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Against the so-called ‘Standard Account of Method’

Rod Thomas

Explains why the debate initiated by Stephen Lloyd Smith’s plea to jettison the so-called ‘Standard Account of Method’ (SAM)—the conventional wisdom of how research philosophy and methodology ought to be taught to management students—is of the utmost importance to the teaching of management studies in British universities. Identifies a fully-developed presentation of the SAM framework in a well-considered and widely-used textbook—‘Research Methods for Managers’ by John Gill and Phil Johnson—and demonstrates that the book’s argument is both logically and scholarly defective. Identifies the SAM as a form of dogmatic rationalism; one that is oblivious to the possibility of applying deductive inference in the service of a critical rationalism. Outlines the logical role of deductive testing in empirical research and demonstrates that there need be no great divide between nomothetic and ideographic research problems once appropriate distinctions are drawn between different forms of explanation. Nonetheless, questions the relevance of these research problems to the concerns of practising managers by highlighting the contrast, as made by philosophers, between social science and social technology. Concludes that the continued presentation and defence of the SAM, as the conventional wisdom of how research philosophy and methodology ought to be taught to management students, is thoroughly lamentable.

Introduction

Stephen Lloyd Smith’s plea to jettison the textbook account of research methods for managers is unlikely to meet with much success.¹ In giving that textbook account a label, and a label that yields a memorable acronym to boot, he has added to the lexicon of management speak that is so favoured by some business school academics. Indeed, one fears that the phrase ‘the Standard Account of Method’, or the unedifying acronym ‘SAM’, will soon need neither explanation nor citation. Yet as Norma Romm’s response to his paper has already demonstrated, this acronym for a complex of arguments has at least one benefit: it eases the task of subjecting those arguments to critical scrutiny.²

This paper has two goals. First, to examine why the debate that Smith has initiated is of the utmost importance to the teaching of business and management studies in British universities. Second, to consider and to criticise the SAM using arguments that differ from those that were presented by Smith. In fact the paper seeks to demonstrate that the SAM is logically defective in several ways and that it ought therefore to be jettisoned. In order to give that argument some bite and disarm the counter argument that it is tilting at windmills, a textbook presentation of the SAM will be

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¹ Stephen Lloyd Smith ‘Naïve Expertise: Spacious Alternative to the Standard Account of Method’ *Philosophy of Management* Volume 9 Number 3 2010 pp 95-133

² Norma Romm ‘Reconsidering Methodological Arguments: A Commentary on Stephen L. Smith’s Paper ‘Naïve Expertise: Spacious Alternative to the Standard Account of Method (SAM)’ *Philosophy of Management* Volume 10 Number 2 2011 pp 75-90; Stephen Lloyd Smith ‘Afterword: Reply By Steve Smith ‘The New Cuyama 4663’ Problem: A Reply to Norma Romm’ *Philosophy of Management* Volume 10 Number 3 2011 pp 85-102.

examined. The text is *Research Methods for Managers* by John Gill and Phil Johnson, a book which is both widely used and in comparison to many others is quite sophisticated.³

Who Uses the So-called ‘Standard Account of Method’?

Smith’s presentation of the SAM is a composite created from various sources.⁴ This serves to illustrate that the literature on business and management studies is dominated by a dichotomous framework that presents research methodology:

... as a choice between “two traditions”: “qualitative... interpretivism” and “quantitative... positivism”; each the enemy of the other.⁵

As a prelude to examining the defectiveness of the SAM, and whether or not it informs Gill and Johnson’s book, it is important to disarm the objection that the SAM is an invention, or that it lacks any general applicability, and that what one has here is a typical example of the age-old academic past-time of tilting at a straw man or Aunt Sally. A response to that criticism is to show that if SAM is a straw man then he is legion. In point of fact, the sources that Smith cites as illustrations of SAM are numerous and varied. Indeed, he assembles several pages of direct quotations to demonstrate just how ubiquitous this approach to orientating students has become in textbooks on the subject.⁶

Yet who is it that uses SAM and why is it reproduced in such bountiful quantities? An answer to that question might ask one to consider the nineteenth-century economic proposition that ‘supply creates its own demand’, but perhaps not quite with the same sense that Jean Baptiste Say attributed to it.⁷ For instance, it is a so-called ‘benchmark’ requirement that honours and master degree programmes in business and management in the United Kingdom produce graduates with an ability to conduct research into business and management issues by means of projects or dissertations.⁸ Setting aside the remote possibility that the textbooks that are mostly written by academic lecturers miserably fail to meet the needs of most academic lecturers, it would appear that SAM represents the conventional wisdom on how research philosophy and methodology ought to be taught to students of management. It *is* the benchmark. It is the pedagogical means by which British universities meet the quality assurance expectations that are directed toward their degree awards. Hence ‘supply will create its own demand’. Similarly, setting aside the remote possibility that students are intellectually unmoved by SAM, spurn it as a suitor in the conduct of their research, and courageously walk in the footsteps of Socrates by questioning the conventional wisdom that it represents, SAM will inevitably supply a considerable part of the philosophical and methodological insight used to conduct research into business and management related questions and problems, at both the undergraduate and postgraduate level, including research doctorates. Or in other words, demand enables a further supply.

³ John Gill and Phil Johnson *Research Methods for Managers* Fourth Edition London, Sage 2010.

⁴ Some of the principal text-book sources that are cited by Smith are: M.N.K. Saunders, P. Lewis and A. Thornhill *Research Methods for Business Students* London, Pitman 2000; P. Ghauri, K. Gronhaug and I. Kristianslund *Research Methods in Business Studies* New York, Prentice Hall 1995; G. Burrell and G. Morgan *Sociological Paradigms and Organisational Analysis* London, Heinemann 1979; M. Alvesson and H. Wilmott *Making Sense of Management* London, Sage 1996.

⁵ Stephen Lloyd Smith *Op.Cit.* 2010 p 95

⁶ *Ibid.* pp 104-117

⁷ Say’s law is attributed to Jean Baptiste Say (1767-1832): that only the supply of goods and services in an economy can earn the income that enables the demand for the goods and services produced by an economy. See Joan Robinson and John Eatwell *An Introduction to Modern Economics*. Maidenhead, Mcgraw Hill 1973 p 24. For a discussion of the rather different conception of supplier induced demand in university education, see W.W. Bartley III *Unfathomed Knowledge, Unmeasured Wealth. On Universities and the Wealth of Nations* La Salle, Open Court 1990.

⁸ Quality Assurance Agency for Higher Education *Subject Benchmark Statement: General Business & Management*. 2007. Available at: <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-General-business-and-management.aspx>; Quality Assurance Agency for Higher Education *Subject Benchmark Statement: Masters Degrees in Business & Management*. 2007. Available at: <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Masters-degrees-in-business-and-management.aspx> Accessed: 17/01/12

The scale of such activity is considerable. In 2010-11 alone, there were 358,290 full-time and part-time students enrolled to study business and management degrees in the United Kingdom.⁹ Indeed, by student numbers classified by subject, this is the largest constituency of full-time undergraduate and postgraduate students in the UK,¹⁰ with for instance, about 22% of all full-time postgraduate students being currently enrolled on business or management degrees.¹¹ Consequently, the UK market for SAM is very large. Indeed, with over 100,000 students graduating from British universities with awards in the business and management subject area each year, it is simple arithmetic to estimate that around one million students were taught SAM at UK universities over the last decade.¹² Of course, the world-wide market for SAM will be much larger

A Sophisticated Account of the So-called ‘Standard Account of Method’

In place of the composite SAM that is the subject of Smith’s criticism it is perhaps useful to identify a fully-developed presentation of SAM that is really worth attacking. Two qualities are sought: the presentation ought to be well considered and widely used. One candidate by these criteria is John Gill and Phil Johnson’s textbook, *Research Methods for Managers*, which was first published in 1991. The book is now in its fourth edition and has, according to the publisher’s blurb on the cover, ‘... guided countless management research students over the years’. The blurb also includes endorsements from three different Professors at leading British universities. The text explicitly sets out to:

... address key philosophical matters that are basic to any real understanding of the methodological approaches to management research... by engaging in critical reflection upon the philosophical presuppositions that inevitably influence how any research is undertaken.¹³

And having set out to attain this objective it is without much further ado that the book is, by page two, contrasting two approaches to ‘... management research that articulate competing philosophies – induction and deduction’.¹⁴ Indeed, it uses a table which is similar to that of table 1 (below) to summarise its account of the methodological considerations presented by management research; the table contains several terms that are replicated in the more comprehensive, composite version of SAM that is presented by Smith.¹⁵

Nomothetic research methods that emphasise...	Ideographic research methods that emphasise...
Deductive testing of theory	Inductive development of theory
Generation and use of quantitative data	Generation and use of qualitative data
Use of various physical and statistical controls so as to enable the rigorous testing of hypotheses	Preservation of everyday settings as the natural context of behaviour
Explanation via causal relationships (erklären)	Explanation via the understanding of subjective meaning systems (verstehen)

⁹ Higher Education Statistics Agency ‘Statistical First Release 169 – Students Enrolment and Qualifications 2012’. Available at: <http://www.hesa.ac.uk/content/view/2355/393/>. Accessed: 17/01/12.

¹⁰ *Ibid.* Table 3 reveals that in 2010/11 there are more students enrolled on full-time business and administrative courses at both the undergraduate and postgraduate level than on any other subject.

¹¹ *Ibid.* Table 3 reveals that in 2010/11 there are 66,915 enrolled full-time postgraduate students in business and administration out of a total of 310,015. By way of comparison, in 2010/11 there were 124,515 full-time postgraduate students across *all* of the sciences, medicine and allied subjects, mathematics, engineering and technology subject areas.

