Diametros nr 12 (czerwiec 2007): 1 – 24

A Justification For Popper's Non-Justificationism

Chi-Ming Lam

Introduction

Based on a somewhat simple thesis that we can learn from our mistakes despite our fallibility, Karl Popper develops a *non-justificationist* theory of knowledge and of its growth. According to Popper (1989), knowledge, especially scientific knowledge, grows through unjustified conjectures (i.e. tentative solutions to our problems), which are controlled by criticism, or attempted refutations (including severely critical tests). While these conjectures may survive the criticism and be accepted tentatively, they can never be positively justified: they cannot be established either as certainly true or even as probable in the sense of the probability calculus. As he puts it,

> Criticism of our conjectures is of decisive importance: by bringing out our mistakes it makes us understand the difficulties of the problem which we are trying to solve. This is how we become better acquainted with our problem, and able to propose more mature solutions: the very refutation of a theory [...] is always a step forward that takes us *nearer to the truth* [italics added]. And this is how we can learn from our mistakes. (Ibid., vii)

Indeed, many scholars, like R. Bailey (2000) and Notturno (2000), regard this non-justificationist or falsificationist epistemology as the most distinctive feature of Popper's philosophy. Yet, Popper's non-justificationism is also what makes his philosophy so unpopular: many of the epistemologists with whom he is contemporary, Popper (ibid.) maintains, are justificationists or verificationists who demand that we should accept only those beliefs which can be verified or probabilistically confirmed. This partly accounts for Bartley's (1976) seemingly exaggerated assertion that "If he [Popper] is on the right track, then the majority of professional philosophers the world over have wasted or are wasting their intellectual careers" (463). Is Popper on the right track? If so, why do so many philoso-

phers reject his teachings? In the following discussion, I start with the problem of the bounds of reason which, arising from justificationism, disputes Popper's non-justificationist epistemology. Then I consider in turn three views of rationality that are intended to solve this problem, viz. comprehensive rationalism, critical rationalism, and comprehensively critical rationalism. Finally, I turn to the practical side of the issue and explore some possible ways of implementing the Popperian approach.

The Problem of the Bounds of Reason

Although Gettier's (1963) polemical but persuasive counter-examples have showed that one can have *justified true belief that p* without *knowing that p*, where *p* is a sentence, Haack (1993) claims that mainstream epistemologists still see knowledge as justified true belief: one knows that *p*, if and only if one believes that *p*, *p* is true, and one has good grounds for the belief. It is within this justificationist context that the problem of the bounds of reason emerges. To put it in a nutshell, the problem is that we are unable to verify or justify our beliefs rationally. In fact, this problem had been widely discussed by sceptical philosophers as early as the Hellenistic period. For example, Pyrrho of Elis, regarded as the founder of the sceptical tradition, suggests suspending judgement in order to achieve tranquillity, since good grounds can be found not only for any belief but also against it (Annas and Barnes 1994). However, just as A. Bailey (2002) maintains that "an examination of Sextus' Pyrrhonism will be an examination of the original source of most of the disjointed arguments and recommendations that pass for scepticism today" (20), it seems sensible to turn to the influential arguments of Sextus Empiricus for a sceptical understanding of the problem.

According to Sextus (1994), there are at least three modes of suspension of judgement which derive from infinite regress, hypothesis and reciprocity:

> [166] In the mode deriving from infinite regress, we say that what is brought forward as a source of conviction for the matter proposed itself needs another such source, which itself needs another, and so *ad infinitum*, so that we have no point from which to begin to establish anything, and suspension of judgement fol-

> lows…. [168] We have the mode from hypothesis when the Dogmatists [the philosophers with positive beliefs], being thrown back *ad infinitum*, begin from something which they do not establish but claim to assume simply and without proof in virtue of a concession. [169] The reciprocal mode occurs when what ought to be confirmatory of the object under investigation needs to be made convincing by the object under investigation; then, being unable to take either in order to establish the other, we suspend judgement about both. (41)

While the infinite regress mode shows the logical impossibility of verifying or justifying anything, both the hypothetical and reciprocal modes are intended to rule out the possibility of circumventing the problem of infinite regress. More specifically, Sextus' objection to the hypothetical mode is that if the dogmatist is convincing when s/he makes a hypothesis, then the sceptic will be no more unconvincing when s/he hypothesizes the opposite. As for the reciprocal mode, it is in reality a more complicated case of the hypothetical mode since, in such a circular mode, the argument intended to establish the dogmatist's claim rests for its effect on the hypothesis that the claim in question can already be established (A. Bailey 2002). Taken together, Sextus' three modes (or arguments) deny our claims to rationally justified true belief and thus to knowledge.

Persuasive as Sextus' sceptical arguments are, their implication that we should suspend judgement about everything can hardly be accepted, because what follows is suspension of all beliefs: Sextus (1994) asserts that "Suspension of judgement is a standstill of the intellect, owing to which we neither reject nor posit anything" (5); yet one who believes that *p* is clearly one who mentally posits that *p*. Accordingly, the fideists, for instance, who affirm that knowledge of religious matters can be obtained only through faith and cannot be established by rational means, do not follow the counsel of Sextus. Instead, without recourse to reason due to its limitation, they suggest making a subjective commitment to or a choice of what to believe. However, this kind of subjective irrationalism renders not only the choice between competing beliefs arbitrary but also the irrationalist immune from criticism. Bartley (1982) explains the latter in terms of a *tu quoque* (you as well) argument: "To any critic, the irrationalist can reply: 'tu quoque', reminding

him that people whose rationality is similarly limited should not berate others for admitting to and acting on the limitation" (135). As the *tu quoque* argument can be used by everybody – including the irrationalist's opponent, no rational criticism of subjective commitments is possible if this argument is not defeated.

