Carnap *vs* Quine: Descriptive Semantics *vs* Semantic Ascent. More Reasons why Paolo was so Very Right!

Kenneth R. Westphal[*]
westphal.k.r@gmail.com

ABSTRACT

The philosophical terza via explored so richly by Paolo Parrini seeks to support realism regarding empirical, especially scientific findings by distinguishing three forms of 'holism': semantic (re: intension, meaning), methodological and justificatory; by highlighting the practical-operational character of empirical inquiries, especially in the sciences; and by identifying cogent forms of relative a priori principles. In these regards, our aims and findings converge substantially. Two papers Paolo associated closely examine important differences between Carnap's and Quine's views, and track Quine's prevarications regarding his holism and analyticity. I shall corroborate and extend our philosophical convergence by identifying further features of both Carnap's and Quine's views which provide yet more reasons why Paolo was so very right about those Prague alternatives and about the proper terza via.

1. Viva la terza Via!

The philosophical *terza via* explored so richly by Paolo Parrini seeks to support realism regarding empirical, especially scientific findings by distinguishing three forms of 'holism': semantic (regarding intension, meaning, classification), methodological and justificatory; by highlighting the practical-operational character of empirical inquiries, especially in the sciences; and by identifying cogent forms of *relative a priori* principles. In these regards, I gratefully acknowledge our aims and findings converge substantially.[1]

[*] Academia Europaea, the Academy of Europe (https://ae-info.org/)

[1] Paolo generously acknowledged our convergence in several places; *e.g.*: in Ferrini (2015), Parrini (2021a, b) and his Foreword to my (2021a). I have gladly drawn upon his research in my (2018), (2021a) and (2021b). Here I set aside empiricist allergies to 'Kant's' synthetic *a priori* principles, because Kant's Critical philosophy consists in his critique of rational judgment and justification, which stands on its own, entirely independently of his infamous transcendental ide-

Two papers Paolo (2006/2021a; 2018/2021b) associated closely examine important differences between Carnap's and Quine's views, evident from the outset when Quine visited Carnap in Prague (1934), and track Quine's prevarications regarding his holism and analyticity. Recently some scholars note that Quine was at cross-purposes with Carnap from the outset, substantively and methodologically,[2] but none have been so discerning as Paolo.

I shall corroborate and extend our convergence by identifying further features of both Carnap's and Quine's views which provide yet more reasons why Paolo was so very right about those Prague alternatives and also the proper *terza via*.

2. Quine's Propensity to Prevarication

2.1

The Quinean prevarications Paolo probed are not unique.[3] At the 1988 conference, 'Perspectives on Quine', Susan Haack noted that several speakers examined Quine's 'naturalism', that Quine agreed with each characterisation of his 'naturalism', though each attributed to him quite distinct versions of 'naturalism'! Those conference proceedings are published; at least three such prevarications are preserved in print.[4] I shall argue that Quine's cross-purposes with Carnap lie much deeper, so as to make prevarication endemic to Quine's views.

2.2

Quine noted his disagreement with Carnap in two familiar, characteristic passages:

alism (Westphal 2004, 2021a, 2021b, 2025). The views presented here very much accord with Oliva (2024).

[2] Creath (1987), (1990, 28–35), (1991); Hardcastle (2006), Frost-Arnold (2011). Creath (1991, 354) and Wagner (2012) rightly note that Quine's version of 'explication' is not Carnap's.

[3] My present remarks are selective and concise; they augment my findings about Quine in Westphal (2015), which undergird the present augmentation.

[4] Barrett & Gibson (1990), see: Introduction (xvii), Haack (111–127), Koppelberg (200–211), Lauener (213–228); and Quine's 'Comments' on Haack (128), Koppelberg (212) and Lauener (229).

> Carnap maintains that ontological questions, and likewise questions of logical or mathematical principle, are questions not of fact but of choosing a convenient conceptual scheme or framework for science; and with this I agree only if the same be conceded for every scientific hypothesis. (Quine 1951, 72)

> Ontological questions, under this [*sc.* Quine's own] view, are on a par with questions of natural science. ... the question [is] whether to countenance [a class of] ... entities. This, as I have argued elsewhere, is the question whether to quantify with respect to variables which take ... [such entities] as values. Now Carnap [1950b] has maintained that this is a question not of matters of fact but of choosing a convenient language form, a convenient conceptual scheme or framework for science. With this I agree, but only on the proviso that the same be conceded regarding scientific hypotheses generally. (Quine 1961b, 45)

In the latter passage Quine claims to have argued for his view, including his characteristic proviso, elsewhere. However, Quine's disagreement presupposes rather than justifies his radical semantic ascent to nothing but his extensionalist formalizable meta-language; this is *his* 'logical point of view', constitutive of his proviso. Why assimilate any and all (cognitively significant) language to a formal(isable) extensionalist meta-language? Quine does not answer in print. His radical semantic ascent is presented – though presumed rather than justified – in the first of his 1934 'Lectures on Carnap' (Creath 1990, 47–67),[5] later summarised rather elliptically in Quine (1948). Quine's first lecture claims to present the context within which to understand Carnap's *Logical Syntax of Language*. However, this context is already Quine's own, and decidedly *not* Carnap's. Here Quine proposed to assimilate *all* (cognitively significant) language, expressly including empirical terms and scientific language, to his proposed formalizable extensionalist meta-language.[6] This 'semantic ascent' persists throughout Quine's views; this alone allows him to regard bound variables and pronouns as the basic, indeed sole referential devices, eliminat-

[5] Quine's three lectures appear in Creath (1990), 47–103. Quine lectured in November; whether he based his lectures directly on Carnap's published book (1934a) is not indicated, though he published a brief review of it in 1935. Paolo did not cite these lectures, perhaps because they were unpublished. Carnap had sufficiently developed his views, also in published form, to preclude Quine's catastrophic misrepresentations; see below, §§3, 4.

[6] When discussing Carnap's views on ontology, Quine (1951, 67) again begins by developing his own context, which differs from Carnap's, as he grants but does not examine, much less: justify.

ing names by using Russellian descriptions (Quine 1951, 67), neglecting, or rather seeking to evade altogether both sensory perception and *deixis*.

Quine apparently never noticed that, regardless of their specificity or their specification, any purportedly 'definite' description may unwittingly describe many individuals, none at all, or by unwitting luck only one. Quine's favourite example, 'the shortest spy', might describe congenital triplets, each of the same demur stature and clandestine profession, or it may become vacuous, should we ever banish espionage altogether. That a descriptive phrase as such, however specific or grammatically 'definite', suffices to secure *reference* to any actual individual (in our actual or in any other 'possible' world) is yet another dogma of (post-Quinean) empiricism, pervading 'descriptivism' in philosophy of language.

2.3

Because Quine formulates and examines bound variables and pronouns solely within his proposed formalizable extensionalist meta-language, reference is always and in principle 'inscrutable', because referents can be re-assigned *ad libitum* using proxy functions whilst preserving what Quine chooses to call 'truth', which provides no more than arbitrary (re)assignments of purported individuals. About the inscrutability of reference Quine stated:

> ... the inscrutability of reference ... admitted of conclusive and trivial proof by proxy functions, hence model theory .... (Quine 2000, 420)

Previously Quine (1964, 73–4) demonstrated that such use of proxy functions involves no more than formal, metalinguistic senses of 'definition' and of 'interpretation' (*qua* randomly assigned putative reference to some suitably numerous domain of alleged particulars), and preserves no more than an extensional counterpart to the original 'definitions' or 'truths'. Shifts between such 'systems' he expressly acknowledged to be 'farcical', exploiting 'definitional hocus pocus' and dispensing with any 'literal reading' of the hijacked language, from which he concludes: 'So much the worse, surely, for the notion of analyticity'. How from arbitrary proxy functions Quine draws bad news for analyticity he does not (at all) indicate.

Instead, Quine demonstrated the utter empirical incompetence of his extensionalist meta-linguistic proposals. Quine (1951, 70) sought to preserve

extensionalism by appeal to Zermelo set theory, so that whatever sense might be found in 'meaning' or 'meaningfulness' is to be preserved by appeal solely to various sets of particulars, where each set contains only one relevant kind of particular, or only one relevant kind of feature of particulars. He purports, that is, to dispense with intensions altogether by working solely with such extensions. One problem for Quine's extensionalist ploy is that *in principle* it can provide *no* criteria for membership in any such set, so that one set of particulars can be affiliated with some one kind of particular (genera) or with some one feature of particulars (characteristics). *All* Quine's extensionalism can preserve is cardinality and purported designation of particulars, though *which* particulars he cannot specify – by design! Quine's model-theoretic hocus pocus does not and cannot preserve *predication*, *i.e.*, the attribution of any characteristic(s) *to* any actual particular(s), much less: to any *known* particular(s). Carnap noted this limit of extensionalism in conversation with Tarski in 1940.[7] It is a well-known feature of formal model theory. Only loose talk of 'logical truth' – a systematically misleading expression if ever there were – could seduce the incautious into accepting that linguistic usage = logical syntax, that truth = designation within an arbitrary domain of (putative) particulars within a strictly formal model, or to be so lax about what is, and what is not, preserved by modelling any theory formally – a key distinction rightly noted by Kaplan (1975, 772). Quine's admittedly 'farcical' proof by proxy functions, his putatively referential 'hocus pocus', does not and cannot preserve Quine's own central reliance upon Russellian definite descriptions to eliminate names, simply and precisely because by design it disregards relevant characteristics of particulars designated by relevant predicates contained in any putatively definite description. Quine cannot have both his 'proxy function argument' and his Russellian elimination of proper names, neither in principle nor in practice.

