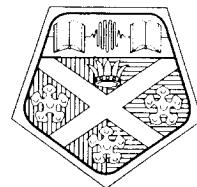


STRATHCLYDE PAPERS ON GOVERNMENT AND POLITICS



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by

Gabriella Slomp
(University of Strathclyde)

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Manfredi M. A. La Manna
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No.110

1998

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AND POLITICS**

(Series Editor: Wolfgang Rüdig)

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**ISSN 0264-1496
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**Department of Government
University of Strathclyde
GLASGOW G1 1XQ
Scotland, UK.**

HOBBS, ARROW, AND ABSOLUTISM[†]

Gabriella Slomp^(*)

*Department of Government
University of Strathclyde
Glasgow, Scotland UK*

and

Manfredi M.A. La Manna^(**)

*Department of Economics
St Salvator's College
University of St Andrews
St Andrews, Scotland UK*

ABSTRACT

A fundamental difficulty with the rational-actor approach to Hobbes's political philosophy is its inability to account for his contractarian solution to the problem of the establishment of the political state. We show how, by taking the *impartial-observer* approach that underlies social-choice theory, the relationship between the state of nature and the political state can be formalized as an impossibility theorem and its solution. We show how the irrationality of a return to the state of nature can be derived from a set of undemanding assumptions and how Hobbes's claim that the only stable political arrangement is absolutism rests on some of the very assumptions underlying Arrow's own impossibility theorem.

Keywords: Hobbes, social contract, social-choice theory, impossibility theorems.
Word count: 7,743.

[†] We wish to thank a referee for very helpful comments on an earlier draft.

^(*) e-mail: g.slomp@strath.ac.uk

^(**) e-mail: mlm@st-and.ac.uk

Introduction

Hobbes's ambition, as expressed in the Preface to the Reader in *De Cive* was to create a philosophical system that organised and explained everything that could be explained, from cosmology to morals, from natural science to politics. Samuel Mintz¹ showed that Hobbes's contemporaries did indeed see his materialism and his politics as parts of a single whole. Since the end of the last century the view that Hobbes's political stance derives "from his personal circumstances and the events of his time"² rather than from his general philosophy has gained credence and the relationship between his natural science and his politics has become a matter of controversy. In the preface to *The Political Philosophy of Hobbes* Leo Strauss argued that "the real basis of Hobbes's political philosophy is not modern science"³. In a similar vein, A.E. Taylor contended that Hobbes's ethics is a very strict deontology "disengaged from the rest of his philosophy, with which it has no logically necessary connection"⁴. Howard Warrander, too, claimed that Hobbes's theory of political obligation must be separated analytically from his natural philosophy⁵. The camp, led by Strauss, Taylor, and Warrander, that claims that Hobbes's political theory is completely unrelated to his natural science, has found both critics and supporters in the second half of this century. Indeed since the 1940s all major interpreters have felt the need to take sides on this substantive interpretative issue. Amongst Hobbes's interpreters of the 1960s and 1970s, two are particularly worth mentioning in this context. John Watkins in 1965 argued that "some of Hobbes's political ideas are implied by some of his philosophical ideas"⁶. Thomas Spragens regarded his book *The Politics of Motion. The world of Thomas Hobbes*⁷ as the study of "the relationship of natural philosophy and political philosophy in Hobbes" and claimed that "there is considerable interaction between the two and the results

¹ Samuel I. Mintz, *The Hunting of Leviathan*, Cambridge: Cambridge University Press, 1962.

² George Croom Robertson, *Hobbes*, Edinburgh: William Blackwood & Sons, 1886, p. vi.

³ Leo Strauss, *The political philosophy of Hobbes. Its basis and its genesis*, Chicago and London: University of Chicago Press, 1936, p. ix.

⁴ A.E. Taylor, "The ethical doctrine of Hobbes", *Philosophy*, vol. 13, 1938, 406-24, p. 408.

⁵ Howard Warrender, *The political philosophy of Hobbes. His theory of obligation*, Oxford: Clarendon Press, 1957.

⁶ John W.N. Watkins, *Hobbes's system of ideas. A study in the political significance of philosophical theories*, London: Hutchinson, 1973 edition, p. 8.

⁷ Thomas A. Spragens, *The Politics of Motion. The world of Thomas Hobbes*, London: Croom Helm, 1973.

of this interaction are significant for the final content of Hobbes's political theory" (p. 36).

The position taken by Watkins and Spragens, who argue that the very *content* of Hobbes's political ideas was significantly influenced by his scientific views, must be distinguished from the standpoint taken by Oakeshott who argued instead that there is a distinctive *form* of reasoning which provides the only common thread unifying the entire Hobbesian construction⁸.

The many rational-choice interpreters of the last few decades have seen the endorsement by Hobbes of instrumental rationality and of the "compositive-resolutive" methods as the chief debt to science of his political construct. Although this trend by no means encompasses the whole of recent Hobbesian scholarship, Hobbes's proud admission to have been the founder of a new science of politics has never been taken more seriously than by the game-theoretical school of Hobbesian interpreters (such as Gauthier, Kavka, and Hampton). Unfortunately, the theorists who have taken Hobbes's scientific claims seriously are the very same theorists who argue that his overall scientific project is, in the last analysis, a failure (e.g., Hampton).

