

## **DIALOGUE ON DIALECTICS (WITH REFERENCE TO MATHEMATICS)**

Sean Sayers, Paul Ernest and others including Andy Blunden, Alexander Moore, Roberto Baldino, Brendan Larvor, Donald Gillies and Tânia C. B. Cabral

Dedicated to the memory of  
Roberto Baldino, Julian Williams  
and Peter Sayers<sup>1</sup>

### **Paul Ernest INTRODUCTION**

The impetus for this dialogue came from reading the book by Sean Sayers *The Making of a Marxist Philosopher, A Memoir*, Routledge, New York and London, 2024. 210 pp., pb ISBN [9781032827452](https://www.routledge.com/9781032827452)

This raised some interesting queries for me which I directed to the author Sean (Professor Sayers).<sup>2</sup> He very kindly responded in an email dialogue. He answered my queries and more recently agreed for me to collect them up here in an informal dialogue.

Some of the passages in Sayers (2024) which intrigued me were the following.

Richard Norman and I decided to write further contributions ourselves and put these together in a joint book, in which each of us presented our opposing ideas in dialogue. The result was *Hegel, Marx and Dialectic: A Debate*.<sup>3</sup> It was

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<sup>1</sup> Roberto Baldino contributed to this dialogue but died before it was complete; Julian Williams was invited but too ill to join before passing away, and Peter Sayers (1945-2024) was a dear friend who edited several of my papers, and is the glue that binds Sean Sayers and myself together.

<sup>2</sup> I should mention that I have known Sean, though not very well, for most of my life. He was the elder brother of my lifelong friend Peter Sayers. See <https://www.theguardian.com/artanddesign/article/2024/aug/11/peter-sayers-obituary>

<sup>3</sup> Richard Norman and Sean Sayers, *Hegel, Marx and Dialectic: A Debate*. Brighton: Harvester Press, 1980.

published in 1980 in a series of books edited by Roy Edgley, who encouraged and helped us throughout. The book inevitably accentuated the differences between Richard and me. Richard defended the view that only thoughts, and not things, can contain contradictions, and hence that dialectic exists only among concepts – contrary to Engels' view that there is no 'dialectic of nature'. This is a version of the view that was, and still is, very widespread among analytically minded philosophers – that conceptual and empirical issues are entirely distinct and separate. I explained and defended the Hegelian view that all concrete things are dialectical, that all concrete entities – things as well as thoughts – contain conflicts and contradictions. This is the fundamental principle of Hegel's philosophy as I understand it. It is inherited by Marx and Engels and continues to be part of the main tradition of Marxism. (Sayers 2024: p. 136)

A great mystery is often made of dialectical philosophy, particularly by people who pretend to understand it but don't. Its fundamental ideas are that all things are connected and must be seen in the context of their relations, and that all things are in a process of change and development which is the outcome of conflict and contradiction – things must be understood historically. (Sayers 2024: p.137)

A fundamental and related theme in the book is that all our ideas and beliefs are formed socially and change historically. These are evident truths, but they have large and problematic implications for traditional theories of knowledge. They imply that we must abandon the attempt to find fixed and indubitable foundations for knowledge, which has dominated philosophy since the time of Descartes in the seventeenth century and throughout the modern period. A social and historical account of knowledge is often thought to lead inevitably to relativism and scepticism, and it is frequently rejected for that reason. In *Reality and Reason*<sup>4</sup>, I argue that although our claims to knowledge cannot be justified absolutely, they can be justified in a historical and relative way – relative to those that they supersede. (Sayers 2024: pp 139-140)

There are issues that are left unexplored by the realist philosophy I set out in *Reality and Reason*. What are the limits to the idea that all our ideas reflect reality? How can this sort of realism be applied in areas that do not always appear to be portraying objective reality, such as abstract art, music and mathematics? I am convinced that these questions can be answered within the framework I develop in the book, and I gesture towards some of these

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<sup>4</sup> Sean Sayers, *Reality and Reason -Dialectic and the Theory of Knowledge*. Oxford and New York: Basil Blackwell, 1985.

answers in it; but even at the time I knew that I needed to say more about such issues. (Sayers 2024: p. 140)

**Paul Ernest 7 December 2024**

Dear Sean

I'm 75% way through your memoir and enjoying it very much. Very interesting philosophical development and reflections on the university. I think you underestimate the later Wittgenstein, his ideas of language games and forms of life forms the basis for a social philosophy although he is an (unquestioned) anti-historicist.

I'm interested to learn how there can be contradictions in objects (although I'm aware of things like the wave/particle duality)

I'd love to chat more about it when I have finished reading

All the best

Paul

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**Sean Sayers 8 December 2024**

Hi Paul,

I am very glad that you are enjoying my Memoir, thanks for telling me and thanks for your comments.

I agree that Wittgenstein sees language and thought as a social phenomena, and that was enormously important in the context of the individualist and psychological accounts that dominated British philosophy from Locke on, but it is Wittgenstein's whole way of doing philosophy, his refusal to formulate a theory, that I find so difficult to

accept – I see philosophy as the most general theoretical understanding of reality in all its aspects.

I see contradiction as opposition within unity and, in this sense, I believe all concrete things are contradictory. Things are not 'loose and separate' and only externally related as Hume believed, they are essentially connected and related. This is large metaphysical theory deriving from Hegel, it is not just about recent scientific theories. Rather than trying to explain it in a couple of sentences let me refer you to a couple of things I have written:

*Hegel, Marx and Dialectic: A Debate*, ch4 pp. 94ff.

<http://seansayers.com/wp-content/uploads/2018/07/HMD-all.pdf>

'Engels and the Dialectic of Nature.' In Carver, T., Rasic, S. (eds) *Friedrich Engels for the 21st Century*. Palgrave Macmillan, Cham, 2022, pp. 33-51. (attached)

By all means let's talk about all this. My phone number is in the signature line below.

All the best,

Sean

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**Paul Ernest 17 December 2024**

Dear Sean

I've been looking at your work, and I find much to agree with, it's an eye opener

You have some fundamentally important things to say

I was reading *Reality and Reason* but unfortunately

Pp.206/7 are scrambled. Do you have an ecopy - or at least a copy of the missing pages?

I am reaching similar conclusions as you (less general, less well founded, less well argued) about radical materialism - if I may term it that

Mathematics, like all human thought and knowledge, is a social construction born out of actions and needs, but far removed from them, as you say

I still struggle with contradiction in the world. Isn't contradiction (speaking-against) a linguistic/discursive phenomenon? Everything material (i.e., everything) changes - there are no essences, no invariants, I agree.  $A=A$  only in the fictitious instant, or in man made systems where we impose it. But  $A$  and not- $A$  do not occur simultaneously, surely? Or if they do, they represent two different ways of seeing the same thing. Maybe it's a matter of decision whether you use contradiction linguistically or materially

All the best

Paul

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**Sean Sayers 17 December 2024**

Hi Paul,

I am very glad you are finding my work interesting, thanks for telling me.

Here is an unscrambled version of my book, it is the best thing I have written in my view.

I take contradiction to be opposition within unity. I don't think it is a merely linguistic matter.  $A=A$  is true of all things – all things are self-identical. But that is not the end of the matter. All things are also changing, becoming something different, not- $A$ . This becoming is part of

their being too. To describe the fact that a thing is not only what it is, but becoming something different, we must recognise that it is both A and not-A, i.e. contradictory. Otherwise it is unchanging. I explain this at greater length in the attached article, esp. pp. 229ff. I hope this helps to explain my view more fully,

All the best,

Sean

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### **Sean Sayers (from Sayers 2022 - The Rational Kernel of Hegel's Dialectic)**

Marx agrees with Feuerbach. The real starting point of Hegel's philosophy is what he portrays as a result of its development—Determinate Being. With Hegel, "The correct method is stood on its head. . . . What ought to be the starting point becomes a mystical outcome, and what ought to be the rational outcome becomes a mystical starting point" (Marx 1975a, 40).

This gives a vital clue about how to salvage the rational content of Hegel's philosophy. To discover its valid content, we must invert it. We must start with Determinate Being and read these initial sections of Hegel's Logic backwards—not as an argument which starts with the concept of abstract Being and then seeks to derive Determinate Being from it, but the reverse. We must begin with Determinate Being, and interpret these sections as an analysis of the concept of Determinate Being—as an exposition, a spelling out of the fundamental principles involved in the concept of Determinate Being. It then becomes clear that these sections of Hegel's Logic present some of the most important and fundamental ideas of dialectic in general form.

#### **Finitude**

According to Hegel, Determinate Being is a concrete and contradictory unity of Being and Nothing, of positive and negative aspects. This manifests itself in two ways. "Something [Etwas] is by its quality, firstly finite, secondly alterable; so that finitude and variability appertain to its being" (Hegel 1975, §92; italics in the original).

First, then, a determinate and concrete thing, unlike abstract Being, is finite. It is limited, it is always situated in relation to other things within a larger totality. In order to see a determinate thing concretely, therefore, it must be viewed in the context of its relations to other things.

Unlike pure abstract Being, Determinate Being, because it is limited, is not merely positive, it always also negates something else, it is a unity of positive and negative aspects.

On the one side limit makes the reality of a thing; on the other it is its negation. But . . . the limit, as the negation of something, is not an abstract nothing but a nothing which is—what we call an “other.” (Hegel 1975, §92 addition)

The limits of a thing, and thus its relations to other things, are constitutive of its nature. Hence its limits are not external to the thing or merely contingent, they are internal and essential. “The limit is present in the something itself” (Hegel 1969, 127). Its limit determines its identity.

A thing is what it is, only in and by reason of its limit. We cannot therefore regard the limit as only external to being which is then and there [Etwas]. It rather goes through and through the whole of such existence. (Hegel 1975, §92 addition)

If the relations of a thing are altered, the thing itself is changed. And so, “When we are cognizant of how an object is related [to everything else], then we are cognizant of its very nature” (Hegel 2006, 362). In other words, the relations of a thing are constitutive of its being.

This is Hegel’s account of the finite nature of concrete and determinate things, it is one of the main conclusions of the initial sections of his Logic. Hegel claims to derive these views from the concept of bare abstract Being. That claim is fallacious. These conclusions are not proved by Hegel, they are not derived by valid logical arguments from the concept of abstract Being. But they are enormously important and significant nevertheless. They comprise some of the basic tenets of the philosophy of dialectic.

They are controversial ideas that are widely disputed, particularly within the empiricist tradition. As William James says, “ordinary empiricism . . . has always shown a tendency to do away with the connections of things” (James 1912, 42–43). Locke puts the point succinctly. “Relation,” he writes, is “not contained in the real existence of things, but [is] something extraneous and superinduced” (Locke 1924, II.25.8). Things have their nature purely in themselves on this view, quite independently of their relations to other things.

The effect of such views is to see things, as Hume (1894, para. 58) puts it, as “loose and separate . . . conjoined but never connected.” Particular things are thus abstracted from their relations. The world is fragmented into a collection of disconnected atoms, related to each other only accidentally and externally. This is the way that analytic thinking also proceeds (Sayers 1990). It isolates and separates things, it abstracts them from the context of their relations and considers them apart.

Analysis—distinguishing and separating things in this way—plays a vital role in knowing and understanding things. Dialectic does not deny this. It does not deny the reality of distinctions and the need for making them in thought. However, it insists that concrete and determinate things are also always and necessarily related and connected to other things within a larger whole.

Hegel gives the example of a living organism.

The limbs and organs . . . of an organic body are not merely parts of it: it is only in their unity that they are what they are, and they are unquestionably affected by that unity, as they also in turn affect it. These limbs and organs become mere parts, only when they pass under the hands of an anatomist, whose occupation be it remembered, is not with the living body but with the corpse. Not that such analysis is illegitimate: we only mean that the external and mechanical relation of whole and parts is not sufficient for us, if we want to study organic life in its truth. (Hegel 1975, §135 addition)

This applies to all concrete things, not only to organisms. Analysing a concrete totality and distinguishing its parts is essential for understanding things. In doing so, however, one must be aware that one is severing its parts from their relations and, in the process, turning what is concrete into something abstract. The implications of this are that in order to understand the nature of concrete and determinate things it is vital to see them in the context of their relations with other things and within a wider whole.

### **Alterability**

Moreover, finitude is bound up with the contradictions within things, and hence with their alterability.

The nature of the finite . . . as something, does not meet the nature of the other as if it had no affinity to it, but, being implicitly the other of itself . . . undergoes alteration. Alteration thus exhibits the inherent contradiction which

originally attaches to determinate being, and which forces it out of its own bounds. (Hegel 1975, §92 addition)

This takes us to the second main characteristic of determinate being described by Hegel. All determinate beings, he maintains—that is, all real and concrete entities—are alterable. They are in the process of becoming, of change. They have come into being at a certain point, they are in the process of changing, and they will eventually cease to be.

This implies that to understand things concretely we must see them as developing, we must see them as changing. This is not to deny that things can also be fixed and stationary. But such states are relative and temporary. Nothing concrete remains the same forever. Change and motion are inherent in all things.

According to Marxism, this holds even for logical and necessary truths, such as those of mathematics and logic. These too are subject to change. For ultimately they are the concrete thoughts of concrete people, not mere disembodied and abstract ideas. Marxism as a form of materialism rejects the view that they are eternal truths, to which the statements of logicians and mathematicians merely give expression in temporal form. It rejects the concept of an ideal realm separate from the concrete and material world (Sayers 1985, 198–201).

In short,

Everything that surrounds us may be viewed as an instance of Dialectic. We are aware that everything finite, instead of being stable and ultimate, is rather changeable and transient; and this is exactly what we mean by that Dialectic of the finite, by which the finite, as implicitly other than what it is, is forced beyond its own immediate or natural being to turn suddenly into its opposite. (Hegel 1975, §81 addition)

According to the analysis in the initial sections of Hegel's *Logic*, change and becoming—like finitude—are grounded in contradictions and conflicts. These are inherent in all determinate things. “The unreflecting observer supposes that determinate things are merely positive, and pins them down under the form of being. Mere being however is not the end of the matter: it is . . . utter emptiness and instability besides” (Hegel 1975, §91 addition).

Determinate things are not merely positive. Mere positive being is an empty abstraction. All concrete and determinate things combine positive and negative aspects. “Nowhere in heaven or on earth is there anything which does not contain within itself both being and nothing” (Hegel 1969, 85).

According to dialectic, in other words, alterability is part of the nature of all concrete and determinate things, it is not something contingent that comes to them from outside; and this is because all determinate things contain negative as well as positive aspects within them. “There is absolutely nothing whatever in which we cannot and must not point to contradictions or opposite attributes” (Hegel 1975, §89).

The connection between alterability and contradiction may not be immediately evident. Change is often conceived of as the condition of being in one position or state at one moment and in another at a different moment. Change then appears to be a purely positive condition, with nothing negative contained in it. However, change must involve more than this. What is merely positive has no movement implied in it. It merely is. To see a thing as in motion, it must be seen not only as being in a particular position or state at a particular time, but also as in motion in that position or state—as coming to be and ceasing to be in it. Coming to be is the unity of nothing and being, it necessarily comprises both—it is the transition from nothing into being; and ceasing to be is the transition from being into nothing. Change—coming to be and ceasing to be—cannot be understood in terms of mere positive being alone, it unites both being and nothing.

These arguments were not invented by Hegel, they go right back to the ancient Greeks. They are at the basis of Zeno’s paradoxes of motion. These are often disregarded because they appear to lead to the conclusion that motion is contradictory and hence impossible. According to Hegel, the correct conclusion to draw from them is rather that motion and change do, indeed, involve contradictions in things.

Bertrand Russell responds to these arguments at length in his 1914 lectures on *Our Knowledge of the External World* by appealing to the mathematical concept of continuity.

The moving body never jumps from one position to another, but always passes by a gradual transition through an infinite number of intermediaries. At a given instant, it is where it is . . . but we cannot say that it is at rest at the instant, since the instant does not last for a finite time, and there is not a beginning and end of the instant with an interval between them. Rest consists in being in the same position at all the instants throughout a certain finite period, however short; it does not consist simply in a body’s being where it is at a given instant. (Russell 1926, 142)

This may all be true, but the fact remains that merely saying that a moving body is where it is does not capture the fact that it is in motion at that point; and to

comprehend this we must see it as both coming to be where it is and ceasing to be there.

Concrete and determinate things are finite and in a process of change, and this is the result of the contradictions, the unity of positive and negative aspects, the unity of Being and Nothing, that is inherent in them. These are implications of the triad of categories— Being, Nothing, Becoming—with which Hegel's Logic begins.

To say that all concrete things are in process of change may seem trivial and obvious, but the dialectical account of the matter is far from that. It is very controversial and much disputed. For it is widely thought that things are merely positive in nature and that negation and hence movement and change are accidental and contingent occurrences—that rest and constancy are the normal and basic states, and change can come to things only when they are affected from outside.

Again, this view is a familiar part of classical empiricism. Locke asserts that a material body is “inactive” and has “not the power to produce motion in itself” (Locke 1924, IV.x.10, II.xxi.4).<sup>10</sup> This is the mechanistic way of seeing things. It is the assumption that is embodied in Newton's first law of motion (“an object either remains at rest or continues to move at a constant velocity, unless acted upon by a force”).

