



Radical Universalism and the Logic of Pedagogy

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ABSTRACT: The present investigation suggests that logical paradigms, as sets of rules of thought, are operative in pedagogical paradigms, as sets of norms for forming thought. In doing so, this paper examines whether such paradigms can be accommodated in a philosophy of pedagogy that hinges upon the meta-concept of *radical universalism*—to be defined and defended here as a meta-concept, guided by Ilyenkov’s studies in logic. This essay follows several presuppositions: that pedagogy is a meta-logical endeavour; that learning, in turn, is an interpersonal and dialogical endeavour contingent upon the outcome of the development of logical forms. We will examine the concept of *meta-concepts* more broadly and then discuss the pedagogical meta-concepts of *universalism* and *constructivist-pluralism*. These will be presented as analogous to the logical schools of formalism and intuitionism, respectively. We will see that neither can fulfil the demands of radical universalism. We will use modality as a criterion to assess the intelligibility of each logic’s claims and the realizability of its purported pedagogical efficacy when paired with their corresponding meta-concepts. We will see that a degraded sort of universalism and constructivist-pluralism falter at their epistemological purchase—and that the latter, however benign, is still not a strong contender for a logic of dialectics and insufficient for a radical universalist philosophy of pedagogy. Through this opposition, we try to determine developed images of the meta-concept of radical universality and the radically universal learner—hoping to motivate their development in a novel logical framework.

KEYWORDS: Universality, dialectics, logic, pedagogy, formalism, intuitionism, constructivism, pluralism.

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Introduction: Ends, Means, and Provisions

Setting out from the assumption that pedagogical frameworks are constituted by and constitutive of norms outlining the mode of production of thought, we follow the intuition that such norms are further informed by tangential, but no less consequential, norms: those of logical frameworks. The broader aim of this paper is to present the speculative framework we require for such examination.

At first, we will present the notion of radical universality as a critical touchstone for the pedagogical and logical concepts at stake—here, Ilyenkov’s insights will illuminate universality. The epithet “radical” is conjured for two reasons. There is a practical purpose in distinguishing this understanding of universality from others. With provocative intent, we might say universalism—especially as an ideal for pedagogy—has not yet been tried.

We will provide models—necessarily compressed—of the two main Western historically occurring pedagogical frameworks or (what Robert Brandom calls) meta-concepts: universalism and pluralism. The models will focus on these frameworks’ stated aims and their philosophical/pedagogical results to decant the germs of the logics operating through them—*however coarse-grained their shape may be*.

The most speculative section of this paper hinges upon trusting a suspicion: that pedagogies of universalism and pluralism are pragmatically undergirded by, respectively, formalist logic and intuitionist logic. A fundamental provision should be inserted here: when described here, these two logical frameworks are logical *only in their broader, socially synthesised* form; not in their mathematical, scientific status. Nor is it being claimed here that latching these logics to pedagogical methods has been done deliberately in the last 250 years. We are, in effect, exercising an abstractive movement to pinpoint the reasons undergirding concrete moments of human experience. To speculate like this may appear an over-reach from standpoints where specialised knowledge is considered better held at bay, uncontaminated. For this author—who contends that logic (or any area, for that matter) is of the Humanities—to abstain from doing so would be simply unethical.

The suspicion above itself hinges upon the following: logic, the rules with which thought reflects upon itself, is *one* tool among the historically contingent toolkit of human idealisations. Recent history has shown this contingency to be the case, in that classical logic was understood to be one among other logics (formal, intuitionist, paraconsistent, abductive, linear, to name a few). As human idealisations, we take such tools to be reified in deeds. As reifications, they are social syntheses of abstractions or ideals (Ilyenkov 2023 (1962), 13), constitutive of further social organisation, which is to say, political. With such purchase upon the human, reifications of these ideal tools should not be taken for

granted and naturalised or hypostatized as just-perfect for some or another human aim, especially one with importance as paramount as pedagogy.

Speculating about something with such profound implications will not go beyond simple provocation unless it is done to find a breach of contingency in which to develop a more adequate idea. By the end of the paper, we will touch upon this possibility and the technical requirements of a logic for pedagogy.

Ilyenkov's exposition of dialectical logic (Ilyenkov 1977) and its relevance to pedagogy (Ilyenkov 2007, 9–49) will guide this paper's aims at almost every stage. In doing so, it is hoped that radical-universality will be made intelligible and defensible as a logical ideal, necessitating a pedagogical ideal. In other words, this paper's central supposition is that pedagogy is the social synthesis of logic – itself socially synthesised, although at a more abstract, less concrete, intermediate level; concurrently, that learning is an interpersonal, dialogical process hinging upon the dialectical development of logical forms. With this stated end, we must start by defining its means.

0. Ilyenkov's Radical Universalism

In trying to activate a philosophy of pedagogy through the meta-concept of radical universality we must first examine what is at stake in the concept of “meta-concept” and “universality.”

“Meta-concept” will not be novel to readers familiar with Robert Brandom. His simpler definition: “There are concepts that play the distinctive expressive role of articulating features of the framework that makes description and explanation possible” (Brandom 2019, 4–5). These are Kant's categories, the pure concepts of the Understanding, as prefigurations of Hegel's “speculative, logical, or philosophical concepts.” Brandom calls both “meta-concepts: concepts whose job it is to express key features of the use and content of the ground-level empirical and practical concepts Hegel calls ‘determinate’ concepts” (Brandom 2019, 4–5).

Though the understanding of meta-concepts in the present essay conforms to Brandom's criteria, it is important to stress that in our philosophy of pedagogy, a meta-concept is not *a priori*, nor a biological given: it is a historically contingent ideal. In this sense, our meta-concept is itself the structure and the desired product of pedagogy (and philosophy), and it is through this meta-concept that pedagogy operationalises concepts in the ideal and material personhood of its participants. As such, it has a synthetic, or dialectical, quality. The name of such a meta-concept is Radical Universality. The qualification

“radical” serves as a mark of sincerity in our eagerness to have the universality defended here as distinct from other, historically-deemed ineffectual or even destructive sorts of universality. The foregoing is intended to dissipate confusion regarding the scope of the term. However, for now, we will elaborate a working definition of the meta-concept without dwelling on what it is not.