¹² *Ibid.* Table 4.

¹³ John Gill and Phil Johnson *Op.Cit.* 2010 p xi

¹⁴ *Ibid.* p 2

¹⁵ Stephen Smith *Op. Cit.* 2010 p 100

Hence the preface and opening chapters of Gill and Johnson's book promote the idea that a 'real understanding' of research requires one to understand two competing camps. This contrast is the central feature of the SAM framework as discussed by Stephen Smith and Norma Romm.

The Problem Stated

As a framework for understanding the methods of research relevant to managers, Stephen Smith finds SAM to be an incoherent shambles that cannot even account for the fictional crime-busting investigatory methods of Chief Inspector Morse.¹⁶ Indeed, Smith finds SAM to be so inadequate that he speculates on whether it is the product of a Fordist academy in need of a Kleinian psychoanalytical diagnosis.¹⁷ Norma Romm's riposte is that SAM enriches our perspective of management research by enabling those who study it to appreciate important differences in methodological orientation.¹⁸ Indeed, for Romm, the example of Chief Inspector Morse's fascination with factual evidence, meaning and motive fails to do justice to the concerns and efforts of interpretive social researchers.¹⁹

As perhaps can be appreciated by this somewhat selective précis, the competing claims of Stephen Smith and Norma Romm are too unwieldy to be examined here.²⁰ In place of that, the more manageable problem to be pursued is whether Gill and Johnson's variant of SAM can withstand logical scrutiny. Although the principal target is rather different, this problem is germane to the Smith-Romm exchange, for *if*, as Romm claims, the textbook expositions of SAM *do* help a student to engage in methodological reflection, then one of the most popular and sophisticated textbook expositions in that vein ought to have a good argument at its core, and philosophers traditionally assess an argument in terms of its logical structure. Indeed, this is the central tenet of the kind of popular textbook that is directed toward introducing philosophy students to the practice of their craft, and this is hardly surprising, for surely, the most fundamental form of methodological reflection involves, as the word suggests, the identification of arguments and an assessment of their logical consistency.²¹ Moreover, many of us, including those who have hardly given it much thought at all, would surely expect all graduates of higher education to be able to formulate, assess and criticise arguments; for this is not only the province of logic, or even of philosophy, it is, so to speak, *the* most important benchmark of all who aspire to discover truth through the use of reason in their intellectual activity.²²

The Logical Defects of Gill & Johnson's Variant of SAM

How does Gill and Johnson's variant of the SAM framework shape up when viewed from a logical point of view?

The SAM as an Argument from Authority

The first point to note is that Gill and Johnson's text does *not* begin by addressing the key philosophical matter that is basic to any real understanding of methodological issues in theoretical

¹⁶ *Ibid.* 2010 pp 102-103

¹⁷ *Ibid.* 2010 p 100; pp 103-104

¹⁸ Romm *Op. Cit.* 2011 p 89

¹⁹ *Ibid.* 2011 p 84-85

²⁰ Smith *Op.Cit.* 2010; 2011. Romm *Op. Cit.* 2011

²¹ See, for example, A.P. Martinich *Philosophical Writing An Introduction* Third edition, Oxford, Blackwell Publishing

²² Once upon a time some British universities required that all of their students take courses in general intellectual methods. See, for example, *Words and Numbers. A Students' Guide to Intellectual Methods.* (Ed.) F.R. Bradbury. Edinburgh, Edinburgh University Press 1969. In his foreword of this text-book, produced for the benefit of all undergraduate students of the University of Stirling, the university's then Vice-Chancellor introduced the book as a response to the criticism that British graduates were '... lacking in just the ability to think carefully and simply about new problems'.

research: whether there is a method of research that can justify or support the statements of a theory, or indeed, whether any statement can justify or lend support to any other statement, including itself.

Such questions are surely basic to any real understanding of theoretical research because researchers, whether students or academics, would be anxious to learn whether the conclusions of their research can be justified by its content. A would-be researcher's basic questions might be: Can I show that the conclusions of my research are true? Is there a research method that can be used to derive a true conclusion? Can I use reason to determine the strength of the evidence that my research produces? Can reason and evidence be married so as to produce a true conclusion?

The standard account of method offers next to no account of whether or how these questions can be answered; Gill and Johnson's presentation is no exception because a reader must read one-hundred-and-ninety-one pages of the text before being told that:

Epistemology is a pivotal issue in any form of research for it is about how we know whether or not any claim... made about phenomena we are interested in, is warranted. That is... how do we know that some claim is true or false?²³

Page 191 - how can this be so? My own sense is that presentations of the standard account of method have a varying degree of aversion to matters epistemological, but that they all display a major aversion to matters logical. For instance, as will be argued below, Gill and Johnson fail to consider how logic, as the theory of argument, has implications for the use of empirical evidence in research. On the contrary, Gill and Johnson presuppose—from the very outset—that the key philosophical matter of pertinence to management research is 'philosophical commitment',²⁴ that there are 'competing philosophies',²⁵ or 'alternative criteriologies' (sic).²⁶ Or in other words, from the beginning, there is SAM: a dichotomous framework that demands that a commitment be made to one side or the other.

So despite the fact that philosophy is a highly argumentative discipline, and despite the fact that fundamentally, at least since the time of Socrates, philosophy has concerned itself with the critical questioning of presuppositions, SAM just uncritically supposes and asserts itself. It is usually presented as the philosophical authority in matters methodological and it follows that philosophical questions about SAM become questions about 'commitment' to the elements of SAM. But its authority rests on nothing other than the SAM being the standard textbook account. Consequently, in the standard account, the key philosophical matter basic to any real understanding of research is not the notion of inference, but the notion of deference.²⁷ Logically, as an argument that presents conclusions about the nature of methodology, the standard account has all the hallmarks of being a dogmatic argument from authority.

For instance the opening chapter of Gill and Johnson's book simply presents the presupposed alternatives to which the researcher may commit. To wit: '... deductive research methods... that are designed to test, and indeed falsify, previously formulated theory... with empirical data gathered through the neutral observation of social reality'²⁸, or the supposed alternative that seeks to: '... build theory inductively out of observation of the empirical world'.²⁹ The alternatives are then duly described. The aforementioned deductive approach to testing a theory is presented as that which informs research in the natural sciences and it is, without much reservation at all, labelled as 'positivist'.³⁰ Such positivism is, according to Gill and Johnson, a view that is based on the challengeable assumptions that there is a 'single method' which generates scientific knowledge, that

²³ John Gill and Phil Johnson *Op.Cit.* 2010 p 191

²⁴ *Ibid.* p xi; p 6; p 7; p 18

²⁵ *Ibid.* p 3

²⁶ *Ibid.* p 18

²⁷ I owe this phraseology to Mark A. Notturmo. Cf. 'Inference and Deference: Authority and the Goals of Critical Thinking' In: Mark A. Notturmo *Science and the Open Society. The Future of Karl Popper's Philosophy.* Budapest, Central European University Press 2000 Chapter 6.

²⁸ John Gill and Phil Johnson *Op.Cit.* p 6

²⁹ *Ibid.* p 6

³⁰ *Ibid.* p 13

the method is appropriate for researching the social world, and that the knowledge generated may be deemed 'objective or neutral'.³¹ The reader is informed that '...in the West, for some people', science is demarcated from pseudo-science by use of 'the scientific method'.³² Nonetheless, the reader is assured that '... times are changing and increasing awareness of... the various assumptions... should facilitate... challenges to the positivist mainstream'.³³ This descriptive contrast between the so-called positivist mainstream and its disputants is reformulated in various ways. For instance, it is presented, by reference to the popular book by Burrell and Morgan, as the contrast between 'nomothetic' and 'ideographic' research.³⁴ Elsewhere, the labels 'positivism' and 'interpretivism' are invoked.³⁵

Overall, Gill and Johnson's basic argument is that research requires a commitment to what they call a 'process of deduction' or 'a process of induction' both of which they relate to the notion of 'theory'; a term that they define by reference to the Oxford English Dictionary as follows:

Theory: A scheme or system of ideas or statements held to explain a group of facts or phenomena; a statement of general laws, principles, or causes of something known or observed.³⁶

Gill and Johnson summarise the choices for 'philosophical commitment' with the following diagram:

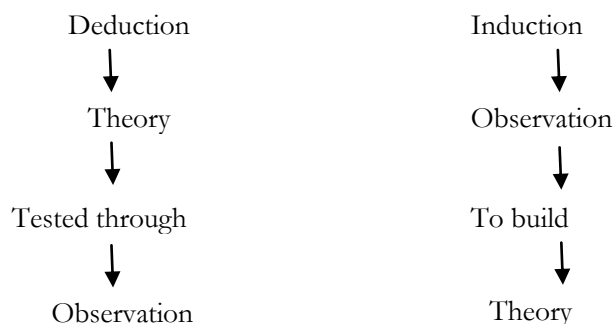


Figure 1: Deduction vs Induction. Source: adapted from John Gill and Phil Johnson *Research Methods for Managers* Fourth Edition, London, Sage 2010 p 7.