Mechanistic thinking has played a very important role in understanding and explaining certain aspects of the way the world works. However, it is an abstraction, even if a useful one. All material things do indeed have mechanical properties (mass, spatial and temporal location, velocity, etc.), but nothing is solely mechanical. All material things have other properties as well—physical, chemical and others.

In Nature it is only the veriest abstract relations of matter in its inert masses which obey the law of mechanism. On the contrary the phenomena and operations of the province to which the term “physical” in its narrower sense is applied, such as the phenomena of light, heat, magnetism, and electricity, cannot be explained by any mere mechanical processes, such as pressure, impact, displacement of parts, and the like. (Hegel 1975, §195 addition)

The mechanistic view abstracts from these and ignores them. It portrays things as purely mechanical. In doing so, it portrays them as purely positive and “inactive.”

Dialectic questions this way of seeing things—concrete entities are not like this.

To materialized conception existence stands in the character of something solely positive, and quietly abiding within its own limits: though we also know, it

is true, that everything finite . . . is subject to change. Such changeableness in existence is to the superficial eye a mere possibility, the realisation of which is not a consequence of its own nature. But the fact is, mutability lies in the notion of existence, and change is only the manifestation of what it implicitly is. (Hegel 1975, §92 addition)

This is not to suggest that there is a “life force” in things, or anything like that. However, even the most enduring objects change, and this is not only because there are forces acting on them externally. Things change because there are contradictions—negative and positive aspects—within them. This is the dialectical view.

These theses about the nature of determinate things are not proved by Hegel from anything more fundamental, as he claims. Hegel’s “derivation” of them from the concept of bare Being is fallacious. But again these ideas are hugely important—the heart and soul of dialectic—and they are implicit in Hegel’s arguments.

Sayers (2022, pp. 329-333)

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**Paul Ernest 21 December 2024**

Dear Sean

I like your paper *The Rational Kernel of Hegel’s Dialectic*

I have not read it all, yet for me there is one big stumbling block

I like Marx’s move of turning Hegel on its head

I agree there are no absolutes and mathematics is materially based

I don’t feel the need to start talking about finitude and infinitude (the infinite is just an abstraction, unless you just mean that the universe stretches on seemingly without end ... But that is jumping the gun)

My objection is the assumption that determinate objects and things are what make up the world, the universe, whatever the sea of matter going out in all directions is called

Certainly, I hope you agree, the world does not come parcelled up as a collection of objects

We impose objecthood on an undifferentiated sea of matter✓

Possibly there are some natural kinds, such as human beings, among this undifferentiated morass of existence within which we find ourselves

But even this is questionable - is that not simply a human-eyed view? Of course we matter to ourselves. We even bestow special ontological categories on our selves. But is this not simply hubris?

Are ants, microbes, viruses, elementary particles, strings - are they objects, or just little perambulating - visible or invisible parts of the shifting tide of matter? (Some more imaginary than others)

From a god's eye view are persons existents or just funny undifferentiated parts\* within of the whole undifferentiated sea of matter? (\*parts not intended to bestow objecthood - they are temporary foci of attention, like the twinkle of light that is refracted through a wave for an instant and then gone forever)

Even if we allow humans to exist as entities surely 99.999999% of the world the universe is undifferentiated matter until we fix near arbitrary parts with our thinking and language - to bring forth objects and things as things for ourselves

What do objects and things need to exist?

1. Determinate boundaries
2. Semi permanent existence (surely a wave crest is not a thing, an object - it just appears and disappears)

### 3. Some internal relations?

Don't we impose these conceptually on any 'thing'?

Whatever the existence, it must be shown in language. Language is prior to existence.

Of course, human artifacts have determinate boundaries, like an oyster shell. But their meaning is imposed on them by our regard and use. On the grand scale of things a hammer in the woods is nothing more than a stick with a lump of metal attached, submerged in bushes, deadwood, grass, leaves and little creatures. No reason for a non-human to accord it any importance, distinct being, or objecthood.

But if most of the world is not made of objects, then most matter is not organised in an individual way, is not part of coherent unities, has no essence, no independent existence, no independent becoming, has neither affirmation or negation inscribed in its being. It just is. All that is shifts, as the sea does, but any cutting it up into what we like to call objects is just a conceptual imposition by ourselves. Matter exists. There is something. But there is no thing.

All the best

Paul

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**Sean Sayers 21 December 2024**

You replied on Mon 23/12/2024 09:53

Thanks, Paul, for your very interesting comments. I am much more favourable to the idea of natural kinds, objective ways in which the world is divided, than you are – and not just about human beings. Indeed, I don't think we are in any privileged position in this regard. Not all our ideas about distinct things are purely our inventions, often they reflect and described real differences in the world. Most, indeed all, things are

transient and impermanent, but not necessarily as transient as the crest of a wave. Most of the things we designate as objects last a good deal longer than this, although they are destined eventually to pass away. And for them, their identity and relative differentiation and separation from other things is real and objective. Or so it seems to me. I am a realist about kinds. See *Reality and Reason* p.25ff.

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**Sean Sayers (1985) *Reality and Reason -Dialectic and the Theory of Knowledge*. pp.25-28**

**Natural Necessities and Kinds**

The sort of realism I have just outlined, and which I will be defending in what follows, involves the view that not only our sensations, but also our concepts and categories, reflect objective features of the world. The significance of these ideas is profound and far-reaching. To say that the interpretations and theories that makeup our knowledge can provide a correct reflection of the objective world, is to say something with important implications about the nature of that world. For if scientific theory reflects reality, then reality must be as described in theory. In particular, the universality and necessity which are a part of our account of the world must really be in the world, as inherent features of things-in-themselves. The division of the world into different kinds and species, the necessary and law-like behaviour of things, must be features of reality in itself, and not the mere impositions of our thought. In other words, there are 'natural kinds' and 'natural necessities'.

There is nothing incompatible with realism in these views. On the contrary, they are a necessary part of a satisfactory realist account of knowledge. However, these ideas do involve questioning two widely influential opposed views on these issues. First of all, as we have just seen, they imply the rejection of the Kantian idea that our interpretations and categories are merely subjective forms which *we* impose on the given data, *our* 'way of seeing things' which, while they may apply correctly to the way things appear to us, do not reflect the nature of things-in-themselves.

Secondly, these ideas lead also to a rejection of the empiricist account of the role of universals and necessity in knowledge. For, according to the empiricist view, all knowledge is based on and derived from experience, which comes to us as a stream of separate, distinct, isolated and unrelated 'ideas' or 'sense-data'. Universality and necessity are not given in experience. In so far as our knowledge of things involves the ideas of kinds and necessary connections, it is a creation of the mind (or, in the language of the classical empiricists, the 'understanding'). Locke puts it well. 'It is

plain', he writes, 'that *general* and *universal* belong not to the real existence of things; but are the inventions and creatures of the understanding made for its own use.... Universality belongs not to things themselves which are all 'of them particular in their existence' (*Essay*, III.iii.II). Thus, for Locke, there are no natural kinds or natural necessities. Universality and necessity are mere 'inventions and creatures' of the mind; legitimate only in so far as they order, systematize, abbreviate and make more manageable, the data of sense; but illegitimate if they take our beliefs beyond the confines of experience. In the language of the philosophy of science, this amounts to the doctrine that 'theoretical terms' must always be reducible to 'observational terms'.

Hume's account of causality makes a parallel point about the idea of natural necessity. Hume argues that the idea of a necessary connection between events is never given in experience. The senses present us only with a succession of discrete and particular occurrences. The idea of causal necessity in nature is an illusion, a creation of the mind under the impact of 'custom and habit'.

Necessity is something, that exists in the mind, not in objects; nor is it possible for us ever to form the most distant idea of it, consider'd as a quality in bodies.... Necessity is nothing but that determination of the thought to pass from causes to effects and from effects to causes, according to their experienc'd union. (*Treatise*, I.iii.14)

The account of knowledge that I am outlining involves the rejection of these views. Universality and necessity are not the merely subjective creations of our minds. They have an objective being: they are the inherent characteristics of things-in-themselves, which exist objectively and independently of our thought. The scientific account of reality reflects its inward and essential nature. The objective world is not a Kantian ungraspable 'thing-in-itself beyond our knowledge; nor is it an atomized and fragmented series of facts in merely external and contingent relation, as the empiricist account suggests. The objective world is orderly, coherent, rational and law-like in its behaviour: such is the world revealed by scientific knowledge. The kinds and laws discovered by the scientist are not mere subjective interpretations imposed by thought on the world. The realistic and scientific attitude, on the contrary, is that the theories and laws of the sciences reflect the true nature of objective reality itself.

For example, the biological division of the world of living things into genera and species is not a merely subjective process: it is not simply a matter of imposing human interpretations, the biologist's 'way of seeing things', on the world. The distinctions between species are not our creations in that sense - they are drawn from nature and they reflect nature. They are the attempt to represent and describe, in theoretical terms, the real distinctions and differences in the biological realm which

have emerged with evolutionary development. Moreover, it is evident that it is not only the biologist who distinguishes the different species one from another. To borrow Hegel's mode of expression, one might say that even the animals know of such distinctions and are wiser than these subjective philosophers; for the different species distinguish *themselves* from their rivals ('by tooth and claw', as Hegel says), and do not seek to mate except with members of their own species.

The *differentiae* enable cognition to distinguish one thing from another; but, on the other hand, it is not the unessential aspects of things that has to be known, but that characteristic whereby the things themselves *break loose* from the general continuity of being as such, *separate* themselves from others, and are explicitly *for themselves*. *Differentiae* are supposed, not merely to have an essential connection with cognition; but also to accord with the essential characteristics of things, and our artificial system is supposed to accord with Nature's own system and to express only this. (*Phenomenology of Spirit*, p. 119)

The distinctions between species are, in other words, real distinctions which have emerged in the course of evolution; and the task of biology is to describe and comprehend these distinctions in the most adequate and accurate forms.

As regards necessity in nature, similar remarks apply. Realism rejects the view that the laws of nature are mere subjective patterns which the scientist either imposes upon, or sees in, nature. Scientific theory, when it is correct, reflects and describes forces and tendencies which really are at work in the world. Lenin is particularly clear on this point, even in *Materialism and Empirico-Criticism*. 7 'The recognition of necessity in nature and the derivation from it of necessity in thought is materialism' (p. 192), he says; and also, 'the idea that knowledge can "create" universal forms, replace the primeval chaos by order, etc., is the idea of idealist philosophy. The world is matter moving in conformity to law, and our knowledge, being the highest product of nature, is in a position only to *reflect* this conformity to law' (p. 195). In short, the realist and materialist view is that there are natural kinds and laws really operative in nature. Contrary as such ideas may be to some deeply ingrained philosophical assumptions, these views are common within the sciences, where, as Hegel says,

objective reality is attributed to laws, forces are immanent, and matter is [regarded as] the true nature of the thing itself. ... Genera, too ... are not just a grouping of similarities, an abstraction made by us; they not only have common features but they are the object's own inner essence.... Physics looks upon these universals as its triumph. (*Philosophy of Nature*, §246z)

## **Paul Ernest 23 December 2024**

Dear Sean

Thank you for taking my comments seriously and dealing with them in your reply and in pointing to relevant passages in your *Reality and Reason*.

There is much in that book (insofar as my dipping into it so far) that is powerful and persuasive. I applaud the attempt to be realist, and I am pleased to see your careful refutations of Kant and the British Empiricists. You steer carefully between the Scylla of idealism and the Charybdis of Empiricism that requires that all sensations and knowledge are immediately linked to the world. It is refreshing to read how you regard all of our knowledge including mathematics to be socially constructed, but not in an arbitrary way because it is always in contact with the world through our lived practices.

I still have trouble with the ideas of natural kinds and natural necessities. The main example you give of the former is species of life, and it is true most mating is intraspecies, although there is some extraspecies mating behaviours such as dogs liking your leg too much or lions with tigers giving ligers. But these are chimera, unsuccessful matings in the sense of offspring themselves cannot reproduce. But isn't the necessity of intraspecies mating the definition of species? It does not confirm a fact about the species as natural kinds but is a tautology.

Look at the species dogs. So much variety in one species. Only a socially enculturated mind could claim that they make up one species. Of course that does not refute their unity. But I still think we impose our definition on this varied set.

Now you say some of what we deem to be objects last longer than others. When I saw the green flash from the setting sun over the Red Sea in October it was instantaneous, just a flash. As it was just a refracted ray I don't think I would call that an object. The initial big bang

lasted  $10$  to the power of minus some big number (a minute sub-instant), A bubble  $10$  seconds, A mushroom lasts a few days, a mouse a year, a cat  $15$  years, humans  $60-110$  years, an oak tree  $2000$  years, a river  $10$  million years, a mountain  $100$  million years, planets c. $5$  billion years, suns c. $20$  billion years. From our perspective some durations are more experienceable. When does an event become an object? What makes a real object, or even more complex, a real object type, a natural kind? Is it material boundedness (both space and matter), extended duration, and some characteristic essence? Does it need to be properly definable, distinguishable from its surroundings? While the matter is real and independent of us, our selection of that portion and attribution of objecthood to it is surely a social construct? In practice I act as if my car, house, computer are all pretty real objects (which need maintenance). Same with the blue tit that feeds from our seed tray. But does that make them real objects in an absolute (you say natural) sense?

You allow that our concepts are socially constructed, but when I identify these objects am I not responding to my conditioning to attribute certain names (and objecthood) to them? I can find no necessity in the world around me that is not norm based.

As for natural necessity, surely all our scientific theories are hypotheses? Are they not just useful tools that enable us to work well with the world but all are ultimately refutable? Although impossible in my view, how could we even know that a universally true theory, a necessary theory, is not merely a working hypothesis? What more do we require?

Furthermore, modern theories including relativity and quantum mechanics challenge our previous notions of space, time, speed, position and objecthood. I acknowledge that there are invariances in the real world we live and work in. Many, many. But why should our contingently constructed language (and all theories are ultimately couched in language including mathematics) ever fit and describe the world perfectly? Are our theories not just sophisticated tools to reshape and control the world, fancy hammers? Perhaps a poor example because theories provide satisfying explanations and new predictions.

Although as they say, from the hammer's perspective reality is a bunch of nails to be driven and surfaces to be hit!

I cannot for the life of me see what is necessary knowledge in any given part of our experience. Is not absolute objecthood and absolute necessity (even if vouchsafed by the term natural) a form of idealism?

I love your idea that everything changes (not in every way but in some ways, of course) over time; everything is bound up together in inseverable ways, but I cannot find absolute or specific natural fixed categories or necessities in the world. Only what we impose on it through our concepts and social categories. These are if you like theories, but I subscribe to the view that theories are always under-determined by reality. Just as any finite sequence of numbers can be described correctly by any number of different functions, so too our world can be described by an unlimited number of different, often incompatible theories. None are or can be true or necessarily valid.

All the best

Paul

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**Sean Sayers 4 January 2025**

**RE: Being, Hegel etc**

Hi Paul,

Happy new year. I am sorry I have been so slow in responding to your letter, I am just emerging from the holiday season.

Some things last long than others, as you say. I agree about all the examples you cite. I don't think there is a clearcut point at which a transitory event becomes an object. But that doesn't matter. The point is that all your examples are cases of objective phenomena – not mere

social or linguistic constructs. I was aping Hegel when I used the example of species only mating with themselves, but again the fact is that the differences between species are objective, not merely our subjective constructs. There may indeed be many different ways in which these differences can be described but that one of them.

All good wishes for the new year,

Sean

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**Paul Ernest 4 January 2025**

Dear Sean

Happy New year to you and Janet!

With regard to our discussion

I have been reflecting on natural kinds and I do acknowledge that life (living, self-organised matter with direction and purpose) is a kind of stuff different from inert matter. So there is at least one natural kind. I don't think species are natural kinds because they are not all fully definable or distinguishable. Look at dogs, one species so many types. However I do acknowledge that matter, life, the world all objectively exist, as do those things we categorise as dogs or other species.

I acknowledge that everything is material, made up of matter, energy, physical events and activities included. Thus, universals and concepts must be grounded in material reality even if you cannot reduce them immediately to material entities as you can a cup of coffee. In my view concepts, everyday, scientific, and mathematical are material but cannot be reduced immediately to matter as they are cultural, part of human ideas. Although linked to human experience of the material world they are not directly observable as are planets, electric brain activity and so on. I am anti-reductionist, so although if you wipe out all humans and

texts, all concepts and ideas will be exterminated, nevertheless I can say that an idea, say of fish, liberty or truth cannot be cashed out in terms of particular experiences or arrangements of matter.

Like you, I think mathematics is inspired by our experience of the material world but it resides in cultural space (the space of human knowledge and practices) and not in the material world (although of course humans together with their knowledge and practices) are fully material.

To link mathematics with the material world we need to examine its history, what human needs and desires led to its first invention and then altered and expanded it during its evolution. All of this happened within forms of life (human practices) embedded in material living.