This paper takes sides on this controversy. It argues that indeed Hobbes wanted to create an exact science of politics, that he did deploy an instrumental notion of rationality, and that he applied to politics the scientific method he had found in Euclid. We claim that game-theoretical interpretations have in the main overlooked Hobbes's remarks on the similarities between geometry and political science and have been mistaken in concentrating entirely on the study of individual actions in the state of nature (what we call the "rational-actor" approach⁹), rather than considering the point of view of Hobbes, the Euclid of politics, namely the "impartial-observer" standpoint.

In the present paper we advance two substantive arguments: (1) we claim that a novel and deeper understanding of Hobbes's political theory can be obtained by distinguishing between two different analytical approaches, which we shall refer to as the rational-actor and the impartial-observer perspectives. We argue that, while Hobbes himself deployed both, the latter is the more revealing and theoretically sound, whereas the former plays a more rhetorical

⁸ Michael Oakeshott, 'Introduction to *Leviathan*', in *Hobbes on civil association*, Oxford: Blackwell, 1946 revised 1974, pp. 1-74.

⁹ For an analysis of the strengths and limitation of applying this approach to Hobbes's state of nature see Gabriella Slomp and Manfredi La Manna, "Hobbes, Harsanyi and the Edge of the Abyss", *Canadian Journal of Political Science*, vol. 29, March 1996, pp. 47-70.

role.¹⁰ (2) We substantiate our claim by showing how within the impartial-observer approach the relationship between the state of the nature and the political state can be formalized in terms of an impossibility theorem and its solution. We suggest that both the method and the assumptions used can be traced back to Hobbes's own writings with such a degree of textual correspondence to justify the title of the paper.

The reference to Arrow's Impossibility Theorem is not coincidental in so far as we suggest not only that social-choice theory, rather than game theory, provides the appropriate analytical key to unlock Hobbes's 'conclusion of reason', but also and more fundamentally that there is a surprisingly strict correspondence between Arrow's impossibility result and Hobbes's claim of the logical necessity of an absolute sovereign.

1. Rational actor vs. impartial observer

By 'rational actor approach' we mean the game-theoretical perspective rational where individuals, whose payoffs typically depend not only on their own actions/choices but also on other individuals', optimize some objective function. In the context of Hobbes's political construct, this implies asking the question of how rational individuals would behave if they happened to find themselves in the state of nature. Depending on the specific preference rankings that individuals are assumed to entertain, different games can be obtained, ranging from prisoner's dilemmas to some variety of 'fowl' games (e.g., chicken, hawks and doves). The method deployed by a typical game-theoretical model applied to Hobbes's theory can be summarised as follows. First, given the preference ranking (typically, in terms of glory and self-preservation) of each individual, specify their payoffs; secondly examine the characteristics of the resulting non-cooperative game.¹¹

¹⁰ In another piece, Slomp (*Thomas Hobbes and the Political Philosophy of Glory*, chapter 8, Macmillan, forthcoming) shows how by distinguishing between these two levels the often-conflicting interpretations of Hobbes's political construct found in the secondary literature can be reconciled. In the present paper we do not relate our model to the substantial literature on Hobbes either from a game-theoretical perspective (e.g., G. Kavka, *Hobbesian Moral and Political Theory* (Princeton: Princeton University Press, 1986)), J. Hampton (*Hobbes and the Social Contract Tradition* (Cambridge: Cambridge University Press, 1986)) or from a historical/rhetorical angle (e.g. D. Johnson, *The Rhetoric of 'Leviathan': Thomas Hobbes and the Politics of Cultural Transformation*, Princeton: Princeton University Press, 1986; Q. Skinner, *Reason and Rhetoric in the Philosophy of Hobbes*, Cambridge: Cambridge University Press, 1996).

¹¹ See Slomp and La Manna, "Hobbes, Harsanyi and the Edge of the Abyss" for an analytical survey and critique of this approach.

The problem of the relationship between state of nature and political state can also be analysed from an altogether different perspective, that of the 'impartial observer'.¹²

As the name suggests, the emphasis is no longer on 'action', but on judgement: each individual is assumed to be able to take a standback position, free from any 'perturbation of the mind' and to ascertain the implications of certain 'axioms of reasons'. This detached state of mind can only be attained within a civil association, i.e., when the fear of being killed by others has been removed and hence reason can work unhindered by 'over-riding fear'. In this perspective, the state of nature is not, as in the rational-actor approach, a hypothetical stage on which the drama of the interactions of glory-seeking agents is acted out, but instead has a status akin to a myth in so far as the state of nature is seen as an ever-present threat that individuals must strive to prevent from materialising, acting on the basis of the preferences and information sets they hold as members of the political state.