Indeed, apart from demonstrating the problem of the bounds of reason that we are unable to verify or justify our beliefs rationally so any choice between competing ideas is arbitrary and irrational, the sceptical and fideistic arguments challenge the possibility of Popper's conception of rationality: they imply the impossibility of the *progress* of knowledge and the *criticism* of theories respectively. Yet, according to Popper (1989), "it is essentially their [scientific theories'] critical and progressive character – the fact that we can *argue* about their claim to solve our problems better than their competitors – which constitutes the rationality of science" (vii). Obviously, as long as the above-mentioned arguments go undefeated, Popper's assertion can hardly be defended.

Solution One: Comprehensive Rationalism

Two Dogmatic Approaches

To stop the infinite regress of justifications, dogmatists argue for the possibility of achieving certain basic beliefs, which do not require further justification but can be used to justify other beliefs, because their truth can be comprehended immediately – immediate knowledge of basic propositions or first principles. The attempt to identify the source of this immediate knowledge divides the dogmatists: while empiricists appeal to experience as a source of immediate knowledge, rationalists or intellectualists appeal to reason or intellectual intuition. However, just as Van Fraassen (2002) holds that the criteria of use of the term 'empiricism' are not very strict or extensive, the meanings of the terms 'reason' and 'rationalism', which can be used in opposition to 'irrationalism' or 'empiricism', are not distinct. Following Popper (1966), 'reason' and 'rationalism' will be used here in a wide sense to cover not only intellectual activity (intellectualism) but also observation and experiment (empiricism). In other words, the terms 'rationalism' and 'in-

tellectualism' will be used in opposition to 'irrationalism' and 'empiricism' respectively.

In response to the claim of empiricism that our senses enable us to know immediately the truth of certain propositions, or observation statements, the sceptics have long asserted that such observation statements as 'The boat is stationary' and 'The oar is straight' do not provide a secure basis for knowledge. The reason is that our senses often offer us conflicting appearances – for example, "The same boat appears from a distance small and stationary, but from close at hand large and in motion…. The same oar appears bent in water but straight when out of it" (Sextus 1994, 31) – without telling us which appearance should be taken for reality. As we can never, according to Sextus, ascertain whether the real world is as it appears to be, we can never assume any observation statement to be true on the basis of our experience. Ironically, it is Hume, a Scottish empiricist philosopher himself, who influentially develops and strengthens such sceptical argument against empiricism in the history of modern philosophy. As Bartley (1982) puts it,

> Hume's own arguments showed that – apart from the question of the reliability and dubitability of sense experience itself – the empiricist criterion was inadequate: it excluded not only claims about God and angels but also scientific laws, causality, memory, and claims about other people. None of these could be reduced to sense experience; empiricism in effect [was] reduced to solipsism – to a variety of radical subjectivism. (140)

Accordingly, what renders empiricism untenable is its exclusion of numerous obviously tenable laws, principles, concepts and views, including the popularly held belief that other people exist and have minds.

With respect to the claim of intellectualism that our intellectual intuition enables us to see immediately – by thinking alone – the truth of certain first principles, or self-evident propositions, an exemplar of such truths is mathematical knowledge. For one thing, intellectualists believe that substantial a priori knowledge (i.e. knowledge of a reality independent of our beliefs and experience) exists and that the truths of mathematics relate to an objective reality which is independent of our minds (Carruthers 2004). Indeed, the remarkable achievement of

Euclidean geometry, in which the truth of theorems is proved by self-evident processes of reasoning from self-evident axioms, has inspired the composition of several important philosophical works in the geometrical manner – with axioms, theorems, and proofs (Musgrave 1993). Examples include Hobbes' *Leviathan*, Descartes' *Principles of Philosophy* and Spinoza's *Ethics*. Yet, the sceptical response to intellectualism, despite the Euclidean achievement, is entirely negative. Apart from the aforementioned hypothetical argument, the sceptics object that self-evidence cannot guarantee truth for two main reasons. First, there are many propositions our ancestors thought self-evident but we think false: 'The earth is flat', for instance. Second, self-evident truths cannot exist at all: since "standards of truth having appeared perplexing, it is no longer possible to make strong assertions, so far as what is said by the Dogmatists goes, either about what seems to be evident or about what is unclear" (Sextus 1994, 91). More importantly, the invention of non-Euclidean geometries reveals that the question of whether space is Euclidean or not is a question of physics to be settled ultimately by observation and experiment[1], and thus that Euclidean geometry does not give us a priori knowledge of the structure of space (Musgrave 1993). In other words, even Euclidean geometry – the intellectualist exemplar of knowledge – fails to establish the existence of substantial a priori knowledge.

Popper's Critique

Paradoxically enough, Popper's (1989) comment on empiricism and intellectualism is that "they are mistaken although I am myself an empiricist and a rationalist [intellectualist] of sorts" (4). What he really means here is that although both sensory experience and intellectual intuition have an important role to play in the growth of knowledge, these roles hardly resemble those their respective advocates ascribe to them. Experience (including experimental and observational experience), as stated by Popper (1966), does not consist of pure sense data, but "a web of guesses – of conjectures, expectations, hypotheses, with which there are

[1] This empiricist view of geometry is not without its difficulties, a grave one of which is that it is impossible to find geometric objects, like points and lines, in experience exactly as geometry conceives them (Torretti 1984).

interwoven accepted, traditional, scientific, and unscientific, lore and prejudice" (388): it is the result of usually mistaken guesses, of testing them, and of learning from our mistakes (rather than a source of authoritative knowledge as conceived by empiricists); and the resort for criticizing our theories. With regard to intellectual intuition, Popper (1966), acknowledging its importance to scientific discovery, explains that

> Everybody who 'understands' an idea, or a point of view, or an arithmetical method, for instance, multiplication, in the sense that he has 'got the feel of it', might be said to understand that thing intuitively; and there are countless intellectual experiences of that kind. (15)

However, he denies the capability of these experiences to establish the truth of any idea or theory (as conceived by intellectualists), no matter how intensely and intuitively we may feel that it must be true. For one thing, somebody else may have an equally intense intuition that the same theory is false. In that case, the choice between such contrary intuitions will become arbitrary. Accordingly, Popper maintains that neither experience nor intuition can serve as an authoritative source of immediate knowledge. The reason why they are thought they can do so is that both empiricism and intellectualism are epistemologically *optimistic* and *authoritarian*.