Have I misinterpreted you in saying that the link with the material world is quite direct for all objects empirical and theoretical? I need more complex cultural structures between ideas and the world like Gramsci's ideas of Hegemonic ideas, and Althusser's ideas of Ideological State Apparatuses (both of which bring social dominance and power into the story).

I am interested in dialectics as a mechanism or logic for the development of ideas, as the alternation of voices (proponent and critic) in the formulation of ideas including mathematical ones. So my preferred understanding of dialectics is metaphorical rather than imbued with any metaphysical necessity.

If you can be bothered to continue this discussion, may I ask if you would be willing for me to collect it up as a dialogue including selections from your texts as indicated by your responses, and publish it in my online journal as a Dialogue on Dialectics?

Obviously, you would have final approval of the text before publication. I am also minded to invite a small number of scholars in my area of work with a Marxist orientation or expertise to add their own comments, to join the dialogue if you will

What do you say?

All the best

Paul

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**Sean Sayers 6 January 2025**

Hi Paul,

You are right, I now think, to criticise the account I give of the connection of some forms of thought like mathematics to empirical reality for being too direct and immediate. I am coming around to the idea of a relatively autonomous realm of ideas, I need to rethink my views on this.

You are welcome to republish our exchanges, although my remarks have been rather brief. I would like to chance to review and perhaps revise them first.

All good wishes for the new year,

Sean

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**Paul Ernest 9 January 2025**

Dear Sean

Thanks for agreeing to continue this conversation and for allowing me to draft a dialogue out of it for publication (subject to your approval and amendment)

I have contacted a few colleagues in my specialist area and potentially interested others, some of whom have responded that they would like to

see the draft with a view to possibly offering contributions. By the way, two said they are already great admirers of your work.

Like you, I believe in the objective material existence of the world, the universe and their contents. I also believe that the material universe is all there is that exists (it may turn out there are possible parallel universes - if we could ever know about them - but I put this to one side as just more materiality).

However, I am cautious about saying what the world and universe consist of. We have scientific theories and accounts. There are good working hypotheses, but ultimately all scientific theories are revised and discarded, so what they say about the world cannot be accepted with certainty. Also, Newtonian science bequeaths us a static and inert view of the (inanimate) matter of the universe. Modern theories suggest that the matter is always seething with energy, always active even within apparently static things. Relativity theory challenges how we see space and time. Quantum theory challenges how we see matter. Both tell us that matter and energy are interchangeable and indistinguishable in some aspects.

So what really exists? As I said, I think there are grounds for distinguishing life forms (living matter) from inanimate matter. The first is organised in complex ways so as to have intentionality. Living beings strive to survive individually and strive to survive as species or families. Living matter has ontological and phylogenetic direction aimed at survival or reproduction. But even the living beings that strive to survive, most are colonies and multiplicities, not purely separate individuals. Humans are a symbiotic colony of cells, bacteria, fungus, viruses and we cannot survive without our tiny fellow travellers. Our nutrition, immune system and perhaps even how our brains work depends on our colony partners. Thus, already to call me (Paul) a single individual is to ignore a hidden multiplicity.

With regard to inanimate matter, I don't think it is bundled or boundaried into things, entities or objects. The stuff is objective and real, but the

boundaries and parcelling up are imposed by our thought and language. Take Mount Everest. Where does it begin? What are the boundaries around it on the land? Even if real boundaries are demarcated, are they not contingent, being dependent on history and politics? And what about the underground boundary? That is inaccessible, virtually impossible to mark or measure - unless by fiat.

Animals, plants, and some of our products and artifacts are bounded. A chair, perhaps a sea shell, are bounded things. But nothing in inanimate nature is. It is an accretion of stuff (matter) with a contingent history but demarcations into objects is something tool-using animals impose on it. (Note I admit other animals beyond humans into this category). Hence, I do not see the present-being and the future-being both present in some random stuff we have pointed at. It just is, and subject to my provisos about all stuff buzzing with its own intrinsic material energy, it is inert. It will be changed by external forces but the future of inanimate material is not inscribed within it. (Leaving aside radioactive material). Therefore I cannot see the contradictions, or the opposing forces of the kind attributed by dialectical materialism to inanimate matter. Your account made much of boundaries. I challenge the existence of boundaries in nature.

In preparing the dialogue thus far I became aware that conceptual vs. material locations of dialectics is already an established debate, treated in your 1980 book (Norman, Richard and Sayers, Sean (1980). *Hegel, Marx and Dialectic: A Debate. Atlantic Highlands, N.J.: Humanities Press.*) I have not looked at this yet. Maybe in my impertinence I am asking you to rerun an already well established and already better expressed debate. Clearly it is not settled, but like many problems in philosophy they are never solved, perhaps just clarified.

Ultimately, as you know, my main interest is in mathematics, which I wish to (with others) dethrone from its claimed universality and arrogated metaphysical necessity. We agree that mathematics as a discipline (written mathematics) was invented to meet social needs (tax, tribute, trade, measures, etc), used by merchants and officials, was passed on

by trained priests or scribes and took on a cultural life of its own as an art and an amusement of the wealthy (Greece, India) and as a vital tool for science. However my claim is that all necessities - in mathematics, logic, and elsewhere are deontological, based on human agreements (largely parallel and aligned ways of working, not usually explicit agreements) and norms. Nothing forces us to accept the laws of double negation, excluded middle, or even modus ponens. And indeed there are scholars and mathematicians who have rejected or at least questioned all of these (Ernest 2023).

All the best

Paul

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**Andy Blunden 9 January 2025**

Paul, can I respond to the passage from Sean that you begin with:

I explained and defended the Hegelian view that all concrete things are dialectical, that all concrete entities – things as well as thoughts – contain conflicts and contradictions. This is the fundamental principle of Hegel's philosophy as I understand it.

This most certainly was not Hegel's view. I refer you to what Hegel (who described himself as an Idealist) said about Idealism:

The proposition that the finite is ideal constitutes idealism. The idealism of philosophy consists in nothing else than in recognising that the finite has no veritable being. Every philosophy is essentially an idealism or at least has idealism for its principle, and the question then is only how far this principle is actually carried out. ... A philosophy which ascribed veritable, ultimate, absolute being to finite existence as such, would not deserve the name of philosophy; the principles of ancient or modern philosophies, water, or matter, or atoms are *thoughts*, universals, ideal

entities, not things as they immediately present themselves to us, that is, in their sensuous individuality — not even the water of Thales.

At the same time misunderstanding can arise if we take "thought" to mean for Hegel "mere fancy," subjective thought forms, etc.

Philosophy has to do with ideas or realised thoughts, and hence not with what we have been accustomed to call mere conceptions. It has indeed to exhibit the one-sidedness and untruth of these mere conceptions, and to show that, while that which commonly bears the name "conception," is only an abstract product of the understanding, the true conception alone has reality and gives this reality to itself.

Rather than trying to get into the mind of an early 19th century philosopher, I believe that we can best take it that the subject matter of Hegel's philosophy is human practice (realised thoughts). Self-evidently, we learn about the material world through the use of material objects and processes in our activity. As a result we can speculate about the nature of the world beyond human labour. Natural scientists do that all the time. But the only actual existence those ideas have are those realised in their practices.

**Andy**

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**Andy Blunden**

[Activity Theory. A critical overview](#)

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**Inserted comment by Paul Ernest 26 February 2025**

Andy, I hear what you are saying (although you might dispute this), namely that material action is the only reality and somehow all the talk, theorisation, conceptualisations that float above material practices

(labour in context) do not themselves have an independent existence apart from that labour, that sole reality.

I will disagree on several grounds. First, if theorization like I am indulging in this writing is not real, then nor is your above statement. To say theorization is unreal or is not grounded in material reality is self-negating. Perhaps you have a way around this.

I believe that all is material including my thought, speech and writing. These are all forms of activity, and all have a material basis even if it is evanescent and invisible to the technologies of today. We can detect brain activities that seem to correlate with thinking, but our 3-D electrical map of the brain does not reveal meaning. Maybe it never will, maybe meaning is irrevocably tied into the specific paths of neurons that are lighting up and we will never be able to read what these activities signify in terms of content for the individual concerned. (There is a huge amount known about where different types of thought take place in the brain, but this is general, not particular McGilchrist 2009). No matter, my claim is that thought is material, even if indecipherable to an outsider.

Languaging however is a public (material ) activity whether expressed in modulations of sound, hand gestures, or written symbols on the page.

Language is about communicating meaning, whether low level description of sense impressions that corresponds in some way to aspects of the material world (objects or activities) that enables work and joint activities.

Language can get very abstract, metaphysical and idealistic and drift away from its concrete roots in physical activity and practices of labour.

For example, I read Dirk Damsma (2011) *On the Dialectical Foundations of Mathematics*. By pure reasoning He claims to derive the existence of number in a series of stages. His argument for each stage has the form of positing a thesis (designated  $\alpha$ ), antithesis ( $\beta$ ), and arriving at a synthesis ( $\gamma$ ). This is commonly known as dialectic reasoning but I hasten to add before being shot down that this disavowed by many

scholars and experts in the area. This objection notwithstanding the structure of his argument purporting to be “Hegel’s Determination of the Quantitative” proceeds in stages first of what he terms Quality, namely, in this order: Being<sup>5</sup>, Nothing, Becoming, Presence, Something and Other, One and Many Ones, Attraction and Repulsion. He then moves into Quantity, in stages: Quantity, Continuous and Discrete Magnitude, and so on. I believe this corresponds to some extent with Hegel’s own account. He cites Hegel’s own original publications of 1812, 1813, 1816, 1821, 1817, 1830, as well as many commentators on his work. ,

As a philosopher of mathematics I would say that this is a metaphysical reconstruction of some concepts purporting to represent number out of even more abstruse concepts by extremely diffuse metaphysical means. I am not saying it has no value, but it certainly leaves most material practices far below and behind. Although to be fair, by my own argument metaphysical discussions and arguments, especially when conducted by people in some form of conversation, but even if only in published form, are also part of undeniably material practices.

I don’t wish to make the draconian move of regarding this argument (indicated only in outline here) as illegitimate, although I wish to critique it. It may fly high above the grounded material practices of labour in context. Nevertheless it is material, it has some sort of connection, perhaps remote, like the penthouse of a skyscraper, with our Ur-practices, our material foundations.

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**On 9/01/2025 8:55 pm, Ernest, Paul wrote:**

Dear Friends and Colleagues

As you know I have been engaging in a dialogue with an old friend Sean Sayers on Dialectics

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<sup>5</sup> In this short section he concludes “Hence, pure abstract Being is entirely imperceptible.” Damsma (2011, p. 13)

I have collected up our exchanges so far, integrating parts of his texts that he referred to

Feel free to add a comment of your own, or simply to wait, or to ignore this

I was heartened by your warm responses although I do not expect many contributions. My request is after all a kind of strange one!

Should you wish to comment you can insert it in the document or just send to me to insert

The documents are identical but one in Open Word format in case MS Word is inconvenient

Best wishes

*Paul*

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**Roberto Baldino 11 Jan 2025**

### **Alienation in Hegel's Logic**

Beware, Young Marx was not Marxist.

Only self-consciousness has fate in a strict sense, because it is free, and therefore in the singularity of its "I" it absolutely exists in and for itself and can oppose itself to its objective universality [of wage worker] and alienate itself from it. By this separation, however, it excites against itself the mechanical relation of a fate [the fate of capitalism]. Hence, for the latter [capitalism] to have violent power over it [the worker], it must have given itself some determinateness or other over against the essential universality [like the free choice of selling his labor-power [what else?]; it must have committed a deed. Self-consciousness has thereby made

itself into a particular, and this existence, like abstract universality, is at the same time the side open to the communication of its alienated essence; it is from this side that it is drawn into the process [of supporting capitalism]. [This side is open to dialectical intervention]. A people without deeds is without blame;

Hegel; di Giovanni. Georg Wilhelm Friedrich Hegel: The Science of Logic (Cambridge Hegel Translations) (pp. 639-640). Cambridge University Press. Edição do Kindle. (with added brackets)

The dialectical intervention leads the subject to recognize and take sides in class-struggle.

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**Paul 13 Jan 2025**

### **Message to a friend Steve Moss touching on this dialogue**

I fully agree that reality is pretty well unKnowable in any absolute sense. In practical terms we know quite a lot about the world - our perceptions pick out those features that interest or matter to us. In fact, I believe that we 'make' the objects of the world by our interest and intentions. The world, especially the inanimate world is not parcelled up into objects, we chose to delineate features and events that we call objects that serve our interests.

This is one of the issues Sean and I have been debating with regard to dialectics (about which topic he is a master).

My deep motivation is to support my claim that numbers are not in the world, but made up by us. Before we can even start counting we have to parcel up the world of our perceptions and speech into 'countables'. With our attention we create objects (not their stuff but their delineation) and this stage must precede counting.

But dialectical materialism is teaching me other things too. All is always in flux. You never step into the same universe twice. Furthermore, it is

not the same you that is stepping!  $P$  (Paul) =  $P$  only for a fictitious instant. There are no instants in the world. Only in the wonderful rich baroque world of our imagination and culture! Zeno's arrow is not still at any point. The instant that it is static in does not exist. We developed calculus to play with the vanishing infinitesimal whose limit is 0, when the arrow stands still. But this is a world of imagination, or culture, not material reality (or however you prefer to name it).

Of course we have known much of this forever. But traditional philosophy and logic insist that  $A=A$  always, and that  $A \neq A$  is contradictory = impossible. But to the extent that these are true, they hold in a timeless, changeless realm (where these are imposed as human norms), not in the real world.

I am not a unity, nor unchanging. With every breath, my sum of matter changes, and I give off gases (not to mention fluids and solids - as well as taking all 3 forms in). Even between breaths my chemical makeup is changing as are my muscles, movements, sparks, and thoughts). Furthermore I am a colony not only of symbionts (billions of tiny creatures are part of me), but also of collaborating cells, each a descendent of one or more (don't forget the mitochondria) historically individual creatures.

Academic philosophy mostly wants to impose a fixed composition of entities, and a timeless space of argument. Dialectical materialism offers one way out of this. But not the only way out, is my hope and goal.

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**Alexander Moore 22 January 2025**

Hi Paul,

I am finally getting around to responding to this email, which I found very exciting to receive. I would reiterate Roberto's note about alienation; for me, this is the nexus of the argument about Lenin and mathematics. None of my work in mathematics over the past two decades is really

“accessible” by my non-work self. It has always been work related. The “Mathematician Alexander” is sort of like my doppelgänger. “He” knows all about mathematics; after all, “he” is the mathematician, which can be defined as one who teaches the quilted-speech of a certain foreign language called “the ostensible metalanguage”. Of course I am talking about myself here, but “He” and “I” are dialectical poles of this corporeal body (the one I am typing this email with). Of course, as I write this, I am sitting in my office on campus... so I am not really sure which one of myself I am referring to. But that’s sort of the dialectical materialism point.

I haven’t read the Word document yet. I will do that today. But this was the first thought that came to mind when I read the email chain.

Alexander

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**Roberto Baldino 24 Jan**

Hi Paul

About this passage of yours:

“I’m interested to learn how there can be contradictions in objects (although I’m aware of things like the wave/particle duality)”

Perhaps I can mention an episode from our course on epistemology for STEM. A student stubbornly sustained the objectivity of objects. I raised without a word, went outside and returned with a inconspicuous leaf. I handed it to him and asked. What is this? It is a leaf, he answered. No! I am showing you this (taking the leaf close to our faces) I pointed out a little cochineal; see, they are a plague at this time of the year. If the objects speak by themselves, it is because we taught them so. Only language exists.

About this Sean's passage: "I argue that although our claims to knowledge cannot be justified absolutely, they can be justified in a historical and relative way – relative to those that they supersede"(Sayers 2024: pp 139-140). I want to add that, as soon as we admit that the Absolute in Hegel is what stems from the Agora, the public space of natural language where we discuss our ideas, we can say that knowledge has always been absolutely justified and cease to look for the Absolute in the groundings of mathematics.

About Marxism, I would like to say that I have never thought of Engels as being a Marxist; he is rather late Kantian who provided the basis for the unbearable Stalin's primer.

About the proposition that expresses itself as  $A=A$ , I want to cite the following excerpt of Hegel's comparison Fichte Schelling:

If the principle of philosophy is to be stated in formal propositions for reflection, the only thing that is present, at the outset, as the object of this task is knowledge, i.e., in general terms the synthesis of the subjective and objective, or absolute thinking. But reflection cannot express the absolute synthesis in one proposition, if this proposition has to be valid as a proper proposition for the intellect. Reflection must separate what is one in the absolute Identity; it must express synthesis and antithesis separately, in two propositions, one containing the identity, the other dichotomy. In  $A = A$ , as principle of identity, it is connectedness that is reflected on, and in this connecting, this being one, the equality, is contained in this pure identity; [25] reflection abstracts from all inequality.  $A = A$ , the expression of absolute thought or Reason, has only one meaning for the formal reflection that expresses itself in the propositions of the intellect. This is the meaning of pure unity as conceived by the intellect, or in other words a unity in abstraction from opposition. [as I understand, reflection is below reason and intellect below reflection]. *Systems der Philosophie* (p. 106). SUNY Press. Edição do Kindle.