The titular topic of his 1957 Presidential Address to the American Philosophical Association is 'Speaking of Objects' (Quine 1958). However, Quine's extensionalist meta-linguistic syntax can only address 'objects', not

[7] Carnap 6.03.1940 (Frost-Arnold 2013, 192/140–1). Carnap (1963a, 896) recalls a conversation with Quine in 1949 in which Quine recognised that classes are definable in terms of properties (*per Principia Mathematica*), so that Carnap was later surprised by Quine's (1961a, 153–5) reversion to unqualified extensionalism. (Carnap cites Quine's first (1953) edition; the relevant pagination is unchanged in the second (1961b). Carnap habitually took detailed notes on philosophical discussions with colleagues.)

objects – nor any other particular(s) in our surroundings. Likewise, Quine's extensionalist syntax can only address 'evidence' or also 'perception', but neither *evidence* nor *perception* as such, nor as they occur, are found or as *used* in empirical inquiries. Which objects or individuals there may actually be, and which of these might pass us by, as when we perceive a rabbit or any other creature, cannot at all be addressed by Quine's mere elective 'choices' of terms or variables over which to quantify logically (N.B.: *neither* arithmetically nor deictically).

Quine (1979) begins his account of cognitive meaning confidently declaring:

> Words and phrases refer to things in either of two ways. A name or singular description designates its object, if any. A predicate denotes each of the objects of which it is true. Such are the two sorts of reference: designation and denotation. (Quine 1979, 129; *cf.* 1958 [1969, 23; 2004, 107])

These two forms of (putative) reference are those required by his extensionalism. Quine merely assumes that predicates and (non-empty) names refer; he provides no account of *how* such terms refer to their (putative) referents. More importantly, Quine offers no reason because he has no reason why his preferred pair of (putative) referential relations are excepted from his proxy function arguments, used to wreak referential 'inscrutability' and 'ontological' havoc in all other cases. His preferred pair of referential relations, 'designation' and 'denotation', are equally subject to his favourite proxy function arguments for the inscrutability of reference. Quine's required Zermelo sets of particulars cannot be specified *at all*, nor can their putative members be designated (by Quine's logical techniques). Quine's so-called 'objects' suffer this same inscrutability of reference regarding 'objects', 'predicates' or also 'kinds'. All the 'structure' of theories connecting Quine's so-called 'nodes' is, by Quine's own meta-linguistic extensionalist methods, centrally by his reiterated appeal to proxy functions, utterly meaningless: *all* the putative sentence forms purporting to preserve only said structure are not *sentence* forms at all; they are merely strings of sign-designs, mere marks, *flatus vocci*. Prevarication pervades the core of Quine's extensionalist meta-linguistic view of language, which alone affords his proxy function tactics.

Due to his hallmark semantic ascent, Quine neglects altogether the pragmatics of actual linguistic use by actual speakers *in situ*. Quine's preferred pair of putative forms of reference are clear instances of what Putnam (1981,

3–5) rightly denigrated as 'magical theories of reference'. Putnam stressed instead that reference is secured by *our understanding* and *use* of *our* language(s):

> On any view, the understanding of the language must determine the reference of the terms, or, rather, must determine the reference given the context of use. ... Either use *already* fixes the 'interpretation' or *nothing* does. (Putnam 1983, 24)

Putnam's claim that *understanding* and *use* specify the reference of terms within our context(s) of use is important here for two reasons. First, Quine's proposed Zermelo sets of particulars and of features of particulars must enable *us* to identify and characterise particulars, which requires us to understand and properly use a host of concepts, without consulting some putative catalogue of Quine's expostulated Zermelo sets.[8] Second, Putnam's stress upon our use and understanding of our language enabling us to refer our terms or statements to relevant particulars, though not further specified, comports with the Thesis of Singular Cognitive Reference, and with Carnap's stress upon genuine objects sentences (used to make statements about actual particulars; *per* below, §3).[9]

A further key consequence of Quine's chronic appeal to or use of proxy functions is that his own extensionalist pronouncements about extentions, *i.e.*, particular referents, Quine's so-called 'objects', suffer from the same inscrutability of reference regarding 'objects', 'predicates', 'kinds' or also Quine's so-called 'posits' and putative 'neutral nodes' (*per* below). Quine's required Zermelo sets of particulars themselves cannot be specified *at all*, nor can their putative members be assigned, designated or discriminated. Carnap is quite right that, outside pure axiomatics, set membership can only be specified by intensions, *i.e.* classifications. Quine's extensionalist meta-linguistic methods and proposals preclude his providing any account of *cognitive* meaning whatsoever.

[8] Note, too, that the first sentence quoted above (Quine 1979, 129) *strictu sensu* acknowledges that definite descriptions may be referentially empty. Whether Quine meant to concede this I do not know, but very much doubt.

[9] At the time, Putnam's proposed internal realism to solve this problem. That solution fails (*cf.* Westphal 1997, xxiv–xxvi; Westphal 2003); later Putnam (1994, 488) acknowledged internal realism to be mistaken.

§2.4 After briefly rehearsing his meta-linguistic, entirely formal list of logically possible 'ontologies', such as (*e.g.*) rabbiteth, rabbit-part, undetached rabbit parts, mereological sum of time-sliced rabbit-moments or rabbit-periods, Quine observes:

> ... if our linguist is going to be as cagey as all this, he will never translate more than these simple-minded announcements of observable current events. A cagey linguist is a caged linguist. (Quine 1969, 3)

It must be said: Quine himself was cagey, though he was no linguist (however quickly he learnt foreign languages), he was semantically caged by his meta-linguistic extensionalist ascent, made in his very first lecture putatively discussing Carnap's *Logical Syntax of Language*. Although Quine's first cagey construction was unpublished until 1990, actually *reading* Carnap's book and contemporaneous papers (Carnap 1932, 1934a, 1934b, 1934c) should have dissuaded both Quine (1948) and his followers *ab initio*, for reasons detailed below.[10]

2.5

Even when Quine eventually praised 'observation sentences', he keyed them to (purported) neural intake, in accord with his view of so-called 'stimulus meanings', and reiterates his referential hocus pocus (*i.e.*, proxy functions) to infer his cherished ontological relativity, according to which

> So far as evidence goes, objects figure only as neutral nodes in the logical structure of our total theory of the world. (Quine 1993, 112)

To avoid any mistaking of his views and aims, Quine claims:

> [W]e now see, reflecting on the avenues of scientific evidence, that one could retrospectively swap even the bodies for arbitrary other objects without violence to the sentences affirmed in the theory or to the evidence for them, if there were any point in doing so. (Quine 1993, 113)

[10] Just one example: Subsequent to its original publication, Quine added to 'Two Dogmas' a reference to Duhem (1953 [1961, 41 *n.*17]), having learnt of Duhem from Hempel and from Frank (Barrett & Gibson 1990, 212). Carnap discusses Duhem's and Poincaré's evidentiary 'holism' in the concluding part (V.B) of *Logical Syntax of Language* (§82). Quine (1935) reviewed Carnap's book, hence could have learnt then and there of Duhem's *and* Poincaré's evidentiary holism, but by his later admission did not. (Do not cavil that Carnap's book was not yet translated; monoglot Anglophone philosophy is a post-WWII phenomenon.)

