

SOME REPLIES TO REMARKS & QUERIES BY
PROFESSOR PARRINI, STUDENTS
& MEMBERS OF THE AUDIENCE

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Abstract: Concise replies to remarks and queries by Paolo Parrini, and by students and members of the audience regarding the topics indicated by the following key words.

Key Words: Pragmatic *a priori*, pragmatic realism, singular cognitive reference, pragmatic maxim, Kant, Hegel, Herbart, Russell, Evans, Parrini, Pihlström, Travis.

1. *Introduction*

Thank you very much, Professor Parrini, for your stimulating, probing remarks! And my thanks to you, the audience today, for your kind queries. Before addressing the issues you have raised, please first let me say how honoured I am by Professor Parrini's very generous attention to my research, and very pleased about our many common points of interest and understanding regarding realism, science and pragmatism. I wish space allowed me to explain just how much Herbartian *Bearbeitung* of fundamental concepts and their use undergird his comments, and is presented in his own splendid research, but here I can only commend his research to your attention, as clearly belonging to the forefront of international research in history and philosophy of science. I have already learnt much from his remarks and his publications, but am by no means finished studying their riches!

It is very gratifying to see how much Professor Parrini's views and my own converge in many important regards, though with some not insignificant differences. Very understandably, he distrusts «the» notion of «transcendental», and rejects «a strong (Kantian) conception of synthetic

a priori judgements» (Parrini 2015a: §1).¹¹ Nevertheless, his relativised *a priori*, which – very significantly – is no merely linguistic *a priori*, concerns synthetic statements or principles. Hence it is Kant’s «strong» conception of synthetic *a priori* principles he rejects. Kant claims to prove «apodictically» (*KdV*: Bxxii, n.) certain synthetic truths *a priori*. Those proofs require Kant’s Transcendental Idealism. I join Professor Parrini (and Guyer 1987) in rejecting both Transcendental Idealism and with it Kant’s claims to the apodictic certainty of his transcendental proofs. No brief remarks here can show that I have nevertheless identified two sound, genuinely transcendental proofs of mental content externalism within Kant’s *Critique of Pure Reason*, though I may invite Professor Parrini and others please to reconsider the case for these I have presented previously (Westphal 2004–2007). I am glad he notes (2015a: 48) that my views, such as they are, are by design amenable to evolutionary epistemology.

I am grateful for the present occasion to respond to Professor Parrini’s comments (§2), and to questions posed by students and by the audience (§§3–5). I shall reply in a thematic order, indicating as I proceed to which question I reply.

2. Replies to Professor Parrini

Professor Parrini (2015a: §2) rightly emphasises Herbart’s concern, *contra* Kant’s Transcendental Idealism, about how it is possible to attain *determinate knowledge*, regarding particular questions and manifest in specific judgments about particular objects, events persons or phenomena.¹² The concern is not whether Kant neglected our experience or knowledge of particulars, but rather whether Kant’s account of particular cognitive judgments ultimately is consistent with his Transcendental Ide-

¹¹ References cited in these Replies are listed in the bibliography to my main contribution.

¹² Cf. Herbart (1828–29): §§150, 153, 168–9, 197, 202, 210, 225, 265, 275–6, 292–4, 299, 318, 320.

alism: briefly, whether Kant can sustain his strict dichotomy between the formal *a priori* transcendental conditions of experience and the matter of experience acquired through sensory affection.

2.1 Regarding our particular knowledge of spatio-temporal individuals, Kant rightly argued against Leibniz in defence of what I call Kant's Thesis of Singular Cognitive Reference. This Thesis ultimately shows that we have neither knowledge by description nor knowledge by acquaintance as Russell (1911) conceived them. Descriptions can be used to explicate the meaning, classificatory content or intension of concepts, principles, terms, phrases or sentences. However, descriptive content alone does not suffice for semantic reference to any specific particular, because – however detailed or specific, and regardless of any use or mention of <the> or other putative definite referring phrases (such as <the one and only>) – *no* description determines whether there is any such particular as it describes, whether there is exactly one such, or whether there are several such particulars. How many, if any, such particulars there may be is in principle *also* a contingent fact about what exists or occurs. Kant's commonsense example of this, *contra* Leibniz, is of two drops of rain, identical in size, shape and in all other characteristics, which nevertheless are numerically distinct simply insofar as they occupy distinct regions of space (*KdrV*: A262–3/B319–20) – or likewise time – and so consist of distinct portions of the same kind of matter, later discovered to be H₂O.

