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Science and Ethics: tracing parallels and contrasts between Science, Relativism and Utilitarianism

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In Plato's *Theaethetus*, Protagoras tries to defend the claim that 'man is the measure of all things'. The objections of Socrates destroy this claim, but, in spite of this, relativism has resurfaced repeatedly in the course of history in various forms. The epistemological version holds that claims involving knowledge and truth are relative to time, to place, to background principles, and so on. In short, such claims are relative to the standards used in evaluating them. Protagoras' version was basically epistemological, because he held that a thing 'is to me such as it appears to me, and is to you as it appears to you' (152^a). As regards ethics, relativism retains its basic character. It becomes the thesis that moral appraisals are essentially dependent on the standards within a social group. Nowadays, cultural, historical, and geographical diversity shows, certainly more than in Plato's time, how different such moral standards can be.

Utilitarianism is not directly related to relativism. It is a moral theory with two major characteristics: first, it treats pleasure or desire-satisfaction as the only element in human good; second, it regards the morality of actions as entirely dependent on consequences or results for human well-being. The simplest version of utilitarianism is a form of hedonism: pleasure and pain are the only indications that are relevant for the evaluation of human living. In Jeremy Bentham's words, 'Nature has placed mankind under the governance of two sovereign masters, *pain* and *pleasure*.'¹

The study of relativism and utilitarianism are crucial today. As regards the former, two reasons come to mind. First, relativism seems to have a power of survival that defies philosophical argument. As mentioned above, more than two thousand years ago, Socrates had uncovered its crucial inconsistency: if man is a measure of literally all things, the very idea of measure evaporates. Hence a global relativism based on the vague idea of 'true *for me*' is inconsistent. Holding this thesis means sawing off the branch on which one is sitting. The amazing thing is that, in spite of this straightforward refutation, relativism enjoys great popularity among ordinary people. Why are people taken in so easily? There must be some further issues worth examining. The second reason involves the rhetoric of relativism. This seems to have the specific task of drawing attention to something very useful, namely the variety of viewpoints available for the same given reality, each viewpoint giving rise to a particular interpretation. This idea is essentially an extrapolation from visual experience,

¹ J. Bentham, *Introduction to the Principles of Morals and Legislation* [1789], London 1982, chapter 1.

where one and the same landscape is perceived from different perspectives corresponding to each observer. In a sense, relativism seems to remind us that, the more perspectives we have, the better will be our overall appreciation. As regards utilitarianism, it is easy to see the reasons behind its strength and popularity as an ethical theory. These lie in its ability to replace the confusion that often exists in common-sense moral intuitions with a unified, accessible system of thought. It treats all moral questions in a uniform fashion and applies the analytical approach that has proved so serviceable in natural science. Because of the quasi-mathematical nature of the theory, much of what is done in economics depends on utilitarian doctrines.

What I propose to do in this paper is to concentrate primarily on theoretical aspects. This does not mean I will avoid all mention of ethics. I assume, with Aristotle, that ‘the end of theoretical knowledge is truth, while that of practical knowledge is action’ (*Metaphysics* 993^b 20), but I also assume, following the same Aristotle, that theoretical and practical reason are intimately related.² Moreover, I acknowledge that, since the spectacular rise of the natural sciences around the fifteenth century, the search for truth has been associated, sometimes exclusively, with the method of these sciences. Given these two starting points, my project can be formulated as follows: to explore what we can learn from a comparison between the methods of science and the major issues of relativism and utilitarianism.

1. Science and Relativism

Relativism can be understood better when contrasted to its opposite, absolutism, according to which there exists one description of the world, true for all viewpoints, that determines whether any statement is true or false. Absolutism is often associated with natural science, seen by many as the discipline that is uniquely cumulative, progressive, and beyond all particular view-points. Relativism is usually associated with disciplines like ethics and aesthetics, where debate is often difficult and therefore better avoided, in line with the maxim *de gustibus non est disputandum*.

If this distinction is correct, science and ethics are essentially different, and the difference is explained precisely by reference to relativism. Recent studies on this point have concentrated on the very nature of these two disciplines. For instance, Bernard Williams distinguishes sharply between science and ethics in the following way.³ On the one hand, as regards science, we can hope that, on each question, our inquiries will show a convergence on an answer. And the best explanation of the convergence involves ‘the idea that the answer represents how things are’ (p. 136). This is because our scientific concepts are linked *causally* to what happens in the world. Moreover, Williams holds that science can provide the basis for an absolute conception of the

² For instance *De Motu* VII, 701a8-12: ‘But how is it that thought is sometimes followed by action, sometimes not; sometimes by movement, sometimes not? What happens seems parallel to the case of thinking and inferring about immovable objects. There the end is the truth seen (for, when one thinks the two propositions, one thinks and puts together the conclusion) but here the two propositions result in a conclusion which is an action — for example whenever one thinks that every man ought to walk, and that one is a man oneself, straightaway one walks.’