Our notion of universality will draw directly from Evald Ilyenkov’s development of the term. Ilyenkov starts by pointing out how Hegel envisioned a bifurcation in the paths of logic: formal (or abstract) thought separated itself from dialectical (or speculative) thought when taking upon itself the task of capturing, in abstract form, the “common element in every single representative of one class” (Ilyenkov 1977, 349). In his reading, Hegel shows how, in his framework, Aristotle pointed out the non-existence of abstract universals; how, to a variety of particulars, we can only oppose an “empty universal, . . . that which does not itself exist, or is not itself species” (Hegel 1995, 186).

Here, speculative philosophy may advance an alternative to this abstract alley. For Ilyenkov, the operative—and mediating—notion in the opposition between universality and particularity is commonality, or generality. Unity between various particulars is “created by the attribute that one individuum possesses, and another does not. Moreover, the absence of a certain attribute binds one individuum to another much more strongly than its equal existence in both” (Ilyenkov 1977, 350). This account of commonality through unity leads Ilyenkov to a tidier concept: “The general is anything but continuously repeated similarity in every single object taken separately and represented by a common attribute and fixed by a sign” (Ilyenkov 1977, 350).

Building on this, the universal is “above all the regular connection of two or more particular individuals that converts them into moments of one and the same concrete, real unity.” Such unity is to be “represented as an aggregate of different, separate moments rather than as an indefinite plurality of units indifferent to one another.” The role of the general is modest, but pivotal: it “functions as the law or principle of the connection of these details into the make-up of some whole, or totality as Marx preferred to call it, following Hegel” (Ilyenkov 1977, 350). Thus, it may be fruitful to see the universal as mediated by the general.

The main thrust of this development relies on showing that universality is neither originary nor substantially fundamental. More remarkable is the contention that the universal “which manifests itself precisely in the particularities . . . also exists as a particular alongside other isolated individua derived from it” (Ilyenkov 1977, 355).

Both this deprioritisation of the universal and its Janus-facing as just another particular are exceptionally well suited to our purposes. The former will help us understand the coarseness of an understanding

of universality as fundamental, or grounding—in its defence and critique. The latter is crucial for our concept of radical universality: it starts to design itself as an open-ended universality. That is to say, when “particular (separate) spheres [are] mutually complementing each other and in essence mutually dependent on each other and therefore linked by bonds of community of origin” (Ilyenkov 1977, 359), the ground is shown to be as plastic as the universe of inferences developed from it. As Cássia Siqueira eloquently puts it:

What scheme [can we] follow in order to push the limits in a plastic and not only an elastic fashion? What is proposed here is that only from a well-formulated concept of universality, free from biases originating from historical attempts at instrumentalisation with aims of domination, can we go beyond the limits imposed by the actual, contingent, and revisable image of ourselves as persons. (Siqueira 2023, my translation.)

In order to proceed with what we have gleaned so far and match this development of the universal with our framework for pedagogy, it is worth looking at how Ilyenkov operationalises the meta-concept in the concept of that which pedagogy *forms*: the human. He follows Marx in the claim that “the essence of man is no abstraction inherent in each separate individual. In its reality it is the ensemble”—an “aggregate”, adds Ilyenkov—“of social relations” (Marx 1977, 29). Ilyenkov thus shows that only by analysing what is understood by the “whole aggregate,” what it is composed of, can “the separate individual [be seen as] only human in the exact and strict sense of the word, insofar as he actualises—and just by his individuality—some ensemble or other of historically developed faculties (specifically human forms of life activity)” (Ilyenkov 1977, 359). We contend that *only* after modelling this context can “human personality rightly be considered as an individual embodiment of culture, i.e., of the universal in man” (ibid.).

It is worth noting Ilyenkov’s variation on this theme: “Universality so understood is by no means a silent, generic ‘sameness’ of individuals but reality repeatedly and diversely broken up within itself into particular (separate) spheres mutually complementing each other and in essence mutually dependent on each other” (Ilyenkov 1977, 359). His account of universality appears to be sufficient for our earlier requirements: it fulfils the role of being the umbrella concept or the playground for expressively mediating description and explanation of concepts, and it is not given in any manner whatsoever (it is not deemed original or grounding). In practice, it appears to itself as the condition of the possibility of learning, in the sense that it operationalises the understanding of reality as a chimaera made up of separate, mutually complementing particulars (the learners) that realise and become intelligible to themselves in this radical-universalising act of self-understanding which opens both the particular and the universal to mutual (and thus self-)

transformation. Radical universality hinges on opening itself up for transformation, as just another particular, to become more intelligible to itself, through the realisation of its co-particulars. It may appear at first to be a ground after all. However, it is always provisional: the ground only appears coherent at the provisional outcome of an open-ended onto-epistemic process—which is to say, learning.

Radical universalism is not a school of thought on pedagogy, but a thought framework on the practical formation of thought. It is in contrast to it that we will examine traditional universalism and pluralism in Philosophy of Education. It is worth remarking that under this lens, universality is neither generality, nor totality. We repeat: Generality is the mediation between the particular and the universal; it is a moment in their dialectic; totality is a closed system, whereas universality is open on both ends.

Part 1—Contemporary Meta-Concepts

Having set out the touchstone for pedagogical meta-concepts that purport to form the universal, we can now examine “actually existing” meta-concepts. We will see that both universalism and constructivist-pluralism strongly feature a Kantian misstep at their core—the intelligibility gap between mind and world or appearance and reality. According to Brandom’s gloss of Hegel’s critique, the misstep hinges upon a

. . . two-stage representational story that sharply distinguishes between two kinds of things, based on their intrinsic intelligibility. Some things, paradigmatically physical, material, extended things, can by their nature be known only by being represented. Other things, the contents of our own minds, are by nature representings, and are known in another way entirely. (Brandom 2019, 40)

The former are to be understood as reality, the latter as appearance. Appearances are “intrinsically intelligible,” reality is not. In Kantian accounts, appearances are mediated. Nonetheless, the gap remains, and any such theory “is doomed to yield skeptical results” (Brandom 2019, 41). We will consider this when looking at how universalism and constructivist-pluralism allocate minds in reality, the degrees of skepticism they generate, and the solutions they provide so as not to lose epistemic purchase *on* the world.