As Charles Travis (2006, 2008, 2013) emphasises, there are two different uses of descriptions which have too often been confused within analytical philosophy, starting with Russell. One use, just mentioned, is to spell out the conceptual content or meaning (intension) of concepts, terms or the like. The other use is to spell out what some particular person says or thinks on some particular occasion. This second use requires locating and designating that person and those particular objects, events or persons (*etc.*) s/he discusses or considers (thinks about) on that occasion. Leibniz's commitment to his metaphysical Principle of Plenitude and his account of (alleged) individual essences blunders on Russell's side; Kant's Thesis of Singular Cognitive Reference joins ranks with Fre-

ge, Austin, Sellars, Donnellan, Evans, Kaplan, Wettstein and Travis in distinguishing these two uses. One direct implication of Kant's Thesis is this: Whatever purely linguistic or semantic meaning may be, or however linguistic or semantic reference may occur or be achieved, such meaning or reference are necessary to, but are insufficient for, specifically *cognitive* reference. To know any particular requires, as Kant cogently argued, localising that particular within space and time.¹³

Against Quine, Evans (1975) argued that our command, mastery or understanding of the *predicates* of a language requires command, mastery or understanding of the features of those *particulars* which either exhibit or fail to exhibit the feature or characteristic designated by those predicates. Use of any predicate requires being able to discriminate the relevant particulars, or the relevant regions or aspects of particulars, from other contrasting particulars, their regions or their aspects. Consequently, our use of predicates involves ascription of characteristics, and ascription of characteristics requires designating the relevant spatio-temporal region occupied by any characteristic or feature of any particular. Consequently, <predication> as a grammatical form does not suffice for <predication> as the *ascription* of characteristics to anything, nor to any portion or aspect of anything.

Kant embedded this important cognitive-semantic point within his Critical epistemology; his point holds independently of Transcendental Idealism. In brief, to be even a *candidate* cognitive claim, we must refer our concepts in judgment to some particular(s) we have localised within space and time. Referring our concepts in judgment to some particular(s) is necessary for our judgment to *have* any truth value, or any value as an approximation. Referring our concepts in judgment to some particular(s) is necessary for our judgment to have any cognitive *justification*, however extensive or (in)sufficient it may be. Referring our concepts in judgment to some particular(s) is necessary for anyone to be able to *assess*

¹³ Kant's further views about how he can justify the claims made in and by his transcendental analyses and proofs cannot be discussed here; that is the «epistemic reflection» to which Parrini (2015a: 47–48) alludes (see Westphal 2004a).

whatever accuracy or cognitive justification our judgment may have. Consequently, *no* statement is even a *candidate* cognitive claim unless and until it is referred in judgment to some particular(s) Someone has localised within space and time. Consequently, philosophy of language or philosophy of mind (which of course use descriptions to spell out semantic or mental content – intension) may contribute to, or augment, epistemology, but in principle they do not *suffice* for epistemology, nor can they *supplant* epistemology, because philosophy of language and philosophy of mind do not account for how we are able to localise particulars within space and time, they do not account for cognitive justification and they do not account for how we are able to *assess* truth, accuracy or cognitive justification. Consequently, we must distinguish – and also integrate – description, *ascription*, sufficiently *accurate* ascription and sufficiently (cognitively) *justified* accurate ascription. Only sufficiently (cognitively) justified accurate ascription counts as knowledge. (These points hold independently of the scale or the plurality of the individuals putatively known.¹⁴)

Because any sufficiently (cognitively) justified accurate ascription is both a sensory and a conceptual achievement, we human beings can have knowledge neither merely by description nor merely by aconceptual <acquaintance>, *pace* Russell (1911). Because we can only obtain knowledge by correctly ascribing characteristics *to* particular individuals we have localised within space and time, we human beings are also incapable of any experience-transcendent knowledge of any particulars, whether gods, angels or abstract universals. This anti-metaphysical point holds regardless of the conceptual content used in any (putative) attributions, and it holds regardless of verificationist theories of meaning! Kant is correct, that mere analysis of concepts can only provide analytical knowledge of intension (classificatory content), but no synthetic knowledge of any extant individual(s). <Possible worlds> as conceived by contemporary philosophers can in principle be no more than expository de-

¹⁴ I stress ‘cognitive’ justification because many philosophers have highlighted other sorts of ‘justification’ in connection with beliefs or claims people make.

