WHAT LIMITS TO THOUGHT, INQUIRY AND PHILOSOPHY?*

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It is widely presumed that there are limits, severe limits, to thought, and therewith to inquiry and philosophy, limits of a range of sorts. But, to the contrary, there are no limits to any of these items, thought, inquiry and philosophy: no absolute limits. Granted there are limits, of many significant sorts, such as terrestrial limits (to industrial growth) and physical limits (to signal velocities and to measurability). But these are conditional limitations, which do not inhibit ideal activity such as inquiry includes or systematization such as philosophy. So it is also with the oft-acclaimed limits to thought and philosophy, which likewise prove to be but conditional limitations or the like. They are premised on assumptions, especially of consistency or of existence. Such assumptions are removed in an appropriately general intellectual setting (such as dialethic item-theory), where arguments to acclaimed limitations break down. Confirming these grand claims calls for much back-up activity, including: clarification of notions of limits, and distinction of prime and technical notions thereof; demolition of a range

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of arguments to limits; development of positive arguments designed to
show that there are no limitations; and more.

Intellectuals, philosophers especially, have been astonishingly eager to find credible limitations, particularly to their own activities. Often they have operated with such implicit objectives as: removing difficult issues beyond reach, and locking away, very censoriously, unpalatable material, or their own harder problems. Indeed it sometimes seems that modern philosophy has become a trifle obsessed with limits to its own activity, limits it soon projects elsewhere. So it is that the resounding idea of severe limits blasts through, in brainstorming strength, from two of its greatest idols, Kant and Wittgenstein, and it is reinforced by powerful input from other idealist and empiricist, Germanic and British, sources.

Consider what has variously been put beyond reach, off limits, out of philosophical or intellectual bounds, and the like: metaphysics, especially transcendental forms, pretensions of reason, notably speculative reason, ultimate philosophical questions, conspicuously those about ultimate existence, life, purpose, meaning, and so forth, foundational and deep questions in ethics and elsewhere, issues of universal methods, and so on. More recently there has been a virtual deluge of limit claims: limits to logic, to analytic philosophy, to metaphysics, to ethics, to science, to technology and so on (near enough, name some worthwhile reach of philosophy, there are limits to it acclaimed). Nor have philosophers been on their own in announcing limits; scientists of most sorts are no less enthusiastic in proclaiming limits, as will soon emerge. Previously development in mathematics, especially in calculus and analysis, encouraged limitation findings elsewhere (e.g. Malthusian limits

to population appealed to divergence of geometric from arithmetic progressions). More recently, limitation "findings" have been boosted by breakthoughs in logic, achieved through controlled use of semantical and intensional paradoxes (no doubt technically splendid recycling of dangerous fuels). Certainly limits to thought and philosophy were proclaimed by German-speaking philosophers, most conspicuously Kant, Bolzano and Wittgenstein, before Finsler and Gödel announced their remarkable results, clever applications of intensional paradoxes. Naturally however the technical results have been used to bolster the philosophers' claims, especially as the philosophers' own arguments were often found to be wanting (by contrast, the logicians' assumptions were, once the logical power structure closed ranks, seldom questioned. Similarly for other paradoxes, such as those from social choice theory).

Not only are many philosophers fascinated by limits; many fail to resist the temptation to throw the term *limit* or one of its combinations or variations into the titles of some of their works. A key-word search based on words containing 'limit', 'bound' and similar would produce an exceedingly large haul. Most of these works are, there is reason to suspect, pretending to disclose some sorts of limits – without, so a limited sampling suggests, much at all in the way of substantial evidence. Some of these works never get around to detailing properly the types of limits (to science, to sense, as to analysis, upon ethics) that their titles proclaim; others advance no argument that admits straightforward extraction and assessment. While not proposing any reversion to traditional intolerance, such as commital of these works to the flames, a message from flawed competition theory might well be proffered: those philosophers should lift their game.

All is far from well with many of these limit claims. For many of the claims are ill-explained, still less well justified. Yet enthusiasism for limits has become overzealous, and (exponential-like) surged out of control; it is due for damping down. While there *are* limits of various sorts, the extent and, character, unconditionality and problematicality of these limits has been grossly exaggerated.

An issue immediately raised, of critical importance for subsequent investigations, is: what exactly are these limits? And what are limits? How is limit characterised?

1. CLARIFYING LIMITS AND LIMITATIONS

The noun *limit* descends, through French, from the Latin *limen (limitis)*, signifying: cross-path (between fields), boundary-line, boundary-wall. While it did acquire in English the broad sense of *boundary* or *frontier* – ripe for topological explication – it is now only used, according to the *Oxford English Dictionary* (OED) in a 'narrow' sense:

(1) 'a boundary ... considered as confining or restricting';
(2) 'a bound which may not be passed, or beyond which something ceases to be possible or allowable'.

Call these the *prime* uses. Observe that the term *limitation,* sometimes used by way of variation on these prime uses, means, in the relevant sense: *limit* (see OED; otherwise it means *limiting item,* e.g. limiting action, circumstance, condition, rule, period, including disability or inability). Mathematical and technical uses of *limit,* typically in the form *l is a limit of*

S, characteristically *relative* limits (relative to *S*), are regarded by dictionaries, inaccurately as will soon appear, as special elaborations of the second sense (2)[1]. The uses of present relevance (e.g. for philosophy and thought) need not depend upon or concern these *technical* notions, and accordingly *are not* transferred or metaphorical uses answering to them. Rather they go back to the more basic non-technical senses (1) and (2). But unnecessary confusion has arisen through conflation of these uses, an important example of which concerns limits to thought themselves. For, whereas on the prime use it may well be said that there are no limits to thought, on the technical use it could be contended, a trifle paradoxically, that while there are (technical) limits these can be surpassed. We could no doubt have it both ways by conceding that, though there are no limits (prime use), there are technical limits (which however are not limiting).

Though we can bypass the technical notions, elaboration of the *boundary* notion, perhaps of a technical kind, will prove pertinent. Limits are limits *of* or *to something*. That is, for boundary *l*, *l* is a limit of *N*, where *N* is a notion or set, the bounded notion. In pictorial representation:

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[1] There are two basic cases of *l is a limit of S* according as *S* is a sequence or given by a function; *l* may or may not belong to *S*. In the first, limit *l* is an element towards which members of *S* tend; in the second, with function $f(x)$ the limit is the value $f(x)$ approaches as *x* tends to a particular value. Both are nowadays given stock explications – of *tending to* or *approaching* – through ξ-δ methods (though there are alternative explications through infinitesimals). For example, expressed in English, the limit of a set is an item such that, no matter how small a distance from it is chosen, there is a member of the set closer to it.
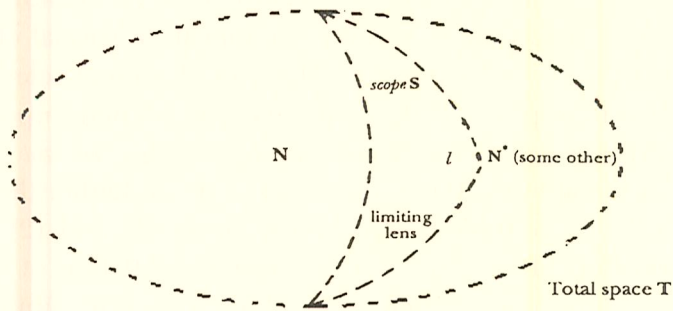
It is not just tempting, but important, to fill out an *initial* representation comprising just N and l though a *fuller* representation, which also includes N and a scope S within the total space T (but maybe one or both of N^* (some contrasting other) and T can often be left out of consideration).