Of course, this change of perspective would be immaterial if the sets of assumptions determining (i) individual behaviour in the state of nature (in the rational-actor approach) and (ii) individual judgement of the state of nature (in the impartial-observer approach) were to turn out to be identical. As we argue below, this is not the case.

2. Method and assumptions

Somewhat immodestly, Hobbes considered himself the founder of *two* sciences: 'Optiques ... and ye other of Natural Justice, which I have done in my book *De Cive*, ye most profitable of all other'.¹³

By 'science' Hobbes means the logical derivation of the implications from given assumptions. The ideal Hobbes is aspiring to is, of course, geometry:

He was forty years old before he looked on geometry; which happened accidentally. Being in a gentleman's library Euclid's Elements lay open and 'twas the forty-seventh proposition in the first book. He read the proposition. 'By G-, said he, this is impossible!' So he read the demonstration of it, which referred him back to such a

¹² Although reminiscent of Adam Smith's 'impartial spectator' and indeed closely related to it especially in its 'man within' version, our impartial observer need not possess the Stoic features of his/her Smithian relative; see A. Smith, *Theory of Moral Sentiments*, edited by D.D. Raphael and A.L. Macfie (Oxford: Clarendon, 1976).

¹³ Thomas Hobbes, *The English Works of Thomas Hobbes* edited by W. Molesworth, vol. VII (London: Longman, Brown, Greens, and Longmans, 1845), 471.

proof; which referred him back to another, which he also read. And so forth, that at last he was demonstratively convinced of that truth. This made him in love with geometry.¹⁴

In geometry Hobbes found what he then called ‘the resolutive/composite method’ that would help him first among philosophers ‘understand commonwealth’¹⁵; ‘amongst all the writers on civil philosophy none hath used an idoneous principle of tractation’.¹⁶

In brief, the method consists in specifying a set of assumptions and then, by using the ‘original foundation of all ratiocination, of all philosophy’¹⁷, namely the principle of non-contradiction, working out their logical implications.

Especially in view of the distinction between rational-actor and impartial-observer approaches, it is important to specify who is assumed to be aware of the assumptions on which both approaches rest.

In a rational-actor model, the assumptions describe individuals’ information sets, preferences, strategies, and the way the resulting game is played. Each agent must be aware of all the assumptions (indeed, Common Knowledge is itself one of the assumptions). As to the ultimate implications of the model, whether they be war, peace, or some other solution, they can be worked out by each agent, as well as by ‘the theorist’.

In the impartial-observer approach it is the theorist who selects a set of assumptions and computes their logical implication which is then presented to any willing impartial observer to make a judgement upon.

Whereas only the theorist (more specifically, Hobbes) can be expected to be able to work out the ‘subtle’ implications of the model, everybody can appreciate them:

though this may seem too subtle a deduction to be taken notice by all men ... yet the laws of nature have been contracted into one easy sum intelligible to the meanest capacity¹⁸.

¹⁴ John Aubrey, *Brief Lives* edited by R. Barber (Woodbridge: Boydell Press, 1982), 151-2.

¹⁵ Thomas Hobbes, *The English Works of Thomas Hobbes* edited by W. Molesworth, vol. I, *Elements of Philosophy* (London: John Bohn, 1839), 74.

¹⁶ Thomas Hobbes, *De Cive*, edited by H. Warrander (Oxford: Clarendon, 1983), 4.

¹⁷ Hobbes, *Elements of Philosophy*, 19.

¹⁸ Thomas Hobbes, *Leviathan* edited by R. Tuck (Cambridge: Cambridge University Press, 1991), 82.

Notice that the active role played by the ‘theorist’ does not imply any Platonic elitism in so far anyone is assumed to be able to take on the role of impartial observer:

the rule of just and unjust, sufficiently demonstrated and from principle evident to the meanest capacity have not been wanting; and notwithstanding the obscurity of their author, have shined not only in this but in foreign countries to men of good education.¹⁹

Of course, and this is one of the substantial differences between the two approaches, whereas in the rational-actor case by assumption individuals cannot fail but act rationally, in the impartial-observer case only under certain circumstances can individuals afford to take the role of detached spectators.

This is seen most clearly when Hobbes explains under what conditions can people understand the natural laws:

‘It is true that hope, fear and ambition ... and other perturbation of the mind do hinder a man so, as he cannot attain to the knowledge of these laws; but there is no man who is not sometimes in a quiet mind’²⁰.

As we shall see below, a ‘quiet mind’ cannot be attained under natural conditions and thus individuals can assume the role of impartial observers only in a civil association.

Again in contrast with the rational-actor approach, where individuals acting in the state of nature are modelled as having an innate ability to turn preferences into actions (or, at least, as being able to learn to do so), in the impartial-observer approach, the ability of calculating the logical implications of a set of assumptions is neither innate nor learnt by experience, but requires, for the few who are able to absorb it, the sort of education and application that are available only in a well-developed civil association: ‘the skill of proceeding upon general and infallible rules called Science which very few have ... [is] not being a native faculty born with us ... nor attained (as Prudence) while we look after somewhat else’.²¹

¹⁹ Thomas Hobbes, *Behemoth or the Long Parliament* edited by F. Tönnies (London: F. Cass, 1969), 39.

