

Introduction

Paolo Parrini & relative *a priori* principles

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1. *To commence, and to commemorate*

Paolo Parrini devoted concerted philosophical attention to theoretical philosophy, re-examining core issues in epistemology, philosophy of language and history and philosophy of science, not only for their intrinsic philosophical interest, but also for their cultural significance. This pair of papers published here in English he himself affiliated closely. “Analyticity and Epistemological Holism: Prague Alternatives” appeared originally in Italian in 2006; “Quine on Analyticity and Holism. A critical appraisal in dialogue with Sandro Nanini,” in 2018. He translated both into English early in 2020, posting their original Italian together with their new English versions on his own website.¹ Doubtless both are related to his research interests in Herbart’s conceptual *Bearbeitung*, which surely must be a vigorous form of conceptual explication. Most unfortunately, Paolo was taken from us suddenly, unexpectedly, at the start of July (2020). What more we can learn from him, we shall learn from his considerable published accomplishments. This brief Introduction seeks to epitomize the core issues and significance of this pair of papers, in tribute to him and his very substantial philosophical achievements.²

2. *Core issues in semantics, epistemology and history & philosophy of science*

Two central theses of Paolo Parrini’s thematically linked papers may be stated briefly: (1) There is an important role for those ‘conventions’ or stipulations involved in setting basic units and procedures of physical measurement, quite distinct to those ‘conventions’ or principles set in order to frame some

¹ On Academia.edu: <<http://unifi.academia.edu/PaoloParrini>>.

² For broader consideration of Parrini’s philosophical views see Parrini (2017), Stöltzner (1998), Oliva (2015), Lanfredini & Peruzzi (2013), (2016), and Lanfredini (2021). For concise, independent explication of relative *a priori* principles under a different designation, see Toulmin (1949).

kind or domain of scientific inquiry, although both may be regarded as species of *relative a priori* principles. (2) Prospects for such species of *relative a priori* principles emerged already in 1934 at the meeting in Prague on scientific philosophy, attended by both Carnap and Quine.

Stating these two theses directly in this way does not yet begin to address why or how Parrini devotes such extensive, careful re-examinations – philosophical, textual and historical – to explicating, elucidating and justifying these two theses. One reason for his great care is that their justification does not fit neatly into any of the typical options; they concern logically contingent principles which are presupposed by specific kinds of scientific, physical inquiries; they are warranted indirectly yet very powerfully by empirical research together with historical assessment of their advent, implementation and alternatives. Another reason for his great care with these theses is that they have been in the public (philosophical) domain for nearly a century, yet have been widely, persistently neglected due to typical philosophical aspirations, programmes and ways of thinking which have pervasively over-simplified the list of (purportedly) relevant options. Parrini’s essays are as much about *how* to philosophize well, as about what best to learn philosophically about these issues and from these texts and debates. All this belongs to Parrini’s “open-texture[d] rationality” (2021b: 96, *cf. n.4*), and to his demonstration that rational assessment and justification can indeed thrive within an open-textured, fallibilist and far more hermeneutical approach to issues (primarily) in theoretical philosophy.

3. *Carnap’s & Parrini’s pragmatics*

3.1. I begin at what may seem an incidental point: Parrini’s fourth footnote to “Analyticity and Epistemological Holism: Prague Alternatives” (2021a). There he recalls emphatically that Carnap himself took seriously issues in pragmatics (of language) as well as intensional and intentional phenomena, where ‘intensions’ are meanings or classifications, and ‘intentions’ are psychological attitudes or aims. Parrini’s footnote is no mere historical aside; here readers should ask themselves, *why* is it significant for Parrini to remark upon Carnap’s continued concern with intensional, intentional and pragmatic issues? ‘Pragmatics’ concerns the actual use of language by actual speakers to express statements (whether assertions, queries or imperatives) in various actual contexts, in contrast to syntax (which concerns grammatical structure or formation) and to ‘semantics’ as concerned with meaning, classification, descriptive ‘content’ or intension. I stress this sense of ‘semantics’, because the term is deeply ambiguous between meaning and reference, *qua* connections (if any) between what is said, and any actual individuals about which anything may be said. Parrini’s