1.1. Universalism

We follow Jan Derry when she presents universalism in an elegantly skewed manner—through the eyes of its detractors:

A once prevailing view in analytical philosophy presents rationality as abstract and decontextualised: it relies on the idea that reason is separated from the world and can be applied to it with greater or lesser degrees of adequacy. When applied to education, such a position can lead to the most extreme forms of formalised teaching. (Derry 2013, 3)

Universalism can fruitfully be understood with the help of its critics (despite the failings of their own projects). Such misbegotten universalism is decontextualised rationality and instrumental reason: the failure or blindness to account for the role of contextual elements in the formation or presentation of the human. There are just criticisms of arbitrary misconceptions of the human and of freedom in Enlightenment rationalism (racism, the purported *telos* of slavery), and of its closure to social, historical, institutional functions. Nonetheless, despite such grave misconceptions, various Enlightenment universalist systems, such as Hegel's for example, included the germ for further development out of its own limitations, as Marx perspicuously elaborated on. The inferentialist branch of analytical philosophy in the twentieth century has made its initial attempts to do justice to both the harshest critiques of universalism, *and* to counter them by further developing the Enlightenment project¹ while avoiding pitfalls of scientific deism or relativising "greedy skepticism" (Negarestani 2018, 152).

What still trickles down from this to everyday discussions of "free-floating abstract reason" (Derry 2013, 25)—in the sense that a pedagogical setting is an everyday application of meta-conceptual principles, such as those of universalism—appears to discard any account of mediation, freedom. Although this universalism has an account of agency, it is impoverished under axiomatic or foundational imperatives, which if failed to be followed by genetic conditions, are simply deemed unintelligible towards the one to whom is refused the status of agency—as if cancelled by the over-determinations of fate.

Abstract rationality or misbegotten universality refuse history and the arising of any category as a product of historic relations. They hinge on the reification of Forms deemed eternal truths and, as such, non-transformable. Further on, we'll see that this is the vitiated game of modal necessity. Under this universalism, proto-persons do not so much learn, but are *educated into* these truths via formal teaching, which regiments a correspondence theory of truth towards only-abstract Forms. Such theory is overtly idealist, in the sense that education structures a coarse-grained account of the world, amputated of falsifiability. Again,

1. This can be seen in the works of Wilfrid Sellars, John McDowell, Robert Brandom, and in pedagogy, David Bakhurst. We should note that Ilyenkov's solitary research in the hostile environment of Stalinist academia (Lotz 2019, 10) also strived for such developments upon Spinoza and Hegel in a unique way. It is notable that Bakhurst successfully incorporates Ilyenkov's research in his McDowellian project (Bakhurst 2011).

what does not conform to the Forms, is deemed unintelligible, and thus non-transformable; it is precluded any sort of possibility or contingency, which in turn prevents any realizability under conditions that would steer off the main, eternal path. Subjects or proto-persons *educated* under this meta-concept are not historical agents, not even agents—they become mere labourers.

Most importantly for this section: universality begins to appear as a misnomer for Totality. The universal is generalised; proto-persons are not different moments of a whole, but repetitions of the whole or the totality in a miniaturised shape that can only amplify itself monotonically. There is a short-circuit of sorts: The general ceases being a law of connection, and becomes the universal-as-law. Detractors of universalism would come to claim that “abstract axioms were in, concrete diversity was out” (Wertsch 1998, 17). As a critique of universalism, we agree with this. On the other hand, it is an unjust critique of Ilyenkov’s account of the universal—one that is much more nuanced and determinately negated from that of coarse universalism.

In pedagogical practices, such universalism can be seen in features of most contemporary educational institutions: summative assessment, where the non-networked acquisition of disparate facts held to be definitively true is quantitatively evaluated; the assumption of crystallised developmental stages in biology/psychology, somewhat arbitrary windows of conformity to the universal ideals which foreclose formation if ‘missed’; rote learning, with its behaviouristic tinges; mistrust of a student’s ability to learn autonomously when faced with some determinate “cognitive load” (Derry 2020, 5–22); the Givenness of ‘natural laws’ and its concurrent favouring of causes over reasons—the list could go on.

1.2. Constructivist-Pluralism

Against universalism, the twentieth century has seen the development of an alternative meta-concept, that of constructivism allied with pluralism. There is a terminological coincidence of pedagogical constructivism with mathematical constructivism, itself pertaining to the intuitionist school of thought in mathematics. Throughout this paper, when referring to a pedagogical meta-concept, we will employ “constructivist-pluralism.” In later sections, when referring to a pedagogical/logical meta-conceptual pair, we will drop “constructivism,” and use the term pluralism/intuitionism. We will demand more from constructivism than from universalism given the former is a contemporary meta-concept seen as a definitive winner against the latter.

According to Derry, “the giving of attention to the process of meaning-making itself, rather than the outcome of such a process, is often referred to as constructivist theory” (Derry 2013, 45). In tandem with her critique of constructivist-pluralism, we pay close attention to the ‘making’ in meaning-making, which will be seen as perhaps too liberal

and, despite its avowals, decontextualised and un-networked from any historical inferential web. Secondly, the mention of “outcome” refers to the failings of universalism: conformity to the universal is assessed via outcomes, mimicry of pseudo-learned concepts. In its intentions, constructivist-pluralism appears a healthy meta-concept—but its pragmatics are too arbitrary and a-historical. While it does not produce universalism’s parrottings, or mere reliable differential responsive dispositions (Brandom 2000, 162), it conjures a mirror image of off-the-cuff, allegedly creative interjections.