In my own experience, a typical student's reaction to the SAM progresses through three stages. In the initial stage a student exhibits anxiety and concern as they fret over which commitment to make. This is followed by the student seeking reassurance from their tutor that they have made the correct commitment. In the third stage, when the student comes to complete their written research dissertation, they discuss the purportedly different approaches to management research—often reproducing something akin to table 1 above—before finally announcing their own philosophical commitment. Interestingly, it is often the more intellectually capable students that fret the most. Perhaps such students have the inkling that the SAM is deeply incoherent, but they lack the requisite time and tutoring guidance to unpick the reasons why. For instance, one obvious dilemma quickly presents itself to a thoughtful student who has dutifully studied something akin to the figure 1 above and has decided to declare that *'I am an inductivist'*. It is simply this: *'Am I being unfaithful to my inductivist philosophical commitment if I conduct a review of the theoretical literature that is of relevance to the topic of my research?'*

On the other hand, there are students—quite possibly those who have only ever previously experienced a highly prescriptive style of teaching and thereby expect to learn by means of

³¹ *Ibid.* pp 13-14

³² *Ibid.* p 14

³³ *Ibid.* p 16

³⁴ *Ibid.* p 65; *Cp.* G. Burrell and G. Morgan *Op. Cit.* 1979

³⁵ John Gill and Phil Johnson *Op. Cit.* 2010 p 53; p60. Their presentation is in close accord with Stephen Smith's discussion of SAM and Burrell and Morgan *Op. Cit.* 1979 is a book which Smith also cites.

³⁶ John Gill and Phil Johnson *Op. Cit.* 2010 p 39

instruction from without—who seem to be so psychologically traumatised by the SAM's supposedly open choice between alternative commitments that they search for a counselor in the form of someone who understands philosophy. But sadly, this merely presents a new dilemma to their philosophically astute adviser. After all, if the adviser suggests that reading the SAM inspired literature is simply a recipe for becoming misinformed about the philosophical matters basic to any real understanding of methodology, and that the student ought to jettison it forthwith, then that advice is likely to increase the student's trauma. For how can a mere student of management be expected to reject the conventional wisdom of all those Professors of Management who earnestly peddle the SAM. Arguments from authority are called 'arguments from authority' because that is precisely what they are. *Help!*

But before the uncommitted student, or their dilemma-ridden philosophical advisor, resort to drinking the Hemlock, they might at least offer their *Apology*—a case against the Standard Account of Method.³⁷ Surely, it is of both educational and methodological interest to critically compare the inductive and deductive modes of inference in their own right. Can either mode of inference justify or support the statements of a theory? Can either a deductive or inductive argument justify its conclusion by showing it to be true? Later, I shall discuss some philosophical literature, widely available for almost half a century, that demonstrates that neither a deductive nor an inductive argument can do this—but that they nonetheless have very different logical properties that ought clearly to be compared. But at this juncture, let us simply note that if critical reflection is to be a serious, rather than merely an espoused concern, then such questions, and the way in which the SAM generally fails to address them, merit scrutiny.

The SAM's Contrariness

Even if one makes due acknowledgement to those who have developed the habit of believing six impossible things before breakfast each day, inconsistent and contrary propositions must harbour falsehood and ought to be avoided if one wishes to communicate truth to others.³⁸ Yet Gill and Johnson's comparison of the two dimensions of figure 1, in so far as they are compared at all, contains propositions that are contrary to one another.

They believe that theory is of fundamental importance to practice, including management practice.³⁹ They propose that theories are ubiquitous and fundamental to the conduct of everyday human life.⁴⁰ It is theory, they propose, that enables expectations and explanations of social behaviour and as such '... nobody escapes making or assuming these kind of theoretical linkages'.⁴¹ They use this argument to derive the conclusion that managerial practice is 'theory-dependent'; that it must embody theory and cannot be divorced from it, and that this is the reason for books such as theirs' that support courses in management education.⁴² In accord with this, they propose that the empirical disappointment of expectations, or the failure of a theoretical explanation, will help '...generate new webs of explanations and expectations'.⁴³ These propositions would seem to suggest that learning from experience, or at least from the statements that report experience, must involve the critical analysis of experience interpreted in the light of theories.

Yet without any reference to the contrariness, if not possible inconsistency, that it creates in their own argument, Gill and Johnson proceed to introduce a proposition that is contrary to the rest of their account; namely, that '...learning might *start* inductively with the experience of events or stimulus'.⁴⁴ Yet that proposition would seem to suggest that theory is *created* by experience, and that theory-independent managerial practice is a possibility after all; for how else can such experience be obtained such that learning may start inductively?

³⁷ Cf. Plato *Apology*. In: *The Dialogues of Plato Vol. II*. (Trns.) B. Jowett. London, Oxford University Press 1892

³⁸ Contrary propositions cannot all be true; contradictory propositions are such that if one is true then the others are false.

³⁹ John Gill and Phil Johnson *Op.Cit.* 2010 p 40

⁴⁰ *Ibid.* p 40

⁴¹ *Ibid.* p 44

⁴² *Ibid.* pp 39-40

⁴³ *Ibid.* p 40

⁴⁴ *Ibid.* p 41 (emphasis added).

Now it might be proposed that this contrariness is necessary in order to erect Gill and Johnson's variant of the SAM oppositional framework. But that isn't *their* argument. The proposition—that is contrary to Gill and Johnson's earlier statement that managerial practice is theory-dependent—is actually created by a mangling of deductivism with inductivism. It is neatly captured in the following quotation:

... our everyday social lives are in essence theory-dependent activities... this illustrates the conjectural... aspects of theory... Such conjectures are derived from, and hence generalized from, our impressions regarding what has previously happened *in what we take to be similar circumstances*.⁴⁵

But how Gill and Johnson decide what constitutes a 'similar circumstance'—in the absence of a theory—is left unexplained.⁴⁶ Yet this is unsurprising, since if such a theory were to be offered, it would be contrary to their own propositions that '...learning might start inductively with the experience of events or stimulus' and that conjectural theories '... are derived from our impressions'.⁴⁷

The SAM as a Variant of Uncritical Rationalism

Now research, just like life itself, may present alternatives to choose from. But whether they are the choices presented by the SAM framework is another matter entirely. Indeed, an obvious choice, one that is continually presented to just about everyone, is whether to accept the conclusion to *any* reasoned argument. Why would anyone be a rationalist—by which I mean someone who values reason in deciding what to think and what to believe? Why value clear thought, observation and experience?⁴⁸

Note for instance, that an appeal to reason holds *no* appeal to someone who has renounced reason. And note that a rationalist cannot *force* others to participate in a reasoned discussion because that would entail the abandonment of reason. These constraints are important if fundamental philosophical matters are our general concern, and doubly so if organisational leadership and management are our specific concerns, because an *irrationalist* may appeal and respond to almost anything *other than* reason: physical or economic power, passion, emotion, or visions of a personal or a collective destiny. This is not to say that a rationalist cannot attempt to give a rational account of such irrationality—for instance that a manager's craving for power is the consequence of some childhood humiliation.⁴⁹ Nevertheless, these points seem to suggest that in order to consider the reasoned argument of another one must first adopt an attitude of reasonableness and an ethic of both tolerance and respect toward the opinions of another. In my own limited experience of managed organisations, but much to my personal disappointment, this is an attitude and an ethic in distinctly short supply.

So *if* one does adopt a rationalist attitude—that is an attitude of reasonableness which values argument and experience in the settling of questions—then that attitude places a value upon reason. But what is it about a reasoned inference that has such value? SAM presents induction and deduction as two alternative modes of rational reasoned inference, but it does so uncritically, it assumes that each mode of inference is on a level par with the other. But a critical approach to the possibility of rationalism would explore the role of reason in argument and it would try to assess whether either of the inductive or deductive modes of inference can support that role.⁵⁰ As I shall

⁴⁵ *Ibid.* pp 44-45 (emphasis added).

⁴⁶ For a discussion of the difficulties in deciding what constitutes a similar experience in the absence of a prior theory, expectation, or 'point of view' see, Karl Popper *The Logic of Scientific Discovery* London, Routledge Classics Edition 2002a appendix *x [first published 1934].

⁴⁷ John Gill and Phil Johnson *Op.Cit.* 2010 p 41; pp 44-45.

⁴⁸ Cf. Karl Popper *The Open Society and Its Enemies Vol. II. The High Tide of Prophecy: Hegel, Marx, and the Aftermath* London, Routledge Classics Edition 2002b Chapter 24 §1 [first published 1945].

⁴⁹ *Cp.* 'The 'world' is not rational, but it is the task of science to rationalize it.' Karl Popper *Op. Cit.* 2002b Chapter 24 fn19. [first published 1945].

⁵⁰ See, for instance, Karl Popper *Op. Cit.* 2002b Chapter 24 [first published 1945]; William W. Bartley III 'Rationality versus the Theory of Rationality' In M. Bunge (Ed) *The Critical Approach to Science and Philosophy* New York, Free Press 1964 Chapter 1; W.W. Bartley III *The Retreat to Commitment* London, Chatto & Windus 1964 Chapters IV-V; David Miller *Critical Rationalism - A Restatement and Defence* La Salle Open Court 1994

argue below, this inevitably leads one to consider the logical validity of a reasoned inference. And that inevitably leads one to consider the infamous ‘problem of induction’.

The SAM as Indifferent to the Problem of Induction

An argument, in logical terms, is a structure of propositions that consists of premises and conclusions whereby the propositions that represent the conclusions are inferred from the propositions that represent the premises.⁵¹ A valid argument is one in which there is no possible situation in which the premises can all be true without the conclusion being true also—the premises are said to ‘entail’ the conclusion.⁵² Hence searching for a counterexample situation in which the premises are true and yet the conclusion is false is a way of testing the validity of an argument; an invalid argument being one in which the premises may be true and the conclusion false. It should also be noted that the premises of a valid argument need not actually be true—that depends upon the actual situation to which the propositions refer. Consequently, a valid argument may have false premises and a false conclusion, or false premises and a true conclusion, but it cannot have true premises and a false conclusion.