³ Bernard Williams, *Ethics and the Limits of Philosophy*, London: Fontana, Collins, 1985, chapter 5. This chapter is crucial to my argument here. Important commentators include: Hilary Putnam, ‘Objectivity and the Science-Ethics Distinction’, in: *The Quality of Life*, edited by M. Nussbaum and A. Sen, Oxford: Clarendon Press, 1993, pp. 143-157; Nicholas Jardine, ‘Science, ethics and objectivity’, in: *World, Mind, and Ethics: essays on the ethical philosophy of Bernard Williams*, ed. J.E.J. Altham and R. Harrison, Cambridge University Press, 1995, pp. 32-45; Christopher Hookway, ‘Fallibilism and objectivity: science and ethics’, in: *World, Mind, and Ethics: essays on the ethical philosophy of Bernard Williams*, ed. J.E.J. Altham and R. Harrison, Cambridge University Press, 1995, pp. 46-67.

tion of the world. In his words, this conception is ‘to a maximum degree independent of our perspective and its peculiarities’ (p.138). On the other hand, as regards ethics, Williams is convinced that we cannot hope that our inquiries will yield any such convergence guided by the way things really are. There is no causal effect of the world on the way we define and use ethical concepts, like right and duty, good and evil. Moreover, there is no space for an explanation of our perspectival ethical concepts by resorting to a deeper level of explanation that is allegedly absolute, as is done in science when description in terms of primary qualities is used to explain the description in terms of secondary qualities.

In my view, Williams is here polarising the issue too much. He employs a simplified version of both science and ethics. In fact, some reflection will show that science is not as absolutist as he takes it to be. Nor is ethics as relativist as he seems to imply. Let us take science first. If science is indeed as Williams portrays it, we need to give an account of world-guided convergence. Some philosophers of science, like Richard Boyd, have offered an acceptable causal explanation that stretches from entities in the world to our observation and theory.⁴ This simple picture, however, is not enough. To be realistic, we need to consider science in its entirety. We need to stretch all the way from the theoretical entities in the world via experimental outcomes in their being observed, via interpretation of results, publication of papers, and thence via the whole international complex of debates and negotiations that result in a consensus being reached. The processes of calibration of instruments, of replication of experiments, of debate over the reliability and credibility of experimenters, of selection and presentation of findings for publications, and so on, are extremely complex. Consensus regarding particular experimental findings, such as the consensus on the value of the charge of the electron, is simple. In such cases a high degree of world-guided convergence may be expected. Consensus as regards the acceptability of an entire theory, however, is very complex. There is no clear idea of world-guided convergence here. Pierre Duhem’s studies show how particular cases of causal contact with reality are never enough to justify our decision for or against an entire theory.⁵ His famous thesis of holism means that the causal link gives way to other criteria, such as simplicity of explanation, and so on. And being guided by theoretical simplicity is not *world-guidedness*. The upshot is that Williams is exaggerating the element of world-guided convergence in science. This discipline is not as absolutist as he thinks.

As regards ethics, his judgement is exaggerated in the opposite sense. He seriously underestimates the degree of objectivity that some respectable moral theories can enjoy. Consider, for instance, an Aristotelian-style naturalistic approach to ethics. Here a virtue is a disposition needed for human well-being to be optimised in a given society. Now purely conventional factors cannot ensure that human well-being be optimised. There must be some conditions linked to how humans are that are satisfied in such societies. For instance, societies that do not cater for essential biological human needs cannot be said to be optimising human well-being, whatever their culture or

⁴ For instance: Richard Boyd, ‘Realism, Approximate Truth, and Philosophical Method’, in: *Scientific Theories*, edited by C. Wade Savage, Minnesota Studies in the Philosophy of Science (volume 14), Minneapolis: University of Minnesota Press, 1990, pp. 355-391.

⁵ He writes: ‘le physicien ne peut jamais soumettre au control de l’expérience une hypothèse isolée, mais seulement tout un ensemble d’hypothèses; lorsque l’expérience est en désaccord avec ses prévisions, elle lui apprend que l’une au moins des hypothèses qui constituent cet ensemble est inacceptable et doit être modifiée; mais elle ne lui désigne pas cell qui doit être changée.’ *La théorie physique, son objet et sa structure*, Paris: Chevalier & Rivière, 1906, p. 307.

conventions. How food is cooked is a matter of convention, but the fact that there must be food to ensure the livelihood of members of society is not. The idea of virtue is here anchored on such naturalistic considerations. Any discussion, therefore, on a particular virtue may be inscribed within a converging inquiry commanded by objective factors, namely by what really aids towards the optimisation of well-being.⁶ The consequence is that ethics is not necessarily as relativist as Williams seems to imply in his dichotomy between science and ethics.

In line with these reflections, I will argue that science and ethics can be seen as quite similar because they both have an objective dimension and a relativist, or perspectival, dimension.⁷ Hence I want to defend an element of objectivity for both ethics and science, sliding neither towards rigid absolutism nor towards global relativism. I will do this by showing that there are indeed plausible ways of understanding what I will call ‘open objectivity’. I will mention two ways.