Scope functions like a significance range, to exclude items or matters that would not even enter in assessing limits, because, for instance, they make no sense for the topic concerned, they are outside the scope of that logic or whatever. Thus, to take relevant examples, it is not even a putative limit to philosophy that it does not enable a practitioner to tie shoelaces or put bread on the table, to play polo or make a fortune, to fly at the speed of light or square the circle, or to live long enough to survey an infinite set of propositions. For these form no part of the scope of philosophy, of what it is properly or sensibly engaged in, or its practitioners properly practice. In a wide sense (a covered absurdity sense), there are many things philosophy *cannot* (cannot significantly) do, or enable its practitioners to do, such as those listed above. But these "impossibilities", concerning matters *outside* its scope, do not represent limitations upon it. In short, there is no admissible

inference from "*y*, e.g. philosophy (similarly thought, ...), cannot do *x*" (because *x* is outside the scope of *y*) to "*x* is a limit to *y*", However, there are many matters within the scope of philosophy, which it may lack any possible prospect of performing (such as providing a justification of ethical principles, to take Williams' presumptive example of limits to ethics), and which may constitute putative limits.

For related reasons, impossibility themes do not invariably yield limitation themes, as the *conditions* for limits are not established. There is not something, some information or similar, within the scope of what is limited, which is beyond a barrier and inaccessible[2].

Where *l* is an outer boundary of *N*, *l* is just outside *N* (i.e. next to or very near to *N* without *l*). This and other features of boundaries strongly suggest that a *nearness* relation is required to define a boundary. For example, the boundary layer of a surface in fluid dynamics is that position *near* to the given surface but distinguished from it (e.g, because in motion relative to it). A first stab at defining *l is a boundary* of *N* topologically might run: each element of *l* is near to some element of *N*, and every element of *N* that is near to *l* but not in *l* is interior to *N*.

More difficult to define (certainly beyond usual topological resources) is (what is aptly called) the *constraint feature*

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[2] This gives a reason too why God's omnipotence need not be compromised by impossible tasks (such as making stones "he" can't lift). Nice issues as to whether, and how, comnipotence can be scoped then arise. A more difficult, more relevant issue concerns intelligent "surveying" of grander transfinite sets, which cannot be surveyed even by creatures that live indefinitely long. Briefly, such sets cannot be surveyed; that is an impossibility (scope excluded), not a limitation upon what some agent can do. Evidently, however, a different account could be given from that here preferred.

or *limit character* of l's boundary of N within S. The two senses (1) and (2) supply three sorts of constraining features: l is restricting of N (roughly explicated: N would be grander but for l); l is impassable from N; and outside N beyond l lie deontic infringements, the forbidden. Some, perhaps all, of these features strongly suggest that there is *more* than N and l, that N^*, the other, is not nothing. Roughly, the constraining feature comes to the following prohibitions: *l stops N including what it would*, what is part of its scope. Interestingly, the logical formulation of this prohibition appears to use logical resources which include deontics and conditionals, distinctly intensional topology. That is, limit assertions involve a significant level of intensionality[3].

In sum, a limit is a boundary conforming to the constraining feature. l is a limit of N iff l is a constraining boundary of N.

Less technically, what is so inaccessible, beyond allowable reach of thought and inquiry, may include both particular items, such as unthinkables and various other excludeds, and whole regions of such transcendents. But, in principle, limitations upon thought can derive from *any* part of the thinking nexus, or from a combination of those items: from the nature of a thinking subject, or the relation of thinking involved, or

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[3] There is an uninvestigated field of intensional topology. Since it is now appreciated that intensionality can be substantially accounted for model-theoretically through relations between situations or worlds, with main relations those of accessibility, and since the constraining feature looks like one of inaccessibility, prospects are promising for a modelling of this constraint. At a first stab, N is constrained by l if there is some c in N^* that is inaccessible (l-inaccessible) from N (or from arbitrary a in N). Not much has been done so far in intensional logic to exploit barriers and inaccessibility; there is evidently another fruitful field for exploration there.

its objects, putative objects of thought. What will be contended is that apparent limits deriving from subjects or their inter-connections are conditional limitations, surmounted in more versatile and resourceful, smarter and longer-lived subjects. While it may appear that some of these limits are absolute, for instance by arguments from logical or computability theory, counter-arguments will be advanced that they are not absolute but involve conditions that can be gone around.

2. LIMITS ELSEWHERE, OUTSIDE INQUIRY AND PHILOSO-PHY: FRAMEWORK LIMITATIONS

Outside philosophy there are, naturally, limits, limits of many significant sorts. These include limits to growth, limits to speed, limits to technological capacity, to types of machines, to measurement, and so on. Many of these are practical limits, induced by a presupposed setting. The limits to economic growth, for example, presuppose an ongoing terrestrial setting and also that humans are not able or clever enough to devise low-cost, low-pollution, high-energy sources, such as clean fu-sion (one successor to perpetual motion) once promised to be. The limits of human ground speed, so that "the one min-ute mile" is beyond the aspirations of even the most dedicated or conceited athletes, presupposes present human physiology. If human sports people were to evolve in the direction of the large cats (for example, with the help of some quiet gene transplantation biotechnology), then such new ground speeds would become realistic ambitions (whether Joe the Jaguar is a human still is another question).

Naturally, too, there are more comprehensive limits, which have a more absolute look, The speed of light is an up-per limit on (real not virtual) velocities – *given*, however, the

theory of relativity. That limit does not obtain under a Newtonian synthesis. How "solid" is the limit? Solid enough, but nonetheless pretty contingent. According to present best scientific information, less positively according to the prevailing scientific paradigm, this universe *is* relativistic, not Newtonian, indeed all physically possible universes are relativistic. While that sort of generalization may make relativistic claims look rather more absolute, it does not make them absolute. Outside relativistic frameworks in consistently modellable Newtonian universes (as in asymptotic relativistic settings where the velocity of light tends to infinity), there are no such limits. The limits may be solid enough for universe-bound life-forms, for all actual experience, but for all that they are quite contingent, and readily thought beyond. So it is similarly for thermodynamic limits, quantum limits, economic limits and so on. These depend upon the contingent absence of large free sources of energy, on the contingent breakdown of ideal classical measurements at microphysical levels, and so on. Not only outside quantum frameworks, in embedding classical theory, but even within quantum frameworks under different conceivable theories or should different circumstances in fact obtain, quantum limitations upon measurement and so forth lapse.

The direction of travel already begins to appear in outline. *What limits there are depend upon a presumed background settings*, a *framework* (which may be quite extensive, as with this-worldliness); and these limits are *removed* as background and settings are moved back. Is this an endless game, with backgrounds always movable further back and limits removed, or does it terminate?

Prevailing wisdom is that the process does terminate — in logic. It does not terminate in tougher transphysical limitations, such as the unavailability of perpetual motion machines.

For all the exclusion of such handy devices across the field of likely physics (by virtue of constraints from core mechanics and thermodynamics), the machines are still possible in other universes (and indeed persist in backward zones like economics). Nor does it terminate in mathematical limitations, such as the impossibility of trisecting the angle or the squaring the circle. For these are contingent upon the restriction of *methods*, for instance to ruler and compass, and vanish with lifting of that background (it is elementary to trisect an angle given quantitative protractor methodology).

For those aspiring to unconditional limitations, logical regions beckon, notably those of formalizability, expressibility, decidability, definability, computability, and so on. There are many apparent limits, of wide appeal, of these sorts. These may appear, at least to the more naive, informed by popular science, to soundly defeat counter-limitation claims. For, as such science discloses, there are not merely limitative theorems, such as the Gödel-Rosser theorem, correctly proclaiming what cannot be established in more formal settings, i.e. limits to proof, but there are also limits to reasoning; limits to knowledge; limits to computability and therewith, it is supposed, limits to mental processing; and so on. But, naturally, there are no such proofs or arguments as these claims depend upon, without an assumed setting, typically a consistent framework of some presumed sort. Namely, as regards these limitations, the recent classical logic tradition, or paradigm, is a major part of the backdrop, In suitable alternative settings, such as those of dialethic logic, these classical limitations too prove surmountable .