According to Popper (1989), the doctrine that underlies the optimistic epistemology inherent in the teaching of Bacon and Descartes (representatives of empiricists and intellectualists respectively), is that truth is manifest: truth can always be recognized as truth by our power of perception or intuition if it is nakedly put before us. Indeed, while Bacon's doctrine of manifest truth is based on the notion of the *veracitas naturae* (the truthfulness of Nature), that Nature is seen as an open book which can be understood by people with an unprejudiced mind, Descartes' is built on the theory of the *veracitas dei* (the truthfulness of God), that what we clearly and distinctly see to be true must be true because God would not deceive us. Although this optimistic view of human power to discern truth has inspired

the birth of modern science and the hope of a free society, Popper asserts that the optimistic epistemologies of both Bacon and Descartes are false:

> For the simple truth is that truth is often hard to come by, and that once found it may easily be lost again. Erroneous beliefs may have an astonishing power to survive, for thousands of years, in defiance of experience, with or without the aid of any conspiracy. (Ibid., 8)

An epistemology that holds that truth is manifest also leads to fanaticism in that those who fail to see the manifest truth are often considered either to refuse wickedly to see it themselves or to harbour prejudices inculcated by evil powers which conspire to suppress it. Considering that both Bacon and Descartes require us to eliminate all prejudices from our mind – so as to enable it to recognize the manifest truth – and to discard all beliefs except those whose truth has been perceived by us, their approach is anti-authoritarian in the sense that we do not need authorities since we can perceive and pursue the truth ourselves. However, Popper (ibid.) discovers a deeper form of authoritarianism in this apparent anti-authoritarian approach: Bacon appeals to the authority of the senses, whilst Descartes appeals to the authority of the intellect. Popper argues further that Bacon and Descartes, in establishing senses and intellect as authorities within each individual, split the individual into a higher part (having authority with respect to truth) and a lower part (making up our ordinary selves and being responsible for our prejudices, our errors and our ignorance). In fact, the authoritarian character of the epistemology of such dogmatists as Bacon and Descartes is also reflected in the traditional questions 'How do you know?' and 'What is the source of your assertion?' that they ask. These questions, as Popper says, are authoritarian and completely misconceived because they assume that knowledge derives its validity from its source and is valid only if the source is authoritative. But this assumption of dogmatists fails to distinguish clearly enough the question of origin from the question of validity:

> [I]n general the two questions are different; and in general [apart from the validity of an historical assertion] we do not test the validity of an assertion or information

> by tracing its sources or its origin, but we test it, much more directly, by a critical examination of what has been asserted – of the asserted facts themselves. (Ibid., 24-25)

Basically, the traditional questions raised by dogmatists about the sources of our knowledge are a reflection of what Popper (1966) calls 'comprehensive rationalism', which can be expressed in the form of the justificationist principle that "any assumption which cannot be supported either by argument or by experience is to be discarded" (230). Yet, Popper claims that this principle of comprehensive rationalism is logically untenable, since it cannot be supported by argument or experience and thus should itself be discarded. To extricate himself from the justificationist predicament of dogmatists, Popper proposes – in contrast with comprehensive rationalism – a non-justificationist view of rationality called critical rationalism.

Solution Two: Critical Rationalism

Popper's Original Version

Formulated fundamentally by Popper (1966) as an attitude of admitting that "*I may be wrong and you may be right, and by an effort, we may get nearer to the truth*" (225), critical rationalism is an attitude of readiness to listen to critical arguments and to learn from our mistakes. Near the end of his life, Popper (1996) reveals that the idea of this formulation is owed to what a young Carinthian member of the National Socialist Party, not long before the year 1933 (the year Hitler came to power in Germany), said to him: "What, you want to argue? I don't argue: I shoot!" (xiii). Indeed, the young man's readiness to shoot rather than to argue may have planted the seed of three core concepts of Popper's critical rationalism, viz. *fallibilism* ('I may be wrong'), *criticism* (the required 'effort'), and *verisimilitude* ('we may get nearer to the truth').

By 'fallibilism' Popper (1966) means the view that we are fallible and that the quest for certainty is mistaken. Here, while the former view can be substantiated, historically, by the fact that what we once thought to be well-established may later turn out to be false, the latter can be understood, theoretically, by the prob-

lem that what we can explain or know is limited. One such limitation concerns the power of our brain to explain: according to Hayek (1952), any apparatus of classification must possess a structure of a higher degree of complexity than that possessed by the objects which it classifies; it implies that no explaining agent can ever explain objects of its own kind or own degree of complexity, and thus that the human brain can never fully explain its own operations. Another limitation arises from our incapability of predicting the future course of history due to our incapability of predicting the future growth of human knowledge: as Popper (2002a) puts it, "*if there is such a thing as growing human knowledge, then we cannot anticipate today what we shall know only tomorrow*" (xii). Accordingly, Popper's fallibilism denies the possibility of certain knowledge and of authoritative sources of knowledge. Instead, he asserts that nothing is secure and that our knowledge remains conjectural and fallible.