emphatic recollection of Carnap's concerns with pragmatics goes to the core of Carnap's and also Parrini's issues with Quine, who spent his career seeking to eschew pragmatics, intensions and intentions so far as possible in favor of his Thesis of Extensionalism. Substantiating his Thesis of Extensionalism requires Quine to appeal to the most minimal behaviourist account of speech and language. Countenancing only (formalized) syntax and semantics requires treating reference as nothing other than successful description, *per* Russell's account of definite descriptions. Quine never noted that his favorite example of a putative definite description, 'the shortest spy', may be either empty or ambiguous; ambiguous if the shortest spies are triplets of the very same (physical) stature and clandestine profession, or empty, if ever we have the great fortune that their entire profession vanishes from the face of the Earth. In principle, descriptive specificity cannot suffice for definite reference, whether singular or plural, to any one, nor to any group, of specific individual(s). This basic point about syntax, semantics and pragmatics has far-reaching implications.

3.2. Parrini (2021a: 81) notes a very important point from Carnap's *Logical Syntax of Language* (1934/1937), part of which I quote here more fully. Carnap states:

If a sentence of the material mode of speech is given, or, more generally, a sentence which is not a genuine object-sentence, then the translation into the formal mode of speech need not always be undertaken, but it must always be possible. *Translatability into the formal mode of speech constitutes the touchstone for all philosophical sentences*, or, more generally, for all sentences which do not belong to the language of any one of the empirical sciences. (Carnap 1934/1937: §80)

By "transposed (*verschoben*) mode of speech," Carnap means any mode of speech which cannot be construed directly and literally as pertaining to one or more objects (*e.g.*, metaphors, figurative speech), a feature he considers to pervade natural languages and its material (*inhaltliche*) mode of speech.³ In the quoted passage, Carnap states expressly, indeed stresses, that *not* all sentences can, nor should, be translatable into the formal mode of speech. In particular no genuine object sentences, and hence no such sentences from the sciences,

³ „Wollen wir die inhaltliche Redeweise unter einen allgemeinen Begriff bringen, so können wir etwa sagen, daß sie eine besondere Art von verschobener Redeweise ist. Dabei wollen wir unter einer verschobenen Redeweise eine solche verstehen, bei der man, um etwas über den Gegenstand *a* auszusagen, etwas Entsprechendes über einen Gegenstand *b* aussagt, der zu *a* in einer bestimmten Beziehung steht (das soll keine genaue Definition sein). Jede Metapher ist z. B. eine verschobene Redeweise; aber auch verschobene Redeweisen anderer Art kommen in der üblichen Sprache häufig vor, weit häufiger, als man zunächst glauben mag“ (Carnap 1934: §80).

can or should be so translated, nor translatable. This is a very important observation by Parrini, widely disregarded in discussions of Carnap's views. "Genuine object sentences" are genuinely, directly, literally about *objects*. Hence their use, assertion and assessment *require* pragmatics, because they require actual use by actual scientists to state or query anything about actual objects (whether accurately or inaccurately, justifiedly or not).

However, if philosophers only consider formalized syntax and formalized semantics *qua* classifications or intensions or meanings (not reference and not referents, *i.e.*, not *designatae*), then *per force* they only consider sentences meta-linguistically, and disregard all pragmatics, all actual use, all actual reference, all actual referents, and any actual statements. This is what Quine did, and what his followers have done, if perhaps inadvertently. Carnap had expressly and repeatedly cautioned about the differences between his formally regimented syntax and semantics, and their proper *use* in any scientific context, in contrast to natural languages, which are far richer and (quite literally) unruly, including in *The Logical Syntax of Language*. Exactly this contrast between formalized syntax and semantics, and any natural language, Quine (1951: 34; 1953: 36) disregarded when contesting analyticity: He expressly sought to understand 'analyticity' within *natural* languages, pointedly dismissing Carnap's formalized languages and disregarding his cautions about natural language! However, Quine's constant recourse to "semantic ascent" puts language permanently on an arid holiday, because in principle it thus lacks all pragmatics, and hence any *real* use in any *actual* context by any actual person. Already in 1932-33 and repeatedly in later publications Carnap stressed that his formalized syntax and formalized semantics *require* their pragmatic counterpart of actual use by actual scientists in actual contexts of actual scientific inquiries to have any *real use* or content.⁴ Without pragmatics, formalized syntax and formalized semantics are referentially, cognitively, scientifically empty forms! *Also sprach Rudolf Carnap.*