Still, “constructivism has succeeded in designating learning as an active process where meaning is acquired through a process of meaning-making rather than through the simple transmission of knowledge or through a behaviourist conditioning of response” (Derry 2013, 45). Moreover, its emphasis on *a priori* knowledge seems appropriate as an alternative to universalism, where “*a priori*” denotes the Vygotskian emphasis on the historicity permeating the learning environment externally and internally (Vygotsky 2012, 182–183). These intentions should be held in mind when considering how the alleged creativity of this framework is said to overcome universalism.

Constructivism is seemingly opposed to *realism*—pertaining to the reality of what is ambiguously designated by “objective world.” It apparently rejects the Kantian intelligibility gap, but implicitly assumes the world is devoid of meaning without a mind constructing meaning *upon* it. And so, hinges on a separation of mind and world. Such a “world [is] devoid of meaning without the contextually sustained activities of participants, [assumed] as given outside and separate from human construction” (Derry 2013, 46). This foundational assumption gives the world a noumenal—ultimately unknowable—status, which is firmly at odds with the *a priori* epistemic purchase constructivism purports to have. In this fashion, the Kantian intelligibility gap is simultaneously constituted and unbridgeable.

Despite that, constructivism sets itself out as an alternative meta-concept by giving itself the task of pluralising epistemology. This seems to strive towards radical universality, where every individuum is determined by difference. However, here difference is affirmed without determination: meaning is *just* ‘made,’ spontaneously, and out of any relation. It is not even made *ex nihilo* in the learner’s godlike mind: it is instead *given* by biologically over-determined developmental stages as proposed by Jean Piaget (Vygotsky 2012, 21–36), without interaction or sociality. Here, instead of a “given” world impressing itself on the mind, “creations” of a closed mind imprint themselves on a barely existing world. Historically unaccounted for, such imprints can become confused with spontaneous acts of creativity.

The most perverse corollary of the constructivist thesis unwillingly resembles the totalising act of universalism—the difference being that constructivism dispenses with any criteria for knowledge, while universalism over-determines them. As Derry puts it, “the possibility of meaning arising in a [world-]historical process, whereby nature is transformed through human activity, simply does not arise” (Derry 2013, 48). We inserted “world-” in this quote to reinforce the notion that the world is excluded from this account through not being historically synthesised. “Nature,” too, becomes reified in these meta-conceptual operations—again, as much as universalism does so, by holding Nature as a preordained developmental blanket. While universalism leaves such contradiction implicit, constructivism actually makes it its slogan.

Constructivism appears to have two core tenets:

- 1) World is devoid of meaning until meaning is constructed;
- 2) Meaning is limited to the constructive activity of individuals.

In pedagogical practices, constructivism is operationalised through a focus in “knowledge construction,” in the pluralisation of knowledge, and relativist approaches to knowledge, moving away from ‘mere instruction.’

Pluralisation of knowledge has seen the development of a notion of “implicit knowledge,” in which formal education is replaced by an apparently beneficial levelling of learners and teachers—the former are elevated, and the latter’s “authority” is diminished. Student elevation credits their assertions with contextualised knowledge univocally asserting itself as “equal” to the proposals of schooling, and not so much by crediting the student’s ability to formulate questions. Basically, and contrarily to its claims of “collaboration,” constructivism will fall again on one-sidedness and in foreclosure of true bridge-building.

Rejection of “instruction” is a just rejection of universalism: mass schooling, transmission approaches, didacticism, even un-dialectical empiricism. Constructivist-pluralism’s main critique is specifically against transmission and hierarchy. Consequently, it is against didacticism and coarse-grained mass schooling. The “transmission framework” can be described like this: the learner is passive; the teacher is the only source of knowledge; *only* through the teacher can the student acquire knowledge. This last tenet implies that the transmission framework refuses to recognise any body of knowledge in the student’s context, and that there is a refusal of any “spontaneous” construction of knowledge from the student. The issue with this critique lies mostly in the notion of spontaneous—non-historical—knowledge in the student.

To affirm itself as an alternative meta-concept, constructivism relies on proposing epistemological “inclusion” and plurality, designing curricula aimed at the “individual” needs of learners—constituting

constructivism's insufficiency as an attempt at overcoming universalism. Fully developed, the liberal notion of what constitutes "individual" needs is parallel to totalising, monotonic amplification of glorified monads; the deathblow to the dreams of an alternative pedagogy is dealt by combining this totalising of the individual with epistemological inclusion and plurality. At first, pairing these seems benign. But how can they work themselves out in a framework of totalised, amplified individuals? Is every individual knowledge-bearer equipped with sensors that can make other "individual knowledges" intelligible? Apparently not, when each individual's knowledge is self-legitimated, and the "world" is held as unintelligible, other individuals are not recognised and can only be "constructed upon" by arbitrary caprice.

This is a parody of inclusion, and a victory of over-determination. Here too, the general ceases to be a principle of connection mediating the individual towards universality, and the individual is overdetermined as a universalising principle. Despite not assuming this defect (inclusion stopping short of itself, given no individual can host a model of other individuals), constructivism holds the pluralisation of knowledge as a solution to the shortcomings of inclusion. Through pluralisation, the malefices of hierarchy and one-sided authority are set aside, and all knowledges become "equal" by conjunction. Paradoxes will multiply through relativisation: "No one is wrong; both are right in their own special way." This is an anti-learning stance: when confronted with paradox, contradiction, or provisional unintelligibility, learners are invited to *not* analyse what makes it so; to not inquire into the theoretical framework allowing for the apparent error. Consequently, they are being asked to passively generalise such a theoretical framework as transhistorical, unquestionable, eternal—both the framework inviting this, their "own" individual framework, and their "opposing but equal" interlocutor's.