Precedents

The first way involves the idea of precedent. In general, a precedent is a previous case or legal decision that is taken as a guide for subsequent cases. In terms of precedents, the idea of open-objectivity involves not world-guided convergence but precedent-guided convergence. This has been proposed by Nicholas Jardine.⁸ He explains it by referring to how a belief can be justified. In *causal* justification, the given belief is sustained by methods that are described in causal terms. For instance, the belief that the charge of the electron is 1.602×10^{-19} C is sustained by referring to a causal chain of events, essentially the various experimental measurements, that result in this belief as its final effect.

In justification *by precedent*, the belief is supported by methods considered reliable by testing against independently warranted precedents and standards. This model holds for both science and ethics. In science, instruments are calibrated and research strategies are promoted or attacked by appeal to their track records. For instance, when, during the eighteenth century, the orbit of the planet Uranus was observed to be persistently irregular within the Newtonian paradigm, astronomer Urbain Le Verrier did not consider Newton’s theory falsified. He persevered in the face of contrary evidence. He justified this attitude by reference to the excellent track record

⁶ This point is very well defended in Martha Nussbaum, ‘Non-relative virtues: an Aristotelian Approach’ in: *The Quality of Life*, edited by M. Nussbaum and A. Sen, Oxford: Clarendon Press, 1993, pp. 242-269.

⁷ My use of the term perspectival derives primarily from visual experience, within a realist context. A recent study I found very useful is: Miranda Fricker, *Perspectival Realism*, unpublished D.Phil thesis, Oxford University, 1996. Some uses of ‘perspectival’ minimise the element of responsibility to an external reality. For instance, Friedrich Nietzsche’s much discussed perspectivism is more concerned with the human desire to dominate. The idea of an objective truth, over and above the various perspectives, cancels out. In his *Der Wille zur Macht* § 616, he writes: ‘Dass der Werth der Welt in unserer Interpretation liegt [...] geht durch meine Schriften. Die Welt, die uns etwas angeht, ist falsch, d.h. ist kein Thatbestand, sondern eine Ausdichtung und Rundung über einer mageren Summe von Beobachtungen; sie ist “im Flusse”, als etwas Werdendes, als eine sich immer neu verschiebende Falschheit, die sich niemals der Wahrheit nähert: denn – es giebt keine “Wahrheit”.’ For some appreciation of Nietzsche’s nuanced views on perspectivism, I’m indebted to: Maudmarie Clark, *Nietzsche on Truth and Philosophy*, Cambridge University Press, 1990; Steven D. Hales, *Nietzsche’s Perspectivism*, Urbana University of Illinois Press, 2000;

⁸ Jardine, Nicholas, ‘Science, ethics and objectivity’, in: *World, Mind, and Ethics: essays on the ethical philosophy of Bernard Williams*, ed. J.E.J. Altham and R. Harrison, Cambridge University Press, 1995, pp. 32-45.

that theory had in explaining the behaviour of other celestial bodies. His perseverance paid well, because he used Newton's theory to postulate the existence of a yet-undiscovered planet, which was then found exactly as he said, and was named Neptune.⁹

Something similar happens in ethics. Ethical arguments whose validity is at issue in one context are criticised in terms of their acceptable or unacceptable results in other contexts. Consider the distinction, drawn within the context of philosophy of law, between statute-law and case-law. The term 'statute-law' refers to the idea that a set of rules are instituted with the aim of binding all future cases. In this way, the community in which such legislation occurs may be said to found or create its identity, partly or wholly as the case may be, precisely by the establishment of such laws. In the context of science, Karl Popper may be singled out as an example of a philosopher who adopted the statute-law approach to establish the logical structure of scientific method once and for all. The term 'case-law', on the contrary, refers to the principles and rules laid down in judicial decisions together with the generalisations based on past decisions of courts and tribunals for *particular* cases. The fundamental point about case-law is that these previous cases are looked upon as normative. Resolved cases set a precedent. They are considered the source of rules to be applied for new cases. Courts reach decisions with the knowledge that their decisions are laying down *strong indications* which will be followed in the future by later courts. This is quite different from the laying down of a definite system of laws for the entire future.¹⁰

My claim is that this way of understanding how both scientific and ethical inquiry proceeds is a plausible form of open-objectivity. The idea of precedent-guided convergence, corresponding to the case-law approach, is open in the sense that past experience is considered a source of education on how to face the future without renouncing the responsibility of breaking new ground. It is objective in the sense that it does not involve arbitrary decision-making. In this perspective, we accept the reality of a certain continuity in history and yet we accept also the reality of possible deep changes at the level of the rules of method. We do not wilt in the face of pure novelty but remain open to readjust our categorical framework, if need be, in an act of intellectual conversion.

Primary and secondary precepts

The second way of accounting for open-objectivity involves the distinction between primary and secondary precepts of natural law. I draw inspiration here from St. Thomas Aquinas. He conceives of ethics as *scientia practica*, with the task of making universal principles specific in order that they can meet the assorted requirements of particular cases. He was well aware of the difference between theoretical reason, which is mathematical and scientific in character, and practical reason. In *S.T. Ia-IIæ Q94*, he writes:

In the case of specific conclusions of theory, the truth obtains among all, even though it is not equally known to all. For instance, it is true among all men

⁹ Urbain J.J. le Verrier (1811-1877) was one of the prominent scientists who, inspired by the return of Halley's comet in 1835, developed the idea of the perturbing agency of planets beyond Uranus. For a study of how Newtonianism set a precedent for many generations after him, see: Simon Schaeffer, 'Newtonianism' in: *A Companion to the History of Modern Science*, R.C. Olby, G.N. Cantor, J.R.R. Christie & M.J.S. Hodge, (eds.), Routledge, 1996, pp. 610-626.