3.3. The fundamental importance of pragmatics within Carnap's philosophy of language, and to his formalized syntax and semantics, is reinforced by this feature of conceptual explication. Although Carnap first explicated his method of philosophical explication in 1950, he had been using it since at least the *Aufbau* (1928). Both in "Empiricism, Semantics and Ontology" (1950b, rev. 1956) and in his official explication of 'explication' (1950a: 1-18),

⁴ Carnap (1932-33): 178, 179, 182; (1942): §5; (1963b): 923, 925-927. This is Carnap's "descriptive semantics," in contrast to "pure semantics," which is his formalised syntax and (after 1942) formalised semantics. Carnap's characterisation of "descriptive semantics" makes plain that it belongs to Morris's pragmatics of actual language use.

Carnap makes plain that however, and however much, they may innovate using formalized syntax or semantics, any conceptual explication, and likewise any linguistic framework, must and can only be *assessed* and either adopted, adapted, rejected or replaced within *actual* contexts of actual use, including the original contexts of use whence came the relevant *explicandae* (cf. Westphal 2015a). This point bears emphasis today, for “conceptual engineering” traces back to Carnap’s (1950) views; Carnap (1963a: 66, 1963b: 912) himself speaks of “language engineering.” Unfortunately, most of today’s interest in “conceptual engineering” follows Quine’s arid semantic ascent by disregarding the requirement to assess any bit of conceptual engineering by examining its use and usefulness within some *actual* application to address some actual, first-order problem(s) or issue(s).⁵

3.4. A further important precautionary note against excessive semantic ascent affords a friendly amendment to Parrini’s view. Michael Friedman’s (1983: xv) examination of the foundations of space-time theories may have aimed to support realism, Parrini (2010: 210) noted, yet closer analysis reveals it does not. Friedman’s several “Newtonian” models preserve no more than Newton-inspired kinematics, but cannot preserve Newton’s dynamics, i.e., his causal theory designed to explain robust, established kinematic regularities by multiple, independent, precise measures of the exact rate of gravitational attractions (pair-wise) across our solar system, including a wide range of terrestrial kinematic phenomena (Harper 2011, cf. Huggett & al 2013). All of Newton’s measures require appeal to material mass and its proportional gravitational power attraction; whereas no mention of, nor reference to, ‘mass’ is preserved by Friedman’s elaborate modeling – none at all! Hence it cannot have modeled Newton’s dynamics, hence also not Newton’s mechanics – at all.

Once I had occasion to remind Friedman of Carnap’s insistence that his formalized syntax and formalized semantics are, expressly, abstractions from pragmatics, from actual linguistic usage by actual people to talk about their surroundings, and that without pragmatics, Carnap’s formalized syntax and formalized semantics are mere empty forms, as he acknowledged expressly in reply to Zilsel and Duncker (Carnap 1932-33). Friedman blithely dismissed Carnap’s pragmatics and the point of my recalling it to his attention. This occasion was subsequent to Friedman (1992), but his explicitly stated preference for Carnap’s (purported) “formalism” matches exactly the formalist mistake in

⁵ For a representative discussion of “conceptual engineering” today, see Eklund (2015). Rescher (2017) is better about applied use, but neglects Parrini’s key point regarding distinct kinds of relative *a priori* principles.

his (1983) modeling of Newton's (purported) theory (*cf.* Westphal 2020: §72). The vagaries of his (2001) purported "dynamics of reason" (*cf.* Parrini 2021b: *n.*11) await in the wings of his meta-linguistic formalism.

4. *Pragmatics & coördination principles*

These points about pragmatics help elucidate Parrini's re-examination of Reichenbach's (1920) "coördination principles" (*Zuordnungsprinzipien*), by identifying what might be called four grades of coördinative involvement.