However, fallibilism need in no way cause any sceptical or relativist conclusions in that we can learn from our mistakes. And criticism, Popper (1966) claims, "is the only way we have of detecting our mistakes, and of learning from them in a systematic way" (376). It includes criticizing the theories or conjectures not only of others but of our own. Since, for Popper (1989), criticism invariably consists in pointing out some contradiction (within the theory criticized, or between the theory and another theory which we have some reason to accept, or between the theory and certain statements of facts), deductive logical reasoning is suggested as *the* method of criticism: only by purely deductive reasoning can we discover what our theories imply, and thus where contradictions lie. More specifically, the importance of deductive or formal logic to criticism lies in the fact that it adopts the rules by which truth is transmitted from premises to conclusions while falsity is re-transmitted from conclusions to premises. It is this re-transmission of falsity that "makes formal logic the *Organon of rational criticism* – that is, of refutation" (ibid., 64). In fact, rejecting all attempts at the justification of theories, Popper (2002b) replaces justification with criticism in his non-justificationist or falsificationist view of rationality: "Previously, most philosophers had thought that any claim to rationality meant rational *justification* (of one's beliefs); my thesis was, at

least since my *Open Society*, that rationality meant rational *criticism* (of one's own theory and of competing theories)" (173). Yet, considering a theory may stand up to criticism better than its competitors, he concedes that we can sometimes 'justify' our *preference* for a theory in the *negative* sense that a theory receives some kind of support if it has, rather than secured positive evidence, withstood severe criticism.

The idea of getting nearer to the truth or achieving greater verisimilitude is crucial to Popper's concept of critical rationalism. For it is only the idea of truth that allows us to speak sensibly of fallibilism and criticism: the purpose of searching for mistakes and eliminating as many of them as we possibly can through critical discussion is to get nearer to the truth. Criticizing subjective theories of truth for conceiving truth as something we are justified in believing or in accepting in accordance with some criterion of well-foundedness, Popper (1989) adopts Tarski's correspondence theory of objective truth that a statement is true if and only if it corresponds to the facts. For one thing, Tarski's objective theory of truth allows us to make certain assertions that appear obviously correct to Popper but self-contradictory within those subjective theories of truth. The following are examples of these assertions: a theory may be true even if nobody believes it, and even if we have no reason to think it true; another theory may be false even if we have comparatively good reasons for accepting it; we search for truth, but may not know when we have found it; and we have no criterion of truth, but are guided by the idea of truth as a regulative principle. To allay suspicions about the idea of getting nearer to the truth, or of the growth of knowledge, Popper (1979) introduces a logical idea of verisimilitude by combining two notions from Tarski, viz. truth and content. Defining the class of all true statements and false statements following from a statement *a* as the truth content and falsity content of *a* respectively, Popper explains that

> Intuitively speaking, a theory T_1 has less verisimilitude than a theory T_2 if and only if (a) their truth contents and falsity contents (or their measures) are comparable, and either (b) the truth content, but not the falsity content, of T_1 is smaller than that of T_2, or else (c) the truth content of T_1 is not greater than that of T_2, but its falsity content is greater. (Ibid., 52)

And he regards the search for verisimilitude rather than truth as a more realistic aim of science in that while we can never have sufficiently good arguments for claiming that we have actually attained the truth, we can have reasonably good arguments for claiming that we may have made progress towards the truth (i.e. that the theory T_2 is nearer to the truth and thus preferable to its predecessor T_1).

A Whiff of Justificationism

Notwithstanding an emphasis on anti-authoritarianism and non-justificationism – where justification is understood in the usual sense of holding positive reasons that establish a theory – in his conception of rationality, Popper's explicit defence of critical rationalism in *moral* terms leaves a trace of justificationism. For whilst explicating why critical rationalism is morally superior to irrationalism which, Popper (1966) maintains, due to its stress on emotions and passions, leads to crime and anti-equalitarianism, he admits repeatedly in his works that his rationalism is limited and depends on an irrational faith in reason:

> [...] whoever adopts the rationalist attitude does so because he has adopted, consciously or unconsciously, some proposal, or decision, or belief, or behaviour; an adoption which may be called 'irrational'. Whether this adoption is tentative or leads to a settled habit, we may describe it as an irrational *faith in reason*. So rationalism is necessarily far from comprehensive or self-contained. (Ibid., 231)

Here is another example of such an admission:

> I frankly confess that I choose rationalism because I hate violence, and I do not deceive myself into believing that this hatred has any rational grounds [...]. [M]y rationalism is not self-contained, but rests on an irrational faith in the attitude of reasonableness. (Popper 1989, 357)

This kind of fideistic confession made by Popper is problematic in two respects, no matter how morally admirable his sentiments may be. First, Popper seems to resort to justificationism, since he assumes a foundation – a faith in reason – on which rational arguments are based. Second, by admitting that the foundation of his rationalism is irrational, Popper lays himself open to the aforesaid *tu*

quoque argument of irrationalists and thus has no grounds to criticize the irrational commitments of others.

As a former student and colleague of Popper, Bartley (1987b) accuses Popper of fideism too. He asserts that Popper's fideistic remarks are not in line with the main thrust and intent of his non-justificationist methodology, but superfluous remnants carried over from the dominant tradition of limited rationalism – a tradition that assumes the impossibility of comprehensive rationalism. Bartley (1982) attributes this tradition, common in much British and American epistemology, to certain assumptions and doctrines of justificationist philosophy that have the effect of preventing the problem of the limits of reason from being solved within its framework. One such influential assumption is that criticism is necessarily fused with justification: to criticize a position, one must show either that it cannot be derived from (i.e. justified by), or that its denial can be derived from, (the) rational authority, which is itself not open to criticism. Indeed, it is this assumption, Bartley argues, that causes an authoritarian structure to have been retained and gone unnoticed in modern philosophies that have been designedly anti-authoritarian and critical in spirit. And he suggests that the solution to the problem of the bounds of reason lies in the separation of criticism and justification.