In the empirical sciences, a deductive argument is typically used to infer from premises that include a general statement to a conclusion that includes one or more particular statements, while an inductive argument is usually taken to refer to an inference from one or more particular statements to a general statement. A deductive argument may be valid or invalid, but an inductive argument, that makes a leap from the particular to the general, is always invalid; a problem of great notoriety: ‘the problem of induction’.⁵³ For instance, in empirical research, the statements that report individual situations as observed cannot extend to situations yet to be observed, or to all the possible situations that might be observed; hence the counterexample cannot therefore be excluded. Indeed, the conclusions reached by the classic examples of inductive arguments serve to illustrate that, so far as validity is concerned, it is the absence of the counterexample that matters—and not the truth of the singular premises on which the inductive inferences were based. That the sun will set tonight and rise tomorrow seemed indisputable until Pytheas of Massalia witnessed the counterexample of the midnight sun. And *lo*—there are black swans. The conclusion to an inductive argument may thereby be false even if all of the premises are true—and *that* is what it means for an inference to be invalid.

One might nonetheless suppose that an inductive inference yields a generalised conclusion that is *probably* true. On this view inductive inference may derive a universal statement by means of some form of probability logic such that the accumulation of supporting individual instances will gradually increase the probability that the generalised conclusion is true—moving it nearer and nearer to one. But this thesis is also problematical, for even if there are no reports of a counterexample, the probability measure would be the quotient of the number of supporting instances to the total possible instances. But if the latter is open-ended—because it is a strictly universal generalisation—then the denominator will become infinite and the probability measure will equate to zero. And even if the denominator is just very large in relation to the numerator—because the world is very large in relation to the instances actually observed—then the probability measure will become very small. And of course a probability of less than 0.5 is an improbability.⁵⁴

Now one might suppose that the problem of induction is a rather important consideration to a critical discussion of how induction can be used ‘to build’ theory—especially when theory has been defined by reference to ‘... a statement of general laws, principles’.⁵⁵ But the problem is not even mentioned during Gill and Johnson’s discussion of induction. They simply, but misleadingly declare that: ‘The logical ordering of induction is the reverse of deduction as it involves moving from the

Chapters 1,2,3; Mark A. Notturmo *Science and the Open Society - The Future of Karl Popper’s Philosophy* Budapest, Central European University Press 2000 Chapters 4,5,6.

⁵¹ Wilfred Hodges’s *Logic. An Introduction to Elementary Logic*. Second Edition London, Penguin 2001 § 11

⁵² *Ibid.* § 9; § 11

⁵³ See, David Hume *A Treatise of Human Nature* London, Everyman’s Library Edition 1964 Volume 1 Book 1 Part III § VI. [first published 1738]

⁵⁴ For a discussion, see, Karl Popper *Op. Cit.* 2002a §80 and appendix *vii [first published 1934].

⁵⁵ John Gill and Phil Johnson *Op. Cit.* 2010 p 7; p 39

plane of observation to the construction of... theories'.⁵⁶ But of course, if we aspire to discover truth through the use of reason in our intellectual activity, then it is logical validity that matters. Not 'the logical ordering' of the activity of inference—whatever that might actually mean.

The SAM as Oblivious to a Deductive Critical Rationalism

Without wishing to suggest that the choice that is presented by SAM has any merit, does the invalidity of inductive inference count in the favour of a deductive mode of argument and research? Can the gaps in the SAM argument, the shortcomings created by its uncritical rationalism, be made good? In particular, if a deductive argument is valid can it justify its conclusion?

In philosophy, the influential doctrine of 'justificationism', when applied to illuminate the purpose of argument, presents that purpose as being '... to justify or prove or establish or consolidate or to provide good reasons for propositions'.⁵⁷ In the justificationist doctrine, reasoning equates to the provision of reasons and a conclusive justification of a statement is therefore a demonstration that it is true.

The history of Western philosophy is, in some respects, the history of a justificationist project.⁵⁸ Rene Descartes's '*cogito ergo sum*' is perhaps its most famous product, but perhaps what is most pertinent to the appraisal of the SAM is the Vienna Circle's twentieth-century justificationist doctrine of logical positivism. The Circle presented a 'verifiability criteria' of meaning such that a statement is meaningful if, and only if, it is either analytically true or verifiable (i.e. justified) by experience or observation.⁵⁹

The lesson that was taught by history's justificationist projects is that neither an inductive nor a deductive empirical argument can justify its conclusion. To the non-logician, this may sound absurd—for surely we offer arguments that justify conclusions all of the time. But fortunately, one does not need to be a logician to at least appreciate why it is so. Firstly, 'since all argument must proceed from assumptions, it is plainly impossible to demand that all assumptions should be based on argument'.⁶⁰ In logical terms, for the premises of an argument to justify its conclusion they must also, in turn, have been justified—and so on *ad infinitum*. In order to avoid such an infinite regress the premises must be self-justifying or self-evidently true—but which premise has that property and how could it support the weight of empirical science? Alternatively the premises and the conclusion must in some way justify one another—but in that case the argument is *circular*. Secondly, an inductive argument, since it makes an invalid inference, is one in which the premises could be true and the conclusion false. Consequently, it is useless for the purpose of proof and justification. Thirdly, a valid deductive argument is one in which there is no possible situation in which the premises can all be true without the conclusion being true also. So far so good, but what will make the premises *actually* true—and how can that be demonstrated without making a recourse to yet another argument? And if the premises of a valid argument are merely *assumed* to be true then in what way can they be said to justify the argument's conclusion? After all, if one has to assume the truth of an argument's premises in order to justify the argument's conclusion, then one might as well also assume the truth of the conclusion—and dispense with the argument entirely. Logicians call such a manoeuvre a *petitio principii* argument: it is a deductively valid argument but it begs the very question at issue—the truth of the conclusion.⁶¹

But it would be incorrect to conclude that these difficulties make it worthless to explore what the premises of an argument imply. For subjectively speaking, this may not at all be obvious to our individual intellects. And objectively speaking, as I shall note below, deriving such consequences

⁵⁶ *Ibid.* p 56

⁵⁷ David Miller *Out of Error - Further Essays on Critical Rationalism* Aldershot, Ashgate 2006 p 65

⁵⁸ For a discussion, see Karl Popper *Conjectures and Refutations* London, Routledge Classics Edition 2002c Introduction [first published 1963]; W.W. Bartley III *Op. Cit.* 1964 Chapters IV, V; Mark A. Notturmo *Op. Cit.* 2000 Chapter 4.

⁵⁹ See for instance, A.J. Ayer's claim that 'Empirical propositions... are statements of actual or possible observation... and it is they that constitute science'. A.J. Ayer and F.C. Copleston 'Logical Positivism – A Debate' In A.J. Ayer *The Meaning of Life And Other Essays* London, Weidenfeld & Nicolson 1990 p 18.

⁶⁰ Karl Popper *Op.Cit.* 2002b p 230 [first published 1945]

⁶¹ See, for instance, David Miller *Op. Cit.* 2006 Chapter 3.

may further the critical appraisal of the premises—do their consequences, for instance, conflict with other statements that we think to be true. And we may, of course, also value an argument because it supplies an explanation of its conclusion. But what these difficulties do demonstrate is that viewing logic as a tool for establishing conclusions—a tool of proof and justification—is highly problematical. And this is why the many justificationist projects that characterise the history of philosophy have all failed to deliver what they set out to supply: the positive justification of knowledge claims.

The whole problem is perhaps best appreciated in a situation in which a conclusive justification of an empirical knowledge claim is demanded. Such a conclusive justification must do three things: Firstly, supply premises that become foundational statements. Secondly, embody a rational authority that establishes, without recourse to yet another statement or a circular argument, the truth of the foundational statements. Thirdly, deploy valid rules of inference that transfer truth from the foundational statements to the knowledge claim that requires a justification.⁶² For empirical knowledge claims, the doctrine of logical positivism sought to address these requirements by founding an empirical proposition on an empirical basis by means of a criteria of verification against experience. If an empirical statement is meaningful, so some argued, it must be verifiable by actual or possible sense experience. Hence empirical statements, or so some of the logical positivists proposed, were to be founded on an empirical basis and also be reducible to it: sense experience was *the* rational authority; it was *the given*.