4.1. A first grade of coördinative involvement concerns anyone's coördinating any one thought with any one actual individual by *ascribing* what one thinks *to* that individual, which one indicates deictically as being right there and then.⁶ Misdescription or mistaken attribution are compatible with successful deictic reference to an extant, intended, indicated individual (*per* Donnellan 1966, Evans 1975). This may not sound exciting, but it underscores the crucial importance of pragmatics of language; this deictic point is also central to Wittgenstein's point that no map can indicate its own scope of reference (where its own 'territory' lies). Even a diagrammatic map tucked into a corner showing the area of the main map can be used only if one can identify which area *of the planet* is that area within which the diagram marks out the specific area represented by the main map.⁷

4.2. A second grade of coördinative involvement concerns indicating where & when or there & then – *i.e.* individuating and identifying specific occasions in specific locations – by using a coördinate system of spatial and temporal relations to designate any relevant occasion(s) or location(s) of any designated, indicated individual(s). The issues involved in understanding and using such coördinate systems, however informal or commonsensical they may be, are complex. The key point here is that in principle they cannot be addressed by empiricist accounts of conceptual content (intension). Neither Hume nor Carnap (1928) can account for the intension (meaning) of our commonsense conceptions of 'time', 'times' or 'occasions', nor for our capacity to use these conceptions to identify anything as occurring before, during or after anything else (Westphal 1989: 230-232 (*n.*99); 2103). Regarding our conceptions of 'space', 'spaces' and

⁶ Outside philosophy, the referential phenomena philosophers consider under the headings of 'indexical' or 'demonstrative' expressions or gestures are known by the Attic Greek term *deixis* (Bohnenmeyer 2015).

⁷ This first level of coördinative involvement for deictic reference to particulars is central to what I call "cognitive semantics," which Parrini (2021b: *n.*9) generously endorses.

‘spatial location(s)’, Howard Stein (1967) noted that Newton recognized that Descartes’ official conception of space in terms of nothing but contiguity relations cannot possibly account for our capacity to identify even the simplest kinds of trajectory, because once any one particular departs from the vicinity of its immediately contiguous neighbors, the spatial location it had occupied *literally* no longer exists!⁸ Tracking trajectories, including our own local motions, is required (presupposed) by the first grade of coördinative involvement (§4.1). Kant is thus correct that our *concepts* of ‘space’, ‘spaces’, ‘time’ and ‘times’ must be *a priori*; they cannot be defined, acquired or learned by our sensing particulars around us. However, his transcendental idealist “explanation” of how we can have those *a priori* concepts fails (Westphal 2004: §§27-28). This is the point underlying Parrini’s frequent dismissal of *a priori* “forms of intuition” (*cf.* Parrini 2021b: 81), whilst nevertheless advocating relative *a priori* framework principles – and hence, whatever concepts or conceptions are required to frame, formulate, understand, use or assess such frameworks.

4.3. A third grade of coördinative involvement concerns specifying measurement procedures and metrics within engineering and the exact sciences. Too often it is supposed that metrics can be set merely by convention, or perhaps by convention plus technique or technical apparatus (*i.e.*, observational, measurement or experimental devices). This is too glib. To be at all useful, measurements must be regular, reliable and informative. Neither independently nor conjointly do convention, theory or device suffice to establish measurement metrics. This is because no measurement procedure (including its affiliated conventions, theory or devices) can establish whether any unknown natural phenomenon happens, unbeknownst to these *calculatores*, to interfere with their use, results or interpretation of that procedure. This is a crucial reason why measurement procedures must be understood as involving relatively *a priori* – logically contingent, hence fallible, revisable and with care also corrigible – principles, which cannot be defined or justified merely empirically.⁹

4.4. A fourth grade of coördinative involvement concerns an especially important case of the third: Reichenbach’s *Zuordnungsprinzipien* in his original

⁸ See Westphal (2021 §4). Stein is amongst Parrini’s (2010: 192, 103) sources, too.

⁹ This point was first brought to my attention by Laymon (1991: 173-177), with whom I had studied Carnap’s semantics. Yet I did not then know enough to appreciate properly Laymon’s paper. Parrini’s re-examination of these issues led me back to Laymon, and prompted my renewed appreciation of both their views (Westphal 2015b: §3.2). I’m grateful to Paolo for his important reminder, and also for his gracious endorsement of my re-presentation of his account of this important point (Parrini 2021b: n.11).

