ON MAKING A COHERENCE THEORY OF TRUTH TRUE

Richard Sylvan

In the last half century the coherence theory of truth has largely fallen into disuse and disrepute. While there is now some flirting with coherence approaches, as each approved version of the majority position, the correspondence theory, duly founders, and holism gains in fashionability, still coherence has but few committed friends.[1] Granted, it has had friends of a sort: most notably Rescher, who has made significant contributions, on which others may profitably build. But Rescher, while advocating what he calls a 'coherence theory' has twisted the theory into what it is not, a modified "self-evidence" theory, and has also warped it into a methodological pragmatism that would have made straight old-timers like Bradley and Blanshard blanch. As well the major virtues of the theory – if only it could be got to work, which unfortunately it can't – have been appreciated by isolated explorers of the wide truth terrain, such as Blackburn (see esp. his pp.237-8). The present exercise supplies one way of enabling the theory to work, without undue warping.[2] That way does not pretend to be an authentic historical way, only an historically controlled and informed way. For the primary purpose here is not historical explication; it lies rather in the development of coherence theory *beyond* its previous and varied historical settings[3], to render it somewhat more adequate and more coherent, and to begin to display some of its further virtues.

Leading requirements on coherence theories of truth have always been coherence and comprehensiveness; thus, for instance, Bradley: 'Truth is an ideal expression of the Universe, at once coherent and comprehensive' (p.223). These features will be explicated jointly, coherence by way of fitting into an appropriate ideal structure, and comprehensiveness by exhaustiveness or maximality of the structure. The obvious structures are accordingly maximal coherent systems; in effect comprehensive coherent structures become maximal coherent systems. Conveniently then, for Blanshard, as for Bradley, 'System is the key term... truth... derive[s] from the relation of a datum to the

system of which it is a part' (Reese, p.589; cf. Rescher pp.31-2).
Coherence just is this fitting together, through requisite rela-
tions, into a suitable system, into a whole. There is a third
standard requirement beyond coherence and comprehensiveness,
namely, control, by experience especially (whence Blackburn's
useful mnemonic for the requirements of a coherence theory,
CCC). The control by experience figures importantly in getting
maximal coherence constructions for truth going.

1. *Coherence constructions*

The logical strategy is, then, to explicate coherence in terms of
fitting together in a (Lindenbaum) maximal-coherent-set con-
struction, of the general type used in (relevant) completeness
proofs, as well as elsewhere in metatheory.[4] To allow appropria-
tely for revisability, however, a sequence of maximal- coherent-
system (m-c) constructions is envisaged, a typical one of which
takes the form indicated by the next diagram.

Diagram 1: A typical stage in the process

$$ITj \text{ (initial} \qquad\qquad I\bot j \text{ (initial}$$
$$\text{stage)} \qquad\qquad\qquad \text{falsehoods)}$$

$$M-C(ITj)$$

The set $M-C(IT_j)$, abbreviated T_j, is a set, extending the initially
given class of truths IT_j, keeping out all initially determined
falsehoods $I\bot_j$, and subject to a further series of constraints,
SC_j. These constraints, imposed to ensure that T_j is closed
under, and conforms to, prized law-like principles, characteris-
tically take the implicational form, $A_i \rightarrow B_i$ (for some indexing set
for the i's and with universality ensured by a generality inter-
pretation). The lawlike principles involved will be of several
familiar types, in particular scientific, those nomic principles
supplied by science at the stage, and meta-scientific or metho-
dological, those reflecting sound logical and procedural methods
at the stage.
    Then j-truth, truth at stage j, is introduced simply as
follows:

⌜A⌝ is true at stage j iff $A \in T_j$.

Thus, in particular, under a temporal representation of the stages,

⌜A⌝ is presently true, true at the present stage, iff $A \in T_{now}$.

The stages can be considered, following Peirce and Dewey, as stages of inquiry. It can be plausibly argued, from features of inquiry, that the stages are denumerable, and at most of order-type ω. The end stage, the limit of enquiry, to which other stages tend, in perhaps erratic fashion, will be signified stage w. Then, under the intended coherence modelling,

⌜A⌝ is true iff A is true at stage w, i.e. if $A \in T_w$.

This is enough, according to some dictionaries of philosophy, to render the theory a coherence one, where 'truth is a property primarily applicable to [an] extensive body of [coherent] propositions, and derivatively applicable to any one proposition in such a system by virtue of its part in the system' (A.C.B. in Runes p.58). The account of truth, as what is arrived at, maximizing coherence, at the end stage of inquiry, has much in common with Peirce's limit theory of truth as 'what men are fated to believe at the end of inquiry' (and some of the remaining differences can be pared away under a coherence picture of rational belief). Because of such connections, a truth definition of the form, $T⌜A⌝$ iff $A \in T_w$, is sometimes called 'the Peircean equation' (e.g. Blackburn, p.249), even where, as here, the theory developed may diverge in significant respects from Peirce.

On some coherence stories, not excluded here, T_w can never be attained, at least by finite creatures such as humans. Everything is open for further reconsideration, for instance, at the next stage, with new data input. On other accounts it is attained in the ideal limit; it may then be said to represent the Absolute, e.g. a God-selected Absolute. (But nothing so far excludes the possibility that stage w equals stage n for some finite n, since the limits of inquiry may be unexpectedly attained, for one reason or another, in one way or another, after only finitely many stages. Such a scenario presupposes a strong foundationalism: that initial controlling data are finally adequately ascertained and not liable to revision in the light of further information.)

The double construction is not uniquely determined. Considered at any given stage it is far from unique; but nor is the overall totality of constructions and stages necessarily unique. For one thing, an m-c construction can be accomplished by various different procedures and methods and subject to different constraints. For instance, it may be carried out noncon-

Diagram 2: The double construction involved.

Sequential stages (left to right)	1 first stage	...	j jth stage	...	ω end stage
Maximal coherent constructions from initial data (bottom to top)	expansion steps		inflation		maximization