²⁰ Hobbes, *De Cive*, 55.

²¹ Hobbes, *Leviathan*, 87.

We can now focus on those assumptions that are necessary and sufficient to underpin Hobbes's model and that, as we shall point out, are substantially weaker and thus less objectionable than his own:

Glory (G): *there are at least three glory-seekers, i.e., individuals whose objective is to experience the pleasure of power over others.*

This is a substantial weakening of Hobbes's original assumption, as expressed in *Elements of Law* and *De Cive* where Hobbes has no doubt that the pursuit of glory is the very essence of being human: 'all the mind's pleasure is either glory or refers to glory in the end'²².

Glory is an extremely complex concept in Hobbes's theory and this is not the place even for a cursory analysis. However, we have to devote some space to Hobbes's notion of glory for it has far-reaching consequences for the feasibility of individual rational choice.

First, let us recall that for a glory-seeker, the pursuit of glory provides the very criterion of choice. How does the Hobbesian individual select which action(s) to perform? No theory of individual, let alone collective, choice can be formulated without imposing some restriction on the way people choose. Perhaps the mildest requirement one could impose is that choice be in some sense 'consistent'. Sen²³ argues that there are cases where perfectly reasonable patterns of choice fail to satisfy even the least demanding criterion of 'internal' consistency, such as *basic contraction consistency (Chernoff condition)*, which requires that if action a is chosen from a set A then it must be chosen from any subset of A . So if I choose bananas out of menu of bananas, apples, and pears, I must choose bananas out of a more restricted menu such as bananas and pears, or bananas and apples.

We argue that glory-seeking behaviour would typically fail to satisfy the Chernoff condition. Consider the simplest violation of the Chernoff condition, i.e. suppose that an individual chooses action a when faced with the alternatives a , b and c , but prefers b to a when restricted to choose between a and b .

Suppose that a stands for 'running the 100 metres in 10 seconds' and b stands for 'playing the violin'. An athletic glory-seeker with limited musical talent will prefer a to b . Recalling that in order for an action to yield 'true'

²² Hobbes, *De Cive*, 43.

²³ Amartya Sen, "Internal consistency of choice", *Econometrica* 61 (1993), 495-521.

glory (as opposed to 'false' or 'vain' glory²⁴) it must be based on the individual's *true* achievements demonstrating his/her superiority over others in the chosen field, we can see that the same individual who preferred sprinting to violin playing, when faced with the larger menu of *a*, *b*, or *c*= 'run the 100m sprint and take a dose of a widely available performance-enhancing drug', may quite reasonably choose to play the violin instead of trying to prove his athletic prowess in the 100m sprint, because the availability of a performance-enhancer would diminish the pleasure of superiority afforded by running a potentially 'dirty' sprint on the track.

This simple example shows that in analysing glory-seekers it would be impossible to trace choices back to some consistent pattern of preferences without spelling out the 'external' context of choice itself. As a result, if a theorem is to be proved establishing the impossibility of reaching consistent decisions under natural conditions, a strategy other than Arrow's must be deployed²⁵ for it would be pointless to establish that no consistent decisions can be obtained from *inconsistent* individual choices.

If glory underlies one of the 'two maximes of humane Nature', i.e. that 'arising from the *concupiscent* part, which desires to appropriate to it selfe the use of those things in which all others have a joynit interest'²⁶, self-preservation provides the other: 'The rational part of human nature teaches every man to fly a contranatural dissolution [violent death] as the greatest mischief that can arrive to nature'²⁷.

Self-preservation (S): *there are individuals who regard violent death at the hand of others to be the 'greatest mischief'.*

Again assumption S is much weaker than Hobbes's own in so far it does not require universality. In fact, if we analyse the relationship between glory, self-preservation and rationality we see that we could dispense with S as an independent assumption. By positing that 'the rational part' prescribes a specific pattern of behaviour, may seem to contradict Hobbes's instrumental view of rationality ('Every man by reasoning seeks out the means to the end

²⁴ On true, false, and vain glory see Thomas Hobbes, *The Elements of Law Natural and Politic*, edited by F. Tönnies (London: F. Cass, 1969), 36.

²⁵ Kenneth Arrow, *Social choice and individual values*, (New York: Wiley, 1963, 2nd ed.); Amartya Sen, *Collective choice and social welfare* (San Francisco: Holden-Day; reprinted Amsterdam: North-Holland, 1979)

²⁶ Hobbes, *De Cive*, 27.