account of relativity theory. In 1920 Reichenbach rightly recognized that the specifications of simultaneity within relativity theory cannot be merely conventional; that (for reasons indicated in §4.3) the specifications of, and metrics for, ‘simultaneity’ require a physical postulate of a natural regularity, which is presupposed, but cannot be directly evidenced, by relativity theory nor its related observations and their theoretical analysis. Unfortunately, the conventionalist orthodoxy of his logical empiricist colleagues led him to rescind his correct understanding of these fundamental *Zuordnungsprinzipien* within relativity theory to rejoin their conventionalist fold. This is exactly the point central to Parrini’s (2010) distinguishing – repeatedly, pointedly and correctly – between the ‘conventionalism’ (truly a misnomer) involved in astrochronometrical measurement procedures, and whatever conventions may be stipulated at a higher level of theoretical generality (e.g., Carnap’s *L*- and *P*-rules). Both levels involve relatively *a priori* concepts and principles, though of importantly different kinds: framework principles and measurement metrics.

All four grades of coördinative involvement require *pragmatics*: actual linguistic use by actual persons (including scientists) in actual circumstances who actually perceive, investigate or measure some of their actual surroundings (including their equipment). None of this can come properly into view from Quine’s lofty logical point of view; neither can it come into view from any merely formalist modeling – as evident in re-examining Friedman’s (1983) purported foundations of space-time theories. Why call these four grades of coördinative *involvement*? Because each is an important involvement *with the world*, with actual contexts, actual phenomena, actual problems and actual co-inquirers. Mere logical possibilities need not apply; mere intensions, no matter how good, do not suffice for any real use to address any real issue, not in philosophy, nor in allied disciplines.

5. *Explanatory desiderata, Newton’s rules of method & testing coördination principles*

Newton’s methods and procedures exhibit the kind of relative *a priori* principles central to Parrini’s empirical realism, and indeed Newton’s methodological Rule 4 provides a very powerful test for scientific explanations using distance forces. In contrast, the control or testing of measurement procedures and metrics, especially those used at micro or macro (astronomical, cosmological) scales, are ill-understood by appeal to the “theoretical desiderata” or “explanatory virtues” touted by empiricists: simplicity, unity, comprehensiveness, precision, elegance, unifying power or fecundity. Empiricism with its entirely descriptive aspirations, its regularity account of causality and its covering

law account of explanation is suited only to descriptive kinematics, not to any causal dynamics which can *explain* kinematic regularities.

Despite some nomenclature in the *Principia*, Newton's mechanics does not have the quasi-axiomatic structure central to empiricist philosophy of science, according to which high-level theoretical statements (instances of Carnap's *L*- and *P*-rules) are linked to observational or experimental reports by intermediate-level correspondence rules. Instead, Newton's Books I and II develop a precise and powerful mathematical approach to *measuring* gravitational attractions (in Book III) pair-wise across our solar system and on Earth. Newton's Definitions 5-7 define *quantities*, expressly they define *measures*, of specific kinds of forces; they do not define *forces*. Newton's methods provide independent, precise, robust methods of successive approximation through elimination of initial idealizations by reiterated use of the very same explanatory resources, in order to use carefully measured, observed *kinematic* phenomena to *measure* very precisely *forces* of gravitational attraction. Empiricist methods, including Glymour's "boot strap" method, cannot suffice to achieve what Newton's methods *did* achieve: to disentangle weight from mass of orbiting bodies. These and many more important results have been achieved by work spear-headed by Howard Stein, culminating in Harper (2011; *cf.* Harper 2020).

Newton's Rule Four of experimental philosophy states:

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; 1726: 389)

Newton directly adds, "This rule should be followed so that arguments based on induction may not be nullified by hypotheses" (*ibid.*). Newton's Rule Four requires any competing scientific hypothesis to have, not merely empirical evidence in its favor, but sufficient and sufficiently *precise* evidence to make an accepted scientific hypothesis either "more exact" or to restrict it by demonstrating actual "exceptions" to it.

As scientific inquiries are extended to ever greater – or conversely, to increasingly microscopic – scales, the measurement procedures and metrics used in established sciences are tested ever more severely, providing ample opportunities to corroborate them through continuing adequate performance at ever greater extremes of precision, or to adapt or replace them to improve upon their detected, no longer sufficient precision. This in fact was achieved by Einstein's theories of relativity, *by using Newton's methodology!* Fed Einstein's new, more precise data and analysis, Newton's methodology strongly *favours* relativity theory over classical mechanics (Harper 2011: 378-385, 392, 394-396).