vices (also for the further reason that all the modality is assimilated to unanalysed and by these methods unanalysable, entirely stipulative <accessibility> relations between alleged possible worlds).¹⁵

2.2 Professor Parrini rightly calls attention to Kant's «Postulates of Empirical Thought», in which Kant treats modality merely epistemically (A218–9/B265–6; Parrini 2015a: 46). I cannot examine the point here (see Westphal 2016c), but it is significant that Hegel criticised – rightly, I have argued (Westphal 2015d: §2.5) – Kant's reduction of modality to merely epistemic modality. Kant's «Postulates» – and likewise his «Axioms of Intuition», «Anticipations of Perception» and «Analogies of Experience» – provide necessary, but not sufficient conditions for cognitive judgments about particulars. Indeed, pursuing Kant's principles of causal judgment in the «Analogies» through to their proper conclusions shows that our causal judgments are inherently discriminatory and serve to identify transeunt causal relations amongst perceptible spatio-temporal, causally interacting substances. Thoroughly carried through, Kant's justification of causal judgments in the «Analogies» corrects his «Postulates» by showing that epistemic modalities are, ultimately, parasitic upon the causal modalities of material nature, and our identification of them.

Now on Kant's view, for us to surmise, conjecture, perceive, experience or identify any physical particular(s), and especially to identify any of their causal characteristics, requires that our sensations are informative about our surroundings. Our cognitive capacities must enable us to decode and integrate (synthesise) that information so as to perceive our surroundings and – insofar as we are able to do so – to gain empirical knowledge about our surroundings via cognitive judgments. For this to be possible, both our surroundings and our sensory responses to our surroundings must be much more structured than is consistent with Kant's official division between the «formal» *a priori* transcendental conditions of human experience, and the matter or content of sensation (or likewise: sensory intuitions, appearances or experience) given us *ab extra*.

¹⁵ For these reasons, contemporary <analytic metaphysics> is in principle and in practice pre-Critical.

Herbart recognised that this is a fundamental problem for Kant's Transcendental Idealism, though he did not identify its source or character very precisely. It is significant that Hegel, too, recognised this problem, indeed by 1801 in his *Differenzschrift*. Hegel recognised that, on Kant's analysis, there must be a sufficient degree of similarities and differences amongst the *content* of the sensory manifold, or likewise amongst the *objects* we experience, such that we are able to recognise and discriminate (classify, characterise) any objects or events within whatever we experience. Hegel further recognised that these features of Kant's analysis afford a transcendental proof of mental content externalism, indeed, a proof which exposes the key fallacy of Kant's arguments for Transcendental Idealism (Westphal forthcoming).

It is no small historical irony that in this same year, Krug (1801) objected to Reinhold's, Fichte's and Schelling's views, that they too could not account for our experience or knowledge of particular objects or events in our surroundings. Hegel responded to Krug's objection in two ways. Against Krug's naïve realism Hegel defended Kant's Thesis of Singular Cognitive Reference by strictly internal critique of both aconceptual knowledge by acquaintance and knowledge merely by description (Westphal 2002–03, 2010b). Hegel also emphasised the division of intellectual labours between philosophy and empirical knowledge, whether commonsense or scientific (*Enz.* §250 Remark): the existence of Krug's pen is a matter of commonsense inquiry, not philosophical proof.

3. *Answer to question 1 (and to 3)*

The first question to me concerns how my version of pragmatic realism compares to Sami Pihlström's.

3.1 Pihlström's (1996) first book developed a robustly realist pragmatism. He then shifted his view (Pihlström 1998, 2003, 2014), weakening his realist commitments, largely in consideration of Putnam's view of the inextricable «entanglement» of facts and values, so that he emphasises, as

a limit on claims to know features of the real world as they are unto themselves, that any such claim can only be made within some conceptual scheme or linguistic framework. In this regard, Pihlström (2012) advocates a relativised synthetic *a priori*, though it appears to be merely a linguistic *a priori*, such as Caruthers' (1987) or Friedman's (2001) – with this difference between us: whereas I reject Transcendental Idealism whilst re-founding transcendental analysis and proof, Pihlström so emphasises the context-dependence of any claims about reality as to maintain a naturalised transcendental idealism (*sic*), much in line with Goodman's (1978) views about how ways of using language are tantamount to ways of making worlds.