revision of data bases and of constraints

adjustment, addition, deletion
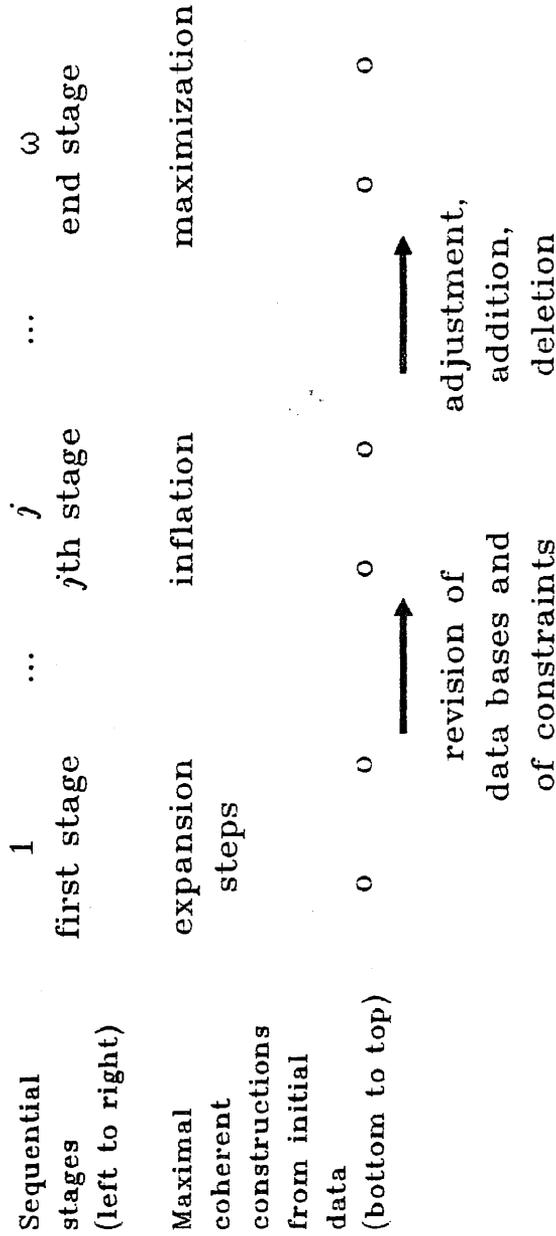
structively using Zorn's lemma (as in RLR for relevant theories), or it may be accomplished rather more constructively using the general method of Lindenbauming (or it may be done differently again, to include specific treatment of semantical paradox, with a transfinite construction). Observe that, especially at early stages, the results of the constructions may fail to measure up to common expected desiderata; for instance, the outcome of a construction, where things are duly fixed so that it is attained, may be radically incomplete or seriously inconsistent. If so, improvements can be effected (e.g. by shedding previous over-demanding data or modifying constraints) at later stages of inquiry. For another thing, the construction selected may well turn upon an enumeration of the language adopted at that stage, something that can be effected in many different ways - ways which bear on what happens to the truth or falsity status of Don't Care statements. It would be a large assumption, then, that even the end stage T_w is uniquely determined. It is an assumption that will not be made, and that is not needed. But its abandonment is highly controversial. For theory T_w should correspond precisely, according to correspondence and realist theories, to "the world". Accordingly, the world itself is not independently uniquely determined. Rather a world is chosen, and designated, as the world. But this is exactly the real situation anyway according to coherence and pluralist positions (as is explained and argued in RP).

In this way, through nonuniqueness of actual worlds, what has been taken as a main problem for coherence theories is overcome - evaded, some may want to say, but the charge is hard to sustain, in part because some have independently taken the *non*uniqueness of a theory telling "the way the world is" as evident and unproblematic (e.g. Williams p.104). Realism has always *assumed* the uniqueness of the actual world, and lodged this as a crucial objection to coherence constructions. But the uniqueness involved remains an assumption; it does not appear to be, and is not, externally imposed. The idea that it is involves the fallacy of misplaced definiteness. Uniqueness is achieved, insofar as it can, rather by choice, *controversial* choice sometimes. Coherence theorists can make this choice too, but so as to *match* their coherence constructions.

Moreover a coherence theory can, within limits, select the world to meet sought requirements and virtues, such as regularity, simplicity, lawlikeness, etc. The advantages and virtues of coherence Blackburn sees, do then accrue. The way this is achieved is by careful selection of both the particular construction method, the initial classes, and above all the constraints

imposed in SC_j. It is time to say more about these things.

For definiteness let us take, as working example of the basic M-C-construction at stage j, the type of Extension Lemma deployed for modal and relevant logics (Lemma 4.3, RLR, p.307; Constant Extension Lemma, SQR, p.326; to avoid confusion the notation U for the exclusion set is preferred). There are many, often tricky, variations that can be played on such an Extension Lemma to obtain specific logical results, but the basic form remains pretty much the same, and can be deployed for a language L of any level of generality (e.g. for acclaimedly universal semantical theories, such as in US). The construction starts from two given sets of sentences or wff of L, S and U, with U not derivable from S. The starting set $S=IT_j$ comprises the initially given truth-candidates at that stage, the accepted starting or basic or protocol statements or clear and distinct judgements, while $U=IⱢ_j$ consists of the initially recognised falsity-candidates, the basic rejects, at the stage.

Fortunately, a sufficiently detailed account of the initial statements has been provided by Rescher in the case of S (i.e. included) statements (under the heading 'the key concept of a datum', p.53ff.), and an analogous account of initial U (i.e. excluded) statements is easily supplied. A *truth-datum 'is - in the traditional sense - a "given"* ... *as a truth-candidate*; as *potentially* or *presumptively* true; to be classed as true providing that doing so creates no anomalies ... not as a *truth* or as *actually* true ... [except] in the final analysis' (p.54, rearranged). '... its claim must be well-founded. A proposition will not qualify as a [truth-]datum without *some* appropriate grounding. [Truth-]data are propositions that have a proper claim upon truth .... A [truth-]datum is a proposition which, under the circumstances of the case, is a *real prospect for truth* in terms of the availability of reasons to warrant its truth-candidacy' (p.56). Typical of truth-data are experiential *evidential* statements, such as 'deliverances of our senses and memory' (p.57).

Such experiential data provide part of the answer to another standard objection to any coherence theory, that coherence does not indicate truth, that it cuts off "Truth" (as supplied by coherence) from experience and thus from the world.[5] Rescher's response elaborates Blanshard, Bradley, and others before him: 'The coherence theory would indeed be deficient if it held "that a system would still give truth if ... it disregarded experience completely" [Blanshard]. Our recourse to [truth-]data [and Bradley's to facts of perception and memory] is intended to supply just this requisite of a recourse to "experience"' (p.66, p.67 on Bradley's "facts"). '... traditional coherence theorists

have not located truth in merely generic coherence *per se*, but have insisted that it is specifically "coherence *with experience*" that is to be the standard of truth. [In this vein, Ewing and earlier Joachim.] The coherence theory of the British idealists has never abandoned altogether the empiricist tendency of the native tradition of philosophy' (p.50, italics added)!

The assumption, at each stage of construction, of initially given truth-candidates and falsity-candidates does not induce circularity and is not incompatible with revisability. For truth-candidates are not truths, and statements adopted or reported at one stage can be treated differently at the next or later stages (as on Popper's picture of an adaptable basis). Thus there are, or rather need be, no independent givens, that are immune from a change in status. In practice there were such givens on traditional positions, in the shape, for example, of instances of the laws of thought. These could be deployed to ensure that S is nonnull, while their negations, being false and not derivable, would guarantee that U is not null. Such data controls would hardly prevent an empirically wild construction. It is as well then, that the traditional basis was substantially larger, that it was *grounded*, in Bradley's terms, in perception and feeling, i.e. it was broadly empirically informed.

It is assumed that the initial data sets have been pruned back sufficiently, so that they are exclusive and U is not derivable from S. This can always be effected by making the initial classes S and U sufficiently small and restricted in subject matter.[6] Nonderivability, which expands upon exclusiveness, is deployed in the standard logical sense. Set Δ is derivable from set Γ, symbolised $\Gamma \vdash \Delta$, if there is a sequence, passing requirements for a derivation, of some elements of Δ from members of Γ, i.e. in normal settings of a disjunction $B_1 v...v B_m$ of members $B_1,...,B_m$ of Δ from a conjunction $A_1 \& ... \& A_n$ of elements $A_1,...,A_n$ of Γ. Again in normal settings, where the derivation is finite, this will hold where and only where the implication $A_1 \& ... \& A_n \rightarrow B_1 v ... v B_m$ is provable (within L at that stage).

Among the principles provable are not only those of a (quite undemanding) normal setting such as central logical principles like $A \& B \rightarrow A$ and $(x)A(x) \rightarrow A(t/x)$, but also the constraints SC_j of that stage j. What this will mean, where $A_k \rightarrow B_k$ belongs to SC_j, is that whenever A_k is in the extension of S so also is B_k. Thus the extension will conform to, or satisfy, whatever these principles represent – simplicity, regularity, etc. (It will not however follow, in the absence of further conditions, that the law-like principles $A_i \rightarrow B_i$ themselves belong to the extension, except in

degenerate cases where the central logics include paradoxes of implication).