But the justificationist programme of logical positivism encountered difficulties. The book that detailed its failures was Karl Popper's *Logik der Forschung*, first published in 1934.⁶³ Popper's criticisms were devastating. For instance, how can sense experience act as a rational foundational authority when it is psychologistic, subjective and fallible?⁶⁴ And in any event, does not a statement involving a universal concept transcend the sense experience on which it is supposedly based? For example, a declarative statement like: 'here is a glass of water' includes the concepts of 'glass' and 'water' and therefore implicates the regular law-like behaviour of these things.⁶⁵ The words are used to characterize the regular behaviour of the things, like water boiling under specific conditions, or it not poisoning a drinker. But those implicates cannot be reduced to sense experience or experientially verified because they transcend any particular experience. The problem would also seem to apply to concepts that refer to things whose existence depends, either directly or indirectly, upon human intentionality. Hence a declarative statement like: 'here is an investment banker' also involves a universal concept that transcends any particular experience. But in this case it implies regularities that depend on conventional social norms, traditions, rules, prohibitions etc.⁶⁶ Popper's criticisms led him to conclude that observation statements are theory laden:

Thus not only the more abstract explanatory theories transcend experience, but even the most ordinary singular statements. For even ordinary singular statements are always *interpretations of 'the facts' in the light of theories*.⁶⁷

Moreover, an argument that assumes what it is designed to establish is a *petitio principii* argument. Hence observational reports cannot verify a theoretical concept if they have already assumed that theoretical concept. And even if brute sense experience *could* justify a singular statement, one cannot experience strictly universal statements.⁶⁸ And one cannot derive a strictly universal statement or generalised theory from the reports of particular experiences without making an invalid inference. The problem of induction remains.⁶⁹

⁶² See, for instance, Antoni Diller 'Constructing a Comprehensively Anti-Justificationist Position' In: *Karl Popper - A Centenary Assessment Volume II: Metaphysics and Epistemology* (Eds.) Ian Jarvie, Karl Milford, David Miller. Aldershot, Ashgate Publishing 2006 Chapter 28

⁶³ Translated as Karl Popper *Op. Cit.* 2002a. [first published in English in 1959]

⁶⁴ Karl Popper *Op. Cit.* 2002a §§ 25-27 [first published 1934]

⁶⁵ *Ibid.* 2002a § 25 and Appendix *x [first published 1934]

⁶⁶ See, for example, Karl Popper *The Open Society and Its Enemies Vol. I. The Spell of Plato* London, Routledge Classics Edition 2002d Chapter 5 [first published 1945].

⁶⁷ Karl Popper *Op. Cit.* 2002a p 444 (emphasis in original) [first published 1934]

⁶⁸ *Ibid.* 2002a § 15 [first published 1934]

⁶⁹ *Ibid.* 2002a § 25 [first published 1934]

But aside from its demolition of logical positivism, Popper's book also transformed the problem situation of the empirical basis of empirical argument.⁷⁰ In a nutshell it rejected the presupposition that the role of empirical evidence in argument is to prove empirical theories, or to justify them, or to enable theories to be induced from experience.⁷¹ In place of that Popper proposed a new role: that the reports of empirical evidence can be used to *critically test* the logical implications of a theory.⁷² For instance, if a theory, as a strictly universal statement, has a deductively valid logical consequence that can be *contradicted* by a basic statement that reports an experience, then the theory is logically falsifiable.⁷³ If the reports of experience *do* contradict the consequence of the theory, then that is a reason to suggest that there is an error somewhere in the deductive system or in the report of the experience.⁷⁴ For recall, a valid deductive argument cannot have true premises and a false conclusion. So *if* it is the consequence that is actually false then that falsity is transmitted to one or more of the argument's premises.⁷⁵ It follows that the role of evidence in this manner of argument is to guide the search for truth by the elimination of error. Nothing is final, proven or even made probable by such evidence, but, for Popper, a principle of empiricism is redeemed by it—a principle that experience and evidence matter in the critical appraisal of knowledge claims.

'Experience can *motivate a decision*, and hence an acceptance or rejection of a statement, but a basic statement cannot be *justified* by them—no more than thumping the table'.⁷⁶

Popper later generalised his approach into a philosophy that he called 'Critical Rationalism': a rationalism which pressed upon reason a role of criticism rather than a role of proof.⁷⁷ But it is this aspect of his position that would seem to be most misunderstood by both philosophers of management and philosophers more generally.⁷⁸ Although Popper spelt out his view of valid deductive logic as the 'organon of criticism' in several places,⁷⁹ it might, nonetheless, be useful to re-emphasise how a *critical* rationalism exploits a crucial feature of a valid deductive inference, a feature that an inductive inference does not possess. Indeed, this is a feature that distinguishes the inductive from the deductive mode of inference, and, as we shall see, *this* is why the notion of choice may be relevant to the contrast of both.

A valid argument is one in which there is no possible situation in which the premises can all be true without the conclusion being true also—the premises are said to 'entail' the conclusion. But this also means that the falsity of the conclusion is inconsistent with the truth of the premises; either the conclusion is true *or* one or more of the premises are false. A valid deductive argument, therefore, proves nothing, but it does present a *choice* between the truth of the conclusion and the falsity of one or more of its premises.⁸⁰ But crucially, an inductive argument, since it is invalid, presents a conclusion that is not even entailed by its premises. One can, therefore, without any contradiction, accept its premises without accepting its conclusion, or reject its conclusion without even having to consider the truth of its premises. In short, induction, unlike valid deduction, does not offer the opportunity to explore the implications of our theories in order to assess whether they contradict

⁷⁰ For Popper's account of his role in the demise of logical positivism, see, Karl Popper *Unended Quest* London, Routledge Classics Edition 2002e §§ 16-17 [first published 1974]

⁷¹ Karl Popper *Op. Cit.* 2002a § 7; §§ 25-30 [first published 1934]

⁷² *Ibid.* 2002a §§ 1-3 [first published 1934]

⁷³ *Ibid.* 2002a § 3; §§ 21-22 [first published 1934]

⁷⁴ *Ibid.* 2002a § 18 [first published 1934]

⁷⁵ *Ibid.* 2002a § 18 [first published 1934]

⁷⁶ *Ibid.* 2002a pp 87-88. (emphasis in original) [first published 1934]

⁷⁷ Karl Popper *Op. Cit.* 2002b Chapter 24 [first published 1945].

⁷⁸ Cf. Rod Thomas 'What is the relevance of Karl Popper's Critical Rationalism to Management Studies and Practice? Part One: Anti-Authoritarianism' *Philosophy of Management* Volume 9 Number 1 pp 5-38; David Miller *Op. Cit.* 2006 Chapter 2.

⁷⁹ See, for example, thesis 14, 15, 16, 17, 18, and 19 of Karl Popper 'The Logic of the Social Sciences' In: Karl Popper *In Search of a Better World* London, Routledge 1994 Chapter 5.

⁸⁰ So, for instance, if the argument has the premises P_1, P_2, P_n and the conclusion C then it can be expressed as a conditional statement with the conclusion as the consequent and the conjoined premises as the antecedent: $[(P_1 \& P_2 \& P_n) \rightarrow C]$. But this can also be expressed as a disjunction of the negation of the antecedent and the consequent: $[\sim (P_1 \& P_2 \& P_n) \vee C]$. This shows that the argument presents a choice between accepting its conclusion and rejecting its premises. Cf. Mark. A. Notturmo *Op. Cit.* 2000 Chapter 4 fn. 13, fn. 14.

other statements taken to be true, and it cannot therefore force a choice upon us because it does not present us with a logical inconsistency. In short, only a valid deductive inference enables the exercise of critical control on the content of our arguments or theories.⁸¹

Of course, Popper's position is easily misunderstood and easily misrepresented—if one fails to follow the anti-justificationist turn that his *critical* rationalism has taken. All importantly, critical rationalism views even the best of our scientific knowledge to be absolutely uncertain—as being always, and forever, conjectural and open to critical examination. Obviously, this is a philosophy which some will not like—especially those who want their knowledge to be positively justified or supported, rather than merely consistent. But us wanting something does not mean that we can have it.

Some of the principal points of possible misunderstanding might quickly best be illustrated by a question and answer session between a critical rationalist and an interlocutor:

Question: *'What makes a falsification justified?'* Answer: *'Nothing —because no statement can be justified'.*

Question: *'Then why do you think that you empirically know 'this and that'? Aren't you being naive in your acceptance of 'this and that'? A falsification of 'this' universal statement or a verification of 'that' particular statement doesn't make them true?'* Answer: *'I agree—such statements are either true or false irrespective of what I claim to know. My knowledge is conjectural. But I do my best to critically appraise its implications and consistency. Indeed, I welcome you to show me how your knowledge differs from mine as I may well be making an error. Please show me what is wrong in my thinking 'this and that' as the growth of my knowledge, strange as it may seem, depends upon such disagreement.'*

Question: *'Doesn't your philosophical anti-justificationism open the door to the sociology of knowledge, one that can supply an authoritarian form of justification to those who are unable or unwilling to exercise their own autonomy and critical judgement?'* Answer: *'Well, for sure, we can be not-too-critical about one dogma just as well as any other. But I am interested in philosophy not sociology. You may consult the writings of Thomas Kuhn if you are interested in how the two may converge. Indeed, you may wish to note Kuhn's view that '... it is precisely the abandonment of critical discourse that marks the transition to a science'. Kuhn formulated that statement in criticism of Popper's philosophy of science. I think that it offers an important insight into who is, and who isn't, a friend or opponent of authoritarianism'.*

The SAM as a Logical and Scholarly Error

Unfortunately, Gill and Johnson are rather oblivious to the critical spirit of Popper's doctrine of critical rationalism: they mention it, and they ask the reader to 'stop and think' about it, but they do not properly explain it; quite the opposite, because they embed its mention within a confused discussion of the empirical falsification of a generalised theory. That discussion mangles Popper's deductivist, non-justificationist empiricism with the inductivist, justificationist empiricism of logical positivism that he sought to displace. For instance, having quite reasonably labelled Popper's philosophy of science as 'hypothetico-deductive', and its methodology to be based on 'falsificationism' and 'empirical testing... whereby error is detected and removed',⁸² they then misleadingly state that:

...the hypothetico-deductive approach to research is intimately bound up with... 'positivist' philosophy.⁸³

And elsewhere that:

... positivists have to assume the possibility of generating and/or testing theory by direct comparison to the real (sic) through the deployment of a theory-neutral observational language.⁸⁴

⁸¹ For a full discussion see Mark A. Notturmo *Op. Cit.* 2000 Chapter 4,5,6.