Hegel, G.W.F.. *The Difference Between Fichte's and Schelling's System of Philosophy: An English Translation of G. W. F. Hegel's Differenz des Fichte'schen und Schelling'schen In Reality and Reason*<sup>6</sup>

I argue that although our claims to knowledge cannot be justified absolutely, they can be justified in a historical and relative way – relative to those that they supersede. (Sayers 2024: pp 139-140)

**Sean Sayers Wed 29/01/2025 12:22**

Dear Paul,

My apologies for my delay in replying too.

I agree that there are two different concepts of identity: formal identity  $A=A$ , and what you call 'everyday identity'. But I do not believe that you can understand or describe this everyday identity without the use of dialectical ideas like contradiction.

E.g. the everyday notion of identity holds that a person remains the same although his body, thoughts etc continually change.

You say,

the same unique signifier e.g. me PE, standing for many different signifieds PE1, PE2, PE3, all at different times, connected by development and change. Same signifier, differing signifieds, but connected by identity (understood as the core character of the individual or object)

Although we call you the same person through these changes, the issue that has dogged philosophy is: on what basis? Is this valid? Hume says it is an illusion.

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<sup>6</sup> Sean Sayers, *Reality and Reason -Dialectic and the Theory of Knowledge*. Oxford and New York: Basil Blackwell, 1985.

You say the different states of PE are 'connected by identity (understood as the core character of the individual or object)'. Are you suggesting that there is some 'core character' which does not change but remains identical. You seem to be assuming that to be identical through these apparent changes, there must be some element that does not change – i.e., your 'everyday' concept of identity reduces to the formal notion in the end.

But the problem is: what is this unchanging element?

Other philosophers have argued in this way, most notably Locke, who bases his account of personal identity on the continuity of memory. But this clearly does not work, memory is not continuous. Hume is right: if your criterion of identity is that there is some characteristic that remains unchanged, then personal identity is an illusion.

The alternative, dialectical view is that personal identity, concrete identity, everyday identity, is not an illusion. The identity of persons, and of all concrete things, includes difference. This is indeed a different notion that should not be equated with abstract identity.

All the best.

Sean

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**Paul Ernest .5 March 2025**

You kindly apologised for your delay in replying. My own lapse is far worse. My main excuse is that while more urgent matters have indeed intruded, but my attention to anything has been restricted by having a bout of 'flu that although relatively mild, made me weak and unwell to this day and I am still not quite recovered.

I pick up where we left off. The accumulated dialogue in the attached document includes everything we have written, I hope, plus comments from others with whom I shared the dialogue, as we discussed.

Once again this is an imposition on your time and if you wish to call a halt at this stage, I will understand and thank you for generously giving your time thus far.

Dear Sean,

This quite deep, not surprisingly, given what we are discussing – identity - and the mode of discussion – philosophy. I do not wish to say that there is some invariant essence in and making up a person. In my view human functioning – being even – involves change but persistence of certain patterns, structures, functions. What persists is not identical but close enough to carry similar patterns and functions.

You say: (29 Jan.)

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The alternative, dialectical view is that personal identity, concrete identity, everyday identity, is not an illusion. The identity of persons, and of all concrete things, includes difference. This is indeed a different notion that should not be equated with abstract identity.

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I agree that personal identity is not an illusion and that it accommodates change, unlike ‘abstract identity’. Different versions of the self, personal identity bear a “family resemblance” to each other to use Wittgenstein’s term. Some parts are very similar, some are changed. Life seems to involve a whole host of interconnected systems and patterns of material functioning, including consciousness and our sense of self and identity. The self is not a single identity but a whole complex of types and styles of functioning. Memory is one strand, in that we can recall stored perceptual and self-narrative episodes from our earlier times. These may vary each time we recall them, but there is a linking, a continuity, a shared similarity in each or most recall events. This is one aspect of the self – probably the ‘me’ rather than the ‘I’ in Meadian terms. There are too many strands of self to list, including specific relationships with a finite host of others, past and present, parents, friends, colleagues, antagonists, acquaintances. In addition our knowledge of so many things including recipes, meals, places, books, arguments, reasonings, performances (self-initiated and experienced as participant or onlooker), clothes, walks, habits of behaviour, secrets, and so on.

How are these represented? Through tacit and explicit knowledge, and context linked familiarity. More ways than I can list or even imagine. None of these dimensions provides fully certain knowledge, but do

provide familiarity, recognisable modes of being and acting, patterns of thought, recurring memories, narratives, and feelings.

In other words, the self, personal-identity are real, tangible, undefinable, shifting slightly over time, thus never fully identical - in the sense of 'abstract identity'.

Is there a contradiction in being, in personal identity? Are the present being and the being-to-come in conflict, in contrast or in contradiction? My answer is no. Present being is never instantaneous. No instants exist in the material world. The idea of an instant is an abstract idea, the unattainable limit of ever decreasing spans of time. All matter, energy and time is granular. Nothing is infinitely divisible. Zeno's arrow is never stationary at an instant because the instant is imaginary and does not exist in the material world. The identity of any object or being in the present is always over a shorter or longer span of time. Even over the shortest span of time anything material is changing, matter and energy moving within the object and exchanging with the environment. The present for any object or being is always already in a state of flux. The future of the object may not be predictable from the object as it is now, but will follow contingently based on the forces already at work in and on the object. Material identity is ceaselessly changing. You never step into the same river twice. As you stand in the river is it never the same river in terms of abstract identity, furthermore it is never the same foot that steps into the river twice, nor the same you whose foot is stepping again into the river. Yet in terms of material identity (roughly the same) it can be roughly the same river, roughly the same foot and even roughly the same you, although over longer periods of time roughly the same becomes weaker, reduced to less roughly the same.

The only contradictions I see are with the notion of 'abstract identity'. In the future an object, entity, being or self will never be abstractly identical to its state now, will only be at best roughly the same.

So I agree with you "The identity of persons, and of all concrete things, includes difference." But I do not need to bring dialectics or contradiction into my argument.

In my view nothing that exists materially can be contradictory, can be A and not-A at the same time. If A is a property with which we describe or attribute to some entity or being *e*, it makes no sense to me to say *e* is A

and **e** is not-A. This is incoherent. We can say **e** is A and later **e** is not-A, but that is just change, and everything changes, nothing is still for an instant, ever.

For me contradiction can only occur in text, speech, conversation, dialogue when different voices propose contradictory view. I say again, contra-diction means to speak against. And this is where my own interest and starting point lies. My claim is that all expressed\* human knowledge comes from conversation and dialogue when pros and cons, dialectical formations, are resolved. This is why almost\* all of our knowledge is socially formed, originating in social discourse situated in material practices (language games in forms of life, to use Wittgenstein's terms). My own project is to build a philosophy of mathematics on this basis.

\* I use these hedging terms so that direct knowledge from the senses is not used to contradict my claim. For example, I know it is 14:09 as I write this according to my watch just by looking at it. Of course I acknowledge that my ability to read the time on my watch is the result of an extended multi-person conversation with others during my childhood.

All the best.

Paul

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Dear Sean,

This quite deep (not surprisingly, given what we are discussing – identity - and the mode of discussion – philosophy). I do not wish to say that there is some invariant essence in and making up a person.

### **Paul Ernest Preamble 14/4/25**

The Dialogue of Dialectics includes several 'listeners' on the list. Among them was Julian Williams of Manchester University who sadly recently died.

The previous and ongoing conversation accumulating in the attached document has opened up a number of threads of discussion including

1. The nature\* of dialectics, contradiction
  2. The nature\* of concepts
  3. Personal identity – abstract vs. material
  4. Lakatos' use of dialectics in the history and philosophy of mathematics and science. And the role of Kuhn.
  5. Social constructivist philosophies of mathematics
  6. Other themes, etc
- (\* I use the word 'nature' to mean characteristics of, and without intending to imply that there are natural or given states of dialectics, concepts or anything else).

The following picks up strand 2 but sneaks towards 5.

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**From: Andy Blunden Sun 06/04/2025 04:52**

So long as this dialogue continues down the road of dialectics of nature, I have no interest in it.

The way the question is posed in the attachment in the words of Roy Edgley somewhat mistakes the difference which is at issue in the form of concepts vs. nature.

Such a framing is a mistake because the diamat reader will certainly interpret "concepts" as forms of thought, thought being understood as forms of activity of subjective fancy.

As Hegel demonstrated the only way out of this barren dichotomy is to begin with a concept which is from the beginning neither one nor the other but irreducibly both.

This concept which alone can form the basis of a science of dialectics is *practice*, the units of which are practices, or in the terms of Activity Theory, *activity*, whose units are actions and activities.

Even though Evald Ilyenkov resorts often to the language of diamat, he was right when he said: "In reality, the immediate basis of the development of thought is not nature as such but precisely the transformation of nature by social man, that is, practice" p. 157, "The Abstract and Concrete in Marx's Capital," Ilyenkov 1982/1960.

Dialectics of Nature inevitably leads to dualism not dialectics. Concepts are forms of practice, not forms of subjective thought.

Andy

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**Paul Ernest 14 April 2025**

Dear Andy

What you say strikes a chord in me. I recall puzzling many years ago of the dual use of the term 'concept'. On the one hand you have the concepts of modern science. Presumably these are objective or at least cultural. On the other hand you have, for example, the child's early concept of number. This is subjective or at least individual. It struck me as a paradox then.

I think what you say resolves the dilemma, but it is so hard to scrub out one's received dualistic thinking. Individualism so deeply permeates all aspects of modern thought and society, in the West, at least, and including my own thought.

Concepts are indeed forms of practice, created by people working together in an activity or form of life. Both speech and action are woven together creating concepts. These are shared and public but can be internalised and appropriated as private representations. Vygotsky theorises this well. Hence we have what seem to us to be individual and private concepts.

In mathematics and some other areas you have symbolic actions and activities, so concepts can also be generated by shared symbol usages within a practice. Patterns of symbolic activities can generate yet further concepts.

All this talk of concepts and, by implication, meanings, is pretty abstruse, almost metaphysical, unless one adds into the discussion a key central element, namely the Word. Looking at your book on concepts, Andy (Andy Blunden, *Concepts, a Critical Approach* 2011) I find the following which brings in the Word.

Vygotsky has told us that the human mind is an *indivisible whole*, and even though concepts are the units of thought, we cannot think of the mind as being an additive sum of mutually exclusive concepts. Rather, concepts may be imputed to the mind on the basis of the production of word meanings and other actions. Word meanings are the form in which concepts are realised by the psyche, but we cannot equate concepts with word meanings, since words are only signs for concepts, and it would be an all too obvious mistake to identify an object with its sign.

Though at first a child or adolescent cannot separate a concept from the word through which it was acquired, a concept becomes independent of the word in the course of its development. At the same time, there are an infinite number of ways any concept can be defined, because a true concept is always part of a system of concepts and has meaning only in relation to all the other concepts which form the system of concepts of which it is a part. So a concept cannot be adequately represented by any one image or definition, and conversely, a concept can be realised in any number of different actions or definitions.

...

A concept is the sum of all the meanings it produces, but these meanings have to be taken in the context in which they are produced. A concept may be realised in quite different meanings according to whether a person has to give an instant definition, recognise an object, use the concept to complete a categorisation task, write an extended essay on the concept, evoke the concept in an intellectual action of some other kind or is simply mistaken.

...

In fact, every concept is a family of concepts, because the original social context passes and the context takes on a life in other contexts and other projects. But viewed from the standpoint of other projects, the concept is only a shadow of its original self. Concepts exist only within whole systems of concepts. A concept is indigenous to one particular system of concepts, but still exists in other systems of concepts according to its practical relation to other projects.

...

So I have dealt with individual actions (word meanings) and particular projects, which are activities, made up of artefact-mediated actions including word-meaning, and finally I come to the universal.

By *universal*, I refer to the words and other artefacts which give unity to all the individual actions and particular projects as evocations of one and the same concept. Vygotsky correctly observed that in its psychological development a concept becomes independent of the word with which it was learnt. However, because a project can only exist and realise a concept by means of collaboration between people, the word can never be dispensed with. Words change, get translated into different languages and so on, but never without some modification of the concept. Word as signs for concepts are essential for the existence of a concept.

It should be clear from the above that a concept not only *represents* its object, but along with the activity it mobilises, it equally *constitutes* and even produces the object. In fact, the functions of representing, constituting and producing are inseparable.

As Hegel explained, every concept exists as individual, particular and universal. These three moments of the concept are never completely in accord. There is always a measure of dissonance between them, and this is manifested in the dynamics of the concept. What an individual means when they use the word is never quite the same as the meaning produced in any other context.

#### Objectification and Reification

When a new concept is created, corresponding to an innovation in social practice, a new word is invariably coined (or a new use of an old word) as an *objectification* of the new concept. Very often, it is not only a word but a *useful object* which is created as an instrument of and a focus for the new social practice. Here, the distinction between tool- and symbol-artefacts is useful.

(Blunden 2011a, p 296-7. Excerpts correspond approx. to Blunden 2012, p 292-295).

In this text you say that “words are only signs for concepts, and it would be an all too obvious mistake to identify an object with its sign”. You go on to say

“Word as signs for concepts are essential for the existence of a concept. It should be clear from the above that a concept not only *represents* its object, but along with the activity it mobilises, it equally *constitutes* and even produces the object. In fact, the functions of representing, constituting and producing are inseparable.”

I take this to mean that the word as a sign becomes distinct from its meaning (the concept). Nevertheless, it remains in a dialectical relationship with its object, meaning or concept, in that a concept (and hence a word) become performative beyond being merely representing, they also constitute and produce the concept and effect changes in material reality. Although the word may not change the underlying concept and meanings change and even reformat themselves in usage. I say this while acknowledging that a word may correspond to different uses, meanings and concepts across different social practices and even within a single practice as indicated by the specific context of use.

Overall, yours (Andy) is a powerful characterisation of concepts and their relationships with words, meanings, material artefacts, social practices, social contexts, collaborative projects and cultural history and unfolding.

I think Wittgenstein’s ideas of language games within forms of life also serves well as a way of looking at the material context of word and concept meaning and use.

I claim this for three reasons.

1. Language games and forms of life provide a social and material locus and stage for the enactment of shared social practices aimed at shared goals. Adopting Wittgenstein’s idea of a language game in a

form of life as a unit of analysis makes accounts of human developments and activities irreducibly social and material. (So too does Cultural-Historical Activity Theory, e.g. Andy Blunden, *An Interdisciplinary Theory of Activity*, 2011a).

2. Wittgenstein's meaning as use doctrine escapes many of the traditional problems of meaning and grounds it first and foremost in the social. "For a *large* class of cases—though not for all—in which we employ the word "meaning" it can be defined thus: the meaning of a word is its use in the language." Wittgenstein (1967 28e, para. 43. )
3. He bases meanings and rules and thus all philosophical, logical and mathematical truths, rules, laws on uses in language games. This means that all such claims are deontological, founded on agreement (both tacit and explicit) in social practices (forms of life). They are based on material practices, as are all thoughts, concepts and abstractions. There is no metaphysical or logical realm beyond social practices that affords ironclad, universal or fixed meanings and truth-values. Of course such norms and rules are powerful in a language game (within a social practice). If you contravene them it is not that you are necessarily being contradictory or impossible, just that you are no longer engaged in that same language game.

However, as you rightly point out Andy (Blunden 2012) Wittgenstein is limited in that his account is ahistorical (in the timeless present) and fails to adequately recognise that words, terms, meanings, concepts have cultural histories that mean language games and forms of life overlap and are connected into long chains in which these artefacts (words, concepts, truths, rules, laws) are passed on, although with changes according to the practices of use. However, Wittgenstein does say "the meaning of a word is its use in the language" not just in a single language game or form of life.

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**Andy Blunden 14 April 2025**

Thank you for that thoughtful response, Paul. You give me hope that this dialogue might after all be steered clear of dualism.

Thank you again for sharing the excerpts of my 2012 book. Alas, like any human being my thinking develops and I am a bit embarrassed to read what I wrote 13 years ago. So I have shared (attached) the Introduction to my 2023 book "Activity Theory. A critical overview." I've had a chance over the past decade to think through the ontology questions.

(Blunden, Andy (2023) *Activity Theory Reading Material*.)

As to Wittgenstein, I pored over his works when I was writing the 2012 book hoping to find a position I could criticise or appropriate. Alas, Wittgenstein never says what is meant by "concept." He uses the word, but only as a non-scientific word, avoiding defining or explaining what the word "concept" means. The idea of words without concepts is a curious view of the world. I think that aptly expresses the Positivism of which he was a part.

BTW, the relation between a word-meaning and a concept is much the same as the relation between an action and an activity (or a practice).

Rather than having to defend a "personal" position here, I will let Ilyenkov have the last word again: "In reality, the immediate basis of the development of thought is not nature as such but precisely the transformation of nature by social man, that is, practice".

Andy

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**Andy Blunden 17 April 2025**

I'm not sure how best to take this dialogue forward, Paul.