The construction takes for granted, or supplies at the outset, some enumeration $C_1, C_2,...,C_n,...$ of the sentences or wff of L. Again this can always be accomplished for denumerable languages (e.g. by Gödel numbering). Then sets S_i and U_i, extending S and U respectively, are defined recursively for each nonnegative integer i, as follows (in the most straightforward type of case: see RLR, p.308): $S_0=S$ and $U_0=U$. Then, given that S_i and U_i have been defined, S_{i+1} and U_{i+1} are defined thus:

    i.   Suppose $S_iU(C_{i+1})\vdash U_i$, i.e. U_i is derivable from S_i augmented by C_{i+1}. Then C_{i+1} is added to U_i, but not to S_i, i.e. $S_{i+1}=S_i$ and $U_iU(C_{i+1})$.

    ii. Suppose otherwise U_i is not derivable from $S_iU(C_i)$. Then $S_{i+1}=S_iU(C_{i+1})$ and $U_{i+1}=U_i$. Finally

    iii. $S_\omega=_iUS_i$ and $U_\omega=_iUU_i$; i.e. S_ω and U_ω are the respective unions of all the S_i and U_i defined by steps i and ii.[7]

The resulting maximal sets S_ω and U_ω, which supply the sets T_j and $\perp_j$ respectively of the jth stage, form a maximal pair in the following exact sense in the underlying relevant logic framework: Every wff belongs either to S_ω or U_ω, but not to both, and U_ω is not derivable from S_ω. It then follows that S_ω has the desirable properties of being a theory (i.e. it is closed under provable implication and adjunction) and prime (i.e. whenever CvD belongs to S_ω either C or D belongs to it). Proofs are elementary (for details see RLR pp.307-8).

Some truth theorems, harmonious consequences of the theory which indicate that it is not entirely on the wrong track, are now immediate. For example,

$$T^\ulcorner A\&B^\urcorner \quad \text{iff} \quad T^\ulcorner A^\urcorner \text{ and } T^\ulcorner B^\urcorner$$

For, $T^\ulcorner A\&B^\urcorner$ iff $A\&B\in T_w$, by the Peircean equation

                      iff $A\in T_w$ and $B\in T_w$, by maximal coherence

                      iff $T^\ulcorner A^\urcorner$ and $T^\ulcorner B^\urcorner$, by the Peircean equation.

Similarly $T^\ulcorner AvB^\urcorner$ iff $T^\ulcorner A^\urcorner$ or $T^\ulcorner B^\urcorner$,

                    and, if T_w is classical,

                    iff it is not the case that $T^\ulcorner A^\urcorner$.

A sophisticated coherence theorist will not remain satisfied for very long with such a straightforward construction as suffices for semantical purposes of sentential relevant logics. Such a construction has already to be complicated to take account of quantifiers (if the expected theory is to emerge), and there are other important reasons for seeking elaboration or

variation of the construction – as might, for instance, be done at a later stage than the present. One reason, which will appeal to the austerely-inclined, though the situation seem to disturb idealists like Bradley, is that $S\omega$ may appear, in an important respect, too large; namely, all the junk that does not lead derivationally to relevant earlier parts of $U\omega$ is thrown into $S\omega$. There is evidence that coherence theorists like Bradley would not have been perturbed by this additional completing junk (which does confer several systemic advantages), but would, like contemporary AI theorists seeking powerful "montonicity" rules to complete informational bases, have welcomed it. 'If by taking certain judgements as true, I can get more system into my world... make my world wider and more harmonious..., then these "facts" are so far true' (Bradley, rearranged, quoted in Rescher, p.74).

One resolution of the supposed excess-information difficulty splits $S\omega$ into two parts, either at step ii or by a further subsequent construction. So result, depending on method adopted, an austerer $S\omega$, $AS\omega$, and a residue truth-value gap class, $D\omega$. More generally then, a stage construction will yield a 4-valued result, with values as diagrammed on the familiar four-fold lattice:

$$
\begin{array}{ccc}
 & \text{T (true only; } AS\omega) & \\
\diagup & & \diagdown \\
\text{B (both; } B\omega) & & \text{N (neither; } D\omega) \\
\diagdown & & \diagup \\
 & \text{F (false only; } AU\omega) &
\end{array}
$$
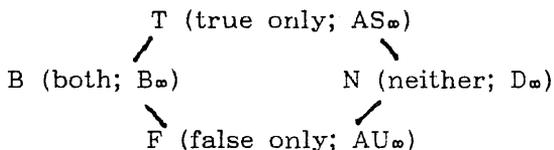
The further class $B\omega$ will result where $S\omega$ and $U\omega$ overlap, for instance because closure under constraints SC leads to elements common to $S\omega$ and $U\omega$. In the straightforward working example that doesn't happen, things remain conveniently two-valued. (But in any event a two-valued reduction can be effected, using the star operation; see RLR, chapter 3.) For what follows, which raises quite enough largely independent difficulties, let us adhere as far as feasible to the simpler two-valued features of the straightforward working example.

The example displays coherence, fitting together into a system, in operation. The fitting together (of which the traditional jigsaw offers a helpful picture) is done through *relations* to other components of the system (in a jigsaw those relations are of spatial and pattern orientation and fit). That is coherence. To reiterate a message that is difficult to get across (ideologically-blocked channels), coherence just is such a fitting together

suitably in a system. The construction of S_ω, which is certainly a system, a relational structure, fits the statements formulated in the proposed language together in a quite precise fashion.[8] As Rescher emphasizes, enlarging on Blanshard on coherence, 'System is the key term. The groundwork of the coherence theory has its roots in the idea of *system* .... The coherence theory implements the fundamental idealistic conception that truth – and with it the reality of which it is characteristic – represents an inclusive and appropriately connected systematic whole' (pp.31–2; similarly Blackburn on the root ideas of coherence theory, p.237).[9] Exactly this is implemented as regards truth through the m–c constructions. A statement is true iff it belongs to a system, T_w, of which it is a part.

Coherence is not consistency, and, does not reduce to consistency (an idea which is encouraged through fixation on only one relation – an inadequate classical derivation relation). Coherence need have little to do with consistency: consistency is neither sufficient *nor* necessary for coherence. That consistent mismashes or pastiches may not be coherent is evident. Less evident, so far is that inconsistent theories may be coherent. But one important message of relevant logics (or more accurately of paraconsistent logics), which is beginning to get through, is that inconsistent theories, such as naive set theory, may be coherent. Only dogma excludes coherent inconsistent theories, dogma which *should* be alien to the thorough–going empirical character of many coherence positions and their supposed permanent possibilities of revision.

In truth constructions, much can be infiltrated, through constraints. Even Kant's forms and ethical requirements could be imposed, but they are hardly obligatory or always particularly advantageous. What *are* especially advantageous constraints are main methodological principles of science, such as prevailing reliability of the senses, uniformity of "nature", regularity, simplicity, economy and so on. It is the prospect of *requiring* such virtues and thereby sceptic–proofing so apparently cheaply among other things, that makes the enterprise of refurbishing coherence theories especially exciting.[10] For these virtues can, it seems, be built into the explication of truth itself (for some of the historical background of this approach, see Blackburn, p.238).