Part 2—The Logics of Contemporary Meta-Concepts

By describing the operations of contemporary meta-concepts in pedagogy, we have hopefully garnered an adequate picture of their theoretical frameworks, enabling us to propose their operative logics. It is worth repeating that, in sections 2.1 and 2.2, the logics considered in their socially synthesised form and as such, necessarily degraded from their scientific granularity.

2.1. Formalism towards Universalism

Ilyenkov himself has looked into the subject of formal logic and claimed, justly so, that if by itself, "philosophy does not have any issues with [it]"

(Ilyenkov 2018, 10). Still, philosophy ought to and can inquire what aspects of formalism, especially if degraded, appear to be transmitted to and operative in various areas of human inquiry, such as the formation of a scientific outlook in the young.

We contend that pedagogical universalism's undergirding logic is that of logical formalism, especially the axiomatic aspects of the latter, if not also in the ultra-abstractive sense the term 'formal' had for Kant, which still permeates contemporary understandings of logic.² It took shape in the revolutionary days of logic and mathematics through the work of Hilbert, after the developments of Frege and Russell. Wittgenstein's famous claim, "The world is all that is the case" (Wittgenstein 2001, 3), poetically resonates with the comparison we're about to elaborate on.

A formal logical system is an abstract structure expressed in a formal language, grounded in axioms which allow the derivation of further theorems through use of a set of pre-determined rules. Formalisation of the initial axioms is obtained by their formulation through a formal language, deemed sufficiently expressive for the constitution of the system as *consistent*. (Hilbert and Ackermann 1950, 38–43) Crucially, consistency is held as a regulative ideal—that of the impossibility of deriving contradictions from the system at hand (Hilbert 1904, 135). In this manner, it was hoped that any theorem derived from the system could be proved through the *necessity* provided by the interplay of the axioms and the formal language used for this aim.

Formal logic is historically chain-linked to Aristotelian logic, through its unexamined presupposition of two of the three main "laws" (we'll call them Principles) of classical logic: those of Non-Contradiction (PNC), and of the Excluded Middle (PEM). Aristotle's (assertoric) syllogistic was structured independently of his explorations in modal logic – although the latter work hinges on the previous, by being structured upon it: modal qualifications are apposed to (previous, merely assertoric) premises, creating an interplay between necessity and possibility with their respective outcomes.

Logic being held as an *organon*, an instrument of thought, and thought as yet another *organon* for the realisation of the human in the world (and vice-versa), we are interested in how the outcomes of logical procedures are seen as the final word on the constitution of any subject-

2. It is important to note that although universalism historically precedes mathematical formalism, we are still employing the former as a pedagogical meta-concept. Nonetheless, the very meaning of the term "formal" in logic has had various fluctuations (Dutilh-Novaes 2011, 303–332) and these in turn have informed each successive iteration. It will not be a stretch to suggest that in its decontextualised, free manipulation of symbols, Hilbertian formalism descends from the ultra-abstractive sense of Kant's formal logic.

matter of choice. Logic, in its everyday usage, can be seen to claim extraordinary onto-epistemic purchase on the world, nature, reality. Under everyday circumstances, an unexamined assumption that the conclusion of a correctly derived syllogism is, if valid, also necessary, imposes an almost *fateful* status.

Usually, the strength of this validity and necessity is given sustenance by hinging on the aforementioned PNC and PEM. It is important to note also that validity of a syllogism is not identical to its modal necessity, in the existential sense of the latter. We are not claiming that certain cherry-picked logical systems are “wrong,” but that despite being sufficient for their own frameworks, not only in the historical sense but also in the suspended status of their theoretical claims, they will then be seen to lose much of their philosophical leverage if totalised in everyday interactions. It is in this sense that we insist that modality is codified in everyday transpositions of formal logic, or is at least contingent upon its strongly featured ideal of consistency—especially when it trickles down to that framework’s openness to its bridging with further historical developments and further realisations of intelligibility. Namely, if such a framework is seen to underlie forms of life and sociality—theoretical *practices*—such as pedagogy.

The formalist ideal of consistency is one of absence of contradictions. At first, there may be no issue with this: a formal logical system can be abstractly structured, and account for many avenues of mathematical knowledge. Those unaccounted for are deemed problematic: problems. The fracture lies precisely here: are these problems, by virtue of their constitution as such under an axiomatically grounded formal system, as yet unsolved, or simply unsolvable? Later, intuitionists grabbed the answer to this question as their banner. For now, we will not enter into how they deemed it answerable, beyond saying they chose “as yet unsolved” in order to structure an intelligible answer. What interests us now is how the choice of “unsolvable” illustrates the “classical” universalist meta-conceptual practice.

The grounding axioms of a formal logical system are established as consistent—as necessary, and non-contradictory between themselves. Any theorem derived from here will behave as such. Any other theorem outside this system will be seen as contradictory from within the structure, deemed unintelligible to it. It is our contention that a consistent formal system is only composed of necessary statements and their interplay of possibility and impossibility, which closes off the system to further intelligibilities. This is reinforced by the presence of the PNC and the PEM. In the case of the latter, an issue arises: that of the transhistoricity of a formal logical system. The PEM, in the shape of “either(true/false)/or(false/true)”, excludes any third statement or term from a theorem—until the end of time and beyond it. In its negative

formulation, “neither/nor” will also prevail, excluding not only the so-called middle, but even *both* statements or terms. A formal logical system appears to preemptively *decide* what is intelligible or unintelligible under its grid, and refuses itself to develop any contradictions and make them intelligible. Retrospectively, this refusal implies that a consistent formal system has no tools (axioms or rules), allowing it to revise itself to acknowledge further intelligibilities (Girard 2016, 96–98).

The point at which formalism and universalism start to fit each other pertains to this inflexible axiomatization. Universalism sees itself as an abstract rationality grounded on its consistent, necessary, and non-contradictory principles. Such principles are also abstract, and formalised under a language deemed as the most expressive for universalising purposes. We have criticised this as a static, transhistorical ideal: it can only express those concepts it can articulate formally, but not those that call it into question; moreover, it cannot call itself into question. Such a meta-concept becomes unintelligible to itself, for lack of conditions to express the possibility of its normativity, and merely affirming it as lawful.