Solution Three: Comprehensively Critical Rationalism

Bartley's Boundless Version

To achieve a comprehensive concept of rationality that can provide a complete defence against irrationalist attacks, Bartley (1982) proposes a non-justificationist theory of criticism wherein criticism is not based on something that is taken for granted as justified or beyond criticism. According to Bartley, there are four important kinds of such non-justificational criticism, viz. testing a theory against experience, comparing it against other theories, pushing it against whatever problems it is intended to solve, and testing it logically for consistency. Locating rationality in criticism rather than justification (as Popper does) yet abandoning all justification (including the irrational justification for adoption of the rationalist attitude Popper seems to concede), he characterizes a rationalist as

> [...] one who holds *all* his positions, including his standards, goals, decisions, etc., and his basic philosophical position itself, open to criticism; one who protects nothing from criticism by justifying it irrationally; one who is committed, attached, addicted, to no position [...]; one who is willing to *entertain* any position, but who *holds* (tentatively) only those positions which have been subjected to and have survived intense criticism. (Ibid., 157-158)

This characterization, which Bartley calls 'comprehensively critical' or 'pan-critical' rationalism, is *boundless* in two senses. First, in contrast with locating rationality in justification wherein eventual irrational justification or commitment would be inevitable, locating rationality in criticism and subjecting everything – including the rationalist position itself or the very practice of critical argument – to criticism would not lead to infinite regress, circularity or the need for justifying or committing to anything. This, accordingly, renders rationality unlimited and spells defeat for the *tu quoque* argument: a comprehensively critical rationalist, who accuses her/his opponent of protecting some position from criticism through irrational commitment to it, is not open to the charge that s/he is committed likewise. Second, the process of criticism is potentially infinite – one can criticize criticisms indefinitely – provided that when one position is subjected to criticism, others are taken for granted, not as justified or beyond criticism, but as unproblematical at the moment. Indeed, such a process comes to a halt only when we reach, rather than uncriticizable authorities, positions against which we can find no criticisms. However, when a concrete argument is produced later to challenge these positions and thus renders them problematical, the critical process resumes. In other words, "there is no theoretical limit to criticizability – and to rationality" (ibid., 160).

Considering Bartley's solution follows directly from Popper's general philosophical position and strengthens his critical rationalism by making it boundless and hence comprehensive, it can be regarded as "a Popperian advance upon Popper's own work" (R. Bailey 2000, 145). In fact, even Popper himself recognizes the contribution of Bartley's theory of non-justificational criticism to his rationalism: he (1966) acknowledges "Bartley's incisive criticism" (369), which inspires him to

alter the terminology of Chapter 24 of *The Open Society and Its Enemies* (a crucial place to explain his critical rationalism) so as to tone down its fideism, accepting that

> Bartley's simple formulation – that *justification* can be replaced by *non-justificational criticism* – and his emphasis on the change of focus involved in the transition from the various *justificationist philosophies* to a *critical philosophy which does not aim at justification* is most illuminating. (Popper 1983, 27)

Yet, curiously, Popper does not seem determined to eradicate his fideistic approach in that he has only corrected it in a patchy manner all along – dropping some of the old notions but retaining the old terminology (e.g. 'critical rationalism') and old slogans (e.g. 'irrational faith in reason') – since his discussion with Bartley about it in April 1960 (Bartley 1982). Popper does not clarify this puzzling situation until 1992, when he expresses for the first time how he really feels about Bartley's interpretation of his critical rationalism as fideism at a seminar in Kyoto: in contrast to Bartley (1987b), who repeatedly claims that his *theory* of rationality "attempts to build on, to interpret, to correct, and to generalize Popper's *theory* [italics added]" (205), Popper (1999) emphasizes that his critical rationalism is not a thesis or theory at all but an *attitude* of critical discussion which is neither true nor false; accordingly, it cannot be replaced by a theory of rationality (e.g. Bartley's comprehensively critical rationalism) which can be true or false, and is in essence different from fideism which is a philosophical thesis that all our theories must be ultimately based on faith.

According to Artigas (1999), Bartley's underlying reason for accusing Popper of fideism is that Popper's critical rationalism fails to solve his problem, which is centred on demolishing the argument of those relativists, sceptics, and fideists who reproach the rationalist with the *tu quoque* argument. Unfortunately, however, Bartley's problem is not the concern of Popper which is centred on the growth of knowledge (in epistemology) and the improvement of society and its institutions (in social theory). In other words, Bartley's comprehensively critical rationalism – even though it is often presented as a complement to Popper's criti-

cal rationalism – really changes Popper's problem and complicates his solution. In fact, when Popper describes his critical rationalism as being based on a 'faith in reason' that implies a 'moral decision', on the one hand, he is using the term 'faith' in a very special sense to refer to, rather than the blind faith of fideism, the adoption of positions when it is impossible to provide a conclusive logical proof of their adequacy; on the other, he is referring to the attitude of reasonableness that promotes such social values as the respect for freedom, justice, equality, and peace. Therefore, Bartley's accusation of fideism against Popper, which seems entirely drawn from logic without paying due regard to the profound ethical nature of Popper's decision or clarifying Popper's special use of the term 'faith', is unjust and unfounded.

After all, the process of criticism not only requires certain non-epistemic values, like respect for truth, people, and their arguments, but also entails responsibility, for example, to offer or accept criticism or to learn to participate effectively in a critical discussion (Gattei 2002). Obviously, such a critical or rationalist attitude cannot be the simple result of logical arguments and requires a moral decision to adopt it: as Popper (1966) puts it, "neither logical argument nor experience can establish the rationalist attitude; for only those who are ready to consider argument or experience, and who have therefore adopted this attitude already, will be impressed by them" (230). Yet, since it is possible to argue in favour of its adoption (as Popper does himself), the moral decision can be considered 'rational' rather than an irrational faith that Popper concedes unnecessarily.