Suppose, to begin, a major technical problem is simply bypassed, namely exactly what logical shape these principles take; and assume that they can be cast into a simple, but commonly expected, implication form, $A_k \to B_k$, for k some suitable index (even though implicational, a principle may be of higher order). The

class of these methodological principles (i.e. $(A_k \rightarrow B_k: k \in K)$) is no doubt subject to various requirements at each stage of the construction, but these will not prevent the class from undergoing modification from stage to stage. At each stage the methodological constraints are handled technically in the same fashion as meaning postulates in relevant logic settings. So also are nomological requirements.

Consider, in Lindenbaum construction, the augmentation of S_i. If C_{i+1} is A_k for some k, add B_k also to S_i. The addition will not upset the separation of S and U sets, since when A_k does not permit derivation of elements of U neither will what it implies B_k. The resulting maximal set at that stage will accordingly be closed under simple methodological principles. Augmentation will also take more complex forms. Suppose, for instance, a complete arithmetic is sought as part of the whole truth. Then closure under an Ω–rule will be built into later constructions, perhaps as follows: at the final step of a construction, iii, put (n)A(n) into S_ω if for each numeral m A(m) is in some S_i, with A(m) of course some arithmetical expression. In such a way, classical problems of the incompleteness of formalised arithmetic (never a worry for old–timers) can be by–passed.

The augmentation method affords the rudiments of a straightforward and pretty answer to what is a very deep question for realism: Why is the world so conveniently regular, simple, and so forth (so far as it is!)? In crude outline, the answer is as follows: Because successive truth constructions are bent to making truth conform to methodological principles (here at least additional junk can be very handy), and *the* world is conceptually fashioned and selected to match.[11] Sequential coherence constructions offer two broad types of opportunities for bending, closure within constructions, and the removal or discounting of anomalies through adjustment and reinterpretation of initial classes between stages.

But the theory as so far elaborated contributes nothing much to the unravelling of the complex and important logic of stage-to-stage adjustment (which parallels that of scientific theory change, and will involve deanomalizing and consistencizing methods and much trial–and–error adjustment). By contrast with mainstream logics (and also with the logics of intra-stage construction), the requisite, relevant, logic of theory change, applied in stage–to–stage adjustment, will be decidedly nonmonotonic, i.e. much information may be shed in proceeding from one stage to the next (for some relevant development of the theory, see Fuhrmann).

There is much discretionary room for selection, convention,

and control to enter in the double construction process, not only in the stage-to-stage adjustments, especially as to what is shed, what introduced, what thereby anticipated (in setting, as elsewhere in scientific practice, the "selective direction"), but also within the stage constructions, as for instance what constraints are imposed or tried, which m–c procedure is adopted, and so on. The choices made or anticipated also matter for other purposes. For instance, choice of m–c construction is of some philosophical moment. Use of a Lindenbaum construction, as in the working illustration, is heavily linguistic as well as a little precious. In addition, Lindenbaum constructions and the like are rather too analytic and piecemeal for genuinely holistic coherence constructions, which would no doubt involve maximization techniques which do not simply proceed statementally step- by-step, but take in whole classes of propositions. Application instead of Zorn's lemma (as illustrated in RLR p.310), or of some other objectual procedure, would enable a decently propositional, more holistic construction. Plainly at several of the discretionary points, significant features beyond the reach of bare logic enter. In particular, choices made are commonly arrived at through a range of complex social processes, which include those processes settling choices, conventions, agendas by which social epistemic practices like science proceed. While such processes certainly make significant extra-logical input to double constructions, these outside selection controls do not involve, what would induce circularity, essential appeal back to a uniquely defined world. Subject to such inputs and other CCC requirements, the double construction can proceed in an essentially internalist fashion. Accordingly the issue, apparently a difficulty for Spinoza, arises as to whether internal marks can reveal that an end-stage has been reached. Given suitably standardized constructions, they may. Thus encountering a fixed or stabilization point, after which m–c constructions can remain the same (for all two-valued statements), internally signals an end stage; otherwise, with no such stabilization point encountered, an end stage has not been reached.

2. *Meeting further objections to the sort of coherence theory sketched*

Some of the circle of objections by which coherence theories are beset have already been sufficiently met, e.g. how is coherence characterised, or else already suitably resisted, e.g. how is uniqueness guaranteed. In meeting other objections much of the

hard work has often been done once again, in sufficient detail, by Rescher (see esp. p.94 ff). But the construction differs so much from Rescher's elaboration as make further details and some comparison of constructions desirable.

Rescher is obliged by his elaboration to make and defend a sharp logical/factual distinction (p.45ff. p.360ff). 'At best, a coherence analysis of truth can apply within the extra-logical domain of empirical truth' (p.46). The m-c construction can avoid this serious and difficult restriction, and assess the claims of logic and mathematics in much the same fashion as empirical claims. The principles of logic are however applied in the constructions, like methodological principles, in a *regulative* fashion. (This is, but with a difference, the first approach Rescher considers and turns away from: p.45). Won't this immerse us in the circularity objection (that the truth of coherence depends curiously on coherence itself), which Rescher escapes (p.47) by settling for less than universality? The situation is like that with the semantical theory of truth. If truth and other semantical predicates are included in the language applied, then there will be circularity and likely paradox also. Let us not try then for universality at this early juncture, but join the ascent to truth, as with the semantical theory, without an unnecessary handicap.

The core of Rescher's theory is a modified self-evidence or intuitionist position.[12] Were it not for the problem of inconsistent data, the account would coincide with an "intuitionist" one, relative however to a comprehensive set S of truth-*candidates*. Then 'P is true (relative to the set S of data) whenever P is a consequence of S', as on intuitionism (see p.75, where an outline of Rescher's theory may be found). Rescher, in line with a main modern movement, but in contrast to many self-evidence positions, takes consequence to be logical or deductive consequence, which he claims 'patently coincides' with maximal coherence! (For in general the deductive closure of set S is not maximal, but permits of consistent extension.) The account differs from an intuitionism which mistakenly narrows closure to closure under logical consequence, in these respects then:- Firstly, the set S of data is taken to be revisable by deletion at later stages, so that, by contrast with modellings for intuitionistic logics the inclusion relation $S_i \leq S_j$ may fail for j a later stage than i; i.e. the procedure is duly nonmonotonic. Secondly, there is much complication to allow for inconsistent truth-data sets. Indeed a great deal of the work and quaint logical machinery in Rescher's book is fashioned to accommodate deduction from inconsistent premiss sets, something that is accomplished without hassle and virtually automatically in paraconsistent logics. By taking advantage of a

paraconsistent logic such as relevance logic (the technology of which was available in Pittsburgh), Rescher could have short-cut an extensive roccoco (but still inevitably incomplete) investigation of the consequences of inconsistent sets through their consistent subsets, and thereby have stated his theory much more directly and simply.[13] For, in essence, *truth is simply given through the closure under* a decent paraconsistent *logical consequence of suitably comprehensive data.* Some troubles brought with such an elementary statement of the basic theory are immediate: the divergence of the theory from coherence theories is exposed, and the inadequacy of the theory is rendered manifest.

The basic weakness is that maximization is applied at the wrong point.[14] Certainly, it is important to have data sets take account of all reasonably available information; even so truth-data sets cannot include higher level laws or theories without becoming unduly soft. But nor are such laws or theories deducible. Deduction, even classical metatheoretic or strict logical consequence, is not ampliative of non-analytic information, non-analytic content is not increased.[15] But what is "given" is undoubtedly *much* amplified in reaching a theory that encapsulates truth (one of those theories, that is).