A pedagogy developed under such axioms will necessarily conform to the fixed price of non-contradictoriness: any error is immediate; therefore, unintelligible. Facing unintelligibility of error, the only practice left to such a pedagogy is but the reification of a theory. The *organon*’s remaining are basically those of rote-learning and summative assessment. To a formalised pedagogy, any learning error is defined as a contradiction, a closed alley where the instructor sees no *possibility* of retracing the steps of error and re-developing them into the knowledge of the subject matter at hand. Furthermore, it excludes the possibility of practically using the contradiction to enlighten learners that error may inform them of another theoretical framework which is determinately negated from the one under which the error was occasioned.

Conversely, such a pedagogy forecloses the possibility of mediation. Supposing we are closed off in a context where what is understood by “the world” has not yet been called into question, and the statement “the world is everything that is the case” is a picture of the meta-concept of a theoretical practice aiming for the formation of minds-in-the-world: If what such proto-minds state is deemed “not the case,” they are foreclosed to being a constitutive part of the world. The intelligibility gap affirms itself, placing the learners’ minds beyond their reach.

The most significant issue in how degraded formal logic operates in everyday practice can be seen through a blunt analogy with Gödel’s blow to formal logic. Simply put: the formal language chosen for the structuration of the system cannot prove its own consistency (Gödel 1999, 596–599). As we’ve seen above, sticking to a formal logical system as such

practically entails omitting its own inconsistency while demanding consistency from everything else; the formalisation is hiding its arbitrariness and masking itself as lawfulness. This bears upon our claim that such logic undergirds universalism, for this is how a meta-concept is shown to not be able to call itself into question. As a corollary, such a pedagogy cannot provide tools and form persons who can critically perform that same task to themselves and the system which formed them. In this fashion, universalism operates as an all-too-formal logical system when it generalises and (as per **Section 0** above) de-radicalises the universal, reaffirming itself as totality in unquestioned reproduction of its axioms and refusal of the intelligibility of contradiction.

2.2. Intuitionism towards Constructivist-Pluralism

We will now consider a logic operative through the meta-concept of pluralism. L.E.J. Brouwer founded the intuitionist school of mathematical thought (Brouwer 1984 (1912), 90–96) and its logical investigations were pursued by Arendt Heyting (Heyting 1956, 97–114), attacking formalism through a revolutionary perspective on the interrelated questions of: firstly, the principles of logic (destituting them as laws) (Heyting 1956, 1–3); secondly, their abstract permanence above a demonstration of a proof (Brouwer 1984 (1912), 81); and thirdly, the issue of dismissing the semantic over preference of the syntactic (Cavia 2022, 25).

The third issue deserves some attention: Formalism reinforced the givenness of axioms through the abstraction of meaning from the symbolic structure of a formal system. “For the formalist, the meaninglessness of the symbols is assured by their lack of referent, denoting nothing in themselves, but instead embodying a purely analytical practice” (Cavia 2022, 25). This emphasis on analysis would later be called into question, through the revelation of the implicit issue in how meaninglessness itself is dependent on a metalinguistic referential frame: that of the metalanguage in which the logical principles and axioms are formulated. In order to avoid this incipient loop, intuitionism defended a constructive attitude: the semantic façade of a mathematical construction is structured into it anew, through rejection of 2) and 1). This was done by rejecting the *a priori* status of the PEM, making the truth or falsity of a statement contingent upon how this semantic criterion is embedded in the construction of a proof of that statement. While still conceding that “either true or false” holds locally for a single assertion, intuitionism refuses the totalising axiomatization of the PEM. This has profound practical relevance to the creative aspects of mathematics and the role of logic in even the most mundane activities and institutionalised practices.

At the core of intuitionist logic, there is a rejection of formalism's propensity for abstraction. The purely analytical practice hinging on the "platonistic," independent existence of real mathematical objects—whose supposed transhistorical meaning buttresses the meaninglessness-as-impartiality of a formal system—is bypassed in favour of a constructive attitude where "proof construction [for a statement is] an ontologically ampliative exercise which brings a truth into being" (Cavia 2022, 27). It is noteworthy that here intuitionism is close to Hegel, a figure of importance to radical universalism. The becoming of a truth in intuitionist practice is resonant with Hegel's stance on truth being immanent to an inference, and not to an abstracted, free-floating assertion (Brandom 2019, 435–436).

This emphasis on construction has severe implications for 2), going back to the "as yet unsolved" or "unsolvable" formalist problem of problems. In it, a demonstration of the truth or falsity of a statement holds eternally. The same goes for its unintelligibility—we now see how formalism's failed expulsion of semantics allows for the coarse binarity of intelligible/non-intelligible when *the semantics of the "laws" of logic remain in place*. In its turn, the intuitionist framework, while also starting out without a semantics (but constructing it inside proofs), insists that "if no proof currently exists for an arbitrary assertion A, then no guarantee can be made in advance regarding its decidability" (Cavia 2022, 27).

It is important to note that our description of formalism's behaviour facing the meaning of a statement is not quite the same as that exemplified by Cavia regarding intuitionism. While Cavia is talking about the (proof by) demonstration of a statement, we are talking about an as yet unconstructed proof. The difference lies in the methodology: Formalism is demonstration-oriented via de-semantification; intuitionism is construction-oriented before semantification. Formalists opt for demonstration under abstraction, under the outlines of the looming shadows of the axiomatic building of classical logic. These predetermine what falls in or out of the demonstrability net; the meaning of a statement is demonstrated, pre-ordained, even before it is uttered or inscribed. Tragically, a statement has already been demonstrated before it has been demonstrated; it had been embedded in the formal system from the outset—hidden even from the formal system itself. As such, formalist "problems" may quickly appear merely, eternally, unsolvable. Against this, intuitionism shows an active, even creative interest in tackling the issue from the 'as yet unsolved' outlook.