⁸² John Gill and Phil Johnson *Op. Cit.* 2010 p 53

⁸³ *Ibid.* p 53

Gill and Johnson then proceed to devote a significant effort to demonstrating that such a theory-neutral language is impossible and that all observation is theory laden.⁸⁵ They consider all of this to be an argument against Popper's deductive testing of theory (which, they mistakenly represent as positivism).⁸⁶

But why is a theory-laden observation problematical? And which side of the SAM framework does it create a problem for? It is a problem if we think that theories are immaculately induced from observations. In that sense, *pace* Gill and Johnson, it is a problem for induction rather than deduction! But it also presents a problem for deductive inference—*if* deductive logic is viewed as a tool for proof—because observational reports cannot verify the very theoretical concepts used in the compilation of the reports. An argument of that form would be an argument that commits the *petitio principii* fallacy: it begs the very question at issue: the truth of the conclusion. But this is to view the deductive testing of a statement in a justificatory mode—requiring that the statement be verified by the reports of experience. And it is clearly this mode that informs Gill and Johnson's discussion with their references to 'justificatory logics' and 'warranted knowledge'.⁸⁷ But it does not present a problem to deductive inference being used as a tool of *criticism*: a tool with which to probe the implications of a theory. In short, it does not present a problem to Popper's critical rationalism—the logic of which has been examined in the previous section. A proper understanding of this difference in orientation is absolutely fundamental to a proper understanding of Popper's view of hypothetico-deductive empirical research. But unfortunately, Gill and Johnson do not grasp it.

What Gill and Johnson are confusing here are a *petitio* argument, which concludes what it already assumes, and a *reductio absurdum* argument, which contradicts what it first assumed.⁸⁸ Let us recall, just one more time, Popper's actual argument. What he argued was that a theory-laden observation report can be logically used to contradict the implications of a stated theory (rather than positively justify it as true). He argued that we may entertain the stated theory (a conjecture), explore what it logically implies in terms of a theory-laden statement of expected observation, and then critically compare the theory-laden reports of actual observation with the stated theory-laden implications. He argued that when everything is consistent then there is no problem: i.e. the theory, at least in this test case, fits the reports of experience. Nothing has been proven or positively justified, but equally, nothing is amiss. But on the other hand, the theory-laden implication is not compatible with all possible test reports. Consequently, *if* there is a contradiction, then that is a reason to think that there is an error somewhere: the contradiction is the means, as Gill and Johnson correctly say, '... whereby error is detected'.⁸⁹ That may result in the creation of a new theory, or the error may be accommodated in some other way, for instance by modifying other background theories (hitherto unquestioned premises that we are, in turn, free to critically investigate), or by simply questioning the reliability of the observation report. But logically, by using an inference to derive a contradiction of the premises initially posed, the researcher is using a valid *reductio absurdum* argument (and not producing a useless 'proof' by means of a *petitio principii* fallacy).

Inevitably, Gill and Johnson's confusion about the logic of deductive argument spills over into their account of the deductive testing of a theory. They introduce Karl Popper as a philosopher who demanded that researchers use '... the logic of deduction and the operationalization process... the process whereby precise and accessible definitions of phenomena are created'.⁹⁰ Operationalization is a necessary condition to deductive testing, so they argue, because:

⁸⁴ *Ibid.* pp 193-194

⁸⁵ *Ibid.* Chapter 8

⁸⁶ *Ibid.* p 188

⁸⁷ *Ibid.* p 188; p 192

⁸⁸ See David Miller *Op. Cit.* 2006 Chapter 3; David Miller 'What Use is Empirical Contradiction?' *Economics and Philosophy* Volume 12 1996 pp 197-206; David Miller 'Do We Reason When We Think We Reason, or Do We Think?' *Learning for Democracy* Volume 1, Number 3 2005 pp 57-71.

⁸⁹ David Miller *Op. Cit.* 2006 Chapter 6 § 3

⁹⁰ John Gill and Phil Johnson *Op. Cit.* 2010 pp 47-48

... since concepts are abstract they are not readily observable, and therefore the asserted relationships between concepts provided by the theory are not open to empirical testing until these abstractions are translated into specific observables.⁹¹

But of course, what Gill and Johnson are producing here is another muddle of logical positivism's flawed demand that theories be reducible to an empirical basis, with Popper's alternative proposal as to how a theory's logical consequences might be tested with empirical evidence. Gill and Johnson fail to grasp Popper's critical rationalism and its non-justificatory use of deductive argument and inference. We should recall that Popper's point was that to empirically test a theory it must be possible to deduce from it, either directly or indirectly, a statement that refers to something that is observable; he did not demand that all theoretical concepts be reduced to specific observation statements. Again, as previously noted, it was Popper who pointed out to the logical positivists that this demand is impossible—even for statements as basic as '*here is a glass of water*'.

Ironically, Gill and Johnson cite Popper's book, *Conjectures and Refutations*, in their discussion of his purported demand for the operationalisation of theoretical concepts; a text in which Popper writes:

Operationalism (is)... the doctrine that theoretical terms have to be defined in terms of measuring operations. Against this view, it can be shown that measurements presuppose theories... Connected with... operationalism is the doctrine of behaviourism, i.e. the doctrine that, since all test-statements describe behaviour, our theories too must be stated in terms of possible behaviour.... All these doctrines are forms of... inductivism.⁹²

Hence the thesis that 'observation is theory laden' is not a logical objection to deductive falsification whatsoever. Moreover, absurd as it might seem, these ideas are being taken from Popper and are then being presented as anti-Popperian ideas! So in this respect Gill and Johnson's variant of the SAM framework is not only oblivious to the possibility of a critical rationalism it is also logically defective. Indeed, their account is simply a confusion of inductivism with deductivism.

The SAM as a Spurious Contrast of Quantitative and Qualitative Data

Let us turn toward the second element of table 1: the purported contrast of quantitative and qualitative data and the association of the former with the deductive testing of theory.

Why the deductive testing of theory need emphasise the collection of quantitative data is not especially clear from Gill and Johnson's discussion. They seem to think that the deductive testing of a theory requires that '...we overtly link the abstract concept to something that is observable and whose variation is *measurable*'.⁹³ But this is contradicted by the principal case study that they ask their readers to interpret in terms of the so-called deductive and inductive contrast: that of the investigation by a Dr Snow of a cholera outbreak in Soho, London in 1854.⁹⁴

They report that in his investigation of the outbreak Dr Snow noted that no worker at a Soho brewery had died from cholera. Perhaps this is meant to direct a reader toward the purported inductive method. But why did Dr Snow think that this fact was important? One could argue that it was because it was contrary to a prior expectation, or theory, about the incidence of infection. In any event, it is clear from Gill and Johnson's account that Snow further investigated what factors were qualitatively different in the brewery and discovered that the brewery workers drank beer rather than water. He therefore appears to have hypothesised that the cholera was solely transmitted from consumption of water from a widely-used water pump in Soho. He deduced from that hypothesis that no cholera cases would be observed amongst other Soho inhabitants who did not rely on the pump for their water supply. The hypothesis is consistent with, and was corroborated by, the absence of cholera amongst inmates of a workhouse who met this condition. Given the hypothesis, and other premises that he would appear to have had in mind, Dr Snow deduced that cases of cholera outside of Soho could be traced back to use of the water pump. The hypothesis was also corroborated because the examined cases met this condition. Dr Snow had the

⁹¹ *Ibid.* p 48

⁹² Karl Popper *Op. Cit.* 2002c p 83 [first published 1963]

⁹³ John Gill and Phil Johnson *Op. Cit.* 2010 p 48 (emphasis added)

⁹⁴ *Ibid.* p 42

pump shut down deducing that if it were the sole source of the infection the cholera cases would cease. Again, the hypothesis was corroborated.

Hence, since life and death, and drinking and not drinking from a particular water source, are qualitative states, this research can be interpreted as deductive but not of a kind that requires quantitative measurement. What was required was a definite problem, some ingenuity in hypothesising relevant qualitative factors, and observation as to what happens when those factors are varied one at a time.

The case demonstrates that deductive testing need not entail quantitative measurement. In fact, there are many historical counterexamples of qualitative hypothetico-deductive scientific experiments—some of which were conducted by famous scientists such as Charles Darwin and Louis Pasteur.⁹⁵ Indeed, in discussing Dr Snow's investigation, Gill and Johnson inadvertently supply another one. What Gill and Johnson fail to appreciate is that quantitative measurements are only required when the theory that is under test is itself of a quantitative kind and the testing method must therefore consist not of varying factors, but of varying their degree.

Unfortunately, although it is perhaps understandable, the presentation of research traditions as an opposition between quantitative and qualitative methods is a spurious one.

The SAM as a Spurious Contrast of the Controlled and the Everyday Setting

Similarly, Gill and Johnson do not fully explain the role of controls in deductive empirical tests. In contrasting controlled testing with research that seeks to preserve 'everyday settings as the context of behaviour' they seem to associate the former with laboratory experiments and they devote a chapter of their book to the discussion of experimental research designs.⁹⁶ But as that chapter recognises, control groups can arise in everyday settings—as the aforementioned case of Dr Snow's workhouse inmates demonstrate. Why were they of interest to Dr Snow? It was because they represented a natural control group in the *everyday setting* of Soho.

In deductive testing, a report of an observation is used to test the implications of a theory. What counts is an error, by which we mean a contradiction between what is expected and what is observed. Clearly, observations and errors may arise in the natural setting of everyday behaviour, and there are clearly disciplines, like astronomy, that conduct research simply on that basis. Indeed, the contrast with astronomy illustrates what a control offers to a deductive test: it is a method that seeks to isolate what, exactly, is being tested, and there is obviously little need for isolation in deepest space.

