the History of Ideas* 38, 607–621.
- Nagel, T. 1974. "What is it Like to Be a Bat?". *Philosophical Review* 83, 435–50.
- Overhoff, J. 2000. *Hobbes's Theory of the Will: Ideological Reasons and Historical Circumstances*. Lanham.
- Peters, R. S. 1956. *Hobbes*. London.
- Peters, R. S./H. Tajfel 1957. "Hobbes and Hull – Metaphysicians of Behaviour". *The British Journal of the Philosophy of Science* 8, 30–44.
- Raphael, D. D. 1977. *Hobbes: Morals and Politics*. London.

- Sacksteder, W. 1988. "Hobbes and Talaska on the Order of the Sciences". *Journal of the History of Philosophy* 26, 643–7.
- . 1990. "Hobbes's Science of Human Nature". *Hobbes Studies* 3, 35–53.
- Spragens, T. A. 1973. *The Politics of Motion: The World of Thomas Hobbes*. Lexington.
- Strauss, L. 1952. *The Political Philosophy of Hobbes*. Chicago.
- Sorell, T. 1996. "Hobbes's Scheme of the Sciences". In *The Cambridge Companion to Hobbes*. Ed. T. Sorrell. Cambridge, 45–61.
- Taylor, A. E. 1908. *Thomas Hobbes*. London.
- Tuck, R. 1988. "Hobbes and Descartes". In *Perspectives on Thomas Hobbes*. Ed. G. A. J. Rogers / A. Ryan. Oxford, 11–41.
- Tuck, R. 1989. *Hobbes*. Oxford.
- Vaughan, G. 2001. "The Audience of Leviathan and the Audience of Hobbes' Political Philosophy". *History of Political Thought* 22, 448–71.
- Watkins, J. W. N. 1965. "Philosophy and Politics in Hobbes". In *Hobbes Studies*. Ed. K. C. Brown. Oxford, 237–262.