Intuitionism partially accepts contradiction, which was excluded from the formalist framework. Mechanically, this is seen in how the PEM is excluded from a construction until the intuitionist creates an inferential rule that then makes it hold over the local of the construction

where it is applied—a construction is open to contradiction until it is not. On the other hand, when contradiction appears in a construct, it is now held as a door to the necessity of the possibility of further construction. An undecided statement's proffered unintelligibility is now held as possibly intelligible, when a future construction may decide it.

At first, this generosity is as productive and creative as it seems. It is also where we find the articulation between intuitionism and pedagogical constructivist-pluralism. Pitting construction against demonstration correspondingly maps in harmony with the opposition between the pedagogical meta-concepts of universalism and constructivist-pluralism. A cursory look at intuitionism and constructivist-pluralism shows that the rejection of the PEM is in tandem with the rejection of a totalised pedagogical framework: both entail rejection of abstract, universal, purportedly de-semanticised and de-semanticising axioms; both accuse axiomatization of carrying a disguised transhistorical semantics into their practices.

This can be seen in the way universalist pedagogy operates as proof demonstration: when the former has recourse to no other practice but learning-by-rote and summative assessment, it is instituting the timelessness of the demonstrability net where the meaning of a statement or a subject-matter's fact is preemptively demonstrated. Learners' practices only amount to reproducing universality in a particular performance. Consequently, there will be no talk of provisional undecidability regarding statement or subject matter; learners are foreclosed any agency regarding their ability to even construct a question about the necessity and the meaning—the purported consistency—of the framework. Against this, the intuitionist and constructivist-pluralism pair appears more fruitful. Both schools of thought hold that construction is “ontologically ampliative” and that meaning is to be constructed by the individual performing it. From this perspective, learners gain agency against the universal or totalising axiomatic framework: they now have the creative responsibility to construct *their own* axiomatics under which concepts will become meaningful through an inferential process. In a pedagogical context, this implies a new degree of trust from the instructor towards learners. It now falls to the learners to construct a proof of their meanings.

It is here, though, that both meta-concept and its operating logic fall short of the demands of radical universalism. Is there such a thing as “one's own” axiomatics? Let us remember that constructivist-pluralism holds the world to be de-semanticised, while it still refuses any de-semanticising, abstract universality.

Holding that in mind, we should now mention that after the intuitionist call for revolution the bulk of criticisms toward it amounted to claiming that under such a framework, the requirement of constructing

a proof for every statement would entail *too much work*; in effect, the price for its allowance for creativity had to be paid through restricting the use of many classical mathematics, in order to be free to invent new tools. Another criticism was, in fact, a self-avowed tenet of the intuitionist school: in its genesis, mathematical activity is a purely subjective performance, an apex of creative solipsism (Heyting 1984, 52). Against this, critics who were even minimally “platonistic” about the “reality” of mathematical objects had sufficient rhetorical purchase to dismiss intuitionism. This is not our stance, principally given we are not discussing ontology, but also because taking either position—the platonistic-realist or the solipsist one—would cancel any critical leverage we might have regarding intuitionism’s eligibility as a logic of a pedagogical meta-concept.

There is an important interplay between the lazy and anti-solipsist critiques: it hinges, respectively, on the issues of trust and of how universality is organised in a pedagogical situation. Intuitionists contend that behind an assertion or a statement A, another assertion is implicit: “I have performed the necessary construction in order to assert that A” (Heyting 1956, 99). Under this assumption, an interlocutor is entitled to trust assertion A, but can also ask for the reasons—the constructive steps—buttressing the assertion. Opting for not doing so can be—but not necessarily is—a *carte blanche* for the possibility of asserting something without all the construction work required in order to do so. We are no strangers to this. Everyday practices go on under the assumption that our interlocutors are performing under a framework that semantifies their claims. A certain practicality, or what has been incorrectly called ‘pragmatism,’ invites us to not spend a lot of time asking one another to illustrate our everyday assertions with a whole theoretical framework. We live by allowing for a partial suspension of disbelief in our interactions, thus authorising a fraction of solipsism in one another. Nonetheless, as we all know by experience, semantic glitches—everyday misunderstandings—arise. We may unravel them, or leave them pedagogically unexamined for the sake of practicality or a liberal pacification of dissension.

The constructivist-pluralist meta-concept, despite its constructive ideal, appears to favour the laziness or suspension of disbelief and a solipsist framework. Pedagogical settings are a critical juncture where this tolerance can be embedded in our practices. We have seen in 1.2 that the constructivist-pluralist meta-concept presupposes a spontaneity of knowledge in a learner, and how it erroneously identifies creativity with *a priori* knowledge. The former is an agnostic process on the way to knowledge, whereas the latter implies that an individual purportedly carries biologically triggered universals in their mind, or that whatever

socially acquired knowledge from their individual history (family, cultural identity) is *immediately* translatable as identical with the knowledge being presented in a pedagogical setting.

Intuitionism subscribes to creativity, not the spontaneity of knowledge. Still, it is by conflation of these two categories that constructivism applies intuitionist logic in its program, along the unquestioned assumption that a learner has performed all the required construction and semantification of their assertions by the light of their individual axiomatics. In the name of epistemological inclusion and plurality of knowledge, learners are trusted to have legitimacy to regard an instructor's or a peer's statement as false, and sustain theirs as true. As we have already hinted at, pluralisation of knowledge is affected through the generalisation of solipsism. If every individual knowledge is preemptively, abstractly legitimised as universal in its own constructed personal, unique way, we have indeed gone around the totality of demonstration. But on the other hand, all knowledge(s) have become equal: each personal semantic framework adds up to a totality of arbitrary de-semantification of the "outside" world. The constructivist-pluralist pedagogy's solution to this onto-epistemic conundrum hinges, after all, on the purportedly benign unsolvability of interpersonal contradictions, and consequently, on the unintelligibility of error as the possibility of realising new knowledge in each other.