Hence the incorporation of a control into an empirical investigation is a step taken to avoid the introduction of unnoticed factors into the tests; it furthers the critical argument that it is the theory that is creating the error. So a controlled experiment is a refined method of trial and error, but it remains a method of trial and error. In which case how does it logically differ from the method of a researcher entering the unfamiliar context of another's social behaviour? That context would register as unfamiliar precisely because observed modes of behaviour differ from those that the researcher expects or projects on to social situations. Yet that strange context will perhaps, over time, become more familiar to the researcher as surprises and disappointments create an opportunity to learn.⁹⁷

So once again, the contrast that the SAM framework presents is perhaps understandable, but on a closer examination it is revealed to be spurious.

⁹⁵ See, J.O. Wisdom *Foundations of Inference in Natural Science* London, Methuen 1952 Chapter II

⁹⁶ John Gill and Phil Johnson *Op. Cit.* 2010 Chapter 4

⁹⁷ For a further discussion, see, Karl Popper *The Poverty of Historicism* Second Edition, London, Routledge and Kegan Paul 1961 § 25 [first published 1957].

Is there a Great Divide between Nomothetic and Ideographic Research?

What of the overall contrast that Gill and Johnson present between modes of nomothetic explanation, based on unalterable regularities of nature, and modes of ideographic explanation, based on human phenomena being inherently unique and individual? The contrast has a long history, that some trace back to Giambattista Vico's inaugural professorial lecture in 1709, with Max Weber's methodological writings, and F.A. Von Hayek's dissection of 'scientism' being some of its many historical faces.⁹⁸

My own sense is that this is both an understandable and worthy contrast, but that it also merits a detailed and careful exegesis. Again, the contrast drawn by the SAM framework, aligning nomothetic research with quantitative deduction and ideographic research with qualitative induction, would seem to be problematical once appropriate distinctions are drawn between different forms of explanatory problem. Let us consider two examples.

Types of Explanation I (or do statements that refer to human intentionality differ from those that do not?)

Gill and Johnson contrast the behaviour of a pen being dropped with that of a person.⁹⁹ Let us pursue that contrast. Consider for instance Newton's law of gravitation, as it is written into the following argument, and contrast it with the one that follows, an argument containing propositions that refer to an individual named 'Dave Spart':

All distinct bodies produce a force between them equal to the product of their masses and a constant 'G', divided by the square of the distance between them; here are two bodies, a pen and the earth. Therefore if you want to see something fall toward earth look no further than the release of this pen.

All investment bankers who are paid bonuses of over a million pounds a year are despised by Dave Spart; Canary Wharf contains many investment bankers who are paid bonuses of over a million pounds a year. Therefore, if you want to find people who are despised by Dave Spart, look no further than the Canary Wharf.

How might one interpret the two arguments? Is the second argument claiming that to create symptoms of loathing in Dave Spart it is sufficient to take him to Canary Wharf, because that is a place where there are well-paid investment bankers, much like the first argument claims that to make a pen fall to the floor it is sufficient to drop it? If that were the argument it would surely be presupposing a crude form of behaviourism or else that Dave Spart has a pathological condition. Gill and Johnson do in fact claim that deductive modes of research must presuppose a 'stimulus-response model'.¹⁰⁰

Others might consider the reference of the second argument's statements to be more complex than that; that it makes reference to facts that are due to human thought, attitudes, decisions and actions—what philosophers call 'human intentionality'.¹⁰¹ In particular, that it involves a reference to the subjective attitude of Dave Spart toward those involved in a social institution of banking, itself the product of mind-dependent attitudes, rather than an objective feature of the world, like, for instance, the force of gravity exerted on an object existing independently of the human mind. Interpreted in that way, the second argument is a sparse way of saying that Dave Spart has a set of beliefs and desires—that human institutions exist that undertake an activity that constitutes

⁹⁸ Isaiah Berlin 'The Divorce Between the Sciences and the Humanities' In: Isaiah Berlin *Against the Current. Essays in the History of Ideas* (Ed.) Henry Hardy. London, Hogarth Press pp 80-110; F.A. Hayek *The Counter Revolution of Science. Studies on the Abuse of Reason* Second Edition Indianapolis, Liberty Fund 1979 Part One.

⁹⁹ John Gill and Phil Johnson *Op. Cit.* 2010 p 58

¹⁰⁰ John Gill and Phil Johnson *Op. Cit.* 2010 p 58

¹⁰¹ Cf. John Searle *Mind, Language and Society - Philosophy in the Real World* London, Phoenix 2000 Chapter 4. See also, John R. Searle *Minds, Brains & Science* London, Penguin 1991; John R. Searle *The Construction of Social Reality* London, Allen Lane 1995.

investment banking, and that the individuals involved in this may receive rewards that constitute bonus payments, and that the level of these should not exceed a particular amount each year; and if such people receive bonuses in excess of the amount that he desires to see each year, he has, as far as he is concerned, reason to despise them. In other words the argument is attempting to deduce the consequences of an individual's intentionality.

Hence, on this interpretation, the second argument includes statements that make reference to human intentionality but these do not describe regularities of nature that are beyond the power of (wo)man to alter; these are statements that refer to facts that are made and changed by (wo)man and may therefore be extremely contextual.¹⁰² Moreover, on that interpretation, there is no need whatsoever for a 'stimulus response model' of human behaviour. Indeed, Dave Spart would no doubt change his beliefs should he fall in love with an investment banker, for another part of his human intentionality would come to bear on the situation.

But on the one other hand, the distinction between the two arguments does not seem to have an epistemological import as from a God's-eye view, or from no view at all, both arguments include statements that refer to things which are ultimately intrinsic to reality.¹⁰³ Even if the second argument involves a concealed reference to human intentionality, it still seeks to convey how things are for Dave Spart, at the moment, and he is well placed, at the moment, to give assent to the truth of the argument's conclusion. This is because it is deduced from statements that refer to his intentionality and it is open to anyone who might have an interest to investigate it further.

So how might our would-be researcher critically investigate the declarative statements about David Spart's attitudes? Must a hypothetico-deductive testing method adopt a behaviourist, stimulus response model of human behaviour, as Gill and Johnson claim? What is it in the real world that makes such statements true? Such research might firstly attempt to establish the identity of Dave Spart. If this is successful, the argument's conclusion may be tested by discussing, with Dave Spart, what the statements assert about him. If David Spart corroborates the statements then that may well be that.¹⁰⁴ That simple, qualitative, hypothetico-deductive research method does not require a behaviourist, stimulus response model of human behaviour and it is in complete accord with common-sense and the everyday settings of social life.¹⁰⁵

To some persons, the simple-minded, qualitative, hypothetico-deductive testing method of asking someone to assent whether a statement is true of them may appear to be very different to the complexities of scientific method and empirical testing. But if this is so, it is because such persons either reject, or fail to fully appreciate, the critical rationalist portrait of scientific method as simply being always a more or less imaginative process of rational criticism.

Types of Explanation II (or why 'Erklären' can depend upon 'Verstehen')

Gill and Johnson do not especially couch the difference between nomothetic and ideographic explanation in terms of the notion of human intentionality. The element of their SAM framework that gives it force is the contrast, drawn by Max Weber, between causal explanation (*erklären*) and meaningful understanding (*verstehen*).¹⁰⁶ This so-called 'argument from meaning' was perhaps advanced in its most famous form by the philosopher, Peter Winch (who Gill and Johnson do not mention).¹⁰⁷ Winch's basic thesis was that the phenomena of social life are shot through with meaning because of the intentionality of the human mind. Sense and meanings are attributed to

¹⁰² Karl Popper *Op. Cit.* 2002d Chapter 5 [first published 1945]

¹⁰³ John R. Searle *Op. Cit.* 1995 Chapter 1

¹⁰⁴ *Cp.* Karl Popper *Op.Cit.* 2002d p 29 [first published 1963]. He may of course misrepresent his true views so the argument's conclusion remains conjectural.

¹⁰⁵ For an interesting discussion of a method that tests a person's hypothesised intentions by means of what one might call 'game theoretic' interaction, see, J.O. Wisdom *Philosophy of the Social Sciences II: Schemata* Aldershot, Avebury 1987 Chapter 4.