Quine's 'swap' – his recourse yet again to proxy functions – must be retrospective, because only a credible theory *of the world* can provide or at least constrain the relevant *relations* between Quine's extensionalist, meta-linguistic so-called 'nodes', which can only be 'neutral' after subjecting them to Quine's semantic ascent and neutralisation by proxy function. Here is one key distinction between any strictly formal ontology and any ontology instantiated by the world we inhabit and investigate, in any or all of its aspects (*cf.* Calosi 2024). Those sentences affirmed by any credible empirical inquiry into, or empirical theory of, our world – or of any of its features, structures or relations – pertain to our *actual world*. Hijacking those sentences by Quine's semantic ascent and arbitrary proxy functions voids any sense, specificity, empirical warrant *and* reference (to actual referents) for each, any and every hijacked sentence *and* descriptive term. That he thinks using such proxy functions does no 'violence to the sentences affirmed in the theory or to the evidence for them' is a grotesque blunder characteristic of Quine's ascent to his merely 'logical' point of view. This is Quine's chronic bait *&* switch hocus pocus. Why it has not been more carefully scrutinised by his legion of followers is puzzling indeed, as is the neglect of Carnap's *three* classes of sentences (*per* §3 below), one of which is 'genuine object-sentences' – a form of sentence no actual linguist and no actual natural scientist can do without! Nor can Quine, any time he orders coffee, having found himself (by his meta-linguistic lights, miraculously) in some café. Like Kant's and Frege's, Carnap's logic is a predicate logic. Quine's 'logic' cannot be a *predicate* logic, because by design his extensionalism voids all predicate intensions, which his formalised extensionalist meta-language can neither preserve nor identify at all: If they hold at all, Quine's proxy functions void, evacuate neutralise or eviscerate predicate terms as well as (putative) designations of particulars *and* their features, including all of Quine's so-called 'observation sentences' and 'observation categoricals'. Once Quine makes his semantic ascent to his proposed extensionalist meta-language, he is no longer entitled to the phrase 'of the world' to describe anyone's views or theories *of the world*, or of any of its aspects.

2.6

One characteristic point in evidence is this. Quine states:

> Given ontological relativity, or inscrutability of reference, Charles [Parsons 1990] wonders what the objects are that we are learning to reify. The first ones are gross bodies. Certain observation sentences, where what is salient in the

> corresponding observations is sharply outlined, are the sort of thing that goes into the reification of bodies. What proxy functions show is just that one could in a sophisticated way change the reference without disturbing the relation to evidence. (Quine 1990c)

Quine's proxy functions demonstrate no such result; the relevant evidentiary relations are *perceptual*, *i.e.*, physical, physiological, psychological or also instrumental, *not* model-theoretic and *not* Quine's expostulated 'stimulus meanings' – as in the child whose mother sees that both she and her child see some macro-level, distinctly bounded red object, to help teach the child a word for 'red'. Quine's proxy function hocus pocus does nothing to change those perceptual relations, which are relations of two *persons* to each other *and to that red object in plain view*. Those *actual* relations cannot be subjected to Quine's semantic ascent; *only* sentences or terms can be. *That* is why Quine's proxy functions cannot alter anyone's relations to perceived particulars or to their sensory-perceptual evidence regarding them. This is not even competent 'folk psychology' of the kind Quine (1990b) insists is required for translation or for understanding others' verbal or bodily behaviour. Paolo is quite right that epistemology cannot be undermined by logic (Parrini 2018/2021b, §5), especially not by strictly extensionalist, meta-linguistic logic (and formalised syntax). Inevitably, prevarication pervades Quine's extensionalist proposals, proxy functions and so-called 'inscrutability' of 'reference'.

2.7

Though recognizing that intersubjectivity is required for language-learning (1957, 4; 1976, 232), and also for scientific objectivity (1957, 7, 17; 1976, 234, 245), Quine insists upon his own ascendant meta-linguistic version of the Humean/Cartesian ego-centric predicament:

> Once we have seen that in our knowledge of the external world we have nothing to go on but surface irritation, two questions obtrude themselves – a bad one and a good one. The bad one, lately dismissed, is the question whether there is really an external world after all. The good one is this: Whence the strength of our notion that there is an external world? Whence our persistence in representing discourse as somehow *about* a reality, and a reality beyond the irritation? (1957, 3; 1976, 230)

Quine's pre-occupation with purported sensory 'surface irritation[s]' is flatly incompatible with his own far more plausible folk-psychological sketch of language learning:

> The likenesses and contrasts which underlie one's first learning of language must not only be pre-verbally appreciable; they must, in addition, be intersubjective. Sensitivity to redness will avail the child nothing, in learning 'red' from the mother, except in so far as the mother is in a position to appreciate that the child is confronted with something red. (1957, 4; 1976, 232)

Such observation of public situations is equally required for Quine's professed behaviourism (1957, 7, 14, 15; 1976, 242, 243, 248). Both Carnap (1955) and Naess (1953) (whom Carnap there cites) provide empirical, behavioural tests for analyticity. Quine neglected both, doubtless due to his preoccupation with his formalizable extensionalist meta-language, proxy functions and expostulated 'stimulus meanings'; he has no other grounds for such neglect. Preaching 'behaviourism', however, does not suffice for any behavioural psychology.

Recall that officially Quine's sole resources for contending with whatever so-called stimulus-meanings result from irritations of the (relevant) surfaces of our receptor nerves is his meta-linguistic, strictly extensionalist logical principles and their proxy functions – nothing more! Note now that what Quine regards as a 'good question' is entirely psychological, though it is posed within what officially can only be an ego-centric, meta-linguistic extensionalist logical point of view. Quine's 'good question' is entirely about alleged psycho-neurological processes, because from within the 'cramped position' Quine (1982, xi) occupies within his own views, he cannot address any questions about validity, *i.e.*: none about truth, accuracy, approximation, cognitive justification or evidence, whether *pro* or *contra*. Thus did Quine submerge himself within a psychologistic quagmire, altogether failing to understand why Kant, Frege, Carnap and also Hegel had so strongly opposed psychologism and focussed concertedly upon issues of validity.[11]

[11] Quine's purported 'behaviourism' is flatly inconsistent with his notion of 'stimulus meanings' and also (independently) with his extensionalist meta-linguistic ascent; see Westphal (2015), §§4.3, 4.4, 4.12. Quine *claims* that: '... we are so overwhelmingly impressed by the initial phase of our education that we continue to think of language generally as a secondary or superimposed apparatus for talking about real things. We tend not to appreciate that most of the things, and most of the supposed traits of the so-called world, are learned through language and believed in by a projection from language' (1957, 5; 1976, 232). Quine assumes but does not at all justify these last two claims about language. The second is false, for reasons noted just below. Quine's

Commenting upon Carnap's autopsychological attempt in the *Aufbau* (1928) to reconstruct our experience(s) of the world entirely in terms of occurrent sensed qualities and their relations, Quine asked:

> [W]hy all this creative reconstruction, all this make-believe? The stimulation of his sensory receptors is all the evidence anybody has had to go on, ultimately, in arriving at his picture of the world. Why not just see how this construction really proceeds? Why not settle for psychology? (Quine 1958, rpt. in *idem.* 1969, 75)

Quine's view of sensory stimulations remains constant; nearly forty years later he states an important aspect of the same view:

> Impacts of rays and particles are irrelevant except as they trigger receptors, and happily it is only a question of triggering, with no question of more or less. (Quine 1995b, 272–3)

Quine simply adopts without question an entirely causal view of sensory stimulation. Causal views of sensations or of experience inevitably lead to indirect theories of perception and to external world scepticism – none of which Quine examined. Quine is right that causal continuity between our surroundings and our 'neural intake' is necessary; however it is not at all sufficient for perception, belief, experience, knowledge or statement because these all require semantic information relations, which are far more stringently specified (Dretske 1981, 1–82).[12] Furthermore, semantic information relations are *intensional*, sufficiently fine grained to indicate specific features of particulars. Information relations are also *intentional*, insofar as a proximal receptors carry information about distal sources (Dretske 1981, 163–5, 259 *n.*39). Dretske (1981, 135–235, *cf.* esp. 173–3) differentiates important degrees and kinds of intensional content(s) using intensional opacity. However, he does not examine nor account for our capacities to extract such information so as to recognise whatever we may sense or perceive, nor to recognise whatever we may believe, judge,

frequent talk about ontological myths is of a piece with his claims about 'projection[s] from language'; *e.g.* (1961a), 1–19, 44–5. (Quine's closing doubts about language and belief are as diffident about learning from others as is Descartes in his first Meditation.)

[12] For a precis, see Dretske (1983).

claim or know about whatever we sense or perceive.[13] 'Causal-reliability' theories ignore these issues altogether, beliefs are merely said to be caused by perceptions. Quine holds that those causal-sensory relations are swamped by excess cultural inheritance[14] – as if we could inherit any culture without identifying other people and particulars in our surroundings.[15]

2.8

Quine adduces psychology, but merely genuflects about science; he never examines the relevant sciences, nor reconsiders his own views in view of their findings (*cf.* §3.4 below). He flatly neglects that our sensory receptors are sensitive to the intensity with which they are 'irritated'; they are not merely 'triggered' (bivallently). His 'bad question' about external world scepticism is a direct consequence of his bad, merely causal, all too causally inherited view of sensory irritation.