The gap is revealed by showing how an adjusted self-evidence theory (under which truth does not accumulate intuitionistic- style) can be coupled to a coherence theory of m-c vintage. Let us suppose that self-evidence (s-e) and m-c constructions keep in step, stage by stage, and that data sets match. Then there are elementary dodges by which a self-evidence theory can be adjoined, in parasitic fashion, to a coherence theory. It is simply a matter of coupling a degenerate amplifying implication with truth at a stage, i.e. an implication which amplifies the data, revealing what is involved. Where T_j is consistent, material implication will serve perfectly well to formalise such "involvement"; but at least at earlier stages there is no assurance that T_j is consistent, in which event material implication will wrongly trivialise the truth set of the self-evidence theory. (This of course was Rescher's problem, and part of what gave him a large book.) However there are paraconsistent implications admirably equipped to replace material implication, namely those of paraconsistent logics in the vicinity of da Costa's C systems. Consider the jth stage of coherence construction, and let '>' represent the implication of some suitable C system. Statements of T_j are true at that stage, so they can be assumed as axioms of an applied C system. By virtue of the positive paradox principle, A>.B>A of C systems, for any D in

T_j, B>D. Then, letting the implication involved, i.e. >, deliver the ampliative closure SE_j of $SE(T)_j$, $SE_j=T_j$. For, subject to some very weak conditions, $SC_j=\{E: (PD)(D\in SE(T_j)\&D>E)\}$ is both contained in T_j and contains it. Then expanded self-evident sets just copy m-c set at each stage. But far preferable would be, what is far harder to come by, a non-parasitic approach to self-evidence theories, which introduced informative ampliative connectives and principles.[16]

Once an ampliative involvement relation is properly admitted Rescher's stunt of trying to expand the truth-data beyond what is given, can be decently abandoned. Really there are *three* connected elements at work in avoiding excessively strong comprehensiveness requirements on the initial data: namely, the deployment of falsity-candidates to effect exclusions, the amplification m-c inflation then permits, and the improvements in data bases and constraints achieved through iteration of stages.[17]

Rescher who purports to outline a theory of truth, may have confronted most of the older objections to a coherence account of truth: that is no longer enough. For Blackburn, who aims to demolish any such theory, has bowled up a new objection, of wide applicability to truth theories involving the Peircean equation, which he claims 'is itself sufficient to force the coherence theorist to avoid direct analysis' (p.250; also p.256 and p.244). Judging by repetition, he is well pleased with this and coupled objections[18], which require 'the coherence theorist to avoid any definition such as Peirce's .... Naturally, it does not trouble me that this leaves no precise definition of truth' (p.250: Oxford analytic philosophy is not dead[19]). If the reiterated objection were sound, it would strike out the refurbished theory offered as well. Fortunately the objection is wide of the mark (in some respects it is no more than, and no better than, yet another version of the paradox of analysis, and tells no more against definitional explications than that paradox does.[20])

Blackburn's intricate objection, fully faced, involves the loosely characterised notions of "proper pedigree" and "some best CCC system of beliefs". Luckily these notions, briefly discussed below, are said to be 'simply *interdefinable*' (p.245), more than halving the characterisation problem. Moreover "some best CCC system" (with 'CCC' short, as before, for controlled (by experience), comprehensive and coherent, p.240) can be sufficiently represented for present purposes by an m-c set (in fact 'best CCC system' is explicitly linked with a maximal coherent system, p.245 and elsewhere, so the representation is not too bad). Suppose now, to shape up to the objection, I set my beliefs by the m-c construction at some given stage g (e.g. the present,

or ideally at w). That is, I believe p iff p e T_g, i.e. p is a member of some best CCC system (of beliefs, at the given stage), i.e. (at g) p has proper pedigree (PP(p) for short). Then it follows that I believe that p iff that p is true (at g). (Similar connections can be straightforwardly forged for falsity (at g).) In analogous fashion (with the proviso *at g* now supplied contextually), it is analytic that

> (I_) if I form only beliefs with proper pedigree, then, for any q, if I believe q then it is true that q.

Blackburn's (I*) is in substance the instantiation of (I_) with the Moorean statement q_0: 'there is a cat in the garden'; and his 'correspondence conditional' (I) is what follows from it by the redundancy of the truth functor in open settings, i.e. the truth half of the correspondence conditional amounts to

> (I) if I form only PP beliefs, and then believe q_0, then q_0.

Now Blackburn proposes substitution of (a slight complication of) 'a coherence conception of truth' in (I*); namely, substitution for 'it is true that q_0' by '(the belief that) q_0 is a member of some best CCC system (of beliefs)'. The equivalence involved is in order, since the elements are analytically linked by the middle term, '$q_0 \in T$'. Thus results

> (I**) If I form only PP beliefs, and then believe q_0, then (the belief that) q_0 is a member of some best CCC system (of beliefs).

Suppose we let the substitution pass (its admissibility will depend on the nature of the conditionals and scope of the belief functors involved).

Blackburn contends that '(I**) seems quite different from (I). It threatens to be tautologous, ...', whereas (I) is certainly not, but is tied up with 'us as good signallers of cats' (p.295) 'because our senses make us causally receptive to their presence or absence' (p.244). This is widely astray. Both (I_) and (I) are analytic, by virtue especially of the meaning given to 'proper pedigree'. The truth of (I) has nothing particularly to do with our alleged ability with cats (it is singular too), and no immediate connection with fashionable causal notions; it is perfectly general, holding equally for any substitution instance.

Part of the story as to why Blackburn makes the assumptions he does about (I) is no doubt (as his text reveals) that he is

working with a different notion of "proper pedigree" – and then inadmissibly shifts ground. First, the 'pedigree of E' is casually introduced as 'telling how E got into the ... set' (p.239). Secondly, proper pedigree appears as 'part of commonsense, a rough notion of what counts as a sane, sober practice of enquiry [whew!] enabling us to find out whether' local empirical claims hold true or not (p.243). Then (I) will no longer be generalisable (to arbitrary q). But nor will (I**): its threatened tautologousness will entirely disappear. Therewith the sophisticated new objection to any Peircean equation vanishes.

More troubling than any of the standard or new philosophical objections to a coherence theory, are objections to the incompleteness and to the real-practice inapplicability of the improved theory – objections that apply with even more force against traditional unsystematised coherence theories. Unremarkedly, the present coherence enterprise – while it leaves matters at a stage beyond that which coherence theories, previously prematurely dismissed, hitherto reached – leaves much more to be accomplished. At a technical level more detailed investigations are wanted, both of relevance coherence constructions (e.g. when the constructions can be carried through, where they are transfinite they attain requisite limits or stabilization points if they do, and so on), and of relevant comprehensive theory change. These are whole research fields on their own, impeded by several problems bearing on improved coherence constructions, including those of logical formalisation of further declarative discourse, formalisation of methodological principles such as simplicity and uniformity, adequate formalisation of theory-deletion procedures, and so on. In the techno-logical development of coherence theories, it is still early days.