¹⁰ Statute-law and case-law approaches for scientific activity are mentioned in A.F. Sanders, *Michael Polanyi's Post-Critical Epistemology*, Amsterdam: Rodopi, 1988, pp. 138-145. I develop the discussion in: L. Caruana, *Holism and the Understanding of Science*, Aldershot, UK: Ashgate, pp. 102-104.

that three angles of a triangle are equal to two right angles, even though not everybody knows this. But in the case of specific conclusions arrived at by practical reason it is not the same truth or practical correctness that holds among all men, nor among those where the truth is the same and equally known. From this principle it is possible to advance the specific conclusion that goods held in trust should be restored to their rightful owner. Now this is true in the majority of cases. But a particular case may possibly arise in which it would be injurious, and therefore unreasonable, to restore any goods held in trust; so for example, if the goods were claimed for the purpose of fighting against one's country.¹¹

To solve this problem, Aquinas resorts to the distinction between primary and secondary precepts. The primary principles of natural law are equally well-known to all and are immutable. The secondary principles, being proximate conclusions from the foregoing principles, are formulated at the level of action and neither apply in all circumstances nor, when they do apply, are always known. To some people, this neat distinction between two levels may appear somewhat simplistic. A continuum of various shades between the two ends of the precept-spectrum may be more appropriate. My aim here, however, is concerned with the question of levels. It is rather to examine one possible, coherent way of describing what I called 'open objectivity', and the openness factor lies at the secondary-precept end. In fact, the secondary precept is formulated according to the circumstances, and is thus variable.

In this sense, as I see it, there is a kind of relativism in Aquinas. This situation is somewhat similar to what we experience when, say, we want to draw water from a garden well. We buy a pump, but we need to fix it up in a particular way for our particular well. The fixed pump, pipes, hooks and all, has a form relative to the surroundings, but the central pump on sale is always the same. How to fix it requires our intelligence. But no two gardens are the same. What works well for fixing the pump in one garden may not be suitable for another garden.¹²

This kind of relativism does not affect the moral dimension of our action. Even though the precept is expressed relative to the circumstances, it is still morally binding. The element of open-objectivity lies here. We acknowledge the idea of natural law as an abstract idea corresponding to the belief in the divine origin and order of the universe. We acknowledge moreover the fact that some secondary precepts of this natural law are defeasible in their application since they can be confronted with the significant variability that results from the contingent nature of human actions and

¹¹ The crucial expression *ut in pluribus* shows that for Aquinas moral judgements and principles are defeasible in their application because they can be trumped by the emergence of further specifics in particular cases (what Aristotle called *καθ' ἕκαστα*, cf. *Nic. Eth.* I. 3, 1094b 11-27). Note also *S.T.* Q96, a.6 ad 3: 'Et si posset legislator omnes casus considerare, non oporteret ut omnes exprimeret, propter confusionem vitandam; sed legem ferre deberet secundum ea quae in pluribus accidunt' (Even were the legislator able to take everything into consideration, he still should not set them all down in detail, for this would lead to confusion; but he should frame a law according to the usual run of things).

¹² Some commentators are highly suspicious of the association of Aquinas with relativism (e.g. F. Copleston, *Aquinas*, London: Barnes & Noble, 1955, p. 219; A. Armstrong, *Primary and Secondary Precepts in Thomistic Natural Law Teaching*, The Hague: Martinus Nijhoff, 1966, pp. 167-8). Their objections however are not directed against the kind of relativism I mention here, which is equivalent to a non-arbitrary variability due to the particular circumstances. See also: D.M. Nelson, *The Priority of Prudence: Virtue and Natural Law in Thomas Aquinas and the implications for Modern Ethics*, University Park: Pennsylvania State University Press, 1992; M.W.F. Stone, 'The Angelic Doctor and the Stagirite: Thomas Aquinas and Contemporary 'Aristotelian' Ethics', *Proceedings of the Aristotelian Society*, vol. 101 (2001), pp. 97-128.

circumstances.¹³

In science, the same point may be made. Many philosophers and scientists assume that there is a single, uniform subject called ‘science’ that is pursued by all scientists in their investigations. This is severely inadequate. What we see is not a single discipline but numerous sciences, each with a different concern. And this is evident even when investigating the same object. Take for instance the melting of the polar ice-caps. Meteorologists study this phenomenon from a physical and climatological point of view, whereas zoologists study the same melting of the ice-caps from a zoological point of view, and ecologists from the ecological point of view. The data is selected according to their various points of view. The data that is relevant for a physicist is different from the data that is relevant to the interests or concerns of a zoologist or of a climatologist. The element of relativism lies here. What is true, in the sense of being relevant, for the meteorologist is not true for the zoologist. It is not true, or rather it is beyond truth and falsity, because it lies beyond the zoologist’s horizon.