Quine (1995a) proposed, in effect, an empirical research project to study scientifically the links from stimulus to science. Those links were to be entirely causal, empiricist and extensionalist. Quine neglected that his view of sensory intake had long since been superceded by actual neuro-physiology of perception, which instead confirms the folk psychology of commonsense realism, including the mother teaching her child 'red'. An organism's perceiving (some of) its surroundings, in contrast to mere sensory registration of 'irritations' from without, requires sensory reafference (or 'efferent copies') by which motor control signals guiding an organism's behaviour are also fed forward into its sensory system, so that the organism can distinguish those changes within its perceptual field due to its own movements from those changes due to particulars in its surroundings *during* current, on-going perception and behaviour. Perception of one's surroundings is not merely a sensory phenomenon, it is a sensory-motor achievement. Discovered by Holst and Mittelstaedt

[13] In brief, Dretske's (1981) information theory does not account for the distinction rightly made in his (1969) between simply seeing (*e.g.*:) a truck across the street (which happens to have a flat rear tire), and (*e.g.*:) seeing *that* the truck's rear tire is flat.

[14] See above, *n.*9.

[15] Occasionally Quine acknowledges that his own views are modelled on Carnap's *Aufbau*, *e.g.*, Quine (1969), 79; (1991), 273 [2008, 399]; (1993), 116 [2008, 418–9]. In the *Aufbau*, Carnap chose an 'autopsychological' sensory basis as a model of his constructivist method. Quine sought to replace Carnap's sensory basis with unspecified, expostulated 'neural intake' and behaviourally conditioned 'observation categoricals'.

(1950, *cf.* Holst 1954), the discovery of sensory reafference ultimately displaced cybernetic 'black box' models of sensory input prompting behavioural output (Brembs 2009). The key role of sensory reafference in perceiving one's surroundings (in contrast to mere sensory registration of exogenous stimulations) has been found across phyla and orders, down to the scale (*e.g.*) of *Drosophila* (Schöne 2014, Cavanaugh *&al* 2016), and has been found to play a key role in early evolutionary development of perception and of any organism's capacity to distinguish between itself and its environment (Keijzer *&al* 2013, Seth & Tsakiris 2018, Jékely *&al* 2021). The sensory reafference required to identify particulars in an organism's surroundings involves information processing, which requires sensory channels which are (in part) sufficiently reliable and discriminate information channels.

Quine's semantic ascent to his proposed extensionalist meta-language, presuming to absorb all scientific language into it, shields him from interference by any and all scientifically established facts, unperturbed in his dogmatic slumbers. By contrast, Kant's (*KrV*, 1787) exacting philosophical examination of human perceptual experience and its necessary conditions established that human perception is sensory-motoric, and that this is required to identify and discriminate particulars in our surroundings from one another, to distinguish them from ourselves, *and* to distinguish them from our perceiving of them, *whilst* we perceive them. Our capacities for information extraction and assessment Kant identified and explicated brilliantly in his examination of cognitive judgment (*cf.* Westphal 2021a, §§31–60); his sophisticated cognitive architecture affords a cogent cognitive psychology (Westphal 2024b). Particulars in our surroundings are no mere 'posits'; we must discriminate them and respond accordingly (drink that coffee, cut that cheese).[16] Kant's epistemology, which holds *within* the spatio-temporal domain of nature, indeed offers much to Paolo's *terza via*.[17]

[16] Quine protests that to call (*e.g.*) physical objects (*etc.*) posits is not to denigrate ('patronize') them (1960a, 22), though he asserted that, *qua* posits, physical objects are epistemologically comparable to Homer's gods (1961a, 44). His characteristic appeal to 'posits' follows directly from his profligate assumptions of stimulus meanings and ever-handy proxy functions, which have nothing to do with epistemology nor *scientific* methodology, because their use presupposes assimilating all (cognitively significant) language to his extensionalist meta-language, and having fundamentally misunderstood sensory perception, as just indicated.

[17] By design, transcendental idealism offers nothing to Kant's epistemological analysis of empirical knowledge.

§2.9 In various places Quine (1996, 159; 1981, 21) claims to keep distinct his metalinguistic discussions of 'meaningfulness', 'truth' or 'ontological relativity' and his own commonsense physicalist beliefs, but Quine's semantic ascent is so *un*structured that he cannot sustain such distinctions; whenever issues about truth, about what there is, or about 'so-called empirical sciences' arise,[18] he reverts to his radically holistic, radically internalist meta-linguistic views replete with arbitrary proxy functions. He can't have both without providing and *maintaining* one or more clear, decidable distinction(s), and *also* clear relation(s), between these two groups of his utterances, between which he shifts *ad libitum*. Better he cannot do, for reasons indicated at the end of 'Two Dogmas of Empiricism'. There he expressly seeks to state the point of his metaphor of proximity to or distance from the (so-called) experiential periphery of our beliefs *non*-metaphorically (1961b, 43). However, mere metaphors pervade this closing section (§6), because Quine's sensory simulations can afford no more than 'posits' of various particulars, which may be revised if our (putatively) relevant experiences become too 'recalcitrant' (1961b, 44–6).

Emphatically reiterating his realist beliefs about physical objects and about established scientific findings, Quine claims the following about how such realist beliefs can be reconciled with his deliberately austere semantic views:

> The semantical considerations that seemed to undermine all this were concerned not with assessing reality but with analyzing method and evidence. They belong not to ontology but to the methodology of ontology, and thus to epistemology. (Quine 1981, 21)

Quine's semantical considerations are his own extensionalist methods, not any method of the natural sciences; his proxy functions can only concern statements *reporting* evidence, *not* the evidence as such, especially not in the case of perceptual evidence. His qualifications directly intrude. First,

> ... all ascription of reality must come rather from within one's theory of the world; it is incoherent otherwise. (Quine 1981, 21)

[18] A characteristic, diffident, dismissive phrase; *cf. e.g.* Quine (1957), 14, *cf.* 5; (1960a), 21, 42; (1960b), 350, 364; (1976), 100, 121. Only very rarely does he use the phrase 'properly so called'. *Caveat emptor!*

Theories and ascriptions are not blinders; using one's best classifications in empirical judgments or inquiries provide cognitive access, albeit fallible, to whatever we investigate. Quine says 'from within', but his strong conclusions require instead *solely* 'from within'. Fortunately, both natural and scientific languages are context-bound; we can only use them properly within our worldly engagements and activities. One needs no *theory* of the world to howl and acknowledge one has stumbled over something hard and heavy; then to illuminate the area and look again at (roughly) where one stumbled to see what it was. Identifying that surprising, obtrusive stumbling block requires using some concepts, though simply sensing and perceiving that block does not. Quine's reasons for claiming that even commonsense is a very rough *theory* of the world requires assuming his view of mere surface irritations of our sensory receptors. Neurophysiology jettisoned that assumption for excellent reasons starting no later than 1950 (*per* above, §2.4). Never mind that for sound reasons Reid (1764) and Kant (*KrV*) rightly rejected such views already in the 18th Century!

Quine's prevarications regarding 'ontology', what there is, physical theory and meta-linguistic formal proxy functions recur when he again addresses these issues only a few years later. His conclusion synopsizes his discussion of relativism and absolutism:

> The truth of physical theory and the reality of microphysical particles, gross bodies, numbers, sets, are not impugned by what I have said of proxy functions and wildly deviant but empirically equivalent theory formulations. Those remarks had to do not with what there is and what is true about the world, but only with the evidence for what there is and what is true about the world. I was showing that scientific discourse radically unlike our own, structurally and ontologically, could claim equal evidence and that we are free to switch. Still we can treat of the world and its objects only within some scientific idiom, this or another; there are others, but none higher. Such, then, is my absolutism. Or does it ring relativistic after all? (1984, 295 [2008, 322])

Because Quine's proxy functions preserve neither truth, predication nor evidence (*per* above, §§2.3, 2.6, 2.8), but can only feign the inscrutability of reference and hence also his hallmark ontological relativity regarding *sentence forms* (not statements) involving such terms as 'truth', 'descriptors', 'reports', 'evidence' or 'perceives', Quine cannot sustain any claim to the *empirical* equivalence between any well-established physical theory and any of his purported radical alternatives. 'Designation' or 'denotation' within formal model theory is not at all equivalent to reference nor to predication within any well-

founded empirical domain; *i.e.*, not only the natural sciences, but all technical and disciplined empirical inquiries. Quine's proxy functions and 'posits' can preserve no more than (putative) cardinality; his semantic ascent can only address 'empirical equivalence', but can show nothing about *empirical* equivalence. Quine's motto, 'we are free to switch', is sheer semblance.