Such objections can take a nastier turn. Even should these sketchy and schematic constructions be duly filled, out, they remain pure fantasy. While such constructions can be outlined, little or none of the detail could ever be properly filled out, or any stage realised; they constitute but purely theoretical idealisations, remote from practice, from practical inquiry. A short response, too short, is that any theory of truth – absolute truth and not mere partial everyday rough approximations to it – is bound to be theoretical and remote from practice. Consider even the standard truth conditions for any universal statement about all stars, every real number, etc. To take an elementary example, that all stars contain heavy metals is true, so it turns out, iff, on some enumeration of all stars, each of the following is true: star 1 contains heavy metals, star 2 contains heavy metals, and so on, through the enumeration of stars. Such an enumeration is

presently unattainable, and, through it has practical bearings, is
remote from practice. The objection accordingly accomplishes too
much; it would tell against virtually all theories of truth that are
supposed to apply in a comprehensive way, and indeed against
much theory. In certain respects however, the situation with
coherence theories may look worse than with semantic or corre-
spondence theories. However, a semantical theory, worked out
recursively using a satisfaction relation, with truth emerging at
the end, can be seen as a special inflexible sort of coherence
construction, which requires invariants given at the outset and
does not tolerate much control by constraints. Put thus it looks
like a special case of coherence, which avoids some of its diffi-
culties while introducing others. But the objection from a prac-
tical inquiry standpoint to such practically inapplicable formal-
ism is almost as severe, and again does too much, unnecessarily
excluding some elegant formal modelling with considerable philo-
sophical, and ultimately practical, bearings. (But the issue is a
very large one, encroaching upon much formal modelling and
entering into the battle of formalism with instrumentalism: for a
contemporary American survey, see Gerson.)

3. *Beginning upon showing the coherence theory true*

A major, and widely promoted, package of objections to coher-
ence theories of truth concerns their adequacy to the intended
task. Briefly, what makes a coherence theory of truth true? Why
should coherence itself succeed? Furthermore, how do we know
that such a theory captures truth? Tough questions if genuinely
confronted, which cast earlier apparently easy delivery of vir-
tues into some doubt – questions in answer to which Rescher
takes inadequate refuge in pragmatic considerations (e.g. p.64,
p.238), while Blackburn, after glancing cursorily at pragmatism
(and raising the obvious difficulty 'Why should what is of utility
be true?') hurries off into naturalised epistemology (pp.242-3),
not to reappear.
      A more ambitious hypothesis is here advanced: that, properly
considered, other major theories of truth converge with the sort
of coherence theory outlined. Thus, at a level up, the coherence
theory coheres with other accounts, such as semantic, corre-
spondence, and intuitionist theories. At bottom, then, coherence
theory is true, in just the way it ought to be, by virtue of
suitable coherence . In developing this theme more traditional
coherence theories begin to be left behind.
      Only a very small, yet difficult enough, part of the larger

justificatory exercise (begun in SC) will be broached here. For some much less grand standards of adequacy are now available for theories of truth, namely the (not undisputed) T-schemes of semantical theory. If a theory can deliver these, then there are promising initial grounds for supposing it offers an account of truth. But maximal coherent set constructions are precisely engineered to allow an inductive proof of these schemes, given initial (atomic) cases, and initial cases are presumably eventually guaranteed. The whole business of deriving T-schemes in fact mirrors canonical-model completeness proofs.

The derivation is, as in the case of the semantical theory, not without substantial assumptions; these amount in fact to a proper part of the axioms (e.g. for satisfaction) of the semantical theory. Primarily it is assumed that at least by the ideal end stage w, things have been got straight as regards atomic sentences or wff (under some canonical grammatisation of the language involved); that is, where $A°$ is atomic, e.g. of the form $fa_1...a_n$,

IB. $A°$ is in T_w iff $A°$.

To say that the inductive basis, IB, is assumed is not to say that it cannot also be argued for more or less cogently. It can be, for example along the following plausible-looking lines:- Either $A°$ is in IT_w or it is not. If $A°$ is in IT_w then, given judicious pruning of the experiential base at earlier stages, datum $A°$ is there because it has survived and is sound: so $A°$. Alternatively, if $A°$ is in T_w but not in IT_w, then it has been put there in the course of the construction. Thus it represents an element of the coherence (social) construction of reality; so again $A°$. The converse can be argued from the restricted coherence theme that all that holds which is elementary either is a matter of experience of a coherence amplification thereof (an obvious variation of empiricism, restricted however to atomic wff). Hence, if $A°$ then it is either a datum assured by the experiential base or it is settled by the coherence construction; so, in either case, $A°$ is in T_w.

In order to show how the induction now proceeds, let the logical language (providing full deep structure on some over-optimistic prognoses) be, for the moment, standard first order. Such first order restriction means that of all there might be to bother about (and is), all that need be considered, are induction steps for classical connectives, & and ~ say, and one quantifier, U say. But the details of these steps are conveniently guaranteed by the m-c construction (including that for U, if it is given an extended substitutional, i.e. domainless, interpretation) together with the Peircean equation, as now shown:

ad&. $T^⌜A\&B^⌝$ iff $A\&B\epsilon T_w$, by the Peircean equation

iff $A \in T_w \& B \in T_w$, by m–c construction

iff $A \& B$, by induction hypothesis.

(Note that the epitheory appropriately includes the object system.) For negation there are optional paths. A similar step to that for conjunction & involves, as with the standard semantical theory, the important assumption – an integral part of orthodox ideology – that in the end consistency (like truth, virtue, etc.) will prevail. But such a restrictive assumption can be avoided, by using the $*$ operator, deployed with a double induction:

ad~. $T^\ulcorner \sim A^\urcorner$ iff $\sim A \in T_w$, by the Peircean equation

iff $A \notin T_w^*$, by construction of T_w^*

iff $\sim A$, by second induction hypothesis.

adU. $T^\ulcorner (x)A^\urcorner$ iff $(x)A \in T_w$, by the Peircean equation

iff $A(x) \in T_w$, for all x, by appropriate construction of T_w

iff $A(x)$, for all x, by the Peircean equation again

iff $(x)A(x)$, by the domainless rule.

It then follows generally for every first order wff A,

T. $T^\ulcorner A^\urcorner$ iff A;

that is, a coherence theory duly delivers the T-schemes. The method can be adjusted to conform to mainstream views on quantifier interpretation in the usual fashion, by introducing an auxiliary satisfaction predicate (details will resemble those given in Priest and Crosthwaite for a relevant truth theory). More important is the removal of standard first order straitjacketing, intensionalizing especially, since deexistentializing is fairly trivial. For richer logical frameworks, the least work strategy is to gear the inductive argument to parallel completeness arguments by maximal coherent set methods. To attain sufficient generality, consider a framework, such as that of free λ–categorial languages, that pretends to universality; take, also convenient for present purposes, the corresponding universal semantics (given in US); and prepare for the final complication. The master m–c construction at each stage j is but one construction (that corresponding to the select actual world at that stage) among a system of m–c constructions (corresponding to a rich but not extravagant range of worlds). For highly intensional languages the truth induction at T_w involves not just T_w itself but other m–c sets of the system Ω at stage w. The harder work of a completeness theorem for theories expressed in such languages typically goes into showing by induction that, for every wff A and every c in Ω

I_c. $A \in c$ iff $I(A,c)=1$,

where I is a 1-1 function from wff and sets of W to {1,0} indicating whether or not a given wff holds at a given set or not. Thus $I(A,c)=1$, often abbreviated simply as Ac, reads: A holds at c. But by familiar definition, A holds iff it holds at the master (or base) construction of a system, i.e. the subscript T_w can be deleted. Hence, specialising I_c to w,

$A \in T_w$ iff A.

Combining this result with the Peircean equation yields the T-schema T at once. The appeal to such definitional "proof" may look a bit swift. But the underlying argument involved is in order. What it means is that the inductive argument establishing the T-schema from basis IB is strictly isomorphic to that used in establishing completeness through I_c.