According to Steen Brock (2003), this same methodology pertains also to the successful development of quantum mechanics within the Helmholtzian methodological tradition.

An important feature of Newton's Rule Four is that it too is rooted in the deictic point that to be at all relevant scientifically, a competing hypothesis must *have* empirical evidence which supports it, and indeed, supports it *differentially* in contrast to an established theory. This requires that the competing hypothesis *is* referred to actual, identified (and relevant) natural phenomena; 'referrability in principle' – mere intension – does not suffice to *have* a truth-value, nor value as an approximation – nor even to be erroneous! This deictic requirement of Newton's Rule Four is directly and powerfully supported by Kant's semantics of singular cognitive reference. These scientific and methodological findings are among Parrini's (2021b: *n.10*) reasons for having so endorsed my account of Kant's semantics of singular cognitive reference. Kant's semantics of singular cognitive reference demonstrates that mere logical possibilities have *no* cognitive status whatever unless and until they are *referred* in specific ways by specific people to identified, localized relevant individuals (at which point they are no longer mere logical possibilities). This is the important point required by the first grade of coördinative involvement discussed above (§4.1), which requires the second grade as well (§4.2). The developments in physics, especially astronomy, though also high-energy physics and quantum mechanics, require the third and fourth grades.

These results – which can only be stated briefly here¹⁰ – show that, and when detailed, show *how*, robust testing of relatively *a priori* framework and also measurement principles and practices is possible, consistently with justificatory fallibilism, with various kinds of semantic holism *and* with Duhem's epistemological point about ineluctable use of a host of theoretical as well as experimental or observational resources when testing any one scientific hypothesis. This is the central point of Parrini's demonstration that rational assessment and justification can indeed thrive within an open-textured (2021b: 96, *cf. n.4*), fallibilist and far more hermeneutical approach to issues of assessment and justification within theoretical philosophy, by distinguishing and carefully integrating the host of relevant factors, rather than conflating them with one or another theoretical over-simplification. This marks a key tension between philosophical aspirations to manage everything merely formally, despite the insufficiency *in principle* of formal techniques for sub-

¹⁰ For details, please see Westphal (2014) or (2020): §§66-74 (rather than the paper Parrini (2021b: *n. 12*) cites as 'forthcoming', which remains under review).

stantive philosophy,¹¹ and aspirations to adequacy and understanding, which require hermeneutical care and self-criticism. *This* is the key “parting of the ways” within contemporary philosophy.

Parrini adroitly observes that the havoc wrought by Kuhnian paradigm shifts upon the logical empiricist account of the (tri-level) structure of scientific theories

...added extra value to the thesis – characteristic also of Carnap’s epistemology with its distinction between internal and external questions – according to which we cannot understand the structure of and changes within science without taking into consideration the presuppositions that provide the framework for scientific activity. (Parrini 2021a: 87)

Parrini rightly insists that these presuppositions are of various distinct kinds, a point obscured by Kuhn’s “paradigms,” and not much improved by his later terms, “exemplar” and “disciplinary matrix” – largely because Kuhn treated these as integrated packages of methodology + theory + findings, where changing any one of these components required systematically changing the others. In this regard, Kuhn’s holism was cut of the same entirely intensional, meta-linguistic, merely descriptive cloth as Quine’s.¹²

6. *Quine on analyticity & holism. A critical appraisal*

In his first introductory section, Parrini (2021b) explains very well his aims regarding Professor Nannini’s views. The body of Parrini’s paper (§§2-4) is a concise *tour de force* review and critical assessment of Quine’s chronic prevarications regarding holism and the distinctions between analytic/synthetic and between *a priori/a posteriori*. Quine’s pervasive prevarications all result from overly simplistic theses and options, none of which is immune to criticism or replacement. Quine’s views on these fundamental points deserve such re-examination and re-assessment because they remain pervasive and apparently persuasive, official disavowals by many more recent philosophers not

¹¹ Formal techniques can be used to specify (Carnapian) “meaning postulates” or other relatively *a priori* concepts or principles, but formal techniques alone do not suffice to *assess* those postulates or principles, nor their proper, effective *use* in connection with any *actual* problem or its actual context. (This is not to reject formal techniques; it only cautions about their proper understanding and effective use.)