Second, Quine indicates that the closest he comes to epistemology is instead an entirely explanatory inquiry into how our beliefs can have formed:

> Epistemology, for me, or what comes nearest to it (*sic*), is the study of how we animals can have contrived that very science, given just that sketchy neural input. It is this study that reveals that displacements of our ontology through proxy functions would have measured up to that neural input no less faithfully. To recognize this is not to repudiate the ontology in terms of which the recognition took place. (Quine 1981, 21)

Quine's 'ontology' is only a set of ontological commitments identified by whatever quantified sentences he accepts. Quine (1984, 295 [2008, 322], quoted just above) rightly acknowledges that ontological commitments do not address questions of whatever *is* or *occurs* within nature. However, his proxy functions maintain the same *alleged* 'neural input' by default: his proxy functions can only pertain to *reports* of sensory evidence – sentence forms he assimilates out of their object-level use *in situ* into his meta-linguistic extensionalist views; proxy functions do not at all pertain to such *events* or *processes* as sensory perception, experience, behaviour, nor actual empirical inquiry. His proxy functions preserve no more than putative reference to whatever particulars *qua* 'neutral nodes', but neither predication nor truth of any empirical statement; perforce they leave our world and our experience of our world intact because *untouched*. Quine's semantic methods reduce his own views to no more than doxology.[19]

Quine claims to espouse 'a more thorough pragmatism' (1961b, 46), blithely disregarding that genuine pragmatists have always focussed upon our fundamental *pragma* as active, flesh and blood human beings acting within our natural, social and historical environs – whence the close and considerable

[19] Resnik (2005) sympathetically wends his way through Quine's web of belief, with special attention to mathematics. In conclusion he quotes from this same page, centrally the first of the above three excerpts, though without noting that Quine cannot have both his proxy functions and his commonsense physicalist beliefs.

concord between Paolo's *terza via* and pragmatic realism, both 'classical' (Peirce, James,[20] Dewey,[21] Meade) and recent (C.I. Lewis 1929[22]; Sleeper 1986; F.L. Will 1988, 1997; Pihlström 1996; Shook 2000; Haack 2007, 2009; or yours truly – *cf.* Ferrini 2015).[23]

2.10

Quine's putative 'location' or 'distribution' relative to 'centre' or 'periphery' of one's web of belief is not merely vague, but equivocal: *semantic* (intensional) relations involve classifications, differentiations, specifications, implications and presuppositions. These are entirely distinct to those putative relations, preferences or priorities regarding what one may refuse or choose to be (un)revisable (*cf.* Parrini 2021b, 101*n.*8, 103). Both are entirely distinct to those relations which can or may provide relevant evidence, cognitive justification, or counter-evidence. None of these require nor pertain to the structure said by Quine (2000 [2008, 496]) to be so copiously generated by universal quantified implications. Which implications should be universally quantified? Which if any of these should be affirmed, denied, revised or discarded? Which should be used *modus ponendo ponens*, and which *modus tollendo tollens*? Quine's entirely meta-linguistic extensionalist views cannot at all sort fact from fantasy, nor from (in)sufficient approximation. Quite rightly, Paolo distinguishes semantic, methodological and justificatory 'holisms' – though none of these are, nor need be, Quine's indiscriminate monolithic block holism.

2.11

Seeking as ever to avoid properties, which are intensional, in favour of sets, which are extensional,[24] Quine observed:

> The residual myth of meaning is this myth that there is a certain critical degree of affinity of terms. Synonymy is that degree of affinity. *De sensu* occurrences

[20] On James, see Hare & Chakrabarti (1980).
[21] See Shook (2000).
[22] See Westphal (2017).
[23] Neo-pragmatists faithfully, fatefully follow Quine's meta-linguistic ascent. Paolo appears to have regarded pragmatism in neo-pragmatist terms (*cf.* Peruzzi 2024, §5), though perhaps he may have reconsidered *ca.* 2015.
[24] Properties or features are intensional because any one particular may instantiate two or more distinct properties or features.

> are occurrences where that degree of affinity suffices for interchangeability. When we try to find a criterion for that cut-off point, we sense the quality of myth that invests it. If we give up the thought of such a boundary, we give up the thought of sameness of meaning. In so doing we give up the thought of anything that might be called a meaning; for there is no entity without identity. (Quine 1979, 138)

Neglecting entirely the pragmatics of actual use of language by speakers in specific contexts, Quine seeks 'meanings' as *entities*, otherwise his recitation of the dictum 'no entity without identity' is irrelevant. He also neglects that, if that dictum be true, it is true *de re*, and entails nothing regarding the character of our criteria-in-use of individuation and identification, hence nothing about their precision, accuracy or completeness. Our best scientific taxonomies, however exacting they be, remain open to further specification; they are sufficiently accurate according to current knowledge and understanding, though may be revised and improved through continuing use in further research leading to new discoveries. This is no mere matter of Quine's so-called 'convenience' (*per* §3.4 below).

To a first approximation (at least), 'meanings' of empirical concepts are classifications of particulars or of features of particulars – exactly the intensions Quine sought to evade by his preferred Zermelo sets of particulars, though he grants that not all sets are kinds (1969, 118, 133).[25] Just for that reason, Quine requires properties or kinds, *i.e.*, intensions to specify *relevant* sets of particulars (and of specific features of particulars), as Carnap rightly noted. A further reason intensions are indispensable is that classifications are general so that they pertain also to relevant instances which do not yet exist, or which existed previously, though no longer. Quine's preferred Zermelo sets *of particulars* must be sets of extant particulars, unless Quine plunges into modal metaphysics or ascends into some expostulated 'platonic' heaven putatively containing *all* particulars which ever did, do or shall exist. A third reason is that, as Kant rightly noted, within empirical domains there simply are no *infimae species*; further varieties or specifications of empirical concepts are in principle always possible, depending upon newly discovered features of natural or social phenomena (*KrV* A659/B687). Hence no empirical concept can be *defined*, but only explicated (*KrV* A727–31/B755–9). Carnap agrees

[25] On the character of empirical concepts, see Radder (2023).

throughout his career about the crucial importance of conceptual explication,[26] as does Waismann (1945) in his account of the *Porosität* or 'open texture' (*not* vagueness) of all empirical concepts. Whatever so-called physical entities Quine might accept, whatever may be their identity conditions, and whatever may be our use of relevant criteria of individuation – are all approximate due to these pervasive features of all our empirical concepts. Reiterating the dictum 'no entity without identity' *ad indefinitum* does nothing to alter or evade the approximate, porous character of all our empirical concepts, classifications, taxonomies and criteria, including criteria of identity. Quine's extensionalist Zermelo sets of particulars cannot perform as Quine prefers.

Quine (1994a [2008, 439–40]; *cf.* 1995a, 90) acknowledged he could only fully understand what is expressed fully extensionally. That's *his* problem, not ours; this is *his* chronic limitation: The scope and limits of extensionalism cannot be specified solely extensionally! In response to Quine (1960b/1963), Carnap (1963, 915, 917, 921) quite rightly notes the unclarity of Quine's reasoning. Must it be said (again, today) that clarity of reasoning is prerequisite for conclusiveness, especially in matters of logic or (also) formalised syntax and semantics? Be that as it may, Carnap (1952) knew very well how to reply to Quine's 'Two Dogmas'; his reply, entirely fit for publication, unfortunately remained unpublished until 1990.

In brief, the core of Quine's views rests upon a grotesque conflation, equivocation or obliteration of the distinction between the use and mention of terms or phrases: His semantic ascent sought to raise *all* (cognitively significant) language into his entirely meta-linguistic extensionalist form. However, within any meta-language, lower-level terms or phrases can only be mentioned and explicated, but not *used* in any connection with (purported) particulars by actual people speaking within any actual context. Quine's problems about 'reference', 'referents' and 'posits' all stem from his excessive semantic ascent. Carnap never blundered about use and mention (see §3); neither did Paolo, as is reflected in his emphasis on the practical-operational character of empirical inquiries – further bolstered, if I may say, by his emphatic affirmation of Kant's Thesis of Singular Cognitive Reference.[27]

[26] See Carnap (1934a), §§72–83, 86, (1936–37), (1950a), §§1–6. Kant, Carnap and also Hegel share their account and use of explication, not merely the term 'explication'.