Pihlström's earlier view appears to be more robustly realist insofar as it is at least compatible with, I think it is favourable towards, considerations such as those advanced by C.I. Lewis (1929, chapt. 6, esp.: 172–80): relativity requires *relata* which have their own characteristics; else they cannot so much as *be relata*. (Utterly characterless individuals can have no relations whatever to anything, nor to anyone, else.) This holds, too, Lewis emphasises, for human experience or human knowledge of the world: Only because the world we inhabit has its contents, characteristics and structures can we inhabit, experience, know and act within or upon *it* at all. This point is significant, yet it is consistent with a merely linguistic version of the relative *a priori*, insofar as it is consistent with the point Quine and Rorty never tired of stressing, that we could alter our linguistic classifications or designations *ad libitum*, and get our most cherished sentences to come out true, or preserve the truth of any particular sentence we wish.

3.2 There is a further significant point here, remarked by Lewis (1923; 1929, chapt. 8), developed more carefully by Professor Parrini (2009), though heretofore neglected by Quine and by Pihlström (1996, 2012), regarding the character and status of measurement procedures in Einstein's General Theory of Relativity. With antecedents in Mach's (1908: 303–33/1919: 256–72) treatment of mass determinations,¹⁶ Einstein

¹⁶ The passages cited from Mach remain unrevised in later editions.

stressed that certain measurement procedures must be established regarding what is to count as simultaneity, or likewise as equal periods of time or as equal lengths or distances. These procedures themselves can be established neither by experiment alone nor by theory alone, because, on the one hand, they are required to conduct any relevant experiments, to make any relevant measurements and to construct and assess any relevant theory, whilst on the other hand, establishing them presupposes but cannot demonstrate that no other phenomena interfere with their establishment or use. Mach misrepresented this latter point (see Laymon 1991: 173–7). That much is consistent with a merely linguistic relativised *a priori*. However, these measurement procedures *cannot* be set arbitrarily! These measurement procedures can be set by theory together with procedure *only* if nature cooperates through sufficient, relevant stability. Establishing measurement procedures is tightly constrained by physical phenomena and by any attempts to investigate, measure or explain those phenomena. That is why the relative *a priori*, synthetic and yet revisable though it be, *cannot* be merely linguistic. This point about measurement procedures requires a robustly realist pragmatic *a priori*, albeit a «relative» rather than an «absolute» *a priori* (as Kant sought to provide with his Transcendental Idealism). Neo-pragmatists – including in this significant regard not only Quine, Kuhn, Putnam and Rorty, but also Sami Pihlström and, I believe, Robert Brandom – are committed by their reliance upon Carnapian meta-linguistic frameworks to a merely linguistic account of any relative *a priori*. The relativised *a priori* cannot be merely linguistic, because our relatively *a priori* principles must be such that they can be used to make sound and proper sense of natural phenomena within the exact sciences, including basic measurement procedures. This point about the relativised *a priori* comports perfectly with Carnap's (1950b: 1–18) explication of conceptual explication and its inherent semantic externalism. Conversely, this point about the relativised *a priori* belies Carnap's (1950a) framework-internal realism, and the neo-pragmatist priority of meta-languages over object-level languages and over the natural phenomena scientists explore and explain.

Though he did not make this point specifically in connection with

measurement procedures, James understood the general, relevant point about our formulation of quantified natural laws very well:

[...] in the choice of these man-made formulas [*viz.*, quantitative laws of nature] we can not be capricious with impunity any more than we can be capricious on the commonsense practical level. We must find a theory that will work; and that means something extremely difficult; for our theory must mediate between all previous truths and certain new experiences. It must derange common sense and previous belief as little as possible, and it must lead to some sensible terminus or other that can be verified exactly. To <work> means both these things; and the squeeze is so tight that there is little loose play for any hypothesis. Our theories are wedged and controlled as nothing else is. (James 1907: 216–7)

As not only a theoretical but also a practicing metrologist, consulting chemical engineer and Head of the US Office of Weights and Measures (Oct. 1884–Feb. 1885), Peirce understood very well the importance and the difficulties involved in detecting and eliminating sources of systematic error from precise measurement procedures; he was the first to devise a procedure to use the wave-length of light as a standard unit of measure, and to use it to determine the standard length of the metre.¹⁷ Why would Peirce believe in the existence of real generals? *Inter alia* because he *measured* some of them with unprecedented precision by constructing his innovative procedures and apparatus! Similar kinds of measurement considerations led Newton to affirm the universal gravitational force of attraction (Harper 2011; Westphal 2014a).