²⁷ *Ibid.*

which he propounds to himself²⁸). The contradiction disappears as soon as the prescription to avoid violent death is seen as the condition necessary to experience glory. In fact, as glory is defined as the pleasure of superior power, it follows that one must be alive in order to experience it²⁹. However, we retain S as an independent assumption as a way of stressing the absolute precedence of the avoidance of violent death over any other consideration in the glory-seeker's preference system: 'of the good things experienced by men none can outweigh the greatest of the evil ones, namely, sudden death'.³⁰

Excellence (EX): *there are at least three glory-seekers each of whom believes, and is believed by others, to excel in one activity.*

The role of this assumption is to highlight the effects of glory-seeking in the state of nature. To a Hobbesian citizen the notion of there being at least three individuals who seek glory and who excel in three distinct activities is eminently acceptable; indeed it would be very difficult to accept its opposite (and thus say that there can never be three excellent glory-seekers). Notice that no such judgement could ever be made by an individual living in the state of nature (i.e., the individual whose behaviour is formalized in the rational-actor approach). In fact, as Hobbes remarks repeatedly, in the state of nature there are no common standards not only of judgement ('scarce two men agree ... what is to be called good, and what evil; what liberality, what prodigality; what valour, what temerity'³¹), but even of measurement³². All glory in the state of nature is vain glory: 'the question who is the better man has no place in the condition of meer Nature; where ... all men are equal'³³.

²⁸ Hobbes, *Leviathan*, 177.

²⁹ 'necessity of nature maketh men to will and desire *bonum sibi*, that which is good for themselves, and to avoid that which is hurtful; but most of all that terrible enemy of nature, death, from whom we can expect the loss of all power, and also the greatest bodily pains in the losing' (Hobbes, *The Elements of Law*, 71, emphasis added). In this respect, the distinction between 'fame after death' and 'glory' (Hobbes, *Leviathan*, 71) is crucial.

³⁰ Thomas Hobbes, *Thomas White's De Mundo Examined* edited by H.W. Jones (London: Bradford University Press, 1976), 408. Interestingly, there is only one exception, namely, the Leviathan himself whose 'honour, riches, and means whereby to delight the mind, as no private man's wealth can attain unto' (Hobbes, *The Elements of Law*, 138-9) can 'balance the incommodity' of the 'danger to his person' involved in being the head of state. Notice that even this one exception applies to the political, and not to the natural, state.

³¹ Hobbes, *The Elements of Law*, 23.

³² See the reference to the arbitrariness of 'pint, quart': Hobbes, *The Elements of Law*, 188.

³³ Hobbes, *Leviathan*, 107.

Unrestricted Liberty (UL): *under natural conditions there is no superior power capable of enforcing any rule of behaviour.*

UL defines the state of nature as the state in which each individual has a ‘right to all things’.

Equality (E): *no individual is superior to any other in his ability to kill others.*

This is simply Hobbes’s oft-repeated view that ‘the weakest has strength enough to kill the strongest’³⁴. We defer the analysis of the status of assumption E to the next section.

3. Hobbes’s Impossibility Theorem

The assumptions listed above give rise to the following ‘conclusion of reason’: *Hobbes’s Impossibility Theorem: In natural conditions (UL) all individuals who seek to achieve glory (G, EX) and to preserve their life (S) will engage in the one activity (trying to kill others) which yields no glory (E) and leads to death.*

Consider the case in which each of three individuals, A, B, and C is known, by himself and by the other two, to excel in one and only one activity. With no loss of generality let A, B and C be *excellent* respectively in activity *a*, *b*, and *c* (where *a*, *b*, and *c* are all distinct). As to the two activities individuals do not excel in, each individual believes to have a chance in demonstrating his superiority to his opponent, provided the latter is not excellent in it. It is simple to see that, as long as the menu of alternatives is restricted to *a*, *b*, and *c* no individual can even attempt to attain glory. Consider individuals B and C: in order for either to be able to experience glory, each cannot engage in the activity the other is known to be excellent in. This rules out the case where the (B,C) pair chooses either *b* or *c*. However, if they were to choose the only remaining alternative, *a*, they both would end up ‘dejected’, for activity *a* would also be chosen by individual A, who could then prove himself to be excellent, thereby experiencing true glory. As the same reasoning applies to each pair of individuals, it follows that the only ‘stable’ outcome is one in which individuals A, B and C, by each choosing a different activity (respectively *a*, *b* and *c*), do not engage in any social intercourse and hence cannot ‘strive for superiority’ and attain glory. Obviously the only way

³⁴ Hobbes, *Leviathan*, 110.

A, B, and C can be in a position to experience glory by adding a fourth activity, *d* (distinct from *a*, *b*, and *c*) in which nobody excels. To proceed in the argument now we have to specify the content of the fourth alternative in terms of glory, self-preservation and the external environment.

Consider the case in which a fourth alternative, *d*, stands for 'trying to dispossess some individual of his means of survival'.