[27] If it may appear that Anglophone logicians cannot have made the kinds of errors identified in this §2, consider that Tarski's famous account of truth was expressly designed exclusively for

3. *Gegenstandsbezogenheit*: Carnap, Newton, Kant & Robust Realism

3.1

Greater attention has recently been devoted to Carnap's earlier work and its philosophical context, yet some key features of both remain neglected.[28] Zilsel (1932) objected to Carnap's *Wissenschaftslogik* (Carnap 1931) that Carnap's use of logical syntax to (re)construct a universal language for the sciences cannot distinguish between any such candidate syntactic systems so as to identify any one of these as *true* – a version of the 'French novel' objection to coherence theories of truth. This same issue pertains to Carnap's *Logical Syntax of Language* (1934a). Carnap (1932) replied vigorously and directly, in ways crucial to understanding and using his logical syntax (and his later formalised semantics).[29] Carnap agrees emphatically that his logical syntax is merely formal and devoid of any and all content *unless* and *until* it is coördinated with the

deductive systems using *finite* languages. Tarski insists that his formal achievement *cannot* address issues of truth in natural languages (*cf.* Westphal 2015, §3). After several concerted attempts to adapt Tarski's approach to natural languages, Davidson (1984, xv–xvi) acknowledged that Tarski's 'Convention T does not settle as much as I thought, and more possibilities for interesting theorizing are open than I had realized. The well-known virtues of first-order quantification theory still provide plenty of motivation, however, to see how much we can do with it'. As the problems in Quine's views noted here show, the use of first-order quantification theory to explicate truth or reference are parasitic upon ground-level empirical knowledge involving sufficient accuracy and sufficient cognitive evidence or warrant, *per* below. Philosophy of language may augment epistemology, but cannot supplant it, precisely because it cannot address issues of (in)sufficient accuracy of reference or of ascription, nor (in)sufficient justification. Resorting to Davidson's issues about translation cannot alter this circumstance (*cf.* Simchen 2017). To the contrary, Travis (1981) is correct that the domain of the true and the false is *pragmatics*.

[28] Also in my (1989, Ch. 4), which this § corrects and augments; that first study shall be superceded by Westphal (in prep.), which I dedicate to Paolo.

[29] Carnap's explicit, fundamental distinction between 'formal syntax' and 'formal semantics', on the one hand, and 'descriptive semantics' on the other, already fundamental to his *Logical Syntax of Language* (1934a), remains so to his *Introduction to Semantics* (1942); though he doesn't use this designation in *Meaning and Necessity* (2nd ed., 1956), there the role of descriptive semantics is assigned to 'the method of extension' (Ch. 1) in regard to those statements which refer to 'extra-linguistic fact' and are true or false factually (not logically). Carnap continues using the designation 'descriptive semantics' in contemporaneous papers, such as 'Meaning and Synonymy in Natural Language' (1955). Carnap expressly refers to and builds upon his *Logical Syntax of Language* both in his *Introduction to Semantics* and in *Meaning and Necessity*. The domain of 'descriptive semantics' includes the 'reist' or 'thing language' and the 'physical language' discussed in Carnap (1963a), §II.4, *cf.* 868.

findings of what Carnap calls 'descriptive semantics', which belongs to the domain of *pragmatics*, *i.e.*, the study of language in actual use by flesh and blood human beings, especially scientists. Carnap expressly assigns to 'descriptive semantics' the task of collecting actual statements by actual scientists, especially their reported findings. Indeed, Carnap (1934a, 259–60; §86) stresses that logical syntax must be fit for use in close connection with *actual* scientific language(s) to *have* any content or use whatsoever, and must address actual scientific language(s) to be *developed* at all.[30] This diametrically opposes Quine's entire approach, which expressly assimilates even scientific language(s) to his purely extensionalist, *entirely* meta-linguistic, hopelessly under-specified logical point of view, which he launched in his first lecture on Carnap's logical syntax, and ever after believed to be unrevisable. *Pace* Quine, Carnap never appeals to 'mere convenience' for developing, using, reassessing or revising linguistic frameworks!

3.2

Discussion of these issues have been preoccupied with verificationist theories of meaning (intension), neglecting key features of Carnap's logical syntax. Carnap (1934a, 259–60; §86) clarifies the ways in which ordinary and especially philosophical uses of language (the „*inhaltliche*" or 'material' mode of speech) are so often „*verschoben*" (displaced; §80): Many expressions in ordinary language strongly connote that their terms pertain to *objects*, yet often there are no such objects.[31] In this connection, Carnap expressly distinguishes these *three* kinds of sentences:

> We shall distinguish three kinds of sentences:
> 1. Genuine object-sentences. [These address, not merely apparently but actually, extra-linguistic objects.] Example: 'The rose is red'.

[30] „Unsere These, daß Wissenschaftslogik Syntax ist, darf also nicht dahin mißverstanden werden, als könne die Aufgabe der Wissenschaftslogik losgelöst von der empirischen Wissenschaft und ohne Rücksicht auf deren empirische Ergebnisse bearbeitet werden. Allerdings ist die syntaktische Untersuchung eines schon gegebenen Systems eine rein mathematische Aufgabe; aber die Sprache der Wissenschaft liegt nicht in syntaktisch bestimmter Form vor; wer sie untersuchen will, muß daher auf den in der Fachwissenschaft praktisch angewendeten Sprachgebrauch achten und in Anlehnung an ihn erst die syntaktischen Bestimmungen aufstellen" (Carnap 1934a, 259–60; §86). (All translations from German sources are my own – *KRW*.)

[31] Smeaton uses 'transposed' for *verschoben*; 'displaced' better connotes the negative sense of Carnap's term; something may be 'transposed' into a proper form fit for use, as in music.

2. Pseudo-object-sentences or sentences in the material („*inhatlichen*“) mode of speech. [These merely appear to address extra-linguistic objects, *e.g.*, the Rose, but actually address the linguistic designation of this object, *e.g.*, the word ‘rose’.] Example: ‘The rose is a thing’.
3. Syntactical sentences or sentences in the formal mode of speech. [These address some linguistic construction.] Example: ‘The word “rose” designates a thing’. (Carnap 1934a, 212; *cf.* 1934b, 12–13)[32]

The misleading character of the material mode of speech is its unwitting use of pseudo-object sentences:

> Sentences in the displaced mode of speech feign connection to objects (*Objektbezogenheit*) where there is none. They easily lead to unclarities and pseudo-problems, indeed to contradictions. (Carnap 1934b, 14)[33]

Carnap clearly assigns the exposure of pseudo-object sentences to logical syntax, and equally clearly assigns genuine object sentences to the empirical sciences:

> Logical analysis concerns syntactical and pseudo-object-sentences. Real-object-sentences fall within the domain of empirical science. (Carnap 1934c, 45)

Carnap’s ‘real object sentences’ fall within the pragmatic domain of actual use of language by people *in situ*, especially scientists, all within the scope of Carnap’s ‘descriptive semantics’, the necessary complement to his formalised syntax and formalised semantics.

[32] Carnap’s original: »Wir wollen drei Arten von Sätzen unterscheiden:
1. Echte Objektsätze. [Sie handeln nicht nur scheinbar, sondern wirklich von außersprachlichen Objekten.] Beispiel: „Die Rose ist rot“.
2. Pseudo-Objektsätze oder Sätze der inhaltlichen Redeweise. [Sie handeln scheinbar von außersprachlichen Objekten, z. B. von der Rose, in Wirklichkeit aber von der sprachlichen Bezeichnung dieses Objektes, z. B. von dem Wort „Rose“.] Beispiel: „Die Rose ist ein Dring“.
3. Syntaktische Sätze oder Sätze der formalen Redeweise. [Sie handeln von einem Sprachgebilde.] Beispiel: „Das Wort ‚Rose‘ ist eine Dingbezeichnung“.« (Carnap 1934a, 212 (§74); *cf.* 1934b, 12–13).

[33] „Die Sätze der inhaltlichen Redeweise täuschen Objektbezogenheit vor, wo keine vorhanden ist. Sie führen leicht zu Unklarheiten und Scheinproblemen, ja sogar zu Widersprüchen“ (Carnap 1934b, 14).

Carnap's emphatic distinction between pseudo-object sentences in the displaced mode of speech and those genuine object sentences which speak about actual particulars shows that his response to philosophical pseudo-problems involves far more than a verificationist theory of meaning (intention, classification). Carnap's genuine object sentences involve actual *reference* to *actual* particulars by *actual* speaking persons, especially within the sciences. Genuine object sentences, Carnap stresses, neither require *nor afford* translation into formalised meta-linguistic form (1934a, 241, 242; §81).[34] Quine's extensionalist meta-linguistic proposals *all* fall within the scope of Carnap's pseudo-object sentences, due to his arbitrary, profligate use of 'proxy functions'.

3.3

How is actual reference to actual particulars specified, identified or assessed? *By the empirical sciences*, using *their* distinctive disciplinary methods, procedures of inquiry and *their* assessment of their observational and theoretical findings.[35] Carnap (1934a, 244; §82) does not reject the concepts 'true' and 'false'; he rightly recognises that they are not *syntactical* concepts.[36] Carnap's (1934a, 260; §86) logical syntax must be developed and used in close connection with actual scientific disciplines and inquiries. These points are indicated concisely yet cogently by Carnap's (1942, §7) formalised semantics, where he notes that meta-linguistic analysis – using his logical syntax and logical seman-

[34] „Es sei noch einmal daran erinnert, daß die Unterscheidung zwischen formaler und inhaltlicher Redeweise sich nicht auf die echten Objektsätze bezieht, also nicht auf die Sätze der Fachwissenschaften und auch nicht auf die fachwissenschaftlichen Sätze, die in Erörterungen der Wissenschaftslogik (oder der Philosophie) vorkommen. (Vgl. die drei Rubriken, S. 212.)" (Carnap 1934a, 242; §81).