In the past, I have refused to teach "dialectics" because (1) the term is too ill-defined, (2) it is too closed linked too dogmatic versions of Marxism and (3) insofar as it is something worthwhile it cannot be taught by "direct instruction" - just like swimming or driving a car cannot be learnt from a book - it has to be learnt indirectly in the course of solving real problems.

Consequently, I have chosen instead to "teach" dialectics by "teaching" a version of Activity Theory that is informed by Hegel and Marx as a means of understanding human activity (or practice). Thus the chapter I posted earlier.

There is a group of Russian thinkers (See the works of Bernard Schneuwly) who define "dialectics" as the standpoint which is a negation of both modernist thinking (which believes in an unproblematic external world) and post-modern relativism (which believes that reality is entirely dependent on the point of view of the subject). Although I initially reacted negatively to this proposal, mainly because of the nonsense that its advocates produced as "dialectics," I did come to see that it is a reasonable definition, by way of a very inclusive definition. However, to be clear and less excessively inclusive, I think one needs to add the proviso something like "in the traditions of Marx and Hegel."

Perhaps one step forward towards a consensus view of what is meant by "dialectics" could be made by agreeing on what is meant by "Nature"?

Andy

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Dear Colleagues

The Dialogue on Dialectics continues

I have added three new names to the invitees - Donald Gillies, John L Bell and Peter Gates (forgive my presumption)

One of our members posted something very pertinent on his SubStack Page ([https://substack.com/@xande?utm\\_source=global-search](https://substack.com/@xande?utm_source=global-search))

Here are his words with my inserted comments

Warm regards

Paul

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[Alexandre Pais](#) April 19, 2025

[Defying death](#) With logic and dialectics

Published at <https://xande.substack.com/p/how-to-defy-death>



Fragment from “Porque a alma vive eternamente!” [Because the soul lives eternally”!], by Malangatana Ngwenya (1936-2011)

“A complete life may be one ending in so full identification with the non-self that there is no self to die.” Bernard Berenson

### **Text of Alexandre Pais Interjections by Paul Ernest (PE)**

Speculative thought concerns the movement of a concept by its own accord.

I object, concepts cannot move or change without human action.(PE)

A key example appears in Hegel’s Science of Logic, where he begins by asking: “With what must the beginning of science be made?”<sup>[1]</sup> He rejects starting from any determinate conception of what there is.

This is Descartes’ project of modernism applied to ontology instead of epistemology .(PE)

Instead, the utterly indeterminate thought of being emerges as an initial point: “Pure being should mean nothing but being in general; being, and nothing else, without further determination and filling”.<sup>[2]</sup>

This does not ‘emerge’. Hegel has the idea to start here. For the moment I am resisting anthropomorphisms, reifications (the term used non-pejoratively), the crystallizing of practices into independent objects (PE)

Hegel does not assume that being is a determinate object to which we relate to. Rather, he adopts the minimal thought that being is, at least initially, indeterminate immediacy—without qualities, pure indeterminateness and emptiness.

This is a dubious and questionable thought. What do you get if you have a domain of determinate being and remove all the determinate existents? This is what Hegel is doing. But is it legitimate or even meaningful? What is being without beings? Is this not a play of words rather than the deepest of penetrating thoughts? In fact, it is self-contradictory: What is being without anything being?

There is an analogy with Wittgenstein's (1966: p. 29) doubt

"A man may sing a song with expression and without expression. Then why not leave out the song – could you have the expression then?"

Surely it is also susceptible to Russell's refutation of the ontological argument.

God is perfect and has all positive properties. Being is more positive than non-being. Therefore, God has being, i.e. exists. Russell's answer is that being is not a predicate, it is assumed by all predicates. For something to have a property it must already exist. God was let in by the back door. She was not warranted by the argument.

In addition, who says being is more positive than non-being. Buddhism claims non-being is the highest state. Therefore, God must have non-being, i.e. does not exist.

To speak of Pure Being is to talk of empty ontological space. What kind of ontology? What kinds of beings? Robert Kuhn (2013) lists nine "levels" of nothingness. The Kabbalah has three. Hinduism has 3 meanings for Sunyata (empty void) (PE).

But things immediately get complicated, and what is taken to be the beginning of science—Being—immediately turns into its opposite: nothing. Inasmuch as Being is entirely empty, so is Nothing. Hegel writes

that pure nothingness is “only actuality with itself, complete emptiness, complete absence of determination and content”[\[3\]](#). Only nothing is without determination.

So, Being without beings is entirely empty. Non-being is also without beings and is also entirely empty. So Pure Being is identical to Non-being. (At least in extension). Does this not make it incoherent? Can we write it as  $B = \neg B$ ? What about Possible Being? If you empty pure Being of actual beings, this is not empty. What about possible beings? The collection of necessary beings is also entirely empty if one regards all being as contingent (PE).

Thus, Being—conceived as the absence of determinacy—amounts to Nothing. This leads to a speculative proposition, namely, that being and nothing are the same.

Pure Being - Being deprived of particular beings - may amount to Nothing. Thus Pure Being and Nothing could (if Hegel’s argument is accepted) have the same extension. But they do not have the same intension (a la Frege). Thus they are not identical concepts (PE).

This union of being and nothing will from now on “stand once and for all as foundation, as first truth, and will thus constitute the element of all that follows”[\[4\]](#) Note that it is no longer Being that is the starting point of science, but the very union of being with its opposite, Nothing.

Pure empty Being is not the opposite of Nothing. By stripping Being of particulars beings and thus emptying it nothing remains. This is not a great metaphysical truth. If I pour out the contents of my bucket nothing remains. This is no more a contradiction than a painting of a ship floating in the clouds above the sea. It is a play of symbols. (PE).

This proposition is speculative because it contradicts itself the moment it is stated. How can being and nothing be the same if they are the

opposite of each other? This contradiction leads Hegel to conclude that the truth is neither being nor nothing, but the movement (Bewegung) “of the immediate vanishing of the one into the other”[\[5\]](#). In Hegel’s words:

But it is not Being and Nothing, it is Non-Being and Nothing that have the same extensional meaning. For me the contradiction comes from the self-contradictory idea of Pure Being. It is an incoherent and self-contradictory, self-invalidating concept. If B then also  $\neg B$  so  $B \& \neg B$  a contradiction. If this is not meant to be interpreted as static proposition (B says Pure Being exists, i.e., for then there is an x such that  $B(x)$  but also we can derive For all x  $\neg B(x)$ , where x is a material existent) then it must mean something else.). Can pure Being exist in any way without some determinate existent. It exists as a concept. (PE).

The truth is neither being nor nothing, but rather that being has passed over into nothing and nothing into being. But the truth is just as much that they are not without distinction; it is rather that they are not the same, that they are absolutely distinct yet equally unseparated and inseparable, and that each immediately vanishes into its opposite. Their truth is therefore this movement of the immediate vanishing of the one into the other: becoming, a movement in which the two are distinguished, but by a distinction which has just immediately dissolved itself.[\[6\]](#)

Sorry, but this reads to me like word play. How was movement smuggled in? I suppose movement can be seen as a metaphor for Becoming. So we can have changes movements and becomings at the level of concepts, but all actual existents always are all the while in a process of becoming and changing. That’s the flux of the material world. (PE).

Whenever an attempt is made at fixing one of the terms, it immediately vanishes into its opposite, and this movement is their truth: “something only is what it is in its limit and through its limit”.[\[7\]](#) Something becomes an other to itself, thus becoming its own immanent content.[\[8\]](#) Becoming is the restless vanishing of being and nothing into one another.

To me Becoming is the change of a particular being into something that can be a bit different (as opposed to being a lot different) but may still retain its identity. When a bomb goes off it becomes a lot different and loses its identity. It is no longer an identifiable thing. When I have got up in the morning and made a cup of tea and switch on my computer I am technically a little bit different to the moment when I rose out of bed. I dispute Hume's assertion that we have no persistent identity. As discussed earlier in this dialogue there is no absolute identity and there are no perfect, permanent and unchanging entities in the material world. But there are persistences and identifiable continuities. It is not just convention that I am named the same this year and last. I have continuities in body shape and form, scars and blemishes, accent, dispositions, desires, memories, projects, and so on. I also feel a continuity from the inside. We call this persistence of body, mind and social functionings identity, or at least material identity if not absolute abstract identity. (PE).

Taken individually, being and nothing are mere abstractions, devoid of actuality. It is only the movement of becoming that is actual.[\[9\]](#)

Being and nothing may be abstractions but they are not *mere* abstractions. As Andy Blunden's analysis of concepts has shown, concepts do exist and are material, but they exist as part of activity, part of language games embedded in our social forms of life. I agree they are not directly material, like butterflies, that can be netted out of conversations and pinned in a display box. No. But they are a part of the dance of activity, material gestures whose tokens cease to exist when the dance stops. But we retain the ability to re-embody their type as new tokens in the next dance, activity, enacted social practice. Perhaps I have brought myself to a place where I agree with your next claim but one. (PE).

This minimal logical gesture characterises so-called dialectics and underpins Hegel's analysis of a variety of concepts (senses,

consciousness, quantity, quality, essence, number, finite, infinity, etc.). If we consider [one of our previous posts on the “I”](#) and the concept, or the opposition between myself and the other, or between agency and structure, these entities have no actuality in themselves: their essence is purely and simply this: each is only through the other, and what each thus is it immediately no longer is since it is the other. They thereby in fact have no substance of their own which would support and preserve them.[\[10\]](#)

I like the idea of dialectics when a claim encounters negation in the form of critical response. This is how we learn (we copy and extend and are corrected) and how we create artifacts (we make and then respond to self or other’s critique). This how culture is made, how we are inducted into it as apprentices, how we maintain and extend it when we are masters and grandmasters of the activity. In this sense dialectics is the logic and methodology of growth of culture, artifacts, ideas, everything social. (PE).

A subject who gives herself away to an other opens up a moment of agency and creation.

I don’t want to be picky but “herself away to an other” is a dubious metaphor. A person giving themselves away to an other person has all sorts of dubious meanings. A person giving themselves away to an activity is a way of describing engagement in an activity or practice wholeheartedly is a powerful way of describing strong participation. Like you and me writing. (PE).

People who have engaged in activities that demand strenuous intellectual, physical, or spiritual work often report a loss of self and becoming one with the object of their activity. Writers who have reflected on the nature of writing often describe how instead of experiencing this losing themselves to the text as alienating, it is precisely on these moments that they feel more creative ([Lispector](#) wrote about it).[\[11\]](#)

As we move to mastery of a practice (metalworking, farming, writing, mathematics) we create an imagined embodiment that demands our submission to the discipline of the practice, it takes on a life of its own. (PE).

Similar experiences are described by scientists<sup>[12]</sup>, sportswomen (like Ayrton Senna reflecting on driving his F1 car at Monaco), and religious figures (the concept of revelation is a well documented experience of the sort). This gesture—of forgetting oneself and engaging with an other, whether a text, a person, a concept, or a task—is, for many, a source a liberation, a moment for truly becoming themselves. By becoming themselves in an other, they defy death.

I so like this because this resonates with what I was writing earlier about how Lakatos' famous passage about mathematics taking over. In my new understanding this describes the essence of mathematical activity, surrendering yourself to the pitiless god of mathematics, who demands nothing but total engagement. And as you bathe and swim in the streams of pure thought you see the golden light through a chink in the great amorphous mass of the god and you build a path towards it. Never mind all the epistemological and ontological arguments – you can see and feel it, hear its calling, and it is real and overwhelming. (PE).

[1] Hegel, G. 2010. *The Science of Logic*. Cambridge: Cambridge University Press, p. 45. The Science of Logic is Hegel's attempt to produce a logical basis for science (including philosophy).

[2] Hegel, *Science of Logic*, p. 47.

[3] Hegel, *Science of Logic*, p. 59.

[4] Hegel, *Science of Logic*, p. 60.

[5] Hegel, *Science of Logic*, p. 60.

[6] Hegel, *Science of Logic*, p. 59, 60.

[7] Hegel, *Science of Logic*, p. 148.

[8] By becoming something, something ceases to be what it is. Consider, for instance, someone who openly declares themselves to be an idiot. The moment one assumes to be an idiot, it ceases to be one. The very

gesture of assuming idiocy is non-idiotic. Hegel already observed that [language possesses a divine capacity](#) to directly reverse the meaning of what is said (Hegel, G. 2018. *The phenomenology of spirit*. Cambridge: Cambridge University Press. 2018, p. 66). With Lacan, this property of language becomes its defining trace.

[9] It is worth noting Hegel's struggle to develop a language capable of writing movement. He employs expressions such as "self-externality" or "pure self-recognition is absolute otherness" to articulate the speculative nature of concepts, where interiority and exteriority are posited together in their difference. Writing fixes something into a determination, but that very thing ceases to be the moment it is uttered. The question of "With what must the beginning of science be made?" is thus misleading. Any beginning taken as such immediately vanishes into its opposite—and this movement is their truth. To seek a beginning for science is akin to the futile task of locating the origin of a fractal.

[10] Hegel, *The Phenomenology of Spirit*, 2018, p. 85, translation modified.

[11] Lispector, C. (2012). *Água viva* [Translated by Stefan Tobler]. Penguin Books. See also Marguerite Duras, *Practicalities* (New York: Grove Weidenfeld, 1990).

[12] e.g. Louis de Broglie, quoted in Bruce Rosenblum and Fred Kuttner, *Quantum Enigma: Physics Encounters Consciousness* (London: Duckworth Overlook, 2011, p. 71).

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**Rereading this in January 2026 I am struck by my audacity and assertiveness which border on, nay stray into, rudeness. Please excuse me Xande!**

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**A philosophy of mathematical practice acceptable for mathematicians: The ethics of forms of life**

**Paul Ernest**

## ABSTRACT

Traditional philosophies of mathematics have focussed on foundational, epistemological and ontological issues far removed from the working mathematician's everyday concerns. Fallibilist philosophies of mathematics have edged a bit closer, in recognising the historical development of mathematical concepts and claims. Contributions to the philosophy of mathematical practice examine what mathematicians actually do.

In theory, social constructionist philosophies of mathematics with their social and institutional explanations of mathematical practice should command more interest and support from mathematicians. But their claims that mathematics is not a unique, timeless, objective, body of knowledge concerning eternally existing mathematical objects is alienating. This is the problem addressed here. How to formulate a philosophy of mathematical practice acceptable to the received views held by mathematicians.

I propose a model or version mathematical practice drawing on Wittgenstein's theory of language games based in forms of life. Wittgenstein can be interpreted as proposing that many of the rules in mathematics are followed by convention and tacit agreement rather than being forced on us by metaphysical necessity. Thus the rules are deontologically and not metaphysically necessary, within the context of a given mathematical practice. Likewise the objects of mathematics are not objectively real (a la Platonism) but shared, agreed objects. So far, not so good for acceptability for working mathematicians.

But reading again Lakatos' celebrated paragraph on the Hegelian spirit of mathematics one can interpret it as neither epistemological or ontological but as ethical and axiological.

Mathematics ... is a living, growing organism, that acquires a certain autonomy ... any worthwhile mathematician feels the

sweep of it, and obeys, if he has talent, spark, genius, i.e., if he can communicate with this dialectic of ideas.(Lakatos 1976)

Viewing Lakatos' paragraph as a statement of the ethics or ethos of mathematics it fits with the MacIntyrean virtue ethics position. This is that the good of a practice is its inner purpose, direction and goal. What drives mathematicians is the living dialectic of mathematics, as a good.

This mysterious constructed entity we call mathematics is the crystallization into being of the substance but also the goods, values and the target of mathematical activity. Approaching it, working to understand, make and further extend it represents and embodies the good mathematicians strive for. Serving it is the ethics of mathematics, the ethos of mathematics, the good of mathematics.

This is what mathematicians can recognise and identify with. Mathematics lives outside them (yet through them) and demands their loyalty and submission. Only initiates can feel and know this. This vision is central to the practice of research mathematics. But it is virtue ethical, or axiological, not epistemological or ontological (to outside commentators).

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Dear Andy and colleagues

You said

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**Andy Blunden 24 April 2025**

The "conversation" you allude to begins on p.39 of the attachment with:

Speculative thought concerns the movement of a concept by its own accord.

I object, concepts cannot move or change without human action.(PE)

This exchange is bursting with problematic content. We need agreement about what is meant by a "concept" such that we can talk about it as something which moves (i.e., changes - in what space could a concept "move"?). Think of any concept which is part of contemporary public discourse, and I bet you will find that it is something which is changing. In what terms can we make sense of such a claim?

Andy

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**Paul Ernest 29 April 2025**

Here you have caught me after my first sentence. You have revealed my ambiguity, dilemma, even inconsistency.