As in the state of nature by definition there is no superior power to enforce common rules of behaviour, it follows that it is feasible for any individual to choose *d*. Suppose that any two individuals were to choose any alternative other than *d*. Then the third individual will choose *d*, i.e., will try to dispossess either of his means of survival, because in so doing he would be able to exercise the most basic form of power over the individual whose survival he would control. Notice that the success of the attempt to dispossess another individual of his means of subsistence is guaranteed by the fact that by assumption the latter is engaged in some other activity. This 'other activity' cannot be 'trying to resist attempts by others to dispossess one of one's means of survival' for in the estimation of a glory-seeker such an alternative would always be dominated by *d*. In fact the chances of succumbing are no smaller for the defender than for the attacker (who can enjoy the advantage of surprise) and the chance of experiencing glory is positive for the attacker and zero for the defender. As a result, *all* glory-seekers will choose *d*. Notice that so far we have appealed to assumptions G, EX and UL to produce conflict amongst glory-seekers. By using assumption S we can see how the conflict sparked off by glory-seekers spreads to any individual who regards his physical integrity as being of paramount importance and is willing to resort to the most effective way of preserving it³⁵. Thus, *everyone's* self-preservation is put in danger and thus must be protected in the most efficient manner, namely by removing the source of the threat by *killing* all others:

'I demonstrate in the first place that the state of men without civil society is nothing else but a mere war of all against all'³⁶.

³⁵ In Hobbes's construct individuals who are not prepared to oppose attempts by others to kill them are irrelevant, in two senses. In a rational-actor perspective, i.e. on the assumption that the state of nature is acted out, such people would be literally eliminated; in an impartial-observer context, individuals who do not attach over-riding value to their self-preservation would not be interested in Hobbes's recipe for 'immortal peace'.

³⁶ Hobbes, *De Cive*, 34.

The key assumption that turns killing from a potentially winning strategy into an inherently self-defeating endeavour is, of course, Equality: as by assumption all individuals are equally able to kill, the state of war generated by G, EX, S, and UL cannot yield victory to anyone:

‘war is perpetual in its own nature, because in the regard of the equality of those that strive, it cannot be ended by victory’³⁷.

In a war among equals, not only no lasting glory is possible, but, more importantly, nobody’s life is safe as ‘equal powers opposed, destroy one another’³⁸.

What we have shown is that the five assumptions G, EX, UL, S, and E taken together produce a contradiction, *if analysed from an impartial-observer angle*. In fact, Hobbes’s Impossibility Theorem can be paraphrased as saying that any impartial observer (i) whose objective necessitates his being alive (S); (ii) who admits the possibility that at least some people are glory-seekers (G) and excel in some activity (EX); (iii) who acknowledges the frailty of the human frame and accept that individuals do not differ in the ability to kill each other (E), cannot consistently prefer a state with no enforced rules of behaviour (UL). In Hobbes’s words:

‘He therefore that *desireth* to live in such an estate, as is the state of liberty and right of all to all *contradicteth* himself’³⁹.

Now we can pause to analyse some of the substantive differences between the impartial-observer and rational-actor approaches. Apart from assumption EX, that can only be formulated in the former approach, the main difference between the two perspectives relates to the assumption of Equality and points to the superior explanatory power of the impartial-observer standpoint.

There is a plethora of passages in all his political works where Hobbes states that equality ought to be admitted/accepted/acknowledged⁴⁰. All these are obviously consistent with the impartial-observer standpoint, where individuals enjoying the benefit of a civil association and whose preservation is therefore

³⁷ Hobbes, *De Cive*, 49.

³⁸ Hobbes, *The Elements of Law*, 34.

³⁹ Hobbes, *The Elements of Law*, 73; emphasis added; see also Hobbes, *De Cive*, 49.

⁴⁰ See Gabriella Slomp, “Hobbes and the equality of women”, *Political Studies*, vol. 42 1994, pp. 441-452.

guaranteed by the State can shed the mantle of (vain) glory as far as their (inoperative) ability to kill is concerned and thus acknowledge the universal equality of mankind in this respect.

Not so in the rational-actor approach: if individuals were to be precipitated into a state of nature, any analysis of their behaviour could not be predicated on the assumption of equality, as Hobbes states quite unequivocally:

‘In the condition of meer Nature the Inequality of Power is not discerned but by the event of Battell’⁴¹.

This has far-reaching implications for the ability of most rational-actor models to account for some of the basic features of Hobbes’s theory, above all its contractarian solution. In fact, if in the state of nature individuals cannot be modelled as being aware of their equal ability to kill, some of them, namely all glory-seekers, will always learn of the wisdom of entering a social contract that protects their physical integrity when is too late, after the ‘event of battell’, as before it, their (vain) glory blinds them into believing that they themselves are the best guarantors of their self-preservation.

4. Hobbes’s solution to his Impossibility Theorem: Uni-conditional Obedience.

The power of the impartial-observer approach is best shown in the second step of Hobbes’s intellectual enterprise, i.e., in his suggested solution to the impossibility result established above.