[35] „[...] die Protokollsätze aufzustellen, ist Sache des beobachtenden, protokollierenden Physikers" (1934a, 244; §82). Uebel (1992, 122, *cf.* 137*n.*49) mistakenly claims that *ca.* 1932 Carnap's 'conception of protocols now was wholly conventional' – a view allegedly foreshadowed in his response to Zilsel (Carnap 1932, 179). Carnap views the *forms* of protocol sentences, *i.e.*, their syntactic structures, as conventional; however, actual protocol statements or reports are *not*; scientists must use, make, assess and if need be revise or discard such reports, *not* philosophers. Carnap adopts a *fallibilist* account of scientific knowledge, *not* a conventionalist account! (Quine cannot cogently draw any such distinction.)

[36] Carnap's logical syntax has been widely misunderstood in this regard, *e.g.*, by Oberdan (1992). In this same period Carnap had already mentioned 'semantics', though understandably it required serious research to develop his (1942), (1956a) formalised semantics.

tics (of extension and intension) – provides truth-*conditions* for sentence-forms; whereas specifying or assessing the truth-*value* of any statement using a specific sentence form requires *actual* empirical inquiries into the relevant, actual particulars.

3.4

Quine (1961b, 41–2) was 'impressed ... with how baffling the problem has always been of arriving at any explicit theory of empirical confirmation of a synthetic statement'. Quine's confessed bafflement reflects yet another dogma of empiricism: To expect some one, universal, adequate account of empirical confirmation fit for all empirical sciences and all their various branches. Carnap, too, sought such accounts in terms of (semantic) confirmation theory or probability theory. Three key problems are these: First, there is no unique, uniform 'logic' of confirmation because the sciences have thrived by developing many and various methods and techniques for specifying and investigating various natural phenomena, many of which involve distinctive kinds and criteria of empirical success. Second, empiricism fails to account for the inferences required within their theories of (dis)confirmation (*cf.* Kyburg 1984, 1988). Third, empiricist accounts of scientific confirmation can at most only address kinematics, *i.e.*, the identification of observed natural regularities. Empiricist accounts of confirmation do not suffice for dynamics, *i.e.*, for causal inquiry into and measurement of forces which produce and hence explain those kinematic regularities. Newton's criteria of theoretical success are far more stringent than anything empiricism can provide, *e.g.*, insofar as his actual methods and criteria successfully distinguish between the mass and weight of orbiting bodies, and succeed at robust, precise converging measurements by three independent measures of the inverse-square rate of gravitational attraction (Harper 2011). This was well understood by astronomers (*cf.* Airy 1834, Ball 1902, Hartmann 1921) and by recent experts in history and philosophy of science – starting with Stein (1967); *cf. inter alia* Chandrasekhar (1995), Harper (2011, 2020), Smith (2002a, b, 2014) – yet remains utterly mis-understood by Quine[37] and (*e.g.*) by van Fraassen's 'constructive empiricism' (Westphal 2014b).

[37] When discussing natural kinds, Quine states: 'We have noticed that the notion of kind, or similarity, is crucially relevant to the notion of disposition, to the subjunctive conditional, and to singular causal statements. From a scientific point of view these are a pretty disreputable lot. The

Central to Newton's methodology is his Rule 4 of experimental philosophy,[38] which aims to distinguish between rival theories or hypotheses, by requiring that any such rival either improve demonstrably upon the accuracy of the current best theory (or law) in its domain, or by demonstrating actual exceptions to that current best theory (or law). Either achievement requires, not merely supporting evidence, but sufficiently copious and *accurate* evidence to demonstrate either (perhaps both) form(s) of improved accuracy. *Pace* Kuhn, Einstein's Relativity Theory better satisfies Newton's Rule 4 both in precision and in astronomical scope (Harper 2011, 378–85, 392; 2020). Scientific 'paradigms' simply are not 'incommensurable' in the various ways Kuhn proposed (*cf.* Doppelt 1978; Westphal 1989, 146–8; Scerri 2023).[39]

3.5

Important here is the fundamental *referential* requirement of Newton's Rule 4: To surpass an established theory, law or hypothesis in either regard requires the rival account not merely to be applic*able* to relevant natural phenomena; it must actually be *referred* by scientists *to* the relevant natural phenomena with sufficient *accuracy* to provide evidence of either kind of demonstrable improvement. This comports altogether with Carnap's category of genuine object sentences within the natural sciences. It likewise comports with what I call Kant's and Hegel's Thesis of Singular Cognitive Reference:

> No logically contingent, 'synthetic' sentence form has a truth-value unless and until *S*omeone uses that form to make a statement by which *S*/he *refers* that

notion of kind, or similarity, is equally disreputable' (Quine 1969, 133). *Au contraire*, those notions are only empiricistically disreputable! Many, indeed most natural sciences have succeeded by identifying constitutive material features of particulars, which explain their causal characteristics, their physical, natural kinds and their behaviours – by using mathematically and experimentally defined (and tested, *per* Newton's Rule 4) subjunctive conditionals, not modal logic. Quine (1961, 165; 2008, 239) believed that the material conditional sufficed for natural sciences; Newton proved that false by 1726. Quine's reported belief is mere doxology, his own faint extensionalist image of natural science.

[38] 'In experimental philosophy, propositions gathered from phenomena by induction should be considered either exactly or very nearly true notwithstanding any contrary hypotheses, until yet other phenomena make such propositions either more exact or liable to exceptions' (Newton 1999, 796; 1871, 389).

[39] Issues about terminological and conceptual (dis)continuities between successor scientific theories are here set aside; they are independent of robust pragmatic realism.

> statement to (purportedly) relevant particulars. This requires both localising that (or those) particular(s) within space and time (at least approximately), and ascribing at least some manifest or measured characteristic(s) to it (or to them). These two requirement are mutually interdependent. (*Cf.* Westphal 2021a, §26)

This condition must be satisfied to ascertain the accuracy of that statement, and to ascertain whether, how or how well it may be cognitively justified. This Thesis suffices to rule out any and all forms of experience-transcendent metaphysics (regardless of Kant's transcendental idealism). It also rules out mere logical possibilities as 'defeaters' of empirical justification: Mere logical possibilities, mere logically consistent synthetic sentence forms *as such*, lack reference to any and all particulars. As such, they are in principle *irrelevant* to all cognitive issues of empirical truth, accuracy and justification (Westphal 2014b, §3).[40]

§3.6 I am delighted (finally) to have identified this referential aspect of *Carnap's* semantics, which stands independently of any specific account(s) of 'meaning', intension or classification, and hence *independently* of verificationist theories of meaning. The mistakes about Carnap's pure syntax and semantics noted above are due to neglecting Carnap's (1934a, 260; §86) clear insistence that his studies aim to work together *with* the scientific disciplines, and renounce altogether any philosophical pretense to lord over the empirical sciences.[41] Such pretence was relaunched by Quine in his first lecture purporting to report on Carnap's *Logical Syntax of Language*, and persisted, unrevised, throughout his career.[42]

[40] I am honoured and deeply gratified that Paolo emphatically concurred with the importance and implications of this THESIS; *cf.* Parrini (2018/2021b), §5. Always interested in improving philosophical accuracy and understanding, Paolo kindly acknowledged that my research, especially my account of cognitive semantics, offered him grounds to revise his views (Parrini 2021b, 104).

[41] Hence I agree with Stein (1992) that Carnap was not entirely wrong after all, certainly not! Further evidence and reasons for this are forthcoming in Westphal (in prep.).

[42] Do not cavil that here I assume we can and do formulate and properly use genuine-object-sentences to make various specific claims about actual particulars, however inexact these may be. It is Quine who commits the fundamental *petitio principii* against Carnap, against much common sense and against empirical sciences. For sound transcendental proofs of mental content externalism (*sans* transcendental idealism), see Westphal (2004, 2021a); regarding *petitio principii*, see Westphal (1989), chapters 1, 6–8.