¹⁰⁶ Max Weber *Economy and Society Volume 1* (Eds.) G. Roth and C. Wittich. Berkeley, University of California Press 1978

¹⁰⁷ Peter Winch *The Idea of a Social Science and Its Relation to Philosophy*. London, Routledge Classics Edition 2008 [first published 1958]

things and supply reasons for action.¹⁰⁸ Alternatively, meaningful significance depends on what gives an action its sense; for Winch this involves the correct application of a conventional rule.¹⁰⁹

That many business outcomes and events can only be understood through systems of subjective social meaning and constitutive rules can be appreciated by the difficulties encountered in explaining human institutions like paper money in terms of statements about paper and pulp chemistry. But an argument that opposes deductive modes of explanation with the existence of human intentionality, or proposes that human intentionality makes quantification irrelevant, is an argument open to challenge. For example, 'Use' may well be equated to 'Meaning', but that does not subsequently preclude one from offering a plausible deductive explanation of why £1000 left unattended on a garden wall was not there for very long. On the contrary, it enables it.¹¹⁰

Again, what is perhaps required here is a contrast between different types of explanation. On the one hand there are deductively valid nomothetic explanations, as represented by the conjunction of statements about universal laws and statements concerning singular, initial conditions. And on the other hand there are *plausible* deductive explanations of typical but non-specific events: Weberian 'ideal type' models or Popperian 'situational analyses'.¹¹¹ Arguments based on the latter can be used to explain events that are the outcome of human intentionality in typical social situations and involve a conjectural reconstruction of the situation that confronted an agent. This can postulate their aims, knowledge and resources and incorporate the relevant social institutions that may facilitate and constrain their action. Those premises may be animated not by a causal generalisation that admits no counterexample, but by a statement that postulates a methodological principle, for instance that humans act in a way that is appropriate to their aims and situation as described by the model. Popper called this 'the rationality principle'.¹¹² Explanations constructed on this modelling basis seem destined to be false because they represent an ideal, rather than an actual situation. In particular, in an actual situation the assumption made by the rationality principle may be false.¹¹³ Nonetheless, Popper defended the use of situational modelling in social research if its products can be criticised—for if there are competing models the critical question becomes which '... is a better approximation to the truth'.¹¹⁴ Or which model seems to be more useful in giving us a purchase on reality—much like a map can give us a purchase on the lay-out of a terrain. One scholar of Max Weber's *verstehen* sociology would appear to hold a similar view:

It must be borne in mind that in dealing with ideal types, we do not ask "whether or not" they "subsume" the reality; rather to what extent the reality "approximates" the ideal types.¹¹⁵

But the notions that there are different types of explanation and that 'ideal type' models bridge the nomothetic and the ideographic,¹¹⁶ are notions that Gill and Johnson, and the SAM framework more generally, fail to explore. But in place of a consideration of these important methodological

¹⁰⁸ *Ibid.* Chapter 2 § 2

¹⁰⁹ *Ibid.* p 47

¹¹⁰ An agent 'A' understands the exchange value of money in British society and recognises the British monetary currency of the pound sterling; 'A' thinks that £1000 has a considerable exchange value; In a situation in which 'A' finds sterling money that has a considerable value to him he thinks that the appropriate action to do is to take possession of the money; 'A' always acts appropriately to a situation as he sees it; There was a situation 'S' in which £1000 of money was sat on a garden wall without an apparent owner; 'A' was the first person to observe situation 'S' soon after it occurred. Therefore, 'A' took possession of the £1000 of money in the situation 'S'.

¹¹¹ Karl Popper *The Myth of the Framework - In Defence of Science and Rationality* (Ed.) M.A. Notturmo. London, Routledge 1996 Chapter 8. See also, J.W.N. Watkins 'Ideal Types and Historical Explanation' In: *Modes of Individualism & Collectivism* (Ed.) John O'Neill. London, Heineman Educational Book 1973 pp 143-165.

¹¹² Karl Popper *Op. Cit.* 1996 p 169. For an example of this approach to deductive explanation see, Rod Thomas 'The 'Credit Crunch' from a Critical Rationalist Perspective' *Philosophy of Management* Volume 11 Number 1 2012 pp 5-24.

¹¹³ Karl Popper *Op. Cit.* 1996 p 178

¹¹⁴ Karl Popper *Op. Cit.* 1996 p 176. See also, Mark A. Notturmo 'Truth, Rationality, and the Situation' *Philosophy of the Social Sciences* Volume 28 Number 3 1998 pp 400-421.

¹¹⁵ Ahmad Sadri *Max Weber's Sociology of Intellectuals* Oxford, Oxford University Press 1992 p 130

¹¹⁶ For a discussion of this, see, Karl R. Popper *Objective Knowledge An Evolutionary Approach* Revised Edition Oxford, Oxford University Press 1979 Chapter 4; Karl Popper *Op. Cit.* 1996 Chapter 7.

questions, Gill and Johnson contrast the notion of *verstehen* with logical positivism, behaviourism and the other SAM stalwarts.¹¹⁷

Is SAM Oblivious to the Concerns of Practising Managers?

A final argument against the ubiquity of the SAM framework is its presupposition that management research is that which constructs a theoretical science. This presupposition inevitably leads to trivial arguments about the nature and possibility of a theoretical social science of management. But those arguments may be irrelevant to many of the problems that a practising manager might wish to research, for often the managerial problem is not to explain or predict a group of facts or phenomena, but to change a group of facts or phenomena. What managers often require are courses of action that produce desired effects, not explanations of why those courses of actions produced those desired effects. In such situations the object of research is finding out *how to* change things: an answer to a '*how to...*' question, not an answer to a '*why is...*' question.

The SAM continually speaks of the *testing* of a theory, but as has been discussed, this typically involves an exploration into what a known theory, when coupled with initial conditions, implies. But in such a test the theory must be given or assumed, as must the initial conditions, and what is to be investigated is what their conjunction implies in comparison to an actual observable situation. By way of contrast, a management problem may simply present a required state of affairs and what the research problem thereby necessitates is the discovery of the initial conditions that need to be technically realised so as to bring about that state of affairs.¹¹⁸ In which case, what managers really want is a different kind of theory—a theory as to what to do given a problem situation. The problem is often a practical one: 'what needs to be in place to bring about the end we desire?' or 'which arrangement performs best in bringing about the end that we desire?' The critical approach obviously remains pertinent to such scenarios. But whether there is any one theory—that is a theory in the form of a strictly universal generalisation—of especial pertinence to such problems is an entirely different question. The contrast is neatly formulated by David Miller:

The main business of technology (and practical action of all kinds) is not the formulation and critical assessment of generalizations, but the formulation and critical assessment of useful initial conditions or plans or proposals... The fundamental laws and generalizations are taken for granted. The commission is to design, or to construct, or to discover something to apply them to.¹¹⁹

This is the contrast between a theoretical social science and a social technology.¹²⁰ The latter, since it must address problems like food supply, shelter, warfare, surely has a longer history than the former, and this illustrates that the trial and error method of research can discover means to achieve ends without necessarily being able to explain why those means are effective.¹²¹ Yet this crucially important consideration is unacknowledged by the SAM framework, and aside from the odd nod toward action research, it hardly features in textbooks on business and management research methods more generally. The SAM therefore distances many part-time students of management studies from the practice of their own craft and they naturally end up rather bewildered.¹²²

¹¹⁷ John Gill and Phil Johnson *Op. Cit.* 2010 pp 59-63

¹¹⁸ Cf. Karl R. Popper *Op. Cit.* 1979 Appendix I § VIII.

¹¹⁹ David Miller *Op. Cit.* 2006 p 120. See also, Mario Bunge 'Toward a Philosophy of Technology' In: *Philosophy and Technology. Readings in the Philosophical Problems of Technology.* (Eds.) Carl Mitcham and Robert Mackey. New York, The Free Press 1983 Chapter 5

¹²⁰ Mario Bunge *Social Science under Debate - A Philosophical Perspective.* Toronto, University of Toronto Press 1999 Part B

¹²¹ I.C. Jarvie 'Technology and the Structure of Knowledge' In: *Philosophy and Technology. Readings in the Philosophical Problems of Technology.* (Eds.) Carl Mitcham and Robert Mackey. New York, The Free Press 1983 Chapter 4

¹²² They are sometimes joined by teachers of social technologies like accounting, operations management, and information systems who are equally misguided by SAM. Such teachers, if they follow the SAM framework, will equate research with the exploration of their subject from a social science angle, treating questions of philosophy and methodology as answered by SAM, and mastery of technique as uninteresting *mere* 'know-how' or 'skills'.

Conclusion

Science is no more than rational criticism... All this is so important because without respect for science, for the search for truth, we cannot manage; and with too much respect (scientism) we cannot either. It is thus vitally important to find the nice dividing line.¹²³

The case against the so-called 'Standard Account of Method' is overwhelming. The content of a sophisticated and well-regarded textbook presentation has been studied from a logical perspective. It was revealed to be species of an uncritical rationalism that is logically defective in several respects. The methodological reflections that it purports to enable were revealed to be largely reflections of a poor understanding of the logical role of empirical evidence in research, which would seem to be, in turn, a reflection of an almost wholesale misreading of twentieth-century philosophy.¹²⁴ Indeed, SAM furthers an appreciation of methodology that 'decreates' both the philosophy of science and the philosophy of social science; the very subjects that it would seem to try to summarise and convey.¹²⁵ Moreover, SAM fails to distinguish social science from social technology, a distinction that is crucially important to a proper understanding of management practice, whilst at the same time seeming to suggest that management research requires its own methodological discipline, a suggestion that seems challengeable given that the problems addressed are fairly universal to all kinds of social study and have been most thoroughly examined within the theory of knowledge itself. Overall, the continued presentation and defence of SAM, as the conventional wisdom of how research philosophy and methodology ought to be taught to management students, is thoroughly lamentable.

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¹²³ Karl Popper 'Letter to Isaiah Berlin 21 March 1959'. In: Karl Popper *After the Open Society. Selected Social and Political Writings*. (Ed.) Jeremy Shearmur and Piers Norris Turner. London, Routledge Classics Edition 2012 pp 201-202

¹²⁴ Cf. Ernest Gellner's quip that 'One... sometimes has the impression that a 'positivist' is anyone who subjects a favoured theory to the indignity of testing by mere fact.' See, Ernest Gellner *Relativism and the Social Sciences* Cambridge, Cambridge University Press 1985 p 120

¹²⁵ The neologism 'decreation' is borrowed from Simone Weil. Her definition was 'Decreation: To make something created pass into the uncreated'. See, Simone Weil *The Simone Weil Reader* (Ed.) George A. Panichas. New York, David McKay 1981 p 350. It seems appropriate since to 'destroy' something suggests awareness that the something once existed.