An interesting way to look at this issue is again under the lens of modality. Intuitionism's break with totalising axiomatics allowed for the novel notion of the necessity of possibility (it is necessary that an undecidable statement is possibly decidable) (Barcan 1946, 1–16; Cavia 2022, 166–167). Bizarrely, what happens under the constructivist-pluralist meta-concept is the seemingly innocuous notion of the possibility of necessity. Given any learner's purportedly constructed framework is deemed possibly necessary by its own lights, their individual axiomatics are reified as necessary in their own closed-off pseudo-universality, forgetting the locality of such necessity. We see here that contradictions between personal pseudo-universes, although internally legitimated, are externally de-semantised. As such, they cease to be contradictions and become merely competing self-identical affirmations, oblivious to whatever else that does not fall under their constructed net. Misbegotten universalism comes back, with a vengeance.

As we have seen above, this fails the requirements of radical universality, where the unity between particulars—in this case, learners' constructed frameworks and the instructors' own—is "created by the attribute that one individuum possesses and the other does not. And the absence of a certain attribute binds one individuum to another much more strongly than its equal existence in both" (Ilyenkov 1977, 350). The

pluralist/intuitionistic meta-conceptual framework refuses the bindedness of one particular to another, given that each of them is a monotonically amplified universe—a totality necessitating itself. This proliferation of totalities as well as its tolerance of de-semanticised contradiction ought to be curbed, if we want to glean the affordances intuitionism has over the constraints of formalism. Accomplishing this, it becomes possible to realise learning environments where intelligence and intelligibility can flourish—where *individua* become so through context-sensitive learning of each other’s attributes. For such a purpose, we may have to learn from yet another logic.

Conclusion—What Logic for Pedagogy?

Presenting matters in this manner has not been done for the sake of mere castigation. Universalism and pluralism, formalism and intuitionism, all of these meta-concepts present degrees of adequacy and inadequacy when facing distinct demands from the dialectical onto-epistemic commitments of radical universality. We have speculated on how each paradigmatic pedagogical meta-concept operates through logical paradigms in the hopes of grasping where certain inadequacies have their root. This genetic method could help us revise the tools which gave them shape. If such a task involves abolition, it is only that of totalising reifications: Human agency simultaneously features the duty of constructing the sharpest tools for its flourishing and the right to refuse the bluntest in their obsolescence and insufficiency.

By veering towards abstraction, the universalist/formalist pair perpetuates hylomorphic vices: when form hovers so much above matter, and knowledge absconds as far, such a pedagogy forms the person for a life where human activity is forever separated into “intellectual” and “manual” labour. The pluralist/intuitionistic pair, if taken to its own extremes, produces a parody of the liberal subject: a collection of idiosyncratic and arbitrary rules for the concoction of an inward self, if a self at all. This, of course, is not grounds to claim that the scenario would be better if we were only at odds with universalism/formalism. Formation of the Ilyenkovian learner—of Marx’s social individual—that is, a formation of radical universality, implies acceptance of any of these meta-concepts not necessarily and strictly as foes, but as plastic, concrete particulars eligible for revision and transformation. A radically universal learner (or an instructor, for that matter) does take aspects of human experience as subject to abstraction, symbolisation, even as axiomatisable, in the same extent they take particular conditions for epistemic agency as socio-historically varied, and autonomy as a principle for epistemic agency. That is to say; the radical universal learner takes meaning to be intelligible both outside and inside oneself, beyond

mere dogmatism or mere skepticism (Ilyenkov 2007, 29–31), as not only abstract and universal, not only concrete and plural. A logic that can encompass this minute but cosmopolitical detail beyond a mere tolerance of paradox will be a genuinely dialectical logic that reveals the world as intelligible by revealing the learner as constituted by and constitutive of the world—a logic for synthesis.

In the logical field, there have been attempts along these lines. Paraconsistent logic, for example, has attempted to accommodate paradoxes inside the formal and the intuitionist toolkit, while claiming that dialectics requires dialetheism (Priest 1989, 388–415), the latter being the view that there are true contradictions, undergirded by the notion that a contradictory statement can be true. Unfortunately, a critique of the technical and ethical implications of such a view does not fit in this paper. Suffice it to say, dialectical commitments would have meagre pedagogical purchase if we were to be content with accepting paradoxes and inviting ourselves to not investigate the conditions that allow those to take shape in the first place. Certainly, an attitude at odds with the emancipated learner. In this regard, paraconsistent logic does not appear sufficient for radical universality.

There are, though, other logics that purport to accommodate dialectics and fine-tune the exaggerated traits of formalism and intuitionism. In particular, Jean-Yves Girard's linear logic appears to be the best candidate for such task (Girard 1995, 1–42; 2006; 2016; Fraser 2014). A critically relevant technical aspect for this aim is that a logic for radical universalism would have to be able to accommodate determinate negation. Linear logic does so, while it also manages a pragmatic context-sensitivity which can use formalism's axiomatcity and intuitionism's constructive schemes in order to constitute itself as a historical logic. Technically, this is granted by the fact that linear logic operates through networks, instead of axiomatically foreclosed deductive trees; rules (norms of thought) can be localised inside a global network; axioms are revisable; its use of cut-elimination allows for redundancy (that is, the particular is not abstracted into the singular); and it features a logical operator for determinate negation. In the sense that linear logic studies processes, not objects, it is not about purity, but change. Admitting contingency, it is then a logic that reveals how truth takes shape interactively, beyond its positing from formalism's "above" and intuitionism's "below." Taking into account, for pedagogical purposes, that "linear logic (...) can be seen as a logic that will abandon sacrosanct 'reality,' in order to focus on its own structure" (Girard 2006, 12, my translation), it seems fruitful to consider it essential in a toolkit for the interactive formation of a rational self-determining agent.

In order to allay the pluralist reader's fears that what has been done here is not an atavistic call to return or restore coarse universalist ideals, it is worth stressing that to require pedagogy to *have* a logic is not a mere concession to the fireworks of technocratic vocabulary. As has been stated in different fashions along this paper, logics are the public transport of thought, not