3.7

The Thesis of Singular Cognitive Reference entails acknowledging the importance of the pragmatics of actual language in use.[43] One important point may be noted briefly. Peruzzi (1993) argues cogently that contrasting 'holism' and 'atomism' categorically makes no cogent sense regarding meaning (intension, classification), nor regarding beliefs nor regarding knowledge and justification; instead, only moderate, local forms of holism make sense in these domains. This point is constitutive of, if implicit in, Carnap's (1950a, §§1–6, *cf.* 1950b) account of conceptual explication; Kant and Hegel are explicit about this feature of conceptual explication. Carnap's class of genuine object sentences are required to use terms, phrases, classifications and principles to investigate empirical particulars (of whatever kind or scale), and to ascertain whether or how well those are characterised by whatever classifications or theories we use in that domain. Such use is (expressly) required to assess any conceptual explication, or likewise: any linguistic framework. Hence empirical inquiries can reveal whether or how well our theories, classifications or terms suit their designatae, *i.e.*, whatever the relevant investigators designate in those terms as their referents. Empirical findings can and often do provide good grounds to re-assess, re-explicate and re-deploy our theoretical and conceptual resources *in situ*, including relative *a priori* principles. The Thesis of Singular Cognitive Reference explicates and underscores the cognitive interactions between actual use in context and (re)assessment of our concepts, theories and principles *in concreto*. Newton's Rule 4 is fundamental to assessing the accuracy and adequacy of any theory, including its key concepts, principles, terms and their use. Reference (to referents, to particulars), if so specified at all, is not specified *solely* by intension or description; it is also – indeed, primarily – specified by those genuine object sentences used in actual empirical inquiries, including observational and experimental techniques, apparatus and understanding. This accords entirely with, and further supports Paolo's stress upon the practical-operational character of science.

[43] A point long urged by Alberto Peruzzi.

4. Varieties of Synthetic *A Priori* Principles

Paolo (2021b, 98) notes one main reason Quine (1967, 53–4) rejected 'the' analytic/synthetic distinction: It is little or no help sorting out the most interesting and important cases, especially those within scientific theories. Why Quine expects one simple dichotomy to address such important fundamental issues he does not say; clear is that the kind of philosophy of science to which such a simple dichotomy was supposed to be serviceable is doctrinaire empiricism, inherited directly from Hume. All the extensive, heated discussion of Kant's 'synthetic *a priori* judgments' obscured two of Kant's key insights. Kant himself distinguished various senses of '*a priori*', most of them decidedly *im*pure (Crammer 1985). Kant's own detailed answer to his official lead question, 'What can be known entirely independently of experience?' (*KrV* Axii, xvii, B2–3), is: virtually nothing whatsoever, beyond a set of quite formal parameters regarding anything we can perceive, experience or know, pure constructivist mathematics, and three sound proofs that we can only be self-conscious if in fact we are conscious of at least some particulars in our surroundings; *which* or *what* these may be remains entirely open, by design. The various *a priori* principles Kant identifies (in *KdrV*) are extremely general; their actual use by us requires not only a 'schematism' so that they pertain to a spatio-temporal manifold; they also require our further specification so that they pertain to empirically identifiable instances. Kant's *Critique of Pure Reason*, and his regulative principles of causal and other forms of empirical inquiry (in *KdrV*, *MAdN* and *KdU*) identify a host of *relative a priori* principles to guide our rational inquiry, judgment and assessment as we examine and explore nature. These are *principles*, not 'truths'. These principles are required, though not sufficient, to specify, use and assess those more specific 'framework' principles for scientific inquiry or for more specific scientific theories. Such principles are required to specify, however provisionally, a domain, a form of empirical inquiry and plausible relevant hypotheses (*cf.* Toulmin 1949). In regard to Newtonian mechanics, Kant developed a *relational* theory of 'absolute' space, by demonstrating how to construct arbitrarily large spatio-temporal reference frames (Carrier 1992). At greater scales of scope and precision, Einstein realised that different principles for coördinating specifications of simultaneity *better* fulfill Newton's Rule 4, thus justifying Relativity Theory over Classical Mechanics (Harper 2011, 2020).

Paolo (2021a, 90) is right that the shift between Reichenbach's (1920) book on relativity to Carnap's logical syntax involves a shift from physically specified measurement principles to strictly linguistic versions of *P*-rules (*i.e.*, Carnap's pristine formal restatements of physical laws). However, in both cases – and likewise in other sciences – these relative *a priori* principles cannot be merely linguistic, nor merely meta-linguistic, nor merely conventional, because such principles cannot be established by theory alone, nor by empirical data alone, nor by their combination, because such principles are and can be effective only if and to the extent that they coincide with or converge upon *natural* regularities which are (sufficiently) unperturbed by other, unknown factors (*cf.* Parrini 2018, 109*n.*9/2021b, 106*n.*12).

Einstein rejected the relevance of '*a priori*' principles because they are fixed solely by the human intellect, according to Kant's (indefensible) transcendental idealism (Howard 2010).[44] Regardless, Einstein's breakthrough

[44] Paolo, too, rejects 'the' Kantian *a priori* for this reason (2021b, 96), and affirms instead a very robust empiricism which includes relative *a priori* principles. In contrast, I reject 'empiricism' because its various epistemologies are irreparably flawed, and also reject Kant's transcendental idealism because it is unjustifiable, inconsistent with Kant's own key distinction between the form and matter of experience and with his sound transcendental proofs of moderate (mixed) forms of mental content, semantic and justificatory externalisms. The most important of Kant's analyses and proofs are much better than he realised! Kant's Critical philosophy stands on its own, and fares better without transcendental idealism. Why and how so requires extensive and intensive demonstration to which I have devoted three books and a detailed synopsis of Kant's Critical philosophy as a comprehensive Critique of judgment throughout his Critical corpus (Westphal 2004, 2021a, 2021b, 2024a). This results in specifying and explicating much more precisely the contrast between a 'strong' (transcendental idealist, 'official') version and Paolo's 'weak negation' of Kant's synthetic *a priori*, and undergirds the strong convergence between what I defend as pragmatic realism and Paolo's *terza via*, as we discovered in 2015, when Cinzia Ferrini very kindly invited Paolo to comment on my recently published collection (Westphal 2014a); that occasion's proceedings appear in Ferrini (2015). Our substantial, intensive correspondence began in 2012, and became more intensive following that meeting, leading to this paper, which I hope foreshadows a monograph on relative *a priori* principles, Kant's contributions to the same, and how these link to robust history and philosophy of science. Gronda's (2024) conspectus of Paolo's concerns about truth, reality and human cognition reveals how close those are to my key, abiding questions: 'Is there a way the world is regardless of how we think about it? If so, can we know the way the world is? Is knowledge a socio-historical phenomenon?' (Westphal 1989, 1). The key challenge is to answer all three questions affirmatively with an integrated, comprehensive account of human knowledge. This can be done, though not without the comprehensive scope and detailed understanding of sufficiently specified issues, prob-

came by re-considering our concepts and laws of space and time as, in effect, *relative a priori* concepts and principles:

> My first problem lay in the apparent incompatibility of the law of light propagation, or the Lorentz theory, with the experientially valid equality of all inertial systems. ... the solution came to me suddenly [in 1905] with the thought that our concepts and laws of space and time can only claim validity insofar as they stand in a clear relation to our experiences; and that experience could very well lead to altering these concepts and laws. By revising the concept of simultaneity into a more workable form, I thus obtained the special theory of relativity, though its four-dimensional mathematical formulation was first found by Minkowski three years later. (Einstein 1924; in Herneck 1976, 104–5)[45]

Assessing such relative *a priori* principles requires pursuing and assessing scientific researches *using* these principles – all in accord with Newton's methodological rules, especially Rule 4. No wonder little significant philosophical work can be done by Humean dichotomies between 'analytic' and 'synthetic' sentences,[46] nor between '*a priori*' and sheer factual knowledge. However, empiricism has *no* monopoly upon the empirical! The only way to understand why not requires serious philosophical and scientific studies. Carnap understood this; one of Carnap's finest students, Howard Stein, understands this; Paolo Parrini understood this. In my continuing research, I hope to develop these points in the detail and extent they deserve – always with Paolo's publications close to hand. Quine's constant harping upon 'conventional' choices of 'convenience' foregoes all the hard work of both philosophy and the sciences, in which progress is constituted, not by programmatic generality, but by increasing accuracy, more informative detail and greater understanding gained by ever more exacting use and assessment of our principles, methods and results. Quine's sheer meta-linguistic 'convenience' is worlds away from any exact philosophical or scientific method or inquiry; his extensionalism is utterly disconfirmed by his own extensionalist views. Carnap knew this; so did Paolo Parrini. *Avanti con la terza via!*[47]

lems and findings, by working these against each other – as is so characteristic of Paolo's rare and magnificent philosophy and constructive ways of philosophizing.

[45] I thank Don Howard for kindly providing me a scan of Herneck's transcription.

[46] *I.e.*, Hume's 'relations of ideas' and 'matters of fact'.

[47] I am grateful to the organisers of the conference honouring Paolo, « La terza via di Paolo Parrini », for kindly inviting me to present these remarks on that occasion, and now as editors of this

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