A Challenge to Its Boundlessness

As regards Bartley's comprehensively critical rationalism, even from a *theoretical* or *logical* point of view, there is much controversy over its adequacy: as Popper (1996) explains it, "because this attempt bore the character of a definition, it led to endless philosophical arguments about its adequacy" (xii). Indeed, the boundlessness of comprehensively critical rationalism, which is embodied in the statement (S) that all statements (or positions) are criticizable, is subjected to three main criticisms. To start with, not only are logical truths (e.g. 'Either it is raining or it is not raining'), analytic truths (e.g. 'All bachelors are unmarried') and arithme-

tic identities (e.g. '2 + 2 = 4') uncriticizable in principle, but so also are many synthetic statements that are trivially true, such as 'I am more than three years old' and Watkins' (1971) "There exists at least one sentence written in English prior to nineteen eighty that consists of precisely nineteen words" (59). One way of answering this objection is to note that we have developed methods for checking the correctness of – and thus, in a sense, criticizing – these truths and identities, although we seldom need to perform the check (Miller 1994). Admittedly, no criticism of these true statements will be successful; yet, S does not require that all statements be successfully criticizable. In fact, whether the decision to problematize a particular statement in a particular problem situation is rational depends not upon its criticizability simply – which is seen by comprehensively critical rationalists as a property shared by every statement – but upon whether sensible criticisms of it are feasible at the moment, and hence upon both the problem situation and the background knowledge (Radnitzky 1987). Consider the statement '2 + 2 = 4' as an illustration. While in the context of a calculus with mathematical interpretation no sensible criticisms of it are feasible, in the context of the application of arithmetic the issue cannot be decided unless we have information about the domain: for instance, suppose the plus is construed as the operation of physically putting together, then the statement is false if it is made to refer to a population of mercury drops (ibid.).

Another objection to S is that comprehensively critical rationalism is committed to deductive logic, which is uncriticizable. Accordingly, the challenge to Bartley, as Derksen (1980) asks, is "whether, given his view that 'logic' is a necessary presupposition for any critical, rational argument, it is possible for a CCR-ist [comprehensively critical rationalist] to be *rationally* argued out of his tentative belief in logic" (63). In reply to this challenge, Bartley (1980) reiterates a point made by Popper that criticism presupposes the notion of deducibility (i.e. the idea of the transmission of truth from premises to conclusions and the retransmission of falsity from conclusions to premises) so that when the conclusion of a valid argument is found to be false, that falsity is retransmitted to the premises whence it came, at least one of which must then be re-evaluated and corrected. And Bartley

concedes that deducibility presupposes a minimal logic which he believes to be the law of non-contradiction (one of the three laws of thought, which states that a proposition cannot be both true and not true), for if contradictions were allowed, falsity could not be retransmitted and criticism in the intended sense would be impossible. Echoing Bartley's defence that a minimal logic is presupposed in the argument or revision situation, Baghramian (2004) asserts that several core rules of logic – including the law of non-contradiction – are "preconditions of intelligibility of thought; they are minimum requirements for any coherent language-use" (166). However, given Bartley's insistence that everything, including the practice of critical argument and using logic, is open to criticism and rejection, how could he argue himself out of such practice while presupposing logic in that argument necessarily? This question can be answered in two ways. First, although logic is criticizable in principle, not all logic could be criticized at the same time: "certain logical systems or parts of such systems may be criticized, but only with the help of some other parts of logic" (Radnitzky 1987, 305). Second, a large part of the philosophical tradition evidences the possibility of being argued logically out of the practice of rational argument and using logic. One good example is the existence of such logical paradoxes as the liar paradox[2] and Grelling's paradox[3] that are reached in the course of *rigorously logical* argument: using logic, and presupposing logic, we reach illogic (Bartley 1980). If these paradoxes could not be shunned, then we would have strong reasons to mistrust logic and rational argumentation.

Interestingly, comprehensively critical rationalism is also criticized by both Watkins (1987) and Post (1987) for producing something like the liar paradox and

---

[2] The liar paradox is generated by a sentence that, directly or indirectly, asserts its own falsity. A typical example is: (L) *This sentence is false*. In this case, the argument runs as follows: if (L) is true, then what it asserts is so; but what it asserts is that (L) is false, hence (L) is false. Yet, if (L) is false, then what it asserts is not so; but what it asserts is that (L) is false, hence (L) is true. In other words, the paradox arises because it seems possible to prove that (L) is true if and only if it is false, and vice versa.

[3] Grelling's paradox is concerned with the fact that some words are self-describing, or *autological* (e.g. 'short' is a short word, 'English' is an English word) while other words are non-self-describing, or *heterological* (e.g. 'long' is not a long word, 'Chinese' is not a Chinese word). It arises when we consider whether the word 'heterological' is heterological: on one hand, if 'heterological' is a heterological word, then it is clearly autological (by definition), yet heterological (by assumption); on the other hand, if 'heterological' is not a heterological word, then it is clearly heterological (by definition), yet autological (by assumption). In either case, a contradiction results.

generating an uncriticizable statement. The crux of the problem is not that S is uncriticizable, but that the statement 'S is criticizable' is uncriticizable. To understand how this problem arises, we can consider the following two claims – A and B – that Bartley (1987a) accepts, wherein A is an alternative formulation of S.

(A) All positions are open to criticism.

(B) A is open to criticism.

Given A implies B, if we were to show that B is false and thus to criticize B, then we should have shown that A is false too. In other words, we should have criticized A. However, since this possibility is what B envisages, B would be true. Accordingly, "Any attempt to criticize B demonstrates B; thus B is uncriticizable, and A is false" (Bartley 1987a, 320). In response to this objection, Bartley emphasizes that he is well aware of its possibility before Watkins and Post. Following Tarski's analysis, Bartley attributes the inevitability of such a paradoxical result to three characteristics A or S possesses: it refers to itself as criticizable, interprets criticizability in terms of possible falsity and thus involves the semantical concepts of truth and falsity, and is expressed in natural language. And Bartley believes that this kind of semantical paradox can be dealt with through such means as Russell's theory of types and Tarski's distinction between object-language and meta-language so that the criticizability of B can be restored[4]. Yet, this response seems not persuasive in that criticizability "depends on such things as the knowledge and technique available at the time [...] which are *not purely semantic matters* [italics added] but pragmatic-temporal, or material" (Post 1987, 262); therefore, the resort to Russell's or Tarski's solution to the semantical paradox appears not to the point. Perhaps the point is that the paradoxical argument is not valid at all. According to Miller (1994), although A, which talks about positions rather than statements, is rationally acceptable, B does not follow from A because B is not in the ordinary way what we call a position but a statement. As B is not a consequence of A, the paradox is defeated. In fact, the result does not change even if the word 'positions'

[4] Apart from Russell's and Tarski's approaches to such semantical paradox, various strategies, like Kripke's concept of grounding, Van Fraassen's device of supervaluations, and Gupta's theory of revision rule, have been developed in recent decades to resolve it (Martin 1984).

is replaced by the word 'statements' in A. For comprehensively critical rationalists, Miller claims, must not be understood to hold that every statement they count as true (i.e. rationally accept) is on its own criticizable. Therefore, if A is changed to 'All statements are open to criticism' while B remains unchanged, then A has to be rejected as a false and rationally unacceptable statement. In other words, B is not a consequence of A, which defeats the paradox similarly.