What is a concept? Is it puppet-like always controlled by humans pulling strings? Can it have an independent existence and even agency? For me an analogy is with a singer crowd surfing. (Singers dive into a crowd and are held above it and passed from hands to hands by the audience). They travel through the air effortlessly. But the mass of the audience, a little push upwards and forwards by many people keeps the singer moving without expending any effort. Likewise a concept is held 'aloft' in cultural space by human uses of it. But unlike the crowd surfing singer who has a fixed identity distinct from his assisted travel, what keeps a concept afloat, current, is its uses, and since its meaning is its uses (or rather that of its surrogate, the word) the entity and actions on it and with it are not wholly distinct. So a concept changes with its uses in language games within forms of life (social practices). One could say that a concept, or the meaning of a word (not exactly the same thing, i agree) is always in flux, always changing while at the same time having great elements of identity or (almost) self-identity.

So yes, concepts are all the while moving, changing. But is it under their own steam, their own agency? Some argue that technological artifacts



On the basis of allowing both elementary concepts and compound concepts (conceptual structures) we can describe all mathematical objects as concepts - including elements, sets, properties, relations, functions, propositions, proofs, theories, models, formal languages - these are all concepts. Also graphs and diagrams, but these are presented as (represented by) an embodied figure. Even 'mathematics' is (or corresponds to) a concept.

(This does not agree with Joseph Novak's concept map of concept maps. I do not think that only propositions are units of meaning. Maybe he is not making this strong a claim)

Back to the initial question: Do concepts have a life of their own? Strong dialectics asserts that there are laws of change of concepts. Concepts create their negation which force the change into a new concept that assimilates or synthesises the preceding concept and its negation.

At this point, rather than scratch around for the three laws I asked ChatGPT

**My question:** Please summarise the laws of dialectics with quotes and full citations (APA)

**ChatGPT said:**

Certainly! The **laws of dialectics** originate from classical philosophy, were refined by **Hegel**, and later systematized by **Marx and Engels** in the context of **dialectical materialism**. Below is a **summary of the main laws**, key **quotes** from original sources, and full **APA-style citations**.

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 **Summary: The Three Classical Laws of Dialectics**

Though Hegel's dialectic is broader and more fluid, later Marxist thinkers (especially Engels) formulated **three core laws** of dialectics, often attributed to **dialectical materialism**.

## 1. Law of the Unity and Conflict of Opposites

“Contradiction is the root of all movement and vitality; it is only in so far as something has a contradiction within it that it moves, has an urge and activity.”

— Hegel (1812/2010, *Science of Logic*, §119)

### Explanation:

- Every phenomenon contains **internal contradictions**.
- These opposites are **interdependent and interpenetrating**.
- Their **tension** is what drives **change and development**.

 *Example:* In biology, life emerges through the constant balancing of growth and decay.

## 2. Law of the Transformation of Quantity into Quality (and vice versa)

“With this the dialectical law is verified, that merely quantitative differences, when carried beyond a certain point, pass into qualitative differences.”

— Engels (1883/1940, *Dialectics of Nature*, p. 63)

### Explanation:

- Gradual quantitative change eventually leads to a **qualitative leap**.
- Sudden transformation after a **threshold** is crossed.

 *Example:* Water turns to steam not by sudden addition, but through continuous heating — until it **boils**.

### 3. Law of the Negation of the Negation

“The development of the seed into a plant, of the embryo into a human being, of the chrysalis into a butterfly... is a series of negated stages, each overcoming the former but preserving its essence.”

— Engels (1883/1940, *Anti-Dühring*, p. 180)

#### Explanation:

- History and nature proceed by **negating previous stages**, but not by erasing them.
- The **negation of the negation** leads to a **higher synthesis**, preserving core aspects of the old.

 *Example:* A child negates infancy, then matures and integrates childhood into adult maturity.

[I don't like this example. A child does not negate infancy, but develops beyond it into early childhood. The seven ages of humankind flow one into the next by natural healthy development. The change is not a negation. Or if it is, it is a different meaning of negation than mine. PE]

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#### Hegelian Dialectic vs. Marxist Dialectic

Concept	Hegel	Marx/Engels
Ground	Idealism (Spirit)	Materialism (Matter)
Process	Triadic: Thesis → Antithesis → Synthesis	Historical and class-based contradictions
Emphasis	Consciousness, self-awareness	Society, economics, change through labor

“All that is real is rational; and all that is rational is real.”

— Hegel (1820/1991, *Philosophy of Right*, Preface)

“The history of all hitherto existing society is the history of class struggles.”

— Marx & Engels (1848/1978, *The Communist Manifesto*, p. 473)

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## APA-Style References

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  - Hegel, G. W. F. (1991). *Elements of the Philosophy of Right* (A. W. Wood, Ed., H. B. Nisbet, Trans.). Cambridge University Press. (Original work published 1820)
  - Marx, K., & Engels, F. (1978). *The Marx-Engels Reader* (R. C. Tucker, Ed., 2nd ed.). W. W. Norton & Company. (Original work published 1848)
- 

Would you like a visual diagram of these laws or a breakdown comparing them with other dialectical systems like Taoism or Heraclitus?

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**(PE)** There is an obvious self referential joke here: In discussing whether concepts have agency I have turned to an inanimate mechanism based on the power of concepts to ask questions about the nature of certain concepts and **been answered!** The concepts are now speaking for themselves!

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My personal view is there are no universal and objective laws of any kind, not in science, mathematics, the domain of concepts or even dialectics.

The laws of dialectics are therefore either empirical (most concepts behave this way) or heuristic / methodological (they help to look at the development - or less teleologically - the changing and coming into being of new/revised concepts)

Nevertheless, there are applications of dialectical style thinking

Sean Sayers and Brendan Larvor were discussing Popper, Kuhn, Lakatos

And Brendan pointed out that they could be seen as a dialectical progression. In my interpretation:

- Popper with his internalism and logic of falsification of scientific theories.
- Kuhn with his externalism and claim that in revolutions old theories, giving rise to anomalies and contradictions, are challenged by a number of hypotheses and then replaced by the fittest in some sense. The new theory may be conceptually incommensurable with the old and with a different group of adherents.
- Lakatos with his Methodology of Scientific Research Programs where there are core assumptions protected during the theory change (internal) but the project is socially embedded (external) and to be judged by progressive or degenerating nature of the research programmes
- (Maybe ChatGPT would have done a better summary here!)

Dialectics can be observed within each of the three individually as well

Popper: Hypothesis - Falsification - (break in the dialectics) - new Hypothesis from somewhere - ...

Kuhn : Normal science - Increasing inconsistencies and contradictions -  
Invention of new hypotheses/theories - one candidate chosen -  
Revolution - Normal science ...

Lakatos - we all know these patterns LMD/MRSP (Logic of Mathematical  
Discovery / Methodology of Scientific Research Programmes)

Concepts are social historical cultural productions and constructions, and  
hence are not objective, universal, timeless, Platonic forms. But then  
nothing is!

But they are real, and act as if they were objective and self-subsistent  
entities. It is legitimate to give a realist account of them without  
presupposing Platonism.

There is a saying Fake it until you Make it. With concepts it's more Act it  
until you Fact it. But in fact the conventions upon which concepts rest -  
the basis of their being - are deeply embedded in language games and  
forms of life. So if you enter into that form of life the concepts just come  
with it. If you participate in language games in forms of life you just  
accept the practices, embedded rules and concepts without explicit  
assent or agreement. If you choose, or find your self a participant in  
certain historical forms of life with their language games, as a member  
you must just conform to the rules and practices in the forms of life or  
choose to not participate and drop out.

You start as an apprentice. As you begin to operate independently you  
become a journeyman in the practice (a working member), sustaining the  
practice. As you gain the skills enough to induct others you become a  
master of the activity. When your students/apprentices themselves  
become masters you become a grandmaster, a carrier of the heart of the  
tradition. You are a master craftsman, leading mathematician, trainer of  
trainers, etc. Journeymen, masters and grandmasters of the activity  
maintain it, sustain it, extend it, and renew the group of people sustaining  
it. You are now part of the substrate, the activity, that sustains concepts,  
processes, conversation, actions in your form of life (social practice)

The norms, conventions, meanings, actions, concepts are all real, possibly subliminal or tacit, assumed by masterful practice. The concepts are real, immanent in the practice, beyond question, seemingly objective, having their own independent existence, but subject to growth and change. Acting as *if* the objects are truly real makes them indistinguishable from solid tangible existents. Nothing is more real (except maybe a clod of earth, an ear of corn, a sheep, another person). The concepts behave as if they have independent existence, with a life of their own. Within culture, as long as humans sustain the forms of life they contribute to, concepts live on as seemingly independently existing entities.

"Do I contradict myself? Very well then I contradict myself" (Walt Whitman)

Paul

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**Paul Ernest 28 May 2025**

I will continue and perhaps finish the dialogue with a long quote from one of Sean Sayers' (1983) early papers.

Hegel does essentially argue that we can use reason to know the world because the world is rational. The materialist: as I have said, would see the reflective relationship here as the opposite, the inverse, of this: thought can grasp the world because our thought is made worldlike. Popper, however, rejects the reflection theory in all its forms, using the Kantian kinds of argument that I have criticised above. For example, he takes Sir James Jeans to task for being troubled by the question 'How can mathematics grasp the world?' and for answering 'Because the world is mathematical'. Jeans, he says, was puzzled by the fact that purely *a priori* and rational mathematical ideas can have application to the physical world. According to Popper, Jeans is being misled here by the error of 'inductivism'. For Popper's view is that it does not matter how a theory is arrived at. What matters is whether it has application and is empirically testable; and often, Popper claims, useful theories are arrived at purely speculatively. However, the questions that worried Jeans are not as fruitless as Popper suggests. To be sure, Jeans was a rationalist and an idealist; and

his account must be 'turned on its feet'. It is not so much that the world is mathematics-like; rather, mathematics is, or rather has been made, world-like. Mathematics can be applied in physical theory so that it reflects reality. That it does so is the product, the result, of a long process of practical activity and thought - it is a human achievement. If one looks at the actual historical development of mathematics, one sees at once that its early development was neither purely rational and *a priori*, as Jeans suggests; still less was it the result of mere speculative 'conjectures', as Popper would have it. It has its origins in the empirical and practical operations of counting, measuring, surveying and assessing. The experience and results of these operations are first generalised in empirical and pragmatic rules of calculation for particular operations, and only later are they formalised into abstract and *a priori* systems [63]. As Engels says,

'Pure mathematics deals with the space forms and quantitative relations of the real world - that is, with material which is very real indeed. The fact that this material appears in an extremely abstract form can only superficially conceal its origin from the external world. But in order to make it possible to investigate these forms and relations in their pure state, it is necessary to separate them entirely from their content, to put the content aside as irrelevant .... Even the apparent derivation of mathematical magnitudes from each other does not prove their *a priori* origin, but only their rational connection .... Like all other sciences, mathematics arose out of the *needs* of men; from the measurement of land and the content of vessels, from the computation of time and from mechanisms. But, as in every department of thought, at a certain stage of development the laws, which were abstracted from the real world, become divorced from the real world, and are set up against it as something independent, as laws coming from outside, to which the world has to conform.'

[64]

In other words, mathematics is not a mere guess, a mere speculative 'conjecture', which fits the world and reflects reality purely by chance, as Popper suggests. This surely is the most incredible and absurd account. On the contrary, it is the outcome of a lengthy process of experiment and practice, and the attempt to sum this up in general and theoretical terms. Mathematics can grasp reality because, through this process, mathematics has been made to reflect the world. Such is the nature of mathematical knowledge of reality, and of other knowledge too. It is only in these terms, the terms of the reflection theory, that knowledge can adequately be understood. This is what I have been trying to show in this paper. (Sayers 1983, pp.25-26)

NOTES

63 For a detailed and lucid account of the earliest development of mathematics along these lines, see V.G. Childe, *Man Makes Himself*, Watts & Co., London, 1941, especially Chapter 8.

64 Engels, *Anti-Duhring*, Foreign Languages Publishing House, Moscow, 1962, pp. 58-59.

(PE)

In my view what Sean and Engels are saying here is fundamentally correct. We have had two and a half millennia of idealism and obfuscation which argues the incredible, that mathematics originates independently of the material world but by some miracle fits it better than a skin-tight glove fits a hand. "The unreasonable effectiveness of mathematics" is not due to either a remarkable coincidence, or due to mathematics somehow preceding the material world and dictating conformity to its laws. We know factually that mathematics was invented in history to serve social wants and needs. Give me any mathematical concept and I can show you the history and context of its origin, and what needs, both external and internal (disciplinary), it was created to serve. Marx was right, the relation between idealism and materialism need to be inverted. It is not Ideals → World, but World → Ideals.

Plato separated pure and sacred Number (of the mathematicians and philosophers) from the applied and profane Logistic (of the slaves, tradesmen and merchants), and the Purism this division fostered came back after Kant to haunt intellectual history.

Dialectic is supposed to be the applied logic that captures material changes in concepts. But in my view it is a form or reasoning underpinning the back and forth of dialogue (as indeed Plato says). The proponent puts forward his thesis. The opponent or critic reacts with a contradictory text (spoken or whatever), let's call it the antithesis. The group works together in dialogic space to come up with a new revised thesis, a synthesis (or departure) from what came before. This is the logic of knowledge growth. It is also the logic of culture growth, although the old and new ways may also be evidenced in material practices rather than just in explicit speech forms. Even in mathematics, much of the

know-how is tacitly embedded in mathematical practices, rather than being made explicit, except via examples of knowledge practice.

That's my view, anyhow. Anyone want to add a further last word as this dialogue nears its end?

Best wishes

Paul

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**From: Roberto Baldino      On: 29 May 2025**

Dear Paul and All

I am puzzled reading that

We know factually that mathematics was invented in history to serve social wants and needs. Give me any mathematical concept and I can show you the history and context of its origin, and what needs, both external and internal (disciplinary), it was created to serve.

I have the feeling that epistemology has been bypassed. For instance, is the concept of *ordered pair* a mathematical concept? Was it abstracted from world laws. What is its "origin"?

Sorry for failing the possibility of following the discussion.

---

**Paul Ernest 29 May 2025**

Dear Roberto

I hope you are surviving okay

Thanks for the challenge about ordered pairs. I'm, glad I included 'internal' as well as 'external' in the quote you sent.

In a quick 'off the hip' response my view about the origin of the concept of 'ordered pairs' is as follows.

1. In the era of exploration position was conceptualised as (latitude, longitude), a pair if not ordered. This may have contributed to the following
2. Descartes invented coordinate geometry combining number, geometry and algebra. With positions in the ordered form  $\langle x, y \rangle$ . Now we have the idea of ordered pairs. This could well contribute to the following.
3. From the time of Descartes, Newton and possibly earlier we had the growth of numerical functions and operators, so that inputs  $n$ ,  $x$  or even  $f$ , had functions, operators or functors applied so for each value  $x$  or  $n$  we derived  $F(x)$  or  $F(n)$  or  $f \rightarrow O(f)$  in terms of specific inputs and functions or operators.
4. With the structural algebraicisation of mathematics in the 19<sup>th</sup> century, possibly earlier we had the replacement of functions  $x \rightarrow f(x)$  by  $\langle x, f(x) \rangle$  and then sets of ordered pairs. We have now arrived. We have not only the concept of order pair but also the replacement of the idea of a function given intensionally by an explicit algebraic expression, such as  $y = \sin(x)$ , by a set of ordered, the extensional representation of the function as the product of the Domain and Codomain  $DXC$  comprising  $\{\langle x, f(x) \rangle : x \text{ is an element of } C\}$ .

So there were earlier conceptual inspirations from geography (external) which might have led to the later abstract (internal) conceptualisations that gave rise to the Ordered Pair.

Is this epistemology or the history of (mathematical) ideas? Perhaps the former so I'll take epistemology as the study of the components and structure of mathematical knowledge and its development

A full investigation could reveal more details of this case but I'm reasonably confident about the account.

Best wishes

*Paul*

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**Donald Gillies 31 May 2025**

Dear Roberto and All,

What about Cantor's invention of the theory of transfinite numbers?  
What social wants and needs did that satisfy?

Best Wishes

Donald

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**Peter Gates 31 May 2025**

I am not at all sure saying "mathematics was invented in history to serve social wants and needs" is either accurate nor helpful.

In many cases (e.g. number theory, Lie groups) the "social need" came after.

Best Wishes

Peter

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**Andy Blunden 31 May 2025**

I think "invented to serve social needs" is a kind of anthropomorphism of an historical process. I would say that "mathematics arises as a result of reflection on the whole field of human practice, and, the essential feature of human practice is the development of technique."

Andy

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**Paul Ernest     1 June 2025**

Dear Colleagues

Perhaps I answered Roberto too quickly. Perhaps he was not asking about ordered pairs specifically but about general abstract concepts that do not fulfil any so-called 'social needs'. 'Social needs' is perhaps an unfortunate term.

In a paper I finished a couple of days ago (attached, no expectations of reading) *The Many Faces of Number: Both Sacred and Profane* I trace the outer (religious, mystical) sacred history of mathematics from prehistoric times onwards and the emergence of both profane uses of mathematics and inner sacred (mathematical, philosophical) practices from the time of Pythagoras and the Ancient Greeks. I trace it to the present when I claim the profane uses of mathematics have themselves been elevated to new sacred levels, the worship of Dataism, Moloch and Mammon.