¹² In these regards, Rorty’s neo-pragmatism and Putnam’s internal realism are entirely within Quine’s meta-linguistic, merely intensional ambit. The “strong programme” in sociology of knowledge joins their ranks by pointedly disregarding issues of truth, evidence or justification, because those issues are scientific, and so (admittedly) lie beyond the competence of sociologists of science.

withstanding. More noteworthy, both philosophically and historically, is that Carnap had already developed more sophisticated and cogent alternatives to Quine's views, which were neglected due to the popular success of Quine's publication campaign. Quine always sought simplicity, yet persistently disregarded Einstein's (2000: 314) precisification of Okham's razor: Everything must be made as simple as possible, but no simpler. – Accuracy, adequacy and insight are far more important. The fundamental issues involved regarding language, knowledge and science require at least the care Carnap devoted to them, yet Parrini – also in this pair of papers – augments Carnap's views cogently. One important point Parrini rightly stresses is that whatever *semantic* holism (regarding meaning or intension) may characterize language, or languages, or large domains of specific languages, such holism is distinct to the kind of much more limited *cognitive* "holism" involved in testing scientific principles, hypotheses or explanations characterized by Duhem. Duhem's thesis is specifically cognitive or epistemological, not semantic (in the sense of meaning or intension) (Parrini 2021b: §4). The fallibility of fundamental principles and procedures, due to their logical contingency, can only be linked to their credible corrigibility by careful attention to the complexity and complex interrelations of semantic, epistemic, measurement and experimental or observational methods, techniques and findings. These links are in part historical, insofar as our current best options must be known to be superior to their available alternatives, both historical and contemporaneous (*per* Rule Four); in part these links are current (contemporaneous), insofar as they structure and guide effective inquiry, analysis and findings; and in part these links are anticipatory: they are and remain justified unless and until an actual alternative succeeds in providing robust results with improved accuracy. Only in this way is fallibilism consistent with cognition, with our actually knowing – if provisionally or approximately – whatever we do about nature or, *mutatis mutandis*, within other domains of inquiry. The relevant relative *a priori* principles cannot be merely linguistic, nor merely meta-linguistic; they are substantive principles subject to empirical assessment – if only through long-term, large-scale scientific explorations and successes (Parrini 2021b: §5).¹³

Parrini raises these issues about Quine to Professor Nannini in connection with contemporary naturalism, especially Quine's naturalism. To put the point

¹³ To lump these results, Newton's methodology or Newton's use of Rule Four under the heading of theoretical 'fecundity' would be to cover everything by saying nearly nothing; it would utterly evacuate the content of Newton's philosophical and scientific achievements merely to preserve empiricist's meta-linguistic preferences. What appear to lie beyond empirical control are empiricists' chronic misconceptions and over-simplifications of empirical science. Robust history and philosophy of science (HPS) can do and has done much, much better.

as briefly as possible: None of the phenomena illuminated by Parrini's explication of various kinds of relative *a priori* principles and their humanly possible use, summarized in the preceding sections (§§2-6), can be understood merely naturalistically, and especially not by Quine's naturalism. One key reason for this shortcoming Quine himself highlighted in 1936, in "Truth by Convention," in which he demonstrated (*inter alia*) that no formally stated rules can be used to first specify any marks as signs, nor any series of marks as statements or as rules, without someone's properly *using* by thinking and acting (writing) in accord with, and on the basis of, *intensions* which structure her or his *intensions* so to think and write, so as to *state* (not merely scrawl or mark) basic symbols, formation rules or transformation rules for any formally specified logistic system, however elementary. Quine never recognized that this fundamental point refutes in advance his cherished Thesis of Extensionalism!¹⁴ Conversely, none of these syntactic, semantic and pragmatic points against naturalism provide the least aid or support to rationalism, nor to idealism and certainly not to anti-realism nor to scepticism! Parrini's view is indeed a robust empirical realism, undogmatic, subtle and supple.¹⁵

The broad yet also deep and incisive account of these substantive versions of relatively *a priori* principles and their roles in scientific knowledge Parrini developed is exemplary in yet another important regard. Issues in epistemology, semantics or philosophy of science are often regarded as technical matters for various specialists; non-specialists often make do with simplified accounts of these issues or views. Such a view is often taken of issues or views associated with logical positivism or logical empiricism. Not only Parrini's own research, but his extensive and intensive involvements with both the Pittsburgh HPS program and also the Western Ontario group (whose series includes Parrini 1998), belies such convenient caricatures. Both groups demonstrated serious, sustained interest in Parrini's research, extending over decades. Their interest corroborates the international calibre of Parrini's philosophical research.