Considering these main criticisms against S turn out to be innocuous to its credibility, Bartley's assertion that comprehensively critical rationalism is boundless can be taken as tenable. Accordingly, Bartley's comprehensively critical rationalism can be regarded as *theoretically* or *logically* superior to Popper's critical rationalism in the sense that it is capable of demolishing the sceptical and fideistic arguments effectively and thus solving the problem of the bounds of reason completely.

From Theory to Practice

Yet, to put such a non-justificationist theory into practice, it is necessary to identify and combat a nest of philosophical presuppositions that work against criticism and confine individuals to the justificationist framework. And, just as the Chinese proverb says that 'It is easy to dodge an open spear thrust but difficult to guard against an arrow shot from behind', it is unlikely to circumvent or eliminate the effects of these anti-criticism presuppositions unless various hidden stratagems that reduce and eschew criticism are exposed to criticism. Here, it may be said that both Popper and Bartley, as advocates of non-justificationism, spare no pains to reveal such protective or evasive stratagems. For example, in explaining why justification and criticism are fused in the way described above (the view to be criticized is examined for whether it can be derived from or justified by the uncriticizable authority), Bartley (1982) reveals the underlying assumption of justificational criticism to be that the view being examined inherits logically whatever merit it possesses from the justifying authority where it is derived: "if the justifying authority is true, the view being examined, if derivable from it, is true" (153). The hidden philosophical dogma whence this assumption comes Bartley calls the

'transmissibility assumption', which states that *all* measures and tokens of intellectual value (e.g. truth), as properties of statements, are transmitted from premises to conclusion through the relationship of logical deducibility. Admittedly, if all measures of intellectual value resembled truth in being transmissible, all criticism would certainly be justificational. However, while truth is just one of the *very few* properties that are transmissible, Bartley maintains, most other properties of statements (e.g. the properties of 'being written in English' and 'empirical character') are non-transmissible. This fact, together with the aforementioned possibility of non-justificational criticism, shows that it is not necessary for criticism to be bound by the justificational transmissibility assumption.

As for Popper, being a long-standing critic of justificationist presuppositions, he has always been keen on exposing those anti-criticism stratagems. To begin with, Popper (1989) points out that the doctrine that truth is manifest, apart from leading to fanaticism and authoritarianism, runs counter to the doctrine of fallibility and thus of tolerance: if truth was manifest, we would be unlikely to make mistakes, and thus would not need to tolerate or pardon others for their mistakes which were regarded as the result of their prejudices. Since criticism involves searching for errors of our own and of others, which assumes that we are prone to errors and consequently should be tolerant of others, the doctrine that truth is manifest is diametrically opposed to it. Another stratagem Popper combats is the demand for precision in concepts as a prerequisite for criticism or problem-solving. Affirming the non-existence of 'precise' concepts, or concepts with 'sharp boundary lines', Popper (ibid.) emphasizes that words are significant only as tools for formulating theories and don't need to be more precise than our problems demand. To deal with the problem that our problems may sometimes demand that we make new distinctions for the sake of clarity or precision, he suggests an *ad hoc* approach:

> If because of lack of clarity a misunderstanding arises, do not try to lay new and more solid foundations on which to build a more precise 'conceptual framework', but reformulate your formulations *ad hoc*, with a view to avoiding those misunderstandings which have arisen or which you can foresee. And always remember that

> *it is impossible to speak in such a way that you cannot be misunderstood*: there will always be some who misunderstand you. (Popper 2002b, 29)

Besides, Popper identifies three isms that work against criticism, namely essentialism, instrumentalism, and conventionalism. First, concerning the essentialist doctrine that science aims at *ultimate explanations* which describe the 'essences' of things – the realities that lie behind the appearances – and therefore are neither in need nor susceptible of further explanation, Popper (1989) criticizes it as obscurantist in the sense that it prevents fruitful questions or further criticisms from being raised. Second, Popper (ibid.) also condemns as obscurantist the instrumentalist view of theories as mere instruments for prediction, because it stresses application but neglects falsification or criticism: for instrumental purposes of practical application, a theory may continue to be used within the limits of its applicability even after its refutation; in other words, a theory cannot be falsified insofar as it is interpreted as a simple instrument, for it can always be said that different theories have different ranges of application. Third, although Popper (1980) admits that the conventionalist philosophy, which regards laws of nature as our own creations and arbitrary conventions rather than representations of nature, deserves great credit for clarifying the relations between theory and experiment, or rather for recognizing "the importance [...] of the part played by our actions and operations, planned in accordance with conventions and deductive reasoning, in conducting and interpreting our scientific experiments" (80), he rejects its methods of protecting the theoretical systems of the natural sciences against criticism; indeed, Popper asserts, there are at least four conventionalist stratagems – introducing *ad hoc* hypotheses, modifying ostensive definitions, adopting a sceptical attitude as to the reliability of the experimenter, and casting doubt on the acumen of the theoretician – which make it impossible to falsify these systems.

Conclusion

To sum up: Popper's non-justificationism is justified on the ground that it, in the form of comprehensively critical rationalism, is capable of demolishing the sceptical and fideistic arguments effectively and thus solving the problem of the

bounds of reason completely. Yet, the implementation of such a non-justificationist theory means exposing to criticism various philosophical presuppositions that work against criticism. They include the transmissibility assumption, the doctrine that truth is manifest, the demand for precision in concepts as a prerequisite for criticism, essentialism, instrumentalism, and conventionalism.