Again we see that science and ethics are not as different as Williams seemed to imply. Moreover, I have tried to show that there are at least two plausible ways of avoiding the extremes of total absolutism and total relativism. Both disciplines can be seen as having an objective dimension and a relativist, or perspectival, dimension. The first way is in terms of precedent-guided convergence. The second is in terms of primary and secondary precedents.

2. Science and Utilitarianism

I will proceed with my project by exploring what can be learnt from a comparison between the methods of science and utilitarianism. As I mentioned above, the classic origins of utilitarianism are found in the works of J. Bentham and J.S. Mill.¹⁴ The basic idea is that evaluating action by referring to Divine Law, or to social convention should give way to a consideration of human well-being or happiness as the touchstone for moral evaluation. There seem to be two main reasons for thinking that utilitarianism is closely related to science. First, there is the fact that utilitarianism promises a unified system of moral thought based on the analytical approach that has proved so effective in the natural sciences. In attempting to resolve all moral issues by relying on one uniform ultimate criterion, utilitarianism has appeared to be the ‘rational’ moral theory *par excellence*, on a par with scientific explanation. It allows a formal, neat mode of maximising one homogenous magnitude. It thus offers a standard of consistency and completeness that might seem unachievable otherwise. Secondly, both utilitarianism and science seek to provide liberation from the constraints of voluntaristic and arbitrary systems of thought that would ultimately be dehumanis-

¹³ Situating the Ten Commandments in this picture is important. I am working with the assumption that these commandments were revealed by God not as the one and only starting point for practical reasoning but rather as a help on the way. We could have worked out for ourselves these commandments, but, given our tendency towards self-deception and sluggish thinking, we would have needed a considerably long time. In some crucial areas of life, God in his kindness has revealed the correct answers our practical reason should yield. The Ten Commandments, therefore, are not principles from which our practical reason is meant to start, but indications where it should arrive. This view of things, I take it, was the view of Aquinas: see for instance his discussion on the Law of the Old Testament *S.T. IaIIae Q.100, a.1.*

¹⁴ Especially J. Bentham, *Introduction to the Principles of Morals and Legislation*, first published 1789; John Stuart Mill, *Utilitarianism*, first published 1861.

ing.¹⁵

Further similarity between these disciplines can be also found in some details of their method. Both scientific research and utilitarianism hope to arrive at opinions that will be endorsed by the independent findings of other people. Both disciplines often consider themselves engaged in the task of mapping the real order: science discovering the real contours of the material world, utilitarianism determining the correct course of action for each possible action-situation. Both disciplines accomplish this task in two steps. First they choose some parameters of the objective real world they deal with, then they manipulate these parameters within a ‘calculus’ so as to produce an objective picture that is allegedly beyond any particular view-point. The crucial issue that deserves considerable attention is the step whereby both scientists and utilitarian moral philosophers choose the relevant parameters. What I propose, therefore, is to explore this particular area by comparing the ways concrete situations give rise to theoretical discourse.

Idea and Theory in Science

The classical, technical term associated with this point is abstraction. Having ideas and organising them into theories starts here. Abstraction refers to the mental process by which a person recognises individuals and organises them into groups by identifying unifying features. This is done by accepting some facets of a thing or situation, while other facets are discarded. For example, Aristotle was convinced that an object has not only sensible aspects, that determine how it is perceived, but also intelligible aspects that determine how it is understood as being of one kind rather than another. The intelligible aspects, for example the form of a thing, are grasped through the sensible aspects. In general, human inquirers are faced with innumerable singulars: this tree, that tree, this horse, that horse. These singulars appear as fluctuating colours, shapes, and so on. Through the act of abstraction, rational creatures are able to extract the intelligible aspect from these singulars, and arrive at the idea of tree, horse. This is the Aristotelian story. In a post-Galilean culture like ours, dominated by the scientific mentality, abstraction is better understood in terms of mathematics. It can be seen as the process by which the inquirer identifies the essential geometric and mathematical features of the object or phenomenon under investigation. This is done so as to predict changes in some of the variables involved. For example, a falling stone is seen as a point-mass, a gas as random motion of point-masses, a plant as a self-regulating system needing minerals and light.

Although fundamental, abstraction seems to involve a problem. It is essentially a mental operation that always leaves something out. It neglects those aspects that make the individual unique. To understand a thing or situation, the inquirer must discard the individuality or uniqueness of that thing or situation. Only if one goes beyond, and effectively leaves out, the individual horse, can one grasp the idea of horse as a universal. For natural science, the same thing happens. The shape of the falling

¹⁵ That utilitarianism is related to science in its methods and aspirations is acknowledged even by its opponents. For instance, in *Veritatis Splendor* §76, we find: ‘These theories [consequentialist and proportionalist theories, including utilitarianism in all its forms] can gain a certain persuasive force from their affinity to the scientific mentality, which is rightly concerned with ordering technical and economic activities on the basis of a calculation of resources and profits, procedures and their effects. They seek to provide liberation from the constraints of a voluntaristic and arbitrary morality of obligation which would ultimately be dehumanising. These theories however are not faithful to the Church’s teaching, when they believe they can justify, as morally good, deliberate choices of kind of behaviour contrary to the commandments of the divine and natural law.’

stone is neglected when it is considered a point-mass. Broadly speaking, the aim of science is very often to arrive at the equation that represents many individual things or events. The equation necessarily goes beyond the individuality of each situation described.