Regarding the non-linguistic character of the relative synthetic *a priori*, Professor Parrini (2009) is well ahead of my own researches, and has already gone in the direction for which my own, more epistemological researches are propaedeutic; only now am I returning to issues in history and philosophy of science with which I began, to which Professor Parrini has devoted his remarkable career.

¹⁷ Many of the relevant primary sources are contained in volume 4 of the *Writings of Charles S. Peirce: A Chronological Edition* (Peirce 1982–); his contributions to metrology are summarised in Nathan Houser’s Introduction to this volume.

3.3 Brandom's neo-pragmatism – the topic of Question 3 – requires separate discussion, but the inconsistency of his strongly inferentialist account of meaning (Brandom 1994) with realism was pointed out by Rosenkranz (2004). Although Brandom (2008) significantly revised his semantics, I do not believe he corrected the original problem; see Dohrn (2009), Redding (2015), cf. Schaefer (2011). I add some further observations on these points in Westphal (2015d), esp. §3.4, and detail my critique in Westphal (2016c). Brandom (2015) claims his Modal Expressivist meta-language is not Carnapian; it is, however, not so distinctive as Brandom maintains, in large part because Brandom neglects Sellars' use of Carnapian explication and its semantic externalism. Surprisingly, Brandom's (2015: 186, cf. 213) presentation of Carnap's semantics is truncated and inaccurate, with the result that he neglects how Sellars recognised and developed the semantic externalism implied by Carnap's account of conceptual explication (*per* Westphal 2015a: §3). (On Carnap, Quine and Sellars in these regards, please see Westphal 2015e.)

4. *Answer to question 2*

The second question to me queries the significance of Hegel's philosophy for the pragmatic realism I advocate. This has been the topic of three of my books; a fourth is now complete and a fifth (and final) is nearly finished. Let me suggest some of what my epistemological researches provide for pragmatic realism. The interrelations of practice, classification, measurement, experiment and theoretical explanation mentioned above (§3) were succinctly stated by Lewis in these terms:

The determination of reality, the classification of phenomena, and the discovery of law, all grow up together. I will not repeat what has already been said so often about the logical priority of criteria; but it should be observed that this is entirely compatible with the shift of categories and classifications with the widening of human experience. If the criteria of the real are a priori, that is not to say that no conceivable character or experience would lead to alteration of them. (Lewis 1929 [1956: 263])

This interdependence of classification, investigation, revision and renewed investigation is central to Newton's method of successive approximations and his ideals of explanatory adequacy (Harper 2011); the use of successive approximations to regulate the development of both measurement and exact phenomenological description are also evident throughout Galileo's and Kepler's terrestrial and celestial kinematics. This interdependence and mutual regulation appears to many philosophers – rather too easily and rather too often – to be either entirely arbitrary, merely conventional, or else viciously circular. However, as Peirce (1902, chapt. 3: §11), Alston (1989: 319–49) and long before them both: Hegel recognised, not all forms of epistemic circularity are vicious.¹⁸

The important links between Hegel's philosophy and Kant's are *not* metaphysical (*via* Transcendental Idealism), but methodological and epistemological (Westphal 2009; forthcoming). Public discussion and mutual assessment are central to Kant's Critical methodology and to Kant's fallibilist account of rational justification in all non-formal domains (O'Neill 1992; Westphal 2016a: chapt. 6). Hegel developed Kant's suggestions in these regards in a way which solves the Pyrrhonian Dilemma of the Criterion, centrally by explaining how both constructive self-criticism and constructive mutual critical assessment are humanly possible, and why they are constitutive of maximally rational individual

¹⁸ Peirce states: «In studying logic, you hope to correct your present ideas of what reasoning is good, what bad. This, of course, must be done by reasoning; and you cannot imagine that it is to be done by your accepting reasonings of mine which do not seem to you to be rational. It must, therefore, be done by means of the bad system of logic which you at present use. Some writers fancy that they see some absurdity in this. They say, "Logic is to determine what is good reasoning. Until this is determined reasoning must not be ventured upon. (They say it would be a "*petitio principii*" [...]) Therefore, the principles of logic must be determined without reasoning, by simple instinctive feeling." All this is fallacious. [...] Let us rather state the case thus. At present, you are in possession of a *logica utens* which seems to be unsatisfactory. The question is whether, using that somewhat unsatisfactory *logica utens*, you can make out wherein it must be modified, and can attain to a better system. This is a truer way of stating the question; and so stated, it appears to present no such insuperable difficulty as is pretended» (Peirce 1902, *CP* 2:191). My attention to this passage and its significance I owe to F. L. Will (1981 [1997: 89 note]); for discussion of Alston's views on this topic, see Westphal (1989: 74–84).