Obviously, as for any impossibility theorem, a solution can be found only by changing some of the underlying assumptions. In view of its very undemanding formulation, assumption G cannot be relaxed as this would imply a dramatic domain restriction (i.e., that out of a population of n individuals at least $n-2$ cannot be glory-seekers). Assumption S, for reasons explained above, cannot be removed if the political significance of the model is to be retained. Assumption EX is also quite weak, as relaxing it would mean denying that there could ever be *any* three activities in which individuals excel. Assumption E, too, cannot be reasonably changed, especially if we recall that in order for its relaxation (i.e., to assume that there is at least one individual

⁴¹ Hobbes, *Leviathan*, 73.

who is superior to others in his ability to kill) to make a difference, it would have to apply not only pair-wise but also against any coalition, i.e., an individual would have to be able to kill all others combined 'by confederacy'. This means that if a solution to the impossibility theorem is to be found, it must be through relaxing UL, which is precisely what Hobbes does:

'I demonstrate ... that all men ... do desire to be freed from this misery [the state of nature] but that this cannot be done except by compact, they all quit that right they have unto all things.⁴²'

It is important to realise the implications of the impartial-observer approach for the establishment of political associations. As individuals living in a political state can, by taking an impartial standpoint, acknowledge the inconsistency of preferring a return to a state of 'right of all to all', likewise they can ascertain the logical necessity of any proposed solution, without having to work it out themselves. This is, of course, especially relevant if the solution involves a 'compact', for in the case of the impartial observer this would simply require a 'virtual contract'⁴³, as opposed to the rational-actor approach, which implies the reaching of an actual agreement among the agents⁴⁴.

As assumption UL states that in natural conditions there exists no power superior to individuals capable of restricting their liberty, it follows that any relaxation of UL must entail the existence of some such power. Hence, we can reformulate the problem as that of defining which function(s) a superior power should have in order for the modified assumption on liberty to be compatible with the remaining assumptions G, S, EX, and E. As the contradiction exposed in Hobbes's Impossibility Theorem would dissolve if (and only if) each individual were prevented from killing others (or, equivalently, if each person's preservation were guaranteed), it is immediately obvious that a minimal function of the superior power must be the

⁴² Hobbes, *Leviathan*, 118; see also Hobbes, *De Cive*, 34; Hobbes, *The Elements of Law*, 75.

⁴³ Iain Hampsher-Monk, *A History of Modern Political Thought* (Oxford: Blackwell, 1992); Russell Hardin, "Hobbesian Political Order", *Political Theory* 19 (1991), 156-180.

⁴⁴ Thus, the impartial-observer approach simply bypasses all the problems involved with the mechanics of the social contract and is immune to the criticism that can be leveled against the alternative rational-actor approach, that there have never been any instances of civil wars being concluded by anything approaching a social contract, as Hobbes himself was very aware: 'there is scarce a Common-wealth in the world, whose beginnings can in conscience be justified' (Hobbes, *Leviathan*, 486).

unconditional protection of every individuals' self-preservation. As soon as this statement is put in terms of social-choice theory, we obtain the remarkable result that Hobbes's claim of the logical necessity of a Leviathan to whom everybody else owes absolute obedience is based on the same logic that supports Arrow's General Impossibility Theorem.

Let x stand for 'every citizen accepts to have his/her liberty curtailed to the extent required to prevent him/her from endangering the self-preservation of other citizens' and y stand for 'all citizens retain their right to all things'. As we have seen above, Hobbes's Impossibility Theorem states that each impartial observer would prefer x to y ⁴⁵.

But then, if three of the assumptions underlying Arrow's General Possibility Theorem⁴⁶ hold, it follows from Sen's Group-Contraction Lemma (Sen, 1995) that there must be a dictator. In fact this lemma states that if a group of individuals is 'decisive' (i.e., can make its preferences over a pair of alternatives count, irrespective of the preferences of the individuals outside the group), so can a smaller group belonging to it. This argument can be repeated until the group cannot be further divided, i.e., when it contains only one individual - a dictator⁴⁷.

This argument vindicates Hobbes's repeated claim that only undivided sovereignty would provide stable government and 'immortall peace'.

The argument developed so far is perfectly consistent with a liberal interpretation of Hobbes's theory, in so far it merely shows that the dictator can impose his preferences merely over one pair of alternatives - the most minimal state imaginable. However, when we combine the Group-Contraction Lemma with the other lemma required to prove Arrow's theorem, the Field-

⁴⁵ Strictly speaking Hobbes's theorem says that each individual regards x to be at least as good as y (xRy), but here and below nothing is lost by considering the case of strict preference (xPy), as all statements in the text can be re-phrased in terms of weak preference.

⁴⁶ Namely, Unrestricted domain, Pareto principle, Independence of irrelevant alternatives.

⁴⁷ For the readers' benefit, we reproduce here the sketch of the proof as provided in Amartya Sen, "Rationality and Social Choice", *American Economic Review* 85 (1995), 1-24. Call a group G decisive over a pair $\{x,y\}$ iff $[xPy \text{ for all } i \text{ in } G] \text{ if and only if } [xPy]$ irrespective of the preference of individuals not in group G . Partition G into G_1 and G_2 . Let everyone in G_1 prefer x to y and x to z while everyone in G_2 prefers x to y and z to y . The preferences of individuals not in G are immaterial. Now if x is socially preferred to z , then G_1 would be decisive over this pair, for only the individuals in G_1 prefer x to z . In order for G_1 not to be decisive over $\{x,z\}$ it must be the case that z is regarded as socially at least as good as x . Combining this with the fact that by assumption x is socially preferred to y (otherwise G would not be decisive over $\{x,y\}$) and with transitivity, it follows that z is socially preferred to y . But only members of G_2 strictly prefer z to y and thus are decisive over this pair. So either G_1 or G_2 are decisive.