References

Annas, J. & Barnes, J. (1994). *Introduction*. (In: E. Sextus, *Outlines of scepticism* (J. Annas & J. Barnes, Trans., pp. ix-xv). Cambridge, England: Cambridge University Press).

Artigas, M. (1999). *The ethical nature of Karl Popper's theory of knowledge: Including Popper's unpublished comments on Bartley and critical rationalism*. (Bern, Germany: Peter Lang).

Baghramian, M. (2004). *Relativism*. (London: Routledge).

Bailey, A. (2002). *Sextus Empiricus and Pyrrhonean scepticism*. (Oxford, England: Oxford University Press).

Bailey, R. (2000). *Education in the open society: Karl Popper and schooling*. (Aldershot, England: Ashgate Publishing Limited).

Bartley, W. W., III. (1976). *Critical study: The philosophy of Karl Popper (Part I: Biology and evolutionary epistemology)*. "Philosophia", *6* (3-4), 463-494.

Bartley, W. W., III. (1980). *On the criticizability of logic: A reply to A. A. Derksen*. "Philosophy of the Social Sciences", 10, 67-77.

Bartley, W. W., III. (1982). *Critical study: The philosophy of Karl Popper (Part III: Rationality, criticism, and logic)*. "Philosophia", 11 (1-2), 121-221.

Bartley, W. W., III. (1987a). *A refutation of the alleged refutation of comprehensively critical rationalism*. (In: G. Radnitzky & W. W. Bartley, III (Eds.), *Evolutionary epistemology, rationality, and the sociology of knowledge* (pp. 313-341). La Salle, Illinois: Open Court).

Bartley, W. W., III. (1987b). *Theories of rationality*. (In: G. Radnitzky & W. W. Bartley, III (Eds.), *Evolutionary epistemology, rationality, and the sociology of knowledge* (pp. 205-214). La Salle, Illinois: Open Court).

Carruthers, P. (2004). *The nature of the mind: An introduction.* (London: Routledge).

Derksen, A. A. (1980). *The failure of comprehensively critical rationalism*. "Philosophy of the Social Sciences", 10, 51-66.

Gattei, S. (2002). *The ethical nature of Karl Popper's solution to the problem of rationality*. "Philosophy of the Social Sciences", 32, 240-266.

Gettier, E. (1963). *Is justified true belief knowledge?*, "Analysis", 23, 121-123.

Haack, S. (1993). *Evidence and inquiry: Towards reconstruction in epistemology.* (Oxford, England: Blackwell Publishers).

Hayek, F. A. (1952). *The sensory order: An inquiry into the foundations of theoretical psychology.* (London: Routledge & Kegan Paul Ltd).

Martin, R. L. (Ed.). (1984). *Recent essays on truth and the Liar paradox.* (Oxford, England: Oxford University Press).

Miller, D. (1994). *Critical rationalism: A restatement and defence*. (La Salle, Illinois: Open Court).

Musgrave, A. (1993). *Common sense, science and scepticism: A historical introduction to the theory of knowledge.* (Cambridge, England: Cambridge University Press).

Notturno, M. A. (2000). *Science and the open society: The future of Karl Popper's philosophy*. (Budapest, Hungary: Central European University Press).

Popper, K. R. (1966). *The open society and its enemies: The high tide of prophecy* (5th ed., Vol. 2). (London: Routledge).

Popper, K. R. (1979). *Objective knowledge: An evolutionary approach* (Rev. ed.). (Hong Kong: Oxford University Press).

Popper, K. R. (1980). *The logic of scientific discovery* (4th ed.). (London: Unwin Hyman Ltd).

Popper, K. R. (1983). *Realism and the aim of science* (W. W. Bartley, III, Ed.). (London: Routledge).

Popper, K. R. (1989). *Conjectures and refutations: The growth of scientific knowledge* (5th ed.). (London: Routledge).

Popper, K. R. (1996). *The myth of the framework: In defence of science and rationality* (M. A. Notturno, Ed.). (London: Routledge).

Popper, K. R. (1999). *Workshop seminar in Kyoto*. (In M. Artigas, *The ethical nature of Karl Popper's theory of knowledge: Including Popper's unpublished comments on Bartley and critical rationalism* (pp. 29-33). Bern, Germany: Peter Lang).

Popper, K. R. (2002a). *The poverty of historicism*. (London: Routledge).

Popper, K. R. (2002b). *Unended quest: An intellectual autobiography* (2nd ed.). (London: Routledge).

Post, J. F. (1987). *A Gödelian theorem for theories of rationality*. (In G. Radnitzky & W. W. Bartley, III (Eds.), *Evolutionary epistemology, rationality, and the sociology of knowledge* (pp. 253-267). La Salle, Illinois: Open Court).

Radnitzky, G. (1987). *In defense of self-applicable critical rationalism*. (In G. Radnitzky & W. W. Bartley, III (Eds.), *Evolutionary epistemology, rationality, and the sociology of knowledge* (pp. 279-312). La Salle, Illinois: Open Court).

Sextus, E. (1994). *Outlines of scepticism* (J. Annas & J. Barnes, Trans.). (Cambridge, England: Cambridge University Press).

Torretti, R. (1984). *Philosophy of geometry from Riemann to Poincaré.* (Dordrecht, Holland: D. Reidel Publishing Company).

Van Fraassen, B. C. (2002). *The empirical stance.* (New Haven: Yale University Press).

Watkins, J. W. N. (1971). *CCR: A refutation*. "Philosophy", 46, 56-61.

Watkins, J. W. N. (1987*). Comprehensively critical rationalism: A retrospect*. (In G. Radnitzky & W. W. Bartley, III (Eds.), *Evolutionary epistemology, rationality, and the sociology of knowledge* (pp. 269-277). La Salle, Illinois: Open Court).