Mathematics as a discipline emerged about 2500 BCE in the scribal schools of Mesopotamia (Høyrup 1980) when knowledge and techniques were recorded systematically, followed by similar developments in Ancient Egypt. Even back then some scribes solved problems that were exercises in professional knowledge, expertise and skill rather than directly serving 'social needs'.

Pure mathematics (with its inner sacrality) seems to have begun around 500 BCE and has continued with its inner life (and sometimes serving 'social needs' such as astrology, etc) to the present. But it has always been internally driven by the questions, problems, concepts, methods and proofs developed for the sake of furthering mathematics itself, l'art pour l'art.

My celebration of mathematics as of social origins and serving 'social needs' is a reaction to the way I was presented with and taught mathematics, from the perspective of Purism. According to this ideology pure mathematics is the 'real stuff', the clean pure essence of the ideas, and applied math is just the diluted applications of the 'real thing'.

Now I know that in reality that mathematics was at first inseparable from its sacred (religious) origins for the first 50,000 or 100,000 years. What we call the 'pure stuff', the essence of mathematics is what has been distilled from cultural practices. But this pure spirit (to invert the analogy with wine/brandy) has continued to ferment (inner mathematical agents at work) enriching it and taking it to new heights of purity and complexity. And of course we know that pure mathematics has proved to be immensely applicable leading to, say, atomic energy and digital computing.

So my point about 'social needs' is really just that in history mathematics serves social practices first (outer ones), and mathematical practices (inner ones) second, although they have overlapped to some extent for 5000 years.

Thus Cantor's invention of the theory of transfinite numbers is a pure development (motivated by problems with Fourier series, I understand). Likewise number theory, Lie groups and ordered pairs were all inner developments within mathematics for its own sake. Number goes way back into prehistoric times and written computation probably originates in the service of the gods and temples to record and regulate taxes and trade. Nevertheless, Number Theory as a pure mathematics study probably originates with the Pythagoreans and represents the first pure mathematical theory, studied over 2500 years for its own sake.

The Engels quote in Sean's piece emphasises the 'social needs' from which mathematics originates, but acknowledges how mathematics detaches itself from its origins. By abstraction and internal work done by mathematicians becomes very abstract and unmoored from its origins, with a life of its own.

Of course one reason I'm so keen to emphasise the social origins and the humanly made nature of mathematics, whether developed in response to outer or inner forces (both, in fact) are the philosophical implications. If mathematics, reasoning, logic, proof are all socio-historical constructs we are half way to refuting the universal absoluteness of mathematical knowledge and truth, and to bringing the objects of mathematics down to earth from the paradise of Platonism into the realm of social constructs.

Best wishes

Paul

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**From: Roberto Baldino      On: 1 June 2025**

Dear All

Three places in which Hegel's dialectics make sense.

1). (from the *Journal of Philosophy of Mathematics Education*)

**Class-struggle in calculus**

Understanding is able to sustain fallacious arguments because it ignores the distinction of two relations that Speculation uses to connect past and future in the society. In German, there are two words for relation: Beziehung and Verhältniss. In French, these have been translated as relation and rapport, respectively. Portuguese and English conflate these meanings; perhaps we should say that English is the mother language of Understanding, and German is the mother language of Speculation. Marx used Produktionsverhältnisse to refer to a moving relation carried out by capital as an automatic subject (automatisches Subjekt), that is, an autonomous self growing process that recruits people as supporters. In Verhältnis the meaning of the related terms. *The Philosophy of Mathematics Education Journal* No. 42 (2024)

2). The second remark of the 1st. v. of S of L.: The statement of the proposition itself contains a movement (Bewegung) so as to complete its meaning only through its enunciation. The movement occurs in the word, id es in the Agora not in the Bubble; so it is Absolute. The contradiction was intentional. (Hypolite: the concept is the self positing of meaning.)

3). The passage in “the difference between F and Sc. Systems where in a midday of life common-sense can meet dialectics and recognize that they be friends instead of taking offense.

Only in the first pages of Lakatos do the characters display vestiges of 3. The rest is commonsense in the Bubble; The book itself is a speculative intervention in understanding: this is 1.above.

Sorry for not having had the time to write on this before.

Roberto

Os Cabralinos (Tânia C. B. Cabral & Roberto R. Baldino)

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## **Message to Sean Sayers 14 January 2026**

Dear Sean

I am tidying up our extended dialogue for publication, and I have added an appendix based on an afterthought

Would you care to respond? I am also copying to a few other contributors to the dialogue as an invitation to add some more thoughts.

Perhaps I should know better. I was editing the dialogue for publication this week or month. Very soon! But my damned inquisitive, nay, argumentative, nature would not let it rest.

Also, am I rehashing arguments already gone through? I know I have made something like this point earlier

Attached the partially formatted paper. Only just started editing it (lightly)

All the best

Paul

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### **Paul Ernest Afterthoughts 14 January 2026**

Early on Sean Sayers writes “ $A=A$  is true of all things – all things are self-identical.”

This is an incontestable assumption of Western philosophy, and perhaps of Hegelian/Marxist and Dialectical thought since then. But what does it actually mean. If we admit that all real, that is material entities are in a constant state of flux, then  $A=A$  where  $A$  is an object, then the fact that  $A$  is fully and completely self identical can only be true for an infinitesimal instant before any change in time has occurred, because any passage of time brings change. But in the material world, according to the dominant physical theories of the past 100 years everything including time is granular. There is no such thing as an instant, only a very short period of time. And during any passage of time  $A$  changes and so we have  $A \neq A$  in the physical world. All matter and energy are in constant flux although to our gross senses shifts and changes may be imperceptible. But there is no absolute constancy in the material world. No  $A=A$ , only in language, our idealised and ideologically saturated tool of description. Hence there is no contradiction in things themselves.

Of course the world of discourse, language and mathematics are different. These depend on the ideology of thingness or objecthood. This ideology says that we can describe the material and conceptual worlds with static terms that describe entities with enduring natures and essences. We can extend this descriptive framework to include motion and change but only on the basis that the objects of the world and ideas are ontological monads with enduring natures and existence such that

$A=A$ . We can extend this to the realm of propositions such that  $P \leftrightarrow P$ ,  $P$  is self-equivalent logically. In other word  $P$  is not time dependent.

I am not claiming that  $A=A$  is false in mathematics, only that it is an assumption, an axiom whose basis is deontological. In other words we must understand all constants  $c$  and variables  $x$  and functions  $f$  as being self-identical for the game of mathematics to begin. This is normative rather than epistemic or ontic necessity.

As I indicated, these assumptions go deeper than mathematics and infuse virtually all Western languages. They have proved to be immensely powerful assumptions as they underpin most language use, and are necessary for mathematics, science and technology as we know them, to exist. But they remain assumptions, an assumed ideological basis fabricated through the use of humanly constructed language rather than the necessary basis of material things. Why we see things this way is a whole other question which I shall not address here.

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### **Andy Blunden Reply 14 January 2026**

Paul, either you say that  $A$  is a thing, namely a specific graphical representation of the first letter of the alphabet ... in which case the one to the left of  $=$  sign is obviously different to the one to the right of the  $=$  sign, or, you say that  $A$  is just a sign for the "thing" you are going on about. But if the latter is the case, i.e., you are saying that the reference is to a sign, then without a context,  $A$  is meaningless and not a sign of anything. If you provide a context, then it could be a word (whose context includes the language of which the word belongs) and as a sign for a concept, a word is a sign which can have reference. But then the question becomes whether a concept can be both equal and unequal to itself, and this, it is well-known, turns out to be more than plausible but in fact invariably true.

Andy

**On 15/01/2026 3:50 am, Ernest, Paul wrote:**

Dear Andy

Thank you for your response. As concise and forceful as ever!

Please allow me to react. You wrote:

***Andy first response:***

**"either you say that A is a thing, namely a specific graphical representation of the first letter of the alphabet ... in which case the one to the left of = sign is obviously different to the one to the right of the = sign, or"**

***Paul response:***

Yes, 'A=A' is made up of two tokens 'A' which we assume belong to the same type (we also call it 'A') and it is the class {a, a, A, A, A, A, A, etc} all taken to be instances of the same sign (after Peirce)

When I was talking about 'A=A' I was taking each 'A' to represent one type, not the equivalence or identity of two tokens (for A) which we normally take for granted (with the interpretation in terms of types). E.g. in maths when we use the equation  $y = x(\text{to power } 2) + 3x + 7$ . ...

***Andy second response:***

**(this instance is not problematic, because it is obvious that the two sides of the equation are different, and that the = sign is claiming two different entities as equivalent in some limited extent, e.g., their quantity)**

***Paul response ctd:***

... we assume that each token of the sign 'x' is identical (of the same type) and will be treated the same, such as when we substitute in a numerical value..

***Andy second response:***

OK. I am not to take the sentence  $A=A$  literally. You claiming the identity of entities merely referred to by each A.

***Paul response:***

You continued

***Andy first response:***

"or, you say that A is just a sign for the "thing" you are going on about. But if the latter is the case, i.e., you are saying that the reference is to a sign, then without a context, A is meaningless and not a sign of anything."

***Andy second response:***

When  $A=A$  first became a topic of dispute, we didn't have that upside-down A meaning "for all". But let's assume this is intended. Otherwise  $A=A$  is not a claim at all.

***Paul response:***

No, I am saying, suppose the world is made up of objects, choose one and so we can discuss it, label it 'A'. I am invoking the referential dimension of meaning. For example let me call the cup of tea on my desk right now in front of me 'A' so that I can discuss this particular so-called object. Of course referential and, even worse correspondence theories of meaning, have problems. But most of these problems are sidestepped when I refer to what is deemed in everyday discourse to be single object. I am not problematising this simple form of reference, or the epistemic dimension of me knowing that there is a cup of tea on my desk that I refer to as 'A', nor as yet the ontic problems of assuming there is an object named 'A' by me. This will follow. I am only speaking about the physical material world, although my speech (writing) is of course also material but it is implicated in very complicated webs of meaning and intensionality (within social practices). To interpret the patterns of sound waves I utter, or the graphical signs that I inscribe we need a whole social framework that is admittedly a function of materiality but a

very complex dance one might say embedded in culture and social practices, that is human activities.

***Andy second response:***

You are claiming that the subject matter of the claim is the material world, and  $A=A$  is a statement about the material world. Indeed you can claim that the material world is made up of objects, but *how* it is so made up is not given in the material world outside of human practice. Some kind of practical action, such as "choose one" is required. Let us suppose that A can be taken to mean some procedure for choosing some thing from the material world. The claim is that every time you execute that procedure the result is the same. This is patently not true, except perhaps under very very restrictive conditions. Putting it on your desk in front of you is not, I'd say, a sufficient restriction.

***Paul response:***

You continue:

***Andy first response:***

**"If you provide a context, then it could be a word (whose context includes the language of which the word belongs) and as a sign for a concept, a word is a sign which can have reference. But then the question becomes whether a concept can be both equal and unequal to itself, and this, it is well-known, turns out to be more than plausible but in fact invariably true."**

***Paul response:***

I must admit I assumed this context (everyday speech and reference to everyday objects). Nevertheless when I write 'A' I mean that object which I designate by the name A (should I have used quote marks here?). I am arguing that the assumption that there is an enduring self-identical object in the world (I named it 'A') and that which we can at many times use the same name for and believe in its endurance because we are using the same name (same type, different token) because it (the shifting object) remains unchanged is problematic. First of all, all so-called objects are all-the-while in flux. If we freeze one of them ontologically in our discourse we have made an assumption, using language in a way that

we impose of the material world, for we are no longer describing the everchanging events and fluxes in the material world.

**Andy second response:**

Yes, and I guess that is what is meant by  $A=A$ , and so long as we agree that also  $A \neq A$ , then  $A=A$  expresses that claim for the endurance of objects through change.

**Paul response:**

Secondly, a type is already a universal, an abstract entity created and used by us in discourse. There are no universals in the material world.

**Andy second response:**

(Only in the same sense that there are no individuals or particulars in the material world either. I prefer to ask whether a given universal, particular or individual has a basis in the material world, rather than if it *exists* in the material world.)

**Paul response:**

They are abstractions. You like the word concepts. In the material world all is material, specific and in flux. To use types is to say that for any sign 'x' we regard all instances as equivalent or even identical in meaning import. In other words we impose normative constraints. There are no normative constraints in the actual physical world, only in the worlds of human discourse and actions.

**Andy second response:**

("Norms" are hellishly difficultly characterise in terms of whether they exist in the material world or are "merely ideas." I agree that a concept is a kind of norm. "Abstraction" is a more specific but therefore less problematic concept. Abstraction certainly takes place in the material world just as much as universals, individuals, etc., do.)

**Paul response:**

Lastly you said

***Andy first response:***

**"But then the question becomes whether a concept can be both equal and unequal to itself, and this, it is well-known, turns out to be more than plausible but in fact invariably true."**

***Paul response:***

Without getting tricky like saying that when a concept is both equal and unequal to itself, we get a paradox or a contradiction (cf. Russell not to mention Gödel), I can agree that what we call 'a concept' may also be in flux. There are different interpretations of concepts, they can change over time. My notion of concept may be naive, and you have written a monograph on the subject. But even if two persons have used a concept identically (drawn the same antecedents to and consequences from it - to use inferentialism) or used it identically in yet other ways (exemplifications, generalisations, metaphorical uses, etc) there can be no guarantee that they will always do so (cf. Wittgenstein on following an (implicit) rule). If this sounds too individualistic make it the same/different usages of two different language games/forms of life. So is a concept fixed and unique? It is what we make it as a socially constructed abstraction. But I'm getting outside of the area in which I was making my claims about ' $A=A$ '.

By the way just like I distinguish type and token, so to I distinguish use and mention. When I say A is in flux I refer to the object denoted by the sign 'A' (e.g. my cup of tea which is getting cold). When I make claims about 'A' I am in the metalanguage making assertions about the name 'A' (the name of my cup of tea which remains constant even as my tea cools).

Best wishes

Paul

***Andy second response:***

**Anyway, I agree that  $A=A$  is true, a truism in fact, but so also  $A \neq A$ .**

I think that one of the things that characterise the mathematical way of looking at the world is the conviction that one valid step in reasoning can be executed again and again and again without ever undermining the validity of the conclusion.

Andy

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**From Sean Sayers 15 January 2026**

Thanks, Paul. I am glad that you are tidying up this dialogue – I presume that will mean a lot of cutting, esp. of lengthy quotes. The Appendix is very clear about your position, I don't know whether you said this before.

You argue that identity and change are incompatible. Things are identical only for an infinitesimal time, if that. As soon as they change they are no longer identical. The crucial point I am making is that things are contradictory, they change and yet retain their identities.

I have just written a paper on “Dialectic and the Laws of Logic” which makes this point at length. In this paper I criticise Hume, who spells out the position you are advocating with great clarity. – comments welcome. This paper has not been published.

Happy new year and good wishes,

Sean

**From Sean Sayers 15 January 2026**

Dear Paul,

I misrepresented you in my earlier comment, I apologise. You are not saying the same as Hume. But your argument relies on the same premise as his: viz. that identity and change are incompatibly opposed - if a thing changes it does not remain identical and the same. I question this principle.

Best wishes,

Sean

**From: Paul Ernest 22 January 2026**

Dear Sean

Glad as always to get your messages

For me identity (which is a property of an entity - if we temporarily allow that such exist) and identical (a relation often denoted by '=' and 'is') are not the same. I am happy to accept that I and you have enduring identities, in keeping with common parlance (nevertheless it is a contingent property based on decisions to regard us and ourselves as enduring, not an absolute gift of the universe).

I guess for me the problem comes with 'is', '=', etc. Are we saying A is B and  $A = B$  mean that they are identical? As you will agree it is more complex than that. A is a name (e.g., morning star), B ditto (evening star, to use Frege's example). A and B denote the same object (Venus), even though their *senses* differ (the way the sign denotes - including the actual sign (type) chosen)

$1+1=2$  even though '1+1' and '2' are different ways of denoting 2. The first is an operation, the second an object (number)[well a numeral actually standing for a number]. Here '=' means 'have the same numerical value'

But 'is' as a binary relation can mean: (1) identical, (2) having the same denotation or value, (3) being a subset of, (4) being a metaphor for, etc

All this assumes that A stands for an individual object. But if A stands for a sentence or proposition the  $A=B$  is a loose way of saying A and B are equivalent. To Frege and other this means they have the same truth value. It can also mean each implies the other or can be logically derived from each other (bi-implication).

Identity and bi-implication are both equivalence relations which means that they conform to 3 axioms (1)  $A=A$  [reflexivity] (2)  $A=B \rightarrow B=A$  - [symmetry] (3)  $A=B \ \& \ B=C \rightarrow A=C$  [transitivity]

However, we no longer view axioms as truths about the world. We understand that they are assumptions, stipulations, norms that specify the use of signs in some domain, theory, or application.

My claim is that there are no absolute truths about the world or any other domain. There is no metaphysical necessity that forces any axioms, assumptions upon us. There is no ideal realm or Absolute Spirit or anything that forces truths on us. I discard this with the notion that God in the sky imposes absolute truths on us (although a belief in absolute necessity by no means entails the existence of god).