Expansion Lemma, we can recognise the true Hobbes's Leviathan in all his spectacularly anti-liberal splendour. This lemma states that if an individual is decisive over a *single* pair of alternatives, then he is decisive over *every* pair of alternatives - an absolutely comprehensive dictator⁴⁸.

Thus Hobbes's argument can be summarised as follows: any impartial observer who acknowledges the inconsistency of preferring the state of nature to a political state that guarantees his/her physical integrity must also accept the necessity of an absolute dictator.

To appreciate the deep anti-liberal features of Hobbes's solution we only need look to the extent of the constraint on individual liberty that it implies:

the Obligation, and Liberty of the Subject, is to be derived ... from the End of the Institution of Sovereignty, namely the Peace of the Subjects within themselves, and their Defence against a common Enemy.⁴⁹

If any restriction, however mild, were to be imposed on the way in which the Leviathan chose how to pursue his paramount objective - the 'Peace of the Subjects'- the very reason for the establishment of a political state would disappear. In terms of obligation and obedience, this means that as long as the Leviathan protects his subjects' physical integrity, they owe him absolute obedience, i.e., cannot object to any constraint being imposed on their behaviour: 'When therefore our refusal to obey, frustrates the End for which the Sovereignty was ordained; then there is no Liberty to refuse: otherwise there is'⁵⁰.

More accurately, citizens owe the Leviathan *uni-conditional* obedience, i.e., absolute obligation contingent only on the State guaranteeing the subject's physical integrity: 'Since no man is tyed to impossibilities, they who are threatened with death or wounds ... are not obliged to endure them'⁵¹.

⁴⁸ For ease of reference we reproduce a sketch of Sen's proof: let *i* be decisive over $\{x, y\}$. We can then show that he is also decisive over a different pair $\{a, b\}$. Using *U*, assume that $aP_ixP_jyP_ib$, while everybody else prefers *a* to *x* and *y* to *b*, but rank the other pairs in any way whatever. Because of the Pareto principle *P* *a* is socially preferred to *x* and *y* to *b*; using the decisiveness of *i* over $\{x, y\}$ and transitivity it follows that *a* is socially preferred to *b*. This result cannot be due to the preferences of everybody except *i* over pairs other than $\{a, b\}$, for it would violate the independence assumption *I* and thus must be due to the fact that *i* prefers *a* to *b*.

⁴⁹ Hobbes, *Leviathan*, 150.

⁵⁰ Hobbes, *Leviathan*, 151.

⁵¹ Hobbes, *De Cive*, 58-59, see also 57.

This, of course, does not mean that the Leviathan may not allow his subjects some freedom of action; indeed, the Leviathan may find it advantageous to introduce rules of 'good and bad, right, and wrong, *meum et tuum*' that would enable individuals to pursue ends such as glory.

It should be stressed that the pursuit of glory, profit, etc., is not a citizen's right, but merely an incidental by-product of the measures introduced by the State to enhance its security and thus can be taken away at any time and does not carry any right to resistance⁵².

5. Concluding remarks

In this paper we suggest that in addition to the much studied rational-actor approach, in Hobbes's work there is also an impartial-observer approach that can claim at least as much textual support as the former and is heuristically superior in so far as it provides a consistent foundation to Hobbes's contractarianism.

Given its analytical focus, the paper cannot address the question *why* Hobbes deployed both analytical perspectives. We may only speculate that perhaps the former, more intuitively understandable angle was used to make his work more widely appreciated and thus had a mainly rhetorical function, whereas the latter was directly inspired by his discovery of Euclid's method of proceeding from definitions and assumptions to conclusions, and indirectly influenced by Hobbes's admiration for Thucydides' impartial account of human events.

Whereas the interpretation of the meaning of these two approaches is open to discussion, it seems to us that their co-existence in Hobbes's discourse is undeniable.

We claim that by acknowledging that Hobbes conducts his argument on two levels a number of apparent inconsistencies can be resolved. In particular, we suggest that in analysing Hobbes's intellectual enterprise as the formulation and solution of an impossibility theorem we can find the answer to the problem of the justification of Hobbes's contractarianism that has plagued the rational-actor approach ever since its inception. More generally, we reclaim

⁵² In M. La Manna and G. Slomp, "Leviathan: Revenue-Maximizer or Glory-Seeker?", *Constitutional Political Economy*, 5 (1994), 159-172 we explore the relationship between the Leviathan as principal *vis-à-vis* citizens as agents and contrast it with Brennan and Buchanan's Leviathan model of government where citizens are the principal and the Leviathan the agent (see G. Brennan and J. Buchanan, *The power to tax* (Cambridge: Cambridge University Press, 1980)).

the relevance of Hobbes's theory, seen from an impartial-observer perspective, for the debate on the logical foundations of liberalism.

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