judgment and justification (Westphal 2013). Hegel's solutions to these problems develop and exploit fundamental externalist aspects of mental content, semantic content and cognitive justification. Hegel recognised the decisive significance of Kant's Thesis of Singular Cognitive Reference, and developed its considerable anti-sceptical *and* anti-rationalist implications: experience-transcendent metaphysics is impossible, not because it is conceptually vacuous or linguistically meaningless, but because in principle it is pseudo-cognitive (Westphal 2014a). These findings contribute centrally to Hegel's demonstration that a sober social and historical account of rational justification (in non-formal domains) is consistent with and strongly supports realism about the objects of empirical knowledge (both commonsense and scientific), and strict objectivity about core moral principles – altogether independent of perennial debates about moral realism, moral values or moral motivation. In all of these regards, Hegel's transformation and development of Kant's Critical methodology and epistemology – *sans* Transcendental Idealism – undergird and augment Frederick Will's (1974, 1988, 1997) pragmatic realism, and Will's analysis of the latent aspects of norms and their roles in our rational governance of our moral and our cognitive practices.

5. Answer to question 7

Your final question to us both – a very good one – is: What difference does the pragmatic maxim make to philosophy? The pragmatic maxim has enormous, fundamental implications for philosophy, which again underscore the contrast between the genuine original and contemporary neo-pragmatism – and further underscore the significance of Hegel's pragmatic realism.

5.1 It is striking that the pragmatic realist implications I have been explicating from Carnap's (1950b: 1–18) explication of conceptual explication are much more prominent in Herbart's method, to which Professor Parrini has so kindly and rightly drawn my attention: the *Bearbeitung* of basic concepts and principles within their contexts of use within the vari-

ous relevant disciplines and practices!

Doubtless Herbart would have been surprised to learn that Hegel's philosophy – all of it – is fundamentally dedicated to Herbartian conceptual *Bearbeitung*, though only one brief example may be mentioned here: Both Herbart (1829: §299) and Hegel (*WdL*, *GW* 11:398,15–24, 399,30–35) agree that causes and their effects occur concurrently. Herbart states:

No cause without effect! Thus also none *before* the effect. Both are absolutely concurrent. This requirement is conceptual; and this is corroborated by ontological examination, which roots all true causality in self-preservation. (Herbart 1829: §299; tr. *KRW*)¹⁹

This brief remark typifies both Herbart's keen eye for key issues, as well as his less than incisive explication of key concepts. «Self-preservation» (*Selbsterhaltung*) is suitable for biological organisms, but the relevant concept for causality generally is Kant's term *Beharrlichkeit*: persistence (1st Analogy; B224). On this point, Hegel greatly furthered the *Bearbeitung* of the concepts of «substance», «cause», «effect» and «material particular» to defend and justify Newton's causal realism about gravitational force, and realism about distance forces more generally (Westphal 2015f).

5.2 It may seem puzzling that Herbart so often and so avidly examines psychological issues in a work on general metaphysics and fundamentals of natural philosophy, but he brings his concern about the hazards of traditional metaphysics and epistemology nicely to this point:

Against all possible misinterpretation the best remedy is the proper use of a doctrine. To the disputatious beginner, differential calculus offers material for ever renewed objections, until he learns through its application that by exhibiting his presumptive keen wits he merely betrayed his

¹⁹ «Keine Ursache ohne Wirkung! Also auch keine *vor* der Wirkung. Beyde sind absolut gleichzeitig. Diese Forderung liegt in den Begriffen; und durch die ontologische Untersuchung, welche alle wahre Causalität auf Selbsterhaltung zurückführt, wird sie bestätigt» (Herbart 1829, §299).

own inflexibility in thinking. (Herbart 1828–29: §266; tr. *KRW*, cf. §329, *idem*. 1831: §§159–65).²⁰