From my perspective Dialectical Logic (Hegelian, Marxist or Diamat) is a heuristic form of reasoning, although held in high esteem in certain circles and language games, no more contains truths about the world than any other system of logic, let alone theories of science.

Likewise, I am also sceptical about the existence of determinate objects or things in the world. The world is in continuous flux and change and it is convention that identifies certain enduring events as objects. It is by fiat and shared convention that certain patterns in the flux are bracketed together and regarded as objects. But they have no absolute or enduring existence as individuated objects except through human agreement, convention and habit that implicitly maintains their boundaries.

Therefore objects, socially constructed demarcations, have no intrinsic logic, laws or properties beyond those we give them. If  $A$  is an object,  $A=A$  only by convention, by stipulation, by norms. Conventionally  $A \neq A$  is false, because it is the negation of a standard assumption.

Clearly there is a special language game, Dialectical Materialism, that allows for both  $A=A$  and  $A \neq A$  to coexist, but in my view this is not a form of (formal) logic but an heuristic schema to describe the growth and development of objects and concepts in certain way. Like all language games it is part of a human discursive practice with no more claims of metaphysical necessity than any other language game, including the analysis I offer here.

One further point, I do not believe that mathematical objects and truths can be found in the world except through human custom and practices. Since there are no objects in any absolute sense, so too there cannot be any numbers in any absolute sense. We have to construct and project

objecthood onto the world before we can invent and use numbers to count them, a practice that was first formalised (written) for the purposes of trade, tax and tribute. And the most important property of this practice, as Andy said in his last sentence, is invariance of number counts and calculations, to best serve the interests of rulers and traders.

Lastly, there is the matter of personal identity or the identity of objects as opposed to the binary relation of identity. Common usage dictates that I as a person have an enduring identity. There are problems in assuming that I (or another or an it) have an essence or a soul. Perhaps Lakatos' ideas about scientific research programmes can help here, where there is a core of assumptions which must be preserved and an outer penumbra of assumptions that can be surrendered without jeopardising the whole theory or program. If we ascribe an inner core of properties to a person or object, to work like the essence or identity of that person or object, we can allow the peripheral properties of the entity to change without threat to its/our identity. Then change to peripherals or inessentials preserves identity. Then if we interpret  $A=A$  and  $A \neq A$  metaphorically these can both hold during change through the ambiguity of letting A stand for the essence of the being first, and A stand for the being A in its entirety in the second (in)equation.

Lastly I would say that our/my use of identity,  $A=A$ ,  $A \neq A$ , etc is metaphorical throughout. These formulas look like mathematical or logical symbolism, but they are not. They are metaphors for more indeterminate and complex relations which do not conform to precise logical laws, certainly not the laws of traditional logic such as  $A \neq A$  is forbidden (non contradiction - e.g.  $\text{Not}(A \neq A)$  is a truism.)

All this is written before I read your paper.

All the best

Paul

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**From Sean Sayers 26 January 2026**

Hi Paul,

Many thanks for this, apologies for my delay in replying. You put your position very concisely and clearly. I think we have engaged on most of these issues before. It would be great if you can edit down our exchanges into a manageable form and I will help with this if I can – let me know.

All the best,

Sean

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**From Paul Ernest 26 January 2026**

Dear Sean

You must have been a great teacher. Your replies are always so warm and non-judgemental even when I am repeating myself!

I wrote this reply before I read your paper where you address the 3 laws of logic. (Excerpt below). Can I quote the treatment of the first law in our document. Are there any publication details for that revision - or even first publication? [Ed. – unpublished]

I note you say - as Andy did - that objects/concepts - whatever we are discussing need to have their contexts considered at all times. That the move of abstracting such an object from that context is an error - widespread in Western philosophy.

I find this hugely valuable. I have argued that 'objects' per se, as ontological monads do not exist objectively but only through our pointing out and individuating them from the fluctuating and undivided flux of matter/energy we call our universe - the primal stuff that exists. (Maybe life forms are an exception, self individuating?). (Of course the world of abstract ideas also really exists too - as energy vibrations - but in a way that only those beings enculturated into a language/worldview can access the meaning.) The point about context is a second and powerful reminder of the work we do in the construction and representations of what we call objects in our discourses. We not only draw the boundaries

to include what we call objects. We cut away and remove from our attention the surrounding context.

But you probably don't agree at all with this interpretation or extrapolation.

I have come to realise that we use terms like Negation differently. Both I see as valid but probably incompatible meanings (I won't say incommensurable, Kuhn tripped over that one) but valid within their respective discourses/language games.

Do I repeat myself? Very well then I repeat myself, (I am large, I contain multitudes.) - with apologies to Whitman

All the best

Paul

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Excerpt from

### **Dialectic and the Laws of Logic**

Sean Sayers (2026)

Dialectic is a philosophy which seeks to comprehend the concrete reality of things. It holds that everything concrete is contradictory and a unity of opposites. ....

As explicitly a philosophy of contradiction, dialectic directly challenges the principles of logic that underlie a great deal of traditional philosophical thought. Indeed, contradiction is often taken to be a synonym for absurdity and irrationality, and the idea of a philosophy based on acceptance of contradiction seems unacceptable and even absurd to many people. One of the greatest barriers to understanding and accepting the philosophy of dialectic is its questioning of the law of non-contradiction and the other traditional laws of logic.

These laws were first clearly formulated by Aristotle. They are the law of identity, the law of non-contradiction and the law of excluded middle. Although Aristotle and subsequent thinkers have recognised that these laws cannot be proved, they are often treated as self-evident, and adherence to them is widely taken to be a necessary precondition for rational thought.

The philosophy of dialectic directly questions the claims made for these supposed laws. And, indeed, they are eminently questionable. Even as purely formal and abstract logical principles they hold only within particular formal systems. (Priest 1990) When used to describe the nature of concrete reality – as they regularly are – they result in a metaphysical conception of the world that denies the changeability and relatedness of things.

It is important to understand the meaning of ‘concreteness’ in this context. When we hear talk of ‘concrete’ things we tend to think of the everyday objects that are immediately about us. According to the philosophy of dialectic, however, such objects – this table, that chair – regarded by and in themselves are abstractions, in the literal and precise sense that they have been *taken out of* their contexts and viewed in isolation.

According to dialectical thought, things in their concrete reality are not separate and isolated in this way – they are embedded in the world, they are essentially related to other things and in interaction with them. ‘A determinate, a finite, being is one that is in relation to an other; it is a content standing in a necessary relation to another content, to the whole world.’ (Hegel 1969, 86)

In a brief and witty article, Hegel addresses the question, ‘Who thinks abstractly?’ And he answers that it is not educated but ‘uneducated’ and unthinking people since they tend to consider things as they are immediately given, by themselves, separated and detached from their contexts. (Hegel 1966)

The abstract view to which mainstream logic leads not only removes things from their relations with other things at a particular point in time (their synchronic relations), but also from the way in which they related to things at other times (their diachronic relations). It has the effect of arresting all movement and change in things and portraying them as static and unchanging. They are seen as mere separate existent things at a particular moment in time; and the world, on this view, is made into a collection of such things, indifferent to and independent of each other and of their changes in time.

Abstracting concrete things from their relations in these ways creates a false picture of them. All concrete and determinate things are in relation to other things and in a

process of change and becoming. 'We are aware that everything finite, instead of being stable and ultimate, is rather changeable and transient' (Hegel 1975, sect. 81 Addition).<sup>7</sup>

According to dialectic, these are truths of universal application and great philosophical importance. In all spheres we find them to be true and yet denied by forms of thought which are based upon the traditional laws of logic.

## Identity

The simplest of these traditional laws is the law of identity. This states that all things are identical with themselves: *A is A*. As a traditional law of logic, this is asserted as a purely formal and abstract principle. As such, it results in empty tautologies with no content and no implications for the nature of things. A chair is a chair, a tree is a tree, etc. These are trivial and self-evident truths which no one would bother to assert or seek to deny. Dialectic does not dispute them.<sup>8</sup>

However, when the so-called 'law of identity' is used to describe the nature of concrete things it is far from indisputable. Everything is indeed identical with itself, but matters do not end there. The mere self-identity of a thing is an abstraction. All real and concrete things are in the world, they are related to other things and they are part of the world of time and change.

A concrete thing is not only self-identical, it is also in a process of change and becoming something other. This changeability is part of its nature as a concrete thing. A thing not only is what it is, it is also becoming something different, it contains the negation of itself – difference – within itself. This is in effect denied by the logical law of identity which holds that a thing that remains identical does not change and a thing that changes thereby loses its identity.<sup>9</sup> This law implies that identity and difference, identity and change are distinct and opposed.

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<sup>7</sup> To say that everything is in a process of change and transformation is not to deny that at times things can be relatively unchanging and static. It is, however, to say that rest is 'conditional, temporary, transitory [and] relative' whereas 'development and motion are absolute.' (Lenin 1961, 360)

<sup>8</sup> 'The subsistence or substance of anything that exists is its self-identity; for a failure of self-identity would be its dissolution. Self-identity, however, is pure abstraction.' (Hegel 1977, 33)

<sup>9</sup> This way of thinking is characteristic of non-dialectical thought. It is summed up in Bishop Butler's saying, 'Everything is what it is and not another thing'. This became the rallying cry of analytical philosophy after it was used by G E Moore as the motto of his *Principia Ethica* (1903)

It is this abstract notion of identity that leads to Heraclitus's well-known river paradox according to which you cannot step into the same river twice because the water in it is always changing.<sup>10</sup> It leads to many other paradoxical conclusions as well.

No one specifies this abstract idea of identity or brings out the paradoxes to which it leads more clearly than Hume.

We have a distinct idea of an object, that remains invariable and uninterrupted through' a suppos'd variation of time; and this idea we call that of identity or sameness. We have also a distinct idea of several different objects existing in succession, and connected together by a close relation; and this to an accurate view affords as perfect a notion of diversity, as if there were no manner of relation among the objects. But tho' these two ideas of identity, and a succession of related objects be in themselves perfectly distinct, and even contrary, yet `tis certain, that in our common way of thinking they are generally confounded with each other. (Hume 1888, 256)

What Hume here describes is the abstract and formal concepts of identity and difference ('diversity'): identity and difference are opposites that entirely exclude each other. When something changes in any respect it loses its identity, it no longer remains the same thing.

Commonsensical as this at first seems, this principle in fact renders all change and development incomprehensible and leads to paradoxes like Heraclitus's river paradox – paradoxes which Hume, to his credit, spells out in the most uncompromising and unflinching terms.

Thus, for example, 'in our common way of thinking', says Hume (1888, 257),

Tho' every one must allow, that in a very few years both vegetables and animals endure a total change, yet we still attribute identity to them, while their form, size and substance are entirely alter'd. An oak, that grows from a small plant to a large tree, is still the same oak; tho' there be not one particle of matter, or figure of its parts the same. An infant becomes a man, and is sometimes fat, sometimes lean, without any change in his identity.

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<sup>10</sup> Or to put this in an explicitly contradictory form: you both can and cannot step into the same river twice.

According to Hume, however, since identity absolutely excludes diversity or difference, all talk of identity in such cases must be rejected.

Objects, which are variable or interrupted, and yet are supposed to continue the same, are such only as consist of a succession of parts, connected together by resemblance, contiguity, or causation ... As such a succession answers evidently to our notion of diversity, it can only be by mistake we ascribe to it an identity. (Hume 1888, 257)

By his adherence to the logical law of identity, Hume is thus led to the heroic conclusion that almost all of our everyday attributions of identity to objects are mistaken.

Dialectic, by contrast, follows 'our common way of thinking' about identity and difference. It too 'confounds' them, as Hume puts it, or rather it identifies them. For according to dialectic, the identity of a concrete thing includes difference. A concrete thing alters and changes and yet it can preserve its identity through its changes. A real and concrete chair gets battered and worn and yet it is still the same chair, a real oak grows and changes and yet it remains the same oak, the ship that is repaired and altered remains the same ship, the person who develops and changes is still the same person. The identity of a concrete thing can persist through change, it can include change and difference within it.

Up to a point, at least. Up to a point a thing can change while preserving its identity. However, beyond that point – which Hegel calls its 'measure' – it loses its identity. It then changes qualitatively, it becomes a different thing. Where that point is cannot be specified in precise terms, but invariably there is such a point.<sup>11</sup>

### Objections and replies

However, the abstract logical conception of identity that Hume defends exercises a strong sway on our 'common way of thinking'. In cases like those just cited, it will be objected, there must be some element that remains unchanged and which provides the basis for the attribution of identity. In the case of personal identity, it may be said, although a person's body and thoughts continually change, the self, the person, remains the same. An influential theory, put forward by Locke, maintains that the identity of the person exists in the continuity of their memory and consciousness. However, there are large gaps in memory and it is questionable whether a person's consciousness is continuously identical. Other arguments for the persistence of an

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<sup>11</sup> Hegel (1975, sects 101–111) on "Measure", Engels, (Engels 1975, pt I, ch. 12).

unchanging self are also problematic. There is a huge and continuing discussion of the notion of personal identity, but Hume is right: if the criterion of personal identity is that there is some characteristic that constitutes the person which remains unchanged as we grow and develop, then personal identity is an illusion, and what we really have in mind when we talk of personal identity may be nothing more than what Hume calls 'a distinct idea of several different objects existing in succession, and connected together by a close relation.' (quoted above)

### Things as processes

Others try to acknowledge that a thing can change and yet retain its identity by arguing that a thing should be thought of as a process that develops over time, and that what we conventionally call a 'thing' is in fact only a temporal part of such a process. The tree outside my window, according to this view, is a process encompassing its whole history, the chair that I am sitting on is the process of its whole life from its creation to its eventual end, and so on. Such objects – all objects – are constantly changing. Only a part of them is present at any particular time. This tree or this chair, as they are now, are only parts of the whole tree, the whole chair, the whole process.

Conceiving of things as processes in this way at least recognises that they are constantly changing, and it tries to include this thought within the concept of the thing. But it does so at the cost of losing sight of the identity of the thing at a particular time. The chair that I am sitting on now is not only a part of a chair. The chair – the whole chair – exists here and now. As it gets used and worn it changes physically, and yet it remains the same chair. The tree outside my window is not only a part of a tree, it is the whole tree, a tree that grows and changes and yet which retains its identity and remains the same tree through these changes. The person that I am now is not just a part of me – I am fully present here and now. A thing has an identity that it retains as it changes. The attempt to relocate the notion of identity into the process of the thing through its whole history loses sight of the identity of the thing in its stages. The truth is that things change and yet retain their identities through their changes. This is the dialectical view.

### Two concepts of identity?

In the account that I have been giving of dialectical philosophy, it will be objected, I have been systematically confusing two quite different notions of identity that must be distinguished: the strict formal and logical concept of identity which excludes difference and what I have called a dialectical concept of concrete identity that includes it.

There are, indeed, two very different concepts involved here, and not just of identity. What are ultimately at stake are two very different ideas of the nature of things, two very different metaphysical theories, two very different philosophies.

As we have seen, Hume and many others who think like him base their philosophy on the traditional logical concept of identity, a concept that excludes difference and excludes change. Things simply are what they are, they are purely positive. Whereas the view of dialectic is that all things are in a process of change and becoming, and they retain their identities through their changes. In order to understand the character of concrete things we must reject the mainstream law of identity. Change and difference are in the nature of things. Concrete things are not purely positive. The identity of a concrete thing includes difference and negation, it is contradictory.

### Relations

Another fundamental difference between these two metaphysical theories has to do with the connections and relations of things. In Hume's account of the world, things are abstracted from their connections and relations, they are regarded as entirely separate and detached from each other. Their relations with other things are external and accidental to their identities. The traditional logical conception of identity that Hume uses is the logic of an atomistic metaphysics.

This is clearly evident in Hume's celebrated account of the idea of causal connection. According to Hume when we think we are observing one event causing another, the idea of that there is a connection is illusory, it is introduced by us. For example, when we think we see one billiard ball colliding with another and causing it to move, what we in fact observe is one ball moving up to the other and the other then moving away. All that we see is one event followed by another, different event, but not a connection between them. 'All events seem entirely loose and separate,' Hume insists, 'they seem conjoined but never connected.' (Hume 1894, sect. VII para. 26)

Dialectic questions this. Concrete things are not detached and unconnected in this way. According to dialectic they are always and necessarily in relation to other things and limited by them. These limits, moreover, are not merely external, they are internal to things and a part of their identities.

A thing is what it is, only in and by reason of its limit. We cannot therefore regard the limit as only external to being which is then and there. (Hegel 1975, sect. 92 Addition)

The Identity of a thing is determined not only positively by how it is in-itself, but also negatively by how it relates to, how it differs from, how it negates, other things.

The foundation of all determinateness is negation.(as Spinoza says, Omnis determinatio est negatio) The unreflecting observer supposes that determinate things are merely positive, and pins them down under the form of being. Mere being however is not the end of the matter: it is, as we have already seen, utter emptiness and instability besides. (Hegel 1975, sect. 91 Addition)

In this way, things have a negative as well as positive character – they are contradictory.

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