For most areas in science, this neglect has no serious consequences. Some systems are so free of complications that we easily forget that abstraction is leaving something behind. For example, explaining the movement of the planets in the Newtonian way, namely in terms of mutual attraction and resulting motion of points in space, leaves practically nothing unexplained. Other systems, however, are notoriously difficult. The situation becomes chronic when the method of the natural sciences is applied without qualification to the human sciences. The latter try to explain areas directly influenced by human decisions. In these cases, the inevitable neglect of the individual due to abstraction can give rise to gross deformities and even injustice.

It is clear, therefore, that for complex issues abstraction may not always offer the same results. Knowledge is often needed for a particular purpose, and this purpose determines the way we abstract. It determines the aspects we retain as relevant and the others we discard as irrelevant.¹⁶ At the start of the scientific revolution, historians identify an interesting shift in attitude. From a vague desire to acquire knowledge for its own sake, Francis Bacon shifts to a desire for a kind of knowledge that guarantees a domination of nature so as to ameliorate the condition of humans.¹⁷ The borderline between relevant and irrelevant changes. The result is that a new map of the given is inaugurated, and it is still with us today. This map is drawn according to the presupposition that nature is something of a menace to be conquered, tamed and exploited for the benefit of humans. When two different versions, or maps, are available for the same reality, the natural question to ask is: which is the correct one? Both maps include some aspects and neglect others. Is therefore the very map-making process a falsifying one since it cannot include all the aspects together?

The problem runs deep. We accept that the real is made up of singulars. We accept that the act of understanding involves leaving out the individuality aspect to arrive at the intelligible universal. It seems necessary to conclude that abstraction is inherently fallacious. It seems to be a process that forbids the knowledge of things as they really are. The Scholastics had debated this point and arrived at the thesis: *abstrahentium non est mandacium*.¹⁸ Through abstraction, our possession of the thing is certainly not complete. We do not have the entire thing in our minds. This fact, however, does not mean that abstraction supplies us with false knowledge. It simply

¹⁶ This point is discussed in various philosophical schools. In the tradition directly concerned with interpretation, hermeneutics, it is often discussed in terms of hermeneutical prejudice, which can be positive or negative. For instance, Hans-Georg Gadamer writes: “‘Vorurteil’ heißt also durchaus nicht: falsches Urteil, sondern in seinem Begriff liegt, daß es positiv und negativ gewerter werden kann. Offenbar ist die Anlehnung an das lateinische *praejudicium* darin wirksam, daß neben dem negativen auch ein positiver Akzent auf dem Worte liegen kann. Es gibt *préjugés légitimes*.” *Wahrheit und Methode*, J.C.B. Mohr (Paul Siebeck), Tübingen, 1975, Teil II, Kap. II, §1a, p. 255.

¹⁷ Bacon writes: ‘Knowledge and human power come to the same thing’, and ‘nature cannot be conquered except by obeying her’ (*Instauratio Magna*, 1,3). For him, the purpose of science is the extension of the dominion of the human race over nature.

¹⁸ Neglecting some characteristics of a thing in order to explore one aspect more fully does not involve deception, provided that the fact of neglecting these characteristics is not denied. Aristotle was aware of this point, at least as regards mathematics: ‘That is why he [the mathematician] separates them; for in thought they are separable from motion, and it makes no difference, nor does any falsity result, if they are separated. The holders of the theory of Forms do the same, though they are not aware of it.’ (*Physics*, 193b34).

means that full possession of the thing is not possible via the act of understanding.

This reply merits further investigation. As in most other cases, the Scholastics offer us precious insights as regards simple, everyday cases but leave us rather unprepared when it comes to more complex cases. Does smoking cause lung cancer? This is a pressing question involving very complex issues. What are we to do when faced with such questions? The realities involved here, namely smoking and lung cancer, are perplexing. The very description of these realities defies consensus. There is a multitude of variables to choose from. It is not difficult to see how various lines of inquiry open up, even when considering the very same question. Moreover, there is the possibility of distortion of reality or outright mistake. This arises when, in the act of abstraction, the neglected aspects turn out to be the important ones and the retained ones the trivial ones. How can this line of reasoning be applied to utilitarianism?