Note Herbart's stress upon «use». Herbart's recourse to psychology aims to examine and assess our humanly possible uses, misuses and abuses of traditional philosophical terms and concepts, in metaphysics, in epistemology and in psychology itself. Though we may not find Herbart's psychology convincing, in part because we now have better techniques for examining the use and abuse of philosophical categories and concepts, Herbart deserves credit for investigating vigorously issues about conceptual use and misuse which had become both chronic and confused in Nineteenth Century philosophy – and not only then! He may also be forgiven for not recognising how, nor indeed *that*, Hegel shared this same concern and aim, though Hegel pursued it with greater acuity, if also lesser expository transparency. Not until recently was it recognised – by Wolff (1986) – that Hegel's *Science of Logic* contains a detailed critical assessment of Cauchy's landmark «first reform» of mathematical analysis (<calculus>).

In this context Hegel highlights the discovery and analysis of discontinuous functions within both mathematics and physical science. Hegel realised that discontinuous functions and their occurrence in natural phenomena are one more important case *contra* Kant's Transcendental Idealism and its glib constructivism: discontinuous functions belie – both in theory and in fact – Kant's contention in the «Anticipations of Perception» (*KdrV*: A166–76/B207–18), that because sensory qualities have intensive magnitudes, and because they *can* possibly be matched by a gradually increasing degree, or conversely, they *can* possibly diminish gradually to nothing, that they *have* (or exhibit) continuous functions. That is a *non-sequitur*, and a striking example of how empirical scientific knowledge can demonstrate required revisions even in transcendental

²⁰ «Gegen alle mögliche Mischeutung hilft am besten der richtige Gebrauch einer Lehre. So ist die Differentialrechnung für einen Anfänger, der gern disputirt, ein Stoff zu stets erneuerten Einwürfen, bis er aus der Anwendung lernt, dass er durch die vermeinten Proben seines Scharfsinns nur seine Ungelenkigkeit im Denken verrieth» (Herbart 1828–29: §266).

philosophy.

5.3 Such examples are central to Hegel's development of Kant's Critical methodology into the first and still one of the most adequate versions of pragmatic realism. The picture of Hegel as a mad rationalist seeking to deduce everything unilaterally from nothing whatsoever is a contrivance of the lecture halls – too many of which were initially populated by Hegel's foes and would-be critics. Instead, Hegel's *Science of Logic* and his *Philosophical Encyclopaedia* – including centrally his «Philosophy of Nature» – reclaim and revamp Aristotle's *meta ta physica* on the basis of Kant's Critical methodology and epistemology, together with comprehensive, detailed examination of the natural and social sciences (political economy) of his day (Ferrini 1995, 2009; Moretto 2004; Renault 2001; Waszek 1988; Westphal 2015c, 2015d, forthcoming; Wolff 1986).

5.4 Peirce is often said to have defined «truth» as the ultimate agreement reached by scientific inquiry (in his review of Fraser's edition of Berkeley's works; *Writings* 2: 462–487, esp. 2: 468). Peirce's statement is no *definition* of truth; it is an idealisation of what may ultimately be found to be true, insofar as more discerning and capable minds succeed at identifying and making generally known the various characteristics of nature. This is, in Kant's sense, a *focus imaginarius* (*KdrV*: B672); surely no more than that. However, we have come to appreciate that «the sciences» are heterogenous, and their findings do not add up into some one single, total description of nature and its history: not least, because many sciences examine and explain only aspects of recurrent natural phenomena, whilst disregarding the complexes and the complex events they collectively happen to generate in the course of time and natural history (see esp. Wimsatt 2007; Chalmers 2009). Fortunately, actual knowledge of nature does not require omniscience; we limited human beings can attain actual knowledge of many important and pervasive aspects of nature. Fitting together these aspects of nature, and these aspects of our knowledge of nature, requires further developing our multi-disciplinary capacities and abilities – which of course requires developing our *disciplinary* expertise. So doing would be realistically pragmatic, and pragmatically wise: not least because so doing would enable us to appreciate how the

pragmatic maxim underscores the fact that the pragmatic, relative *a priori* cannot be merely linguistic.²¹ Professor Parrini deserves credit and our gratitude for highlighting this elementary, enormously significant fact. If Professor Parrini's empirical realism is somewhat more cautious than my robust pragmatic realism, by so stressing why the relative *a priori* cannot be merely linguistic (nor meta-linguistic), his empirical realism is more robust than Pihlström's naturalised transcendental idealism *cum* pragmatic realism (whose views I mention again since they were queried by the audience).

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