The coherence theory presented is thus verified (thus far). For it yields the conditions of adequacy set up for the semantical theory; and accordingly also coheres with that theory. But the rational coherence reconstruction exhibited, explained, and verified undoubtedly remains somewhat artificial – after the fashion of much formal work – decidedly ideal – as no one does, or could accomplish, except in a very gappy way, more than a fragment of the constructions involved – and in part deliberately ahistorical – since it uses a logical technology not available to traditional coherence theorists. Should these elements be pressed into further objections, the response need not be merely apologetic: that more formal truth theories are bound to have this sort of character. Instead it should be that at this later and latter stage the distortion involved is not excessive, that rather such development is overdue, and that what is done is nonetheless, despite evident limitations, decidedly revealing.[23]

RMB 683, Bungendore
NSW Australia 2621

APPENDIX. *Coherence theories more generally, and of meaning and morality particularly*

Coherence theories of truth are but one type of coherence theory. Other types are now to be seen occasionally on the American philosophical market, for example coherence theories of meaning , of justification , and of knowledge , and these types make it easy to generate more, such as coherence theories of explanation , of belief, of empirical information, and so on. Can similar coherence constructions to that developed for truth be applied to rehabilitate or improve these other diverse theories?

In some cases such constructions look promising, but there are some crucial differences, firstly, in the initial data which must be adjusted, if they can, to the cases in hand, and secondly, in the details of the constructions. For example, the biconditional for truth (good for other more semantical predicates), $\ulcorner AvB \urcorner$ is true iff $\ulcorner A \urcorner$ is true or $\ulcorner B \urcorner$is true, breaks down for belief ('is believed' and the like) and for justification. Accordingly the underlying logic used in more epistemic applications has to be further removed than relevant logic from classical principles. (For instance, an account of belief might apply a relevant containment logic, and accordingly but little investigated maximization constructions.)

As a result of all these variations, any entirely general theory, synthesizing all types of coherence, will look excessively vague. No doubt any coherence theory will involve some coherence construction applying some derivational logic from some basis. But that is so far too indeterminate to get to grips with technically in a revealing fashion. Obtaining requisite detail appears to call rather for a case by case approach. Let us consider, briefly, one further semantical case, that of meaning, and one further afield, that of morality.

There are two main ways a coherence theory of meaning may go, given where we have already got with a corresponding theory of truth. First, the truth theory can be put to work to provide a theory of meaning, in the sort of way that Davidson and others have proposed, but starting from a coherence theory instead of a Tarskian semantic theory of truth. The motivating slogan for such a theory of meaning is that "meaning is a matter of truth conditions". Rival slogans such as that "meaning is a matter of verification" or "meaning is use", suggest a second approach. The coherence construction begins with different initial data, geared for example to initial verification and falsification (or assertion and denial), and builds up using a logic appropriate for verification (or assertion or use) to some verificational (or assertional) notion from which meaning can be recovered.

Even less well worked out are coherence theories of morality or evaluation, though coherence methods have enjoyed a revival in ethics under the vaguely specified procedure of reflective equilibrium , which is attained by coherence organisation of value judgements and principles with associated beliefs and sentiments (see e.g. TE pp.19-20). Improved elaboration of these theories would cast them into similar form to that devised for truth, stages of construction until "equilibrium" is obtained. But, as the double construction now aims for evaluative correctness,

the initial data at any stage is different, comprising for instance deliverances from emotional presentation, and the m-c constructions are bound to be significantly different, involving evaluatively certified rules.

NOTES

1. Among those who do more than mere flirting – in the fashion of such pragmatist-influenced bigger- philosophical-shots as Rorty and Davidson, Lehrer and perhaps Putnam – is Williams; he and Rescher are the only authors cited in Tice and Slaven's research survey as having 'adopted coherentist positions' (p.323). But Williams, while he attempts some slick defence of certain coherence claims (p.99ff.), offers no development of a theory, and roundly asserts that 'the "coherence theory" to which [his] no-foundations view of knowledge is committed simply in virtue of being a no-foundations view *is trivial*'; it does not 'amount to any more than a mere denial of the claim that knowledge has a foundation' (p.115, p.113, italics added)!

2. The exercise (like that of SC) forms part of a larger project, that of showing that, at early approximation, *all time-tested theories of truth are true*. That truth-theory project comprises, in turn, part of a much grander pluralist program, that of indicating how *all persistent philosophical theories*, no matter how unfashionable from time to time, *are correct*, in duly liberated framework (see SM).

3. Coherence theories were adopted, if never explained in much detail, not only by later idealists but also by some logical positivists and, so it is said, some rationalists (see philosophical encyclopaedias). There never was a single uniform theory, but many variations on some overlapping themes. Not even truth was an agreed-upon agenda item or end product, some insisting, contrary to the theory presented, that only certain degrees of truth could be achieved. It does need stressing, however, given the recent Anglo-American proclivity of ahistorically linking idealism with mathematical intuitionism, that traditional coherence theorists did not question traditional laws of thought, such as Excluded Middle, or their analogues such as confinement of the particular quantifier. It would not have occurred to them to impose intuitionistic constructivist requirements or intuitionistic restrictions on choice (e.g. of specific disjuncts from disjunctions, of elements from choice sets, etc.) Nor does the schematic theory elaborated conform to such (un-

warranted) intuitionistic strictures (though no doubt in-
teresting, if perhaps partial, accounts could be developed
along those lines).

4. While in many respects the constructions resemble maximal
consistent set constructions of many elementary logic texts,
in certain crucial respects they differ. Most notably, sets
resulting from the constructions, while keeping out desig-
nated undesirables, and so nontrivial, may not be consistent.

There are of course classical alternatives to the maximal
coherent constructions used, which apply maximal consistent
set constructions. These involve some preliminary consis-
tentizing of initial inconsistent data sets, by somehow se-
lecting out an acceptable consistent subset, or by analogous
fragmentation. Then maximal consistent set techniques are
applied to achieve comprehensiveness. Rescher, who was one
of the pioneers of fragmentation procedures (still in a primi-
tive and unsatisfactory state), could have adopted such a
"rational reconstruction" of coherence theories, but (as we
shall see) he did not.

5. Similarly the data sets provide the control, *control by
experience*, Blackburn seeks (p.243, p.290), in terms of which
Russell's oft-repeated objection to Bradley - that compre-
hensive coherence can involve falsity - may be straightfor-
wardly met. Recent variants of this objection, such as
Pollock's objection to any nebula theory and thereby any
coherence theory (p.290), are similarly met. For Pollock's
weak conclusion (p.292) that 'at least ... some beliefs must
have *something* to do with the evidence of our senses' is not
contested. Pollock's objection succeeds at best against *pure*
coherence theories, which surrender control; according to
Williams, it does not succeed then either, because it presup-
poses what it is supposed to count in favour of, a founda-
tional view (p.112). However even Williams is not proposing
removal of control entirely (see p.201).

6. At least it can be done, to quite exacting standards, for
significant formal fragments of languages of the type under
examination. To be sure, there are costs to such pruning
exercises, e.g. anticipated truth may wind up in the ex-
panded excluded class (and vice versa). However corrections
and adjustments can - within limits, imposed by paradoxes
and such like - be effected at the next stage.

In permitting such pruning, coherence theories differ
markedly from self-evidence theories where much effort is
directed to *enlarging* truth-data sets (cf. Rescher, e.g. p.73).

7. For more complex constructions, a sequence of structures

of models may be defined which proceed into the transfinite.