Idea and Theory in Utilitarianism

Just like scientists, defenders of utilitarianism engage in the organisation of ideas to form a theory. The various sciences have varying degrees of possible deformation, depending on their object of study. In the mathematical hard sciences, which may be seen as situated on one end of the spectrum, the possible deformation is often a minimum. This is so because the object of study is usually an ideal case with no interfering causes. In the human sciences, situated on the opposite end of the spectrum, the possible deformation is considerable. The most glaring example is probably the one involving ecology and economics. When we abstract with the attitude of dominating Nature, of considering it a menace to be conquered, tamed and taken advantage of for the benefit of humans, we are essentially retaining some aspects that are in line with one particular project, and neglecting others that are not in line. This kind of abstraction can be devastating. In the words of Michael Northcott who works in the area of environmental ethics,

...the modern money economy operates regardless of natural ecological constraints because its measures of wealth and of exchange relations are abstracted from natural ecological systems. The spatial abstraction of modern economics is so extreme that even were all the rainforests to disappear and sea levels to rise two feet, and the climate warms by 4 degrees and large parts of the world become uninhabitable, individuals and companies who had burnt the energy or consumed the forests in industrial production would still be reckoned wealthy in economic parlance.¹⁹

When, in economics, abstraction is not handled with care, money is considered the only measure of progress. Moreover, wealth in terms of money can obviously be maximised by the destruction of some people's cultures, and even livelihoods. Sad to say, this is the mentality that is becoming global as it dominates both the developed and developing countries world-wide.

My claim is that utilitarianism inevitably sits together with economics at this end of the spectrum, namely the end of high possible deformity in understanding. Abstraction in utilitarianism can result in three main deformations.

The first concerns its omission of persons. Utilitarianism is blind to certain fundamental aspects of the people involved in the situation it is meant to account for. Bernard Williams' famous critique highlights precisely this weakness. In one typical argument, he imagined a man, Jim, who finds himself in the square of a small South

¹⁹ Michael Northcott, *The Environment and Christian Ethics*, Cambridge: Cambridge University Press 1996, pp. 79-80.

American town, confronted by twenty captured Indians.²⁰ The captain who has quashed their rebellion declares that if Jim kills one of them, the others will be allowed to go free; if he does not, they will all die. According to utilitarianism, which considers the goodness of an action to reside in how much it increases the overall sum of happiness, there is no problem for Jim: he should kill one of them. There is, however, a problem. The distinction between my killing someone, and its coming about because of what I do that someone else kills them is crucial. For utilitarians, however, such a distinction is completely invisible. Utilitarianism strips human life of all that makes it worthwhile, failing to take account of each person's integrity, of the projects central to their lives, of the obligations and loyalty owed to family and friends. The abstraction involved here makes an agent a mere source of effects in the world. Essentially, utilitarianism sees persons as locations of their respective utilities. In the utilitarian calculus, 'persons do not count as individuals any more than individual petrol tanks do in the analysis of the national consumption of petroleum.'²¹

The second problem results from the fact that utilitarianism abstracts selectively as regards what constitutes genuine human flourishing. The simplest version of utilitarianism can be seen as a form of hedonism: pleasure and pain are the only indications that are relevant for the evaluation of human living. More recent versions of utilitarianism broaden the idea of pleasure-seeking to include also the seeking of satisfaction or the seeking of happiness. In the version known as direct consequentialism, only the consequences of a singular act are relevant in deciding whether it is good or not. Hence, an act is morally obligatory if and only if it produces a greater balance of pleasure over pain, or of desire-satisfaction, than any alternative action available to the agent. The moral terrain is simplified so as to be amenable to calculation. In fact, direct utilitarianism is essentially a moral theory 'for the ideal case' just as most equations in physics. For instance, the simple equation $s = \frac{1}{2}gt^2$, describing the relationship between distance covered during a free fall of duration t , is intended only as applicable to the ideal case that involves no air friction, no angular momentum, and none of the many other factors that make up real-life situations.

The same thing happens for utilitarianism. Abstracting from the various elements that make up well-being, utilitarianism picks only those factors that allow calculation. It often assumes that only pleasure and pain count. Even if further refinement is added, it is usually done in terms of a kind of ideal observer who has information that transcends the actual social situation. For instance, the 'true' preferences of citizens are often stipulated independently of any expressed preferences by those citizens themselves. The ideal observer is assumed more knowledgeable than the citizens. The fiction of the ideal observer is made even worse by assuming that utilitarianism furnishes us with a *complete* theory, in the sense that it offers a way of arriving at the correct ranking of values or priorities in any kind of conflictual situation. The gross artificiality of this idea is evident when, for instance, a cost-benefit analysis is applied to such subjects as the 'valuation of life' in debates concerning euthanasia. The upshot is that utilitarianism, at least in its direct consequentialist form, abstracts selectively from the complex reality constituting human well-being.

The third problem I would like to highlight concerns another kind of abstraction. This time, our focus will not be on the persons involved, as in problem one, nor

²⁰ J.J.C. Smart & B. Williams, *Utilitarianism: for and against*, Cambridge University Press, 1973, p. 98.