An important alternative setting is that afforted by dialethic item-theory. An item-theory is a general theory of all items, however ideal or exalted or defective or problematic the

items, whether existent or not, possible or not. It is a generalization of object theories in the style of Meinong's, but without the ontological and other commitments (e.g. extensionalism, modalism) often incoporated in such theories. A dialethic item-theory is an item-theory that includes dialethisms, where a statement A is a dialethism if both A and not-A obtain. Generally a dialethic theory, logic, practice or whatever is one which nontrivially admits dialethisms; for instance a dialethic logic is one where a dialethism is a theorem. Naive set theory supplies an interesting example, as it includes several dialethisms deriving from logical paradoxes; for example, the Russell class, the class of all classes not members of themselves, is both a member of itself and also not a member of itself. Thus dialethic theory is, so to say, an unconditional paraconsistent theory. Of course a paraconsistent logic is a logic where contradictions are not explosive; that is, a pair of inconsistent statements A and not-A does not yield an arbitrary statement B. Accordingly a paraconsistent logic can support inconsistent theories; a dialethic logic goes a step further including dialethisms. Such settings as paraconsistent and dialethic automatively remove many apparent, but delusory, limitations, notably most of those devolving from consistency restrictions.

Many of the most-heralded limitations are restricted or *conditional* limitations where the conditions or background structure has been quitely suppressed. Nowhere is this practice more widespread than as regards restrictions as to *consistency* (the same condition is implicit in such things as *standard interpretations, models,* and the like, all of which are supposed consistency bounded). Results are proved, claims argued, for *consistent* so-and-so's. Then the restriction to consistency is quietly

omitted[4]. Or else it is absorbed into what purports to be a completely general notion, but is not; thus again classical notions like *model, interpretation* and the like.

The reasons for suppressing conditions and assumptions are not difficult to find. They may, for one thing, simply not have been noticed. So it has been with many axioms and assumptions in mathematics, particularly before the advent of formalization, but not *ending* with it (in part because the meta-theory, or equivalent surrounding setting, remains unformalized). Also important, what is presented as conditional or system-dependent, rather than absolute, may not look so remarkable. Indeed, it may look far from devastating when intellectual development at last proceeds into previously out-of-bounds systems or regions. So it is, especially, when the ancient barriers of consistency and existence are breached, and inconsistent and non-existent items seriously investigated.

3. BEYOND TECHNICAL AND CONDITIONAL LIMITATIONS, TO PURE REASON, AND TO MAIN THESES

Even if these limits conceding formalism, effectiveness, frameworks, and the like, *should* obtain in some non-compromised form, they would not impact heavily on thought and philosophy. For thought and philosophy are not seriously limited by these sorts of features (except on unduly restrictive and implausible accounts of philosophy, such as nominalisms and constructivisms). Neither thought nor philosophy is limited by considerations of available symbolism, effectiveness,

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[4] For several examples, see Sylvan (1990). For a large sustained example, see Penrose (1991), e.g. p. 117 and p. 417.

cost, economics or the like[5]. Both thought and philosophy are *propositional* and *objectual* in character, *unlimited* by considerations of effectiveness, mechanization, cost, and similar, ultra-economic business. That is one reason why highly acclaimed results concerning the features and limitations of formalism, constructivity, automation, and so on, are much less philosophically relevant and interesting than is often imagined (for all that this material is pushed by technically addicted certified philosophers).

Admittedly there is abroad the proposition that thought, and also intelligence, are algorithmic in character. Such a thesis appears prominent in reductive AI doctrine and associated theory of mind[6]. Were the proposition correct, then

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[5] Unremarkably, such *different* matters as quantity of philosophy produced, number of philosophers, and similar, may be significantly affected.

[6] Put differently, the argument runs: Thought is computational; computability is limited (as there are many relevant non-computable processes); therefore thought too is limited. There is reason to dispute both premises, the second because what is computable is not (despite prevailing orthodoxy) absolute, but depends upon what resources and methods are available. But easier to target presently is the first premiss. The idea gets its force from the presumption that the brain or central nervous system is some sort of carbon-based computing system and so basically computational in character. But the mind is (at most) some sort of function of this nervous system, and thought is part of the mind's activity. So, thought too must be essentially computational. Something at least is rotten in these considerations; no doubt several things are (including the classical computational modelling).

A large part of Penrose's quixotic quest is organised around these considerations. He starts by considering the (mistaken) theme that thought is algorithmic in chapter 1, but some hundreds of pages later scrambles, *via* a questionable construal of Gödel's theorem, to the view that conscious thought characteristically involves non-

thought would be confined, computationally confined, But the proposition is without sound basis. Thought processes can and do operate in ways that are classically non-algorithmic. One argument runs as follows: Thought is more comprehensive than reasoning, since it includes reflection, meditation, and such like non-algorithmic processes. But reasoning itself is not algorithmic, because it can include jumps, diagonal steps (surpassing all assembled algorithms), analogue procedures, plausible procedures, ineffective moves, and so on. Therefore, thought is non-algorithmic in general character.

Such an argument takes for granted information which dictionaries supply, that thought is a process, such as reasoning, inferring, reflecting, considering and similar, as well as what such a process may yield, a content product, that which is thought, a conclusion, a concern, a conception, judgement or proposition, That superficial level of analysis appears too about as far as it is necessary to proceed towards a philosophical account of thought, for present purposes. For the main case to be argued can, fortunately, rest upon ordinary conceptions of thought[7].

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algorithmic components (e.g. Penrose *op. cit.* p. 413). He is then stuck with the problem of a physical basis for this, mistakenly thinking that prevailing physics is essentially algorithmic in character.

[7] Fortunately, not merely because the case would become vexed if it had to appeal to other than ordinary conceptions, but because satisfactory philosophical accounts are extraordinarily difficult to locate. Among philosophers thought is often conflated with consciousness (e.g. Descartes, Price). But a useful starting point for an account, which includes proper combinatorial components, is offered by Kant, who maintained that thought is cognition by means of concepts. However an adequate survey, presently unavailable, would have to proceed very far beyond Kant, and through wide, and mostly uncharted, reaches of non-traditional logic.

The preceding development may have appeared to presume that philosophy is systematic, and that philosophy can be represented through propositional-objectual systems, which so to say encapulate its (partial) results. But this does not offer an altogether adequate representation; processes cannot be fully represented through (sequences of) products. What it tends to leave out are process features: namely, firstly, genetic historical features, and secondly discussive features, dialectical activity. Similar points apply, to a lesser extent, to thought, which is also a discursive process yielding a product, and to a greater extent to inquiry, which is normally a process, perhaps not yielding a single product at all. Even so practical and business controls do not apply; for example, there is no time limit on how long philosophical discourse may continue, or cost limit on its conduct. As a process or activity, philosophy is an *ideal* pursuit not effectively constrained or bounded by such factors.

Because of these features of thought and philosophy, and other relevant features, such as their generality and abstractness, *they* should be able to evade limitations, if anything can (the unlimited, inaccessibles, unthinkables, and other remote items are all within their compass). Although the predominant position in Anglo-American influenced philosophy continues the historical *status quo*, that thought and philosophy do not escape significant limitations, that position is now under challenge. Alternative theses, here preferred and pressed, run as follows:

> *RT.* There are no absolute limitations to thought; all limitations are broadly conditional, relative to background conditions, constraints, assumptions, or the like, and are displaced with these.

Similarly thesis *RP*, for philosophy, and *RI*, for inquiry: *there are no absolute limitations, only conditional ones.* Therewith, too, proper room is again made for grand philosophy, which analytically concerns grand issues, and which aims to assess grand themes, of which *RT* is an example.

While there are alternative ways of stating the no-limitations claims here advanced – notably that there are (technical) limits but they can always be surpassed – this form of presentation (perhaps encouraged through the mathematical usage, where relative limits can regularly be surpassed[8]) is less satisfactory, for two connected reasons. First, it tends to ignore the prime use of *limit,* where limits instituted cannot be surpassed; and, second, it concedes too much to conventional philosophical wisdom, that there was a great deal to what it has pompously pronounced, and that it is only by some very funny business (such as paraconsistency) that its strictures are avoided.

It is one thing to propose such theses as *RT* and *RP*; it is quite another to establish them, Perhaps as satisfactory achievement as can be reasonably hoped for in this regard is that an attractive case be made for them. Such a case will consist, like standard legal and debating cases, of a combination of negative and positive components. Here the negative side consists in disarming, so far as feasible, oppositional (typically mainstream) arguments and considerations operating in favour of limitations. This extensive side, though important, can hardly be decisive, because of the real possibility of missing some crucial consideration. For that sort of procedure, very

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[8] Finite limits can always be surpassed obviously, and transfinite limits can typically be surpassed with higher infinities. Priest, who prefers the (more shocking) surpassing-limits form to the no-limits discourse, appears to be working with the technical usage of limit.

common in philosophy, does not aspire (or when honest, pretend) to be exhaustive; it is typically quasi-empirical, in terms of a selection of texts, but without (and without prospect of) adequate sampling. Even so, let us begin – after brief reflection on contrasting motivation for imposition of limits – with the negative side, a side which is highly instructive, before attempting positive arguments for the theses, components that are again less than conclusive (though for different reasons, because they make claims and adopt procedures exceeding what is considered admissible in mainstream philosophy). Negative arguments divide roughly into two groups: those relying upon some sweeping philosophy or ideology, such as rationalism, and those conceding particular arguments of philosophers, such as Russell's. Treatment tends, in both, inevitably towards the piecemeal.

As a preliminary, consider, what it is fun to play off, the *main*, but curiously diverse motivational bases for philosophic limits, and clashing *motivations* for limitation theses and like restrictions. Limits were intended:

A. to *exclude* religion, and more generally to exclude transcendental, high spiritual or unscientific endeavours. Thus notably Hume, and a succession of hard-line empiricist philosophers, engaged in the fight against religion, anti-scientific activity, and spiritual slosh.

A*. to *include* religion, to make room for faith, and so on. Thus, conspicuously Kant, also differently James, and many others trying to evade parts of the atheistic scientific Enlightenment steamroller.

It is worth expanding a little on each different sort of motivation in turn, beginning with exclusions. Often, a prime objective is to *stop* various intellectual enterprises, including, most sweepingly, *philosophy* as a whole or in very substantial part. The proposal to close down philosophy as a whole, popular enough with censorious forces from outside philosophy, has also been put from within from time to time, for instance by Wittgenstein. More bothersome is a concerted attempt, made by empiricists and positivists (of most kinds), to exclude *unscientific* philosophy. These philosophers were conceded to remove not only religion and such unscientific rubbish, but also grand philosophy such as transcendental metaphysical adventures and difficult ultimate questions. In these objectives they were not always coherent, both because the philosophy in terms of which they operated did not conform to requirements for scientificness (e.g. it was unverifiable, or unempirical) and because some of their own themes looked themselves like grand philosophy (e.g. naturalism, materialism). Less sweepingly, an objective is to stop particular projects; for instance, formalization of this or that, intensional theories, deeper environmental thinking, etc., etc. Obviously there is only a gradation between more sweeping and less sweeping empiricist destruction; for instance, a more comprehensive formalism may be restricted through targetting of crucial special cases.

More remarkable among motivations is that designed to make *room* for items that would otherwise appear to be excluded, items such as God and freedom, immortality and reincarnation. Of course to effect this sort of stoppage, of which Kant's enterprise is the supreme example, other enterprises have to be stopped, for instance rationalistic and dialethic philosophies which proceed far beyond the received bounds of experience. In significant ways, such an approach is likewise

misguided. For it is premissed on the adequacy of what is narrowly seen as the opposition to effect exclusions. But philosophy, empiricist philosophy in particular, cannot effect the exclusions supposed. Arguments for scientific determinism, for instance, might have looked sound, but were not[9].

4. DEFLATING EMPIRICIST, RATIONALIST, AND LIKE LIMITATIONS

Both of the main ideologies in modern philosophy, empiricism and rationalism, try to impose limitations, often severe. It is again curious that they try to impose them at different places, already suggesting (correctly) that these limitations are not absolute, but at least *ideology-dependent*. Such an initial objection is partly avoided in logical empiricism, which rationally distributes the limitations, in a way that will become plain (if it is not already).

With empiricism it is *experience*, or *possible* experience, that is the operative factor in effecting limitations; in rationalism it is *consistency*, characteristically intertwined with logic and *reasoning*. It is evident, given the meanings of 'empiricism' and 'rationalism', that the operative factors are intimately tied into the ideologies; so much so that in critically dismissing the limitations they claim to find, we shall be well advanced in critical dismissal of the ideologies themselves.

Under empiricism, experience provides the outer bound on knowledge, speculation, intelligible conjecture, and so on, indeed on all *epistemic* operations. Also under pure empiricism, as opposed to logical empiricism, logical operations such as reasoning are similarly bounded. Thus emerges:

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[9] As to why, see e.g. Sylvan (1995).

EL. The *empiricist limitation theme.* There is no admissible knowledge, criticism, speculation, and the like, beyond the bounds of experience, about "what" lies beyond (possible) experience. Similarly on the pure theory (of Mill, Mackie and many other go-getters), there is no sound reasoning or admissible rational operations (along with epistemic ones) beyond these experiential bounds.

There are familiar large corollaries: The grand issues of philosophy are inadmissible, inasmuch as they exceed legitimate bounds: *meaningless*, if that is how inadmissibility is cashed out (or inaccessible, or mystical, or ineffable, or even not worth bothering about: we have seen them all from tall empiricist poppies). Thus too, transcendental metaphysics is impossible. Sound philosophy is confined to austere empiricist territories. Naturally there are ways of trying to recover some of the lost territories (some of them well lost, because badly contaminated). Widening "experience" is one way; Catholic clerics talk confidently these days of religious experience, hoping for access to regions most empiricists were most concerned to put right out of bounds. Naturally, genuine experience, empirical experience, can be, and should be, more tightly circumscribed.

Arguments for bounds at (possible) experience derive directly from empiricism; and the case is correspondingly defeated by arguments against empiricism. Theoretically there is little need to reiterate those familiar arguments; in practice, of course, they need to be rehearsed often to counter the repeated refloating of the dreary themes of empiricism. Much information is accessible by means and through channels not empirically sanctioned, especially information conceding ob-

jects[10]. Conversely, arguments (themselves normally exceeding pure empiricist resources) to limit information accessible outside empirically approved confines all break down; either they are defective, even under revised logical theory (e.g. rather manifestly Kant's deployment of antinomies, designed to show that illegal extra-empirical activity leads to contradiction), or else they involve contestable, if entrenched, narrow logical theory (e.g. attempts to outlaw modal information through modal paradoxes).

The severe weakness of pure empiricism in accommodating logic, assumption and postulation, inference and reasoning and surrounds, is overcome, notably in logical empiricism, by mixing in rationalist elements. A pure rationalism, despite its appeal back in the 17th century, is no longer plausible. With the formal development of logic and mathematics, it has become apparent how many assumptions, empirical assumptions especially, the "pure" arguments of rationalism, rational mechanics, and so on, infiltrated. What logic and reasoning can, and cannot, accomplish has become much better appreciated[11]. Above all, they leave too many alternatives (too many logics, geometries, arithmetics, etc.), and they are (accordingly) too weak to establish much on their own. Logical argument only becomes powerful when a good deal, mostly at issue in fundamental areas, is already nailed down firmly. But while pure rationalism is aged and feeble, indeed presently coma-

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[10] See R. Routley (1980) p. 740 ff., on the failure of both concept empiricism and judgement empiricism.

[11] That these important means are, like ruler and compass procedures, limited in what they can deliver, tells but little as to limitations to thought, or to mathematics. Too much still hangs on what other means are available.

tose[12], the mix of rationalism and empiricism is more power-
ful. Empiricism provides an informational base (albeit still an
excessively restrictive one) on which rational argument can go
to work and build.

Parallelling the empiricist limitation theme stands an
analogous theme limiting standard rationalism, namely:

> RL. *The rationalist limitation theme.* There is no admissible rea-
> soning, conception, thought, knowledge and so on, beyond
> the bounds of consistency.

Consistency becomes the absolute constraint, in place of expe-
rience. Rationalism is commonly bolstered by re-presentation
of logic as a theory of consistency, with logic simply read off
from consistency requirements (thus Von Wright). Similarly
probability is re-presented as a theory of consistent betting
(thus De Finetti). Mathematics is re-characterised in terms of
consistent methods and systems (thus Hilbert). And so on. But
why, as Wittgenstein and others finally asked[13], this enormous

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[12] One might imagine it is dead, but such philosophical theories
almost never die. Even today pure rationalism lives on, hangs on, in
ethics; see e.g. work of Regan and the Carolina School (of which
Regan is a leading member).

[13] Others before Wittgenstein had asked this question, but they
were successfully rubbished or silenced (or conveniently died and
were forgotten). Even philosophers intelligibly expounding Wittgen-
stein have not grasped this message. Thus Strawson – properly doing
his bit to demolish Quine's reductive naturalism, according to which
'very roughly speaking, all propositions are empirical' (Strawson
(1985), p. 88), through its critical Achillean proviso about preserving
consistency in the total system of beliefs, asserts that to give up this
proviso 'is to abandon rationality altogether' (Strawson (1985), p.
89). As Wittgenstein should have remarked: rot. That is a remark
that can be confirmed in philosophically proper speech.

emphasis on consistency, which we can now plainly proceed beyond without losing control or losing our way? The case against *RL* too parallels that against *EL*. Rationalism too can be divided into types: conceptual rationalism, long ago heavily criticised by Reid, and judgemental rationalism, substantially demolished with the advent of paraconsistent logical theory[14].

To illustrate how consistency bounds can be stepped beyond, consider an instructive argument that van Fraassen has advanced, purportedly for anti-realism, but more transparently for limits to language: to the effect that there can be no complete correct description of the world, no such adequate representation, or put differently, no adequate linguistic theory corresponding to the world.

> Suppose for a moment that there exists, or comes into being in the historical fullness of time, a language L so rich that every proposition is expressed by some sentence of L. Now draw a rectangle, and consider the proposition – call it *Pandora* – that no sentence of L ever written in the rectangle expresses a true proposition. Choose the sentence of L which expresses *Pandora*, and write it in the rectangle. Clearly it expresses a true proposition if and only if it does not. This thought experiment is one which, if you begin to execute it, leads you to the conclusion that you cannot execute it. It is certain that either the proposition *Pandora*, or the language L, does not exist. But if L existed, there would be nothing wrong with the described proposition. So the language L cannot exist, And therefore our natural language cannot be, and cannot become, like L (Van Fraassen (1986), p. 214).

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[14] On the first and Reid see R. Routley (1980), on the second see Priest *et al.* (eds.) (1989).

Now, in defiance of van Fraassen, let us execute the experiment:

THE RECTANGLE

NO SENTENCE OF *L*
(EVER) WRITTEN IN THE RECTANGLE
EXPRESSES A TRUE PROPOSITION

The intended outcome is supposed to be:

Pandora is true iff *Pandora* is not true,

whence *Pandora* is true and *Pandora* is not true (given the further rules *Reductio* and *Simplification*). Thus execution, which is entirely feasible, produces *none* of van Fraassen's certainties. Rather what it shows is, firstly, that *Pandora* is an inconsistent but true proposition, and hence no doubt both unusual and anathema to mainstream logic; and further that *L* is a language capable of representing such unusual propositions. But so are natural languages, the resources of which we have not really exceeded. In short, then, in a dialethic setting van Fraassen's contentions and further argument fall to the ground. Without consistency imposed, there are no such limits to language. Rather similarly, an otherwise impressive array of restrictive and limitative results, generated by clever contradic-

tion-avoiding variations of self-referential paradox, is neutralized[15].

Such dialethism does not eliminate all resistance, and make things all too easy to access or establish. To the contrary, proofs (within the relevant theory) often become much harder, severe restraints remain. However that does not imply that there are places that are rationally inaccessible, that reason cannot travel or illuminate. Compare exploring underground or through underwater caverns. While it may be difficult to reach some places, there may be none (in a given system) that cannot be reached. Difficult-of-access does not imply inaccessible, nor does offering much resistance; conversely, accessible does not mean offering no resistance to access.

Even if expanded, by relaxing consistency demands (to an ahistoric "paraconsistent rationalism"), rationalism would remain unsatisfactory. For inquiry is not constrained by a *single* methodology, such as rational methods. Rational methods on their own are inadequate as a route to main philosophical desiderata, such as truth, knowledge and understanding. To attain these, more than a much wider class of structures is needed; access to further methods, including generous empirical methods at least, is essential. More generally, there is no single universal method, such as rationalism and empiricism variously sought (such as Descartes and others expected and extolled). Rather there are various methods, some providing input of information, and others affording processing and revision of information[16].

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[15] See, e.g., Priest *et al.* (eds.) (1989) and Sylvan (1992).

[16] A helpful model for this is afforded by recent theory of theory change. For a detailed case against envisaged universal methods, see R. Routley (1981).

To so dispose of rationalism (in the fashion gestured at) is not to dispute the importance of reasoning in intellectual activities, nor even to contest the paramount place of logic, argument and reason in thought and philosophy, but only to contest rationalist restrictions. Reasoning is one major method, not bounded by consistency, one among others. Such a qualified commitment to rational methods imposes of itself, furthermore, no limitations.

Joint forces of empiricism and rationalism were marshalled under logical empiricism, a powerful movement in the first half of the 20th century, which, when coupled with a succession of striking theories (such as logical atomism, the picture theory, verificationism, and so on), did manage in fact to impose severe limits upon philosophical inquiry. Or so it seemed, wrongly or rightly, until one by one the striking supporting theories duly became unstuck, whereupon severe limits evaporated.

Limits correlate with restriction of methods and constraints imposed. With methods expanded (beyond narrower empiricist and rationalist confines) and with associated constructing theories decoupled, limits tend to disappear. As much, positive argument below will help to demonstrate.

Several of the further limitations ascribed to philosophy result from the assumption of certain ideological frameworks as absolute when they are not. An elementary example concerns the supposed limitations of philosophy arising from evident limits in its presumed methods[17]. For example, it is presumed both that philosophy is confined to analytic methods, and also, by contrast correctly, that analytic methods do not afford an adequate technique for treating some philo-

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[17] For substantial elaboration of this example, see Rosen (1980).

sophical issues. However while analysis may have its limits, philosophy is not just analysis. Similarly for other decidedly non-comprehensive classes of methods (such as phenomenological methods, hermeneutical methods, and so on).

More plausible, no doubt, is the widespread framework assumption of some sort of realism, which delivers objectivity and certain absolutes. In *Ethics and the Limits of Philosophy*, Williams tells us that 'philosophy should not try to produce ethical theory' (Williams (1985), p. 17), because ethical theory does not have the authority to 'give some compelling reason to accept one intuition rather than another' (*ibid.* p. 99). Many there are like Williams who have presumed that a successful ethical theory would conform to realism, delivering a unique, uniquely warranted objective ethical theory[18]. Without such a presumption, which collapses under a proper pluralism, imagined ethical limits dissolve (and therewith acclaimed, but minimally argued, 'limits to philosophy'). But while a unique justification may be lacking, justifications are not, some considerations and intuitions are better than others (as assessed from here and elsewhere), and so on.

5. FURTHER NEGATIVE ARGUMENTS OF THE PHILOSOPHERS, AND THEIR TYPICAL IDEOLOGICAL CHARACTER

Wittgenstein can function as a bridge from logical empiricism, prime recent source of limitations, to particular philosophical impositions. For the very severe limits that Wittgenstein arrived at in his *Tractatus* depend upon a drastic version of logical empiricism, where empirical and logico-

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[18] Thus e.g. commentators on Williams and also a growing band of anti-relativist ethical theorists.

mathematical statements are given very different treatment. Any other statement than these types, any statement which fails either to picture a fact or to express a tautology, is nonsense. Most statements of philosophy, those of ethics and metaphysics (including those of the *Tractatus*), fall into this extensive nonsense chasm. As is well known, Wittgenstein subsequently, for good reason, abandoned this rather bizarre sort of position, therewith collapsing celebrated limitations. It is less well appreciated that he endeavoured to extricate philosophy from standard rationalist restrictions altogether. But he did not really succeed.