8. Another shortcoming of the straightforward working example from relevant logic is that it emphasizes a single *derivational* relation – though other relations can enter in subsidiary ways (as they do, e.g., in *Principia Mathematica*, where too the focus is on derivation). There is nothing in principle however to stop closure in Extension Lemmas under *several* relations (e.g. both logical and nomological implications), and some complicated constructions do just this.

It is fair complaint then that the double construction story preferred lies excessively within the restrictive deductionist tradition. The rejoinder is that indicated, that such deductive features are not essential, but merely illustrative. Closure under other rules, including radically nondeductive ones, could be incorporated into the constructions. But such promises are one thing; the catch is in the doing. For so far nondeductive logics remain a seriously underinvestigated and ill-appreciated region.

9. 'Not only truth, but also meaning, derive from the relation of a datum to a system of which it is apart' (Reese reporting Blanshard). But whether meaning can be accounted for in this way, through coherence semantics, or requires more (e.g. assertion or verification and rejection or falsification constructions) is a separate issue: see also the Appendix.

10. An alternative stronger approach sometimes suggested, e.g. by Williams p.105, of attempting to exclude various sceptical systems (such as those where our senses endlessly mislead us) as *incoherent* is too strong; it overloads coherence, and is bound to fail against smarter, coherent sceptics. The weaker approach, of choosing and trying to implement sceptically-immune constructions is not without other problems.

For, as nice conditions can be imposed on a truth construction, e.g. simplicity, regularity, so other more questionable conditions may be imposed or generally presupposed, for instance categories and so on, in the style of Kant. But many of these presuppositions or imperatives may be a matter of Western human "evolution", or may be even more culturally dependent. Presumably then *they* are inessential, and in a different construction they could be peeled off. The whole business of methodological additions as regulative principles is then, without further controls, very double-edged. Vices can be infiltrated instead of virtues, and what is imposed can be peeled off again (and presumably *should* be if it is excessively culturally dependent or chauvinistic).

11. The discussion is taken further in OI. A similar story goes
    some small distance towards meeting Einstein's realistically-
    enhanced puzzle as to comprehensibility. According to
    Einstein, 'The most incomprehensible thing about the uni-
    verse is that it is comprehensible' (quote in Narliker p.1), or
    more colorfully, 'the eternal mystery of the world is its
    comprehensibility' (Nersession, p.ix). Insofar as our world is
    comprehensible – much remains uncomprehended or little
    understood – it has been selected and adjusted with just
    that as one constraint in the m-c optimising construction and
    the neutralising (or interpreting away) of anomalies, e.g. as
    errors or simple falsity-candidates (a feature of ongoing
    scientific practice now receiving emphasis in the sociology of
    knowledge). Unsurprisingly, the idea of such selection and
    fine-tuning, integral to philosophical rationalism, is to be
    found in the rationalists.
        Remove the unique choice from God's control (trans-
    ferring it to cultural evolution) and Leibniz has indicated,
    though in excessively maximalising form (for which muddling
    along substitutes), much of what is involved: 'the actual (i.e.
    the best world) optimizes the combination of *lawfulness*
    (coherence, cohesiveness, orderliness, simplicity of hypothe-
    sis) with *variety* (comprehensiveness, content, richness of
    phenomena)' (Rescher p.73 n.2) – not exactly a reflection of
    scientific realist preferences.
12. 'Self-evidence' is Körner's description, 'intuitionist'
    Rescher's. The intuitionism here involved is of course that of
    an older philosophical tradition than that associated with
    intuitionistic mathematics.
13. A similar point tells against several other Rescher's enter-
    prises, which could be simplified and improved in an analo-
    gous way, e.g. theories of hypotheticals, of preference, of
    assertion.
14. Rescher clearly distinguishes the two types of comprehen-
    siveness: of the data – which he properly contracts, at one
    point, to 'sufficiently inclusive', not maximally inclusive –
    and of what the data yields. But he makes the critical error
    of confining the latter to 'the largest possible sector of what
    is contained *within* the data' (p.73).
15. For this sort of reason Descartes, according to Körner
    (p.105), took the "deduction" involved to be a *non-logical*
    ampliative relation. Such a relation still awaits historical
    explication and technical investigation.
16. The exercise does however show rather clearly, what some us
    had doubted, a clear type of use for da Costa's C systems, as

elementary replacements for classical and intuitionistic logics where the data goes "bad", i.e. inconsistent. The harder exercise, of appropriate nondeductive ampliative logics, has been studiously neglected in mainstream contemporary logical investigations.

17. Stage-by-stage iterations serves to resolve objection (3) considered by Rescher, p.47; it can provide requisite 'further or better consideration'.

18. A less-pressed objection is the surprising one that 'wholesale worries of a sceptical nature *may* disappear' under coherence theorising (p.299), as if removing wholesale doubt were quite a vice (as well as damaging to philosophical business). The objection is less pressed because Blackburn confesses to being less certain of his ground. But he does think it tells decisively against 'any definition such as Peirce's, because one who 'adopts the Peircean equation ... cannot understand the suggestion that the members of [T_w] might be false' (p.250, p.249). Short of T_w, at an earlier stage T_w say, members of T_j may be false, and intelligibly so. Even at T_w there is room for doubt that one is at T_w. In any case, in these new paraconsistent times, there is no insurmountable difficulty in *understanding* the suggestion that an equation that is true, and necessarily so, may be false (realism offers a suitable, if now disputed, world model for semantical elaboration here). It is most important here that the equations do not give, or purport on their own to give, the *meaning* of truth (cf. Rescher p.23).

19. Nor has its parochialness really vanished. 'Just about any English speaker, looking out the window, would agree that grass is green ... . Once we suppose that equally meritorious languages would lead their users to look out of the window and dispute whether the grass is green, we have lost any right to see ourselves as good signallers of colour. The correspondence conditionals become unassertable, and extended incoherence sets in' (p.254). Amazing stuff. In Australia, and parts of USA, grass is mostly brown, and the claim survives translation. Etc.

20. Explications such as the Peircean equation offer equivalences of *at most* coentailment strength, i.e. of the form $D \Rightarrow E$. (They do *not* pretend, *pace* Blackburn, p.244, that 'membership of a [suitable] CCC system [is] just the same thing as truth'.) But coentailment does not guarantee intersubstitution preserving truth in more highly intensional functors such as those of belief and assertion, e.g. where F is such a one-place connective, $F(D) \rightarrow F(E)$ does not follow. Such a direct diffusion of

the paradox (developed elsewhere) is in fact yielded in less direct fashion by most "solutions" of the paradox of analysis.

21. Plainly much more can be done, as fn.2 indicates and promises. For instance, a class of facts corresponding to the truths supplied can be recursively defined, and then a world can be distinguished in terms of the composition of these facts (see RP). Thus facts and their world serve, in turn, to make the truth theory true: bootstrapping at its best.

22. While promising the grounds are, on their own, hardly decisive. For a variety of theories, some incomplete, some deviant, some merely syntactical, will satisfy similar schemes. Wider convergence than just with T-schemes *is* eventually required.

23. An earlier version of this essay of 1986 was presented at the Australian National University, Canberra. Though the occasion hardly ranked as a positive experience, with an active part of the audience reacting with barely disguised hostility to such unrealistic intellectual adventure, still a few worthwhile points did emerge, for which I am grateful. These points, along with several drawn from anonymous commentaries (which unreasonably seemed to expect, what is at this stage presently far beyond me, a much more finished theory), have been incorporated into the revised text.

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