²¹ Amartya Sen, & Bernard Williams, 'Introduction', in: *Utilitarianism and Beyond*, ed. A. Sen & B. Williams, Cambridge University Press, 1982, p. 4.

on the nature of well-being, as in problem two, but on the very morality of the act under consideration. As has already been mentioned, utilitarianism limits itself to the idea that the morality of the act lies in the evaluation of the amount of desire-satisfaction that it produces. Since this version has had to face serious problems, some philosophers tried to avoid direct consequentialism by adopting rule consequentialism, sometimes also called indirect consequentialism. According to rule consequentialism, the rightness of an action depends not on the consequences of the action itself but on the consequences of various sets of rules. Direct consequentialism is different because it evaluates actions in terms of their own consequences, while indirect consequentialism evaluates them in terms of the consequences of holding on to the particular set of rules they represent. For instance, according to indirect consequentialism, but not according to direct consequentialism, it is wrong to kill an innocent person so as to quell a riot that would lead to the killing of many. It is wrong because it would be creating a rule that is harmful for society in the long run.

In spite of this move from direct to indirect consequentialism, the fundamental character of utilitarianism remains, namely its linking the morality of an act exclusively to consequences. Out of the complexity of the morality of an act, only this factor is singled out. Abstraction is again at work, and, this time, what is left out is important. It is certainly not difficult to see how the morality of an act is much broader than consequences only. There are good reasons to hold that what determines the morality of an act includes its object, its end, and its circumstances. I understand the object of the act here as that which is actually done or projected as a possible human accomplishment, as in the case of the object of murder being the killing of an innocent person. In brief, the object of my act is the answer to the question: what am I doing? The end of the act is the purpose or motive for which the agent acts. The question here is: why am I doing it? The circumstances of the act are individuating conditions that, although in themselves not part of the nature of the action, nevertheless modify in some real way its moral quality. For instance when, where, and how I do something may affect whether what I did was right or wrong. Of these various factors, utilitarianism abstracts only the consequences of an action. Apart from the distortion that results from neglecting the other factors, the utilitarian attitude bypasses the important point that the consequences of an action affect its morality only insofar as they are known and willed. If the consequences are known and willed, then they become part of the object or the nature of the act itself. For instance, when the insecticide DDT was commercialised for the same time, the devastating ecological consequences were not known, and certainly not willed. These consequences were only discovered later. It would be absurd to call the initial commercialising of DDT an action that was morally wrong, when no one knew of its consequences.²²

In spite of the foregoing criticism, however, I do not want to claim that utilitarianism is to be damned outright. It remains a plausible moral theory on condition that its abstractive nature is understood and taken into consideration. In other words, it can be a useful tool on condition that it doesn't consider itself a complete theory. In science, more and more variables may be introduced to arrive at closer and closer approximations. For instance the equation of free fall mentioned above may be aug-

²² DDT (the chemical dichlorodiphenyltrichloroethane) was used effectively in World War II to eradicate the mosquitoes that caused malaria. There was hope that it would be the miracle chemical that would rid the world of harmful insects. Rachel Carson blew the whistle in her *Silent Spring*, London: 1963, where she offers convincing proof that the use of such pesticides on one species affect other species, even those living very far away. She insisted that 'in nature nothing exists alone'.

mented so as to include the effects of air resistance, angular momentum, and so forth. In a similar way, utilitarianism may be augmented with the addition of other variables so as to include, in some way, the crucial aspects related to persons, to the nature of the act, and to circumstances.²³

3. *Summing up*

My original aim was to determine what we can learn from a comparison between science, relativism and utilitarianism. I started by analysing the *prima facie* difference between science as essentially absolutist and ethics as essentially relativist, and showed that the two disciplines are not all that different. I defended an element of objectivity for both ethics and science by showing that there are at least two plausible ways of understanding what I will call ‘open objectivity’. The precedent approach corresponds to case-law. The secondary-precept approach involved the distinction between primary and secondary precepts. The basic idea here is that some secondary precepts can be confronted with the considerable variability that results from the contingent nature of human actions and circumstances.

As regards science and utilitarianism, I focused on abstraction. The crucial issue here was the way both scientists and utilitarian moral philosophers choose the relevant parameters for their understanding. Deformation results if the choice of parameters is not correct. My basic argument was that utilitarianism, like economics, tends to sell itself as an exact science that deals with ideal cases, where the factors left out of consideration are negligible. This is deeply problematic, as I showed by considering three specific areas.

If anything, my exploration has shown how the complexity of reality obliges us to be always aware of the limitations of our methods. In general, we can ask: What should we do to gain a clearer and richer view of how things are? The answer is clear: we should see to it that the good ‘informants’ we choose from our group be positioned *differently*. Having different view-points is not just to be tolerated. It is to be encouraged.

²³ Amartya Sen has been working on a formal approach to the understanding of the different components that constitute happiness. He calls them independent vectors that allow a summation indicating the degree to which an individual has a good life. The basic idea here is that a full conception of happiness for an individual is not a single property but consists of various components, to each of which is assigned a weight. The situation becomes complex because we cannot assume that the different possible life courses for an individual are fully comparable or commensurable. This vector-view of the notion of utility is introduced in: A. Sen, ‘Plural Utility’, *Proceedings of the Aristotelian Society*, vol. 81 (1980), pp. 193-218. His related capabilities-approach is well presented in: A. Sen, ‘Capability and well-being’, in: *The Quality of Life*, edited by M. Nussbaum and A. Sen, Oxford: Clarendon Press, 1993, pp. 30-53.