Accordingly to Wittgenstein, 'philosophy both must and cannot be conducted transcendentally' (so reports Lear (1982), p. 383). From this incorrect and unfounded dialethic result, Wittgenstein tends to leap to many conclusions: for instance, in the *Tractatus* to the futility of (such) philosophy; there he also regularly misrepresents inconsistency, obtained in reaching beyond the bounds of (consistent) language, confusing it with nonsense. Then he makes the familiar leap from inconsistency to its dual, incompleteness: 'the philosopher' must 'curb the impulse to say something metaphysical', 'one cannot succeed in saying what one wishes to say' (Lear, *op. cit.*, p. 383). By wrongly inverting inconsistency to incompleteness, limits are secured.

Most important, the whole progressive transference from inconsistency to nonsense to silence is an intricate muddle, one confusion after another. There are several sources for such confusions. One is that 'an "illogical" world is not, for us, a world at all', 'we would not *say* what is an illogical world would look like' (Lear, *op. cit.*, p. 384). But now, of course, with the advent of paraconsistent logics, we can describe and model such worlds.

These limits later gave way to other limits upon philosophy. Consider the supposed roots of Wittgenstein's later *doctrine of non-interference*: that philosophy may in no way interfere, either with the actual use of language, or with the world, it leaves everything as it is[19]. There is vagueness and ambiguity in the doctrine: ambiguity between a normative form, stating that philosophy should not interfere or is not permitted to interfere, and a more factual form, that it does not interfere and indeed cannot by virtue of its character. The normative form generates the picture of the non-revisionary Wittgenstein as a reactionary; the more factual form induces the more sympathetic picture of Wittgenstein caught, like someone determined, in a difficult or impossible place by the hard facts of the matter. The supposed roots of the non-interference doctrine support a more factual construal: Philosophy is transcendental, transcending the empirical world, which is accordingly left as it is. The transcendental conception arises from seeing philosophy as predominantly metaphysical (which it is not). Wittgenstein's pessimism about the possibility of doing philosophy, and theme as to the futility of doing it, are again both premissed on this transcendental conception. Philosophy must be conducted transcendentally, yet it cannot be. But, firstly, much of philosophy is not transcendental in this way: much of ethics and political theory, for example. And, secondly, tran-

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[19] Wittgenstein (1953), § 124. According to this later naturalism, once it is understood how people proceed, there are really no further philosophical problems. (Postulating a 'rule governing their procedure would not help; for we should need a further rule as to how to interpret this': see, e.g., the discussion around Wittgenstein (1953), §198). For an illuminating exposition of this shallow naturalistic way with metaphysics, see the final chapter of Strawson (1985).

scendental philosophy itself is not excluded; philosophy is not so limited[20].

Many of the limits that philosophers have claimed to detect derive from prominent ideologies, and they simply disappear into these ideologies, or altogether with their demise. For example, in Russell the limits of knowledge vanish (explicitly, by the last chapter of *Human Knowledge: Its Scope and Limits*) into the limits of empiricism. Similarly the limits hinted at in Chwistek's *The Limits of Science* disappear into limits of classical logical empiricism. But the limitations of a limited ideology (if nonetheless one with ambitious pretensions) demonstrate nothing as to limitations of what is wider – thought, information, science, knowledge, and so on.

Elsewhere, also in philosophers such as Russell, we find other, apparently very different, limits to what philosophy can do, and to philosophical knowledge advanced. Philosophy cannot provide 'knowledge concerning the universe as a whole'; it is vain to expect from philosophy 'reason to believe' such things as the fundamental dogmas of religion, the essential rationality of the universe, the illusoriness of matter, the unreality of all evil, and so on (Russell (1967), p. 82). What philosophy cannot thus accomplish, according to Russell, is not so utterly remote from what Kant had sought to argue – only no room at all is left for faith or other methods to operate. Logical empiricists had surveyed methods exhaustively, so they imagined (mostly they had just inherited a set of prejudices), and had duly excluded all but their approved methods. Accordingly, logical empiricists were particularly inclined to

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[20] For a working example, and detailed argument, see Sylvan (1996) chapter 11.

pronounce that philosophy could not address many of the so-called grand questions of philosophy, and indeed that many of them were meaningless (for instance, applying a verification principle, because no admitted methods could apply).

However the whole enterprise was seriously flawed, as a jubilant opposition (that has now unfortunately faded from professional philosophical view) quickly emphasized. For the general principles applied concerning methods fell outside the scope of admissible methods (as the verification method exceeds its own scope, for example). It seemed too that empiricists were somehow able to survey the universe as whole and gain information therefrom, for instance as to all methods, and on philosophical claims, especially of a religious cast. They had confirmed, or most of them had, that matter existed, and that *nothing* else does, no gods or other spirits, and so on. They had vastly exceeded their own admissible methods. Thus too there *were*, or *appeared* to be, other less restrictive methods.

The slightly more detailed argument that Russell himself advances for 'the limits of philosophical knowledge' in *The Problems of Philosophy* is patently unsatisfactory for different reasons. The central argument consists, firstly, in faulting Hegel's argument purporting to prove 'that the universe as a whole forms a single harmonious system' (Russell (1967), p. 84). Let us concede, for the present, that Russell has succeeded in this, that the particular holistic construction of a particular philosophy fails irreparably. But Russell proceeds at once to generalize:

> And if we cannot prove this, we also cannot prove the unreality of space and time and matter and evil, for this is deduced by Hegel from the fragmentary and relational character of these things. Thus we are left to the piecemeal investigation of the world... (Russell (1967), p. 84).

This last inference is plainly a *non sequitur.* Russell has leapt to his own favoured conclusion – which he thereupon pronounces as a general result, and proceeds to back up on the basis of scientific philosophy. However, the most that the failure of Hegel's argument shows is the failure of *Hegel's* way of trying to establish grand themes, not the general failure of such attempts, which might proceed by quite different methods and routes.

Many of the historic arguments *for* no boundaries, no limits, to this or that, are also defective. While they may look as if they aid the present cause, they are not endorsed; for they would prove too much, and induce trouble elsewhere. Such are the arguments that the cosmos is unbounded, the universe is boundless, which are characteristically based on ontologically flawed arguments for no boundaries. These arguments take the following sort of elementary form: A boundary has items on both sides of it. Thus, if the universe had a boundary, there would have to be something on the far side of it. But, since the universe is comprehensive (of what exists), this is impossible[21]. Such arguments fall with the rejection of Onto-

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[21] Although such arguments, dating from antiquity, had become very fashionable in the early modern period (see Priest (1991), p. 361), they waned in popularity thereafter; but variants of them persist in cosmology. For although smart non-Euclidean geometry was applied to defeat spatial boundaries, strong ontological and verificational assumptions are still invoked as regards time: to exclude, as meaningless, items before the the initial Big Bang event. Without the assumptions there is nothing at all the matter with times before the Big Bang when nothing at all existed: see Sylvan (1986).

Arguments like those to the boundlessness of the Universe have also been used to show that the Absolute has nothing outside it. The claim is that 'if there were anything outside the Absolute, that would

logical Assumptions (that genuine subject of discourse, what is spoken of, thought of, etc., must exist). For without such assumptions items on the far side of the boundary need not exist (for sense or truth to prevail). Accordingly the universe comprising what exists can stop at a boundary, which has nothing existent on the far side of it.

Arguments concerning the character of items bordering a boundary or limit have naturally figured large in arguments both for and against theoretical boundaries. Many of these arguments are, however, like that just considered, vitiated through importing restrictive assumptions about what kinds of items can figure. Apart from existence, favoured restrictions are again of broadly consistency cast, including consistency itself, imaginability, conceivability, sense and sensibility. Such features have been heavily exploited, particularly by idealists and empiricists. But the arguments thereby projected fail, for similar reasons to those already considered; that such features do not impose imagined impassable boundaries. While that completes the present piecemeal negative case, it does also point towards a way of obtaining some greater generality: namely exhausting considerations of a piece with those of existence and consistency[22].

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immediately impose a limitation on It' (Wilber (1983), p. 294, and p. 296).

[22] *Some* greater generality, for there are still arguments coming from unexpected directions to field, such as the following with these premisses: Everything (every item) has a nature; but natures are always limited. Whence everything is limited. The second premiss should be rejected, because of ultimate items such as the greatest cardinal and the greatest ordinal, God, etc.

6. ADVANCING THE POSITIVE CAUSE

To arrive at positive-looking arguments for no-limitation themes advanced, it helps to separate supposed *objectual* limitations (for instance, to what objects are available for thought) from *statemental* limitations. Such a division corresponds roughly to a distinction between first-order and zero-order logic, and better to the traditional distinction between concept empiricism and judgement empiricism (both forms of which are refuted in Routley (1980)). Of course, in item-theory, the division lacks the sharpness with which it is usually credited, because statements are sorts of objects, if somewhat unindividualistic rather abstract ones.

Now a first argument builds on the theme that there are no items whatsoever beyond the reach of item-theory. That theory is subject to *no* limitations in what items it can investigate, by contrast with empiricism which is limited to those "constructed" from experiential elements, and with rationalism which traditionally is bounded by rationality and consistency constraints. No matter how strange or remote an item, it will have some features (those of strangeness, remoteness, ineffability or whatever, as consequential among others), through which it can be investigated, and thought about. It will follow that there are no limits to thought. For thought is about items and their composition, more items, to which there are no limits.

Even so there may appear to be some items that stand outside thought's comprehensions, and so defeat this item-theoretic argument, namely absurd items such as green numbers, virtuous shapes, and so on. Absurdity does not supply a bound. Pythagoras could think that virtue is triangular, and we

can reflect on his assertion and his thought[23]. Similarly for other absurdities. But strictly there are two feasible approaches: a lesser vehicle, according to which such material is not propositional, and so is ruled out as a proper object for thought; and a grander vehicle, taken here, according to which such material is accessible to thought and does exhibit sufficiently many propositional features (such as entailments, equivalence classes of sentences, etc.) to be assigned residual assertoric content, open to intentional investigation.

An associated argument *from freedom of assumption* (deriving from Meinong) runs as follows: One is free to assume anything one likes, however ridiculous. Put differently, there are no limits upon assumption. Not consistency (as some ancients knew), not absurdity. Anything propositional or assertoric can be assumed. But what can be assumed can be reflected upon, thought about. In short, any limits to thought would be transmitted to limits to assumption. But there are no such limits; so there are no limits to thought either. Presumably the critical transmission principle, from assumption to thought, can be defended through (what has been sidestepped) some further analysis of thought, which includes making assumptions and mulling and ruminating upon them.

A major argument to no-limitations-of-statemental-form takes this form: – Limitation statements normally transform to conditional impossibility assertions. Then it is enough to emphasize the conditions. In remaining exceptional cases the isolated contradictions revealed can simply be assimilated, under dialethism. To begin upon detailed elaboration: types of limits partially correlate with types of impossibility, logical limits with

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[23] For more on this topic and how absurd items and assertions can be accommodated within significance theory, see Goddard and Routley (1973).

logical impossibility, physical limits with physical impossibility, practical with practical, and so on. Of course, as explained, not all impossibility yields something worth dignifying by the grander title of limitation; but certain important sorts do. It has become fashionable to highlight conspicious physical impossibilities in terms of limitations, statements concerning which can be converted back to impossibilities. The advent of famous limits in contemporary physics – the limiting velocity of light for genuine transport and communications, and of the limit to simultaneous measurements in quantum theory – has encouraged the presentation of other parts of physics in terms of limitation results, of what were closely connected impossibility claims as limitation results. All these results can be transformed into physical impossibility claims. For example, the limited velocity result becomes the physical impossibility of non-virtual velocities in excess of the speed of light. But such physical impossibility amounts, in effect, to a conditional impossibility, namely, *in* relativity physics and its situations, it is impossible that non-virtual velocities exceed that of light. Hardly necessary to add, such relative or conditional impossibilities constitute no limits to thought or to philosophy. It is easy to think non-relativistically, classically or in terms of grander velocities. The point can be generalized, drawing on the primary sense of limit. A limit is a 'bound that may not or cannot be passed'; a physical limit is one that cannot, physically be exceeded (the 'may not' is to accommodate deontic-type cases). So a physical limit is a bound that, relative to physical theory, cannot be exceeded. To pass it intellectually it is enough to change theory, or to access a different world.

Practical limits go the way of physical limits. The linkage of such limitations with impossibility is of course familiar. Certain general statements of impossibility as to what agents

can achieve are taken to present limitations. Conversely, a practical limitation characteristically states a practical impossibility, a general inability, something agents cannot do, normally presentable in terms of some sort of bound that cannot be passed. The same moves already applied in the case of physical limits, apply also with practical limits. None of these limits need impede or block thought or philosophy.

A tougher case again invokes logic. Many of the harder limits are logical limits, or limits arising out of matters intimately tied with logic, such as reasoning, reasoning ability, computability, formalism, etc. Related limitations concern omnipotence, omniscience, and so on; these touch even the gods. As regards all these matters, there are many impossibility results, which once again may naturally issue in limitation propositions. While the extent and severity of such propositions has been much exaggerated, many such propositions, of major importance, there no doubt are[24].

Thus, it is not claimed that everything is possible[25]. What *is* contended, instead, is that it is possible to think past, inquire past, and philosophize past what is possible, to what is impossible. After all, the principal themes concern not no limitations whatsoever, but no limitations to specific abstract investigations and processes: namely, regarding thought, inquiry, philosophy.

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[24] On the exaggeration, see again Priest *et al.* (eds.) (1989) and Sylvan (1992).

[25] Contrary to Mortensen (1989), whose arguments do not withstand detailed examination, except insofar as the impossibility goal posts have been inadmissibly shifted. But of course, were Mortensen (and Quine) right, no-limitation results would be more easily obtainable, since what is possible is not rationally inaccessible.

The groundwork has already been done, and basic theory supplied, for belief and conception, assumption and thought[26]. Nothing excludes conceiving or believing, reasoning and thinking about, what is impossible or paradoxical. There are no objects of any sort, propositional, attributive, or whatever, beyond the reach of thought.

The bounds and barriers that have been proposed are accordingly no bounds. Consider expression and expressibility. No doubt there are limits to what can be expressed, due to physical constraints. But these do not constrain thought. While not all propositions can be expressed, all can be thought about, conclusions derived about all (as now: all can be thought about), and so on. For similar reasons, effability is no bound upon thought, which does not need to be uttered or expressed. What is ineffable, though perhaps excluded from further investigation by terrestial authorities, can in principle be thought about, its features, as far as they are revealed, can be probed, analysed, and so on.

Apparently too, trickier issues like that of comprehension can be bypassed. For what is thought about may include topics that are not fully comprehended. A theme of no limits upon thought is compatible with pockets of topics beyond comprehension. For all we know, though there is little impressive evidence in this direction, there may be some restrictions upon what terrestrially evolved creatures can comprehend. This could happen because the level of complexity of a topic exceeds the complexity such creatures are capable of processing. But what that shows, far from limits, is that to process such complexity more complex creatures are required. Bounds to

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[26] For details see R. Routley (1980), Priest *et al.* (eds.) (1989) and, especially, as regards belief, R. and V. Routley (1975).

intellectual reach do not loom – without further different considerations, such as further exploitation of philosophical paradoxes.

Intertwined with limits are inaccessible topics and objects, which are somehow beyond human, creature or even intellectual reach. Among putative examples are the Absolute, the *Alle*, the Unthinkable, God on some accounts, Infinity formerly, inaccessible numbers, noumena, ... Many of those objects are inaccessible by say-so only, often the say-so of high authorities or exalted personages, so notice is taken, but inaccessibility is not ensured (some however, like so-called inaccessible numbers or sets are "inaccessible" only by virtue of misleading choice of terminology).

More important, with the development of dialethic object theory, and penetration into features and idiosyncracies of radically inconsistent and incomplete items, mysteries surrounding such "inaccessible" objects will dissipate, as those conceding Infinity did with the advent of theories of transfinite sets[27]. The Unthinkable, for example, is a radically vague object (as virtually no features are anywhere specified), which is inconsistent if the object is, as it presents itself, unthinkable. For we are already theorizing and thinking about it, so it is in fact thinkable, for all that it presents itself as not.

More generally, it would seem, nothing is unthinkable. For suppose that something were. Then it has been thought of (insofar as supposed). Then apply *reductio*, to yield that the arbitrary something is thinkable after all. The neat argument is reminiscent of Berkeley's "master argument" (presumed to tell against realism) that nothing is inconceivable. That argument,

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[27] The general point is elaborated at the end of Priest *et al.* (eds.) (1989); also in Priest (1987).

which mixes up both conceiving and thinking of, and conceiving and conceivability, fails in its intended idealist purpose[28]. But suppose that (some) arguments of this genre succeeded in this different setting: Would they reveal some limit to thought? The very contrary looks to be the fact of the matter; it *removes* an alleged 'boundary between thought and the [equivocal] thought-independent world', a boundary taken to 'provide one of the limits of thought'.

The neat argument closely resembles an argument extracted from Hegel, that there are no limits to thought[29]. Sup-

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[28] It fails because of the mix-up and because *reductio* does not succeed in the given setting. An argument like this is examined in some detail in Priest (1991), from whom the following quotes are drawn; as to how the argument breaks down, see p. 369 therein. Priest appears to be asserting, on p. 362, that the argument does indicate limits to thought. But what it "limits" is not thought, but rather certain exaggerated independence claims of realism. For here two conflations play significant roles (pp. 361-2), one between things and things which exist, and one between what is conceived and what is conceivable (in addition to the conflation of thought with conception). Roughly, it is enough for the "conceptual realist" that there are things which exist which are not conceived (and are independent of thought in that respect), a theme which is untouched by "conceptual idealism", according to which there are no items that are not conceivable.

There appear, furthermore, to be some interesting features of the argument that have escaped Priest's formalization. One is an illicit each-all inference (without which the criticism of realism does not succeed). It may be, for instance, that each proposition can be selected, examined, etc; it does not follow that all can. While each element of that totality, and others, is accessible, the whole may not be so accessed.

[29] Both the passage from Hegel and that it contains an argument were drawn to my attention by Priest, who had already made good use of the passage in his (1991) article.

pose there were a limit, to thought. Then there is a barrier and another side, of which there is some conception. So, in a sense, what is beyond the barrier can be thought of; it is accessible by thought. Therefore, by *reductio*, there is no limit. Naturally however, there is further ado conceding this neat argument. Firstly there is an issue (here footnoted) as to the adequacy of the *reductio* argument[30]. Secondly, there is the substantive question whether such limited conceptions of what lies beyond "the barrier", perhaps unthinkables and the like, amount to requisite thought. But further reflection, like that outlined above, suggests that there is little restriction (object-theoretic-wise) at all upon information so accessed, and no genuine barrier to access.

As the pithy tale of the Unthinkable suggest, best prospects for absolute limits perhaps lie with, what have long fascinated human thinkers, intensional paradoxes. In the first place, analogues of familiar paradoxes concerning proof, knowledge, and similar, do not appear to intricate thought (even if they were to, it might not matter, as dialethic considerations reveal). Simplest versions of these puzzles, for some functor Ψ, consider some statement p that asserts of itself that it is not Ψ, not known, not true, etc. That is,

$$p. \sim \Psi\, p$$

Observe that the argument concerns thought, products of thinking, not thinking as a process (with thinking N^* goes awry, as David Sapir observed).

[30] The *reductio* takes the form: suppose A; then ~A; therefore ~A, and will succeed if the *suppose-then* connection can be cast into a genuine implication. (Otherwise rejectable assumptions may have been suppressed.)

For puzzles to emerge further conditions are however required, typically a certain authenticity (what is known, proved, etc., is thereby true or right) and invariably consistency. *Thought does not conform to such requirements*[31]. That is what makes it so promising for no-limitation purposes. But, in the second place, there are self-referential thoughts inducing paradoxical situations. Often these operate indirectly, perhaps contingently, through a chain of circumstances, and in combination with other notions. Simpler cases consider situations like that of the person in fact in room 27, who is thinking only that nothing (nothing true, on a Liar paradoxical up-grade) is being thought in room 27[32]. That is merely another situation in which a person has, so it turns out in fact, inconsistent thoughts (namely, that thinking is not happening in room 27, when in fact thinking, just that, is happening in room 27) – a quite commonplace occurrence. Insofar as *any* among these sorts of occurrence impose any restraints that it would be worth signifying by the title of "limitation", they yield limitations on *consistent thought*, not on thought.

7. BEYOND THOUGHT, TO INQUIRY AND PHILOSOPHY

What holds for thought also holds, in a similar way, for intellectual inquiry in general, and for philosophy within that. The detailed arguments proceed along somewhat similar lines to those for thought. But short-cut arguments, appealing to the critical role of thought within inquiry, can take advantage

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[31] For one detailed development, see R. Routley (1981).

[32] An example Prior struggles with, erroneously concluding that there is no thought, rather than simply no consistent thought (cf. Prior (1960)).

of the results attained for thought. Whence again, there are no limits.

Nonetheless the short arguments are too short. Fuller argument for inquiry looks to features of inquiry, in general, and more specifically to its logical and structural features. Broadly inquiry takes the logical form of generalized dialogue, what has elsewhere been called polylogue[33]. At any given stage, an on-going inquiry can, like a Socratic dialogue, be seen as an opening branching tree at nodes of which thoughts or contents cluster, with some of these under consideration or up for question[34]. Now there are limits neither upon how the branches branch, at least in the absence of censorial pruning, nor, by the previous inquiry, upon what thought or content is considered. In terms of a different (more causal and less easily technically up-graded) image, there are bounds neither upon where inquiry roams nor upon what, in its roaming, its focusses upon or considers. Conversely, if there were limits they would become manifest either in what could enter or be considered or where discussions wandered; but, by preceding investigations, no limitations need be expected in either case.

As regards philosophy, it is smart to avoid becoming bogged down in trying giving an account of what it, conceived very broadly, comprises; to skirt around that messy and controversial matter. Philosophy can be seen, for present purposes, as

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[33] See Sylvan (1985). A logic of inquiry is roughly an amalgamation of erotetic logic with a logic of discourse, what can be absorbed in polylogue theory.

[34] Contents comprise a broadening of propositions to include non-statemental forms, and so include assumptions, queries and so on. No limitation themes hold, of course, for content.

But the arguments sketched do presume at most denumerable structure. Relaxing that presumption, should it be considered pointful, would involve further investigation.

free-ranging inquiry unrestricted to features of specific disciples. Accordingly it inherits features of inquiry, including its unlimited character, features emphasized by concatenation of the term *free* in "free inquiry". For ask, where would there be limits to philosophical investigation? They would, as with inquiry, concern either what routes, trains of inquiry, could be pursued, or else what thought or propositions could be assembled at any stage. But, as before, there are no limitations upon either, upon branches or upon propositions at nodes.

A similar conclusion can be reached by a slightly different route. Philosophy can be represented as unrestricted devotion to wisdom, truth, understanding and connected virtues (condensed to the semantic recipe 'love of wisdom'). Such a combination of desiderata is delivered through free inquiry (e.g, it is often claimed these days, which carries its own problems, that truth is an outcome of free inquiry). Thus, free inquiry is the archetypal method of philosophy. Accordingly, if philosophy were hemmed in by limits, there would be limits to free inquiry. But, as already shown, there are no such limits, either to inquiry or impeding freedom, Therefore philosophy stands unlimited. It should remain so, unconfined by impositions of censorious forces (whether of political or other masters or of school philosophy).

Given that the main themes can be sustained, there are entertaining corollaries. Among them are interesting failures in all those varieties of philosophy which claim to ascertain limits. These include not only empiricism and its stock contrasts, but such newer Continental varieties as critical theory, in the very ideas of which limits to thought are presumed.

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