The willingness to settle for simplifications rather than accuracy has become a prevalent philosophical vice (*cf.* Parrini 2019; Addis & Westphal 2019), one fostered by the kinds of over-simplifications characteristic of Quine's publications, some of which are diagnosed in this pair of Parrini's

¹⁴ For detailed explication and defence of this strong claim, see Westphal (2015a); I am very gratified that Paolo (2021b: n.5) concurs with the substance of my analysis, and am happy it brings me into accord with his own earlier work. (I had read his (1976), with keen interest, benefit and pleasure – he kindly gave me a copy of it and of his (1983) some years ago – but I began my (2015a) from scratch, to be as thorough and as strictly internal as possible when presenting and assessing Quine's semantics.)

¹⁵ The soundness and significance of Parrini's highlighting Carnap's pragmatics in connection with scientific realism is corroborated by Salmon's (1994) comment on Parrini (1994).

papers, which demonstrate, as a matter of public record, that significantly more adequate views have been available all along, not least from Carnap. Such is the price of promoting simplicity over adequacy. Carnap was indeed the most sophisticated logical empiricist. By so carefully re-thinking these issues, texts and debates, Paolo Parrini has philosophized with Carnap in order to improve still further by identifying key roles of relative *a priori* principles within the physical sciences.

7. *Characterizing this occasion*

Finalizing Paolo's papers for publication here, *in memoriam*, has come to me by this route. I first learned of Paolo and his interests in Kant's epistemology when I came upon his collection, *Kant and Contemporary Epistemology* (1994). I wrote him about it; he kindly replied, indicating his research interests had shifted focus. Subsequently I found his *Knowledge and Reality* (1998), and noticed that his shift in research interests had not left Kant behind, but rather he too sought to develop a credible and illuminating account of a substantive relative *a priori*, which is neither merely linguistic nor merely meta-linguistic. Our correspondence developed substantially by 2012, when Paolo kindly took interest in some of my recently published research on our shared interests. We met personally in 2015, when Cinzia Ferrini (Trieste) generously arranged a seminar presentation of a volume I edited, *Realism, Science and Pragmatism* (Routledge 2014), on which Paolo generously commented. Our exchange and our replies to questions from the seminar were kindly edited and published by Ferrini (2015) in a special issue of *Esercizi Filosofici*. Our correspondence intensified further, as we discovered our considerable convergences, not merely on topics and resources, but in substantial philosophical findings.

When Paolo posted this pair of papers on his website I happened to be on line, and immediately saw notice of his new post. I downloaded the papers promptly, read them both, and offered to polish his prose—*no* arduous undertaking, to be sure! Paolo and I share a keen interest in polished philosophical prose, which requires native competence; Paolo's philosophical views and prose deserve no less. I had already made much of the (minor, entirely stylistic) revisions when suddenly these papers became suited to this memorial commemoration. It is personally a great honor to me to provide him this one further kindness. His philosophical care and insight are matched by his unfailing modesty and engagement with substantive philosophical issues and interlocutors. Philosophically, I dearly wish we could have learnt what he sought to make of Herbart's conceptual *Bearbeitung*. Nevertheless, he and

his philosophy have enriched my own. His sudden, unexpected loss remains a great burden to all who knew him, and to me personally. Thank you, Paolo, for these and for so many more reasons, some of which I shall yet discover in your rich philosophical research!¹⁶

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¹⁶ I am grateful to the editors of *Philosophical Inquiries* for accepting my suggestion that these two papers be published here in tribute to Paolo Parrini, and for their generous invitation to provide this substantive Introduction. To Simonetta and their children I reiterate my deepest condolences; I thank Simonetta for her very kind and generous correspondence. Again I thank Cinzia Ferrini for so kindly checking my Introduction and for intermediating my correspondence with Simonetta and also with Roberta Lanfredini, whom I thank for very kindly checking this Introduction in advance. (This research and editorial work has been supported in part by the Boğaziçi Üniversitesi Research Fund; BAP; grant code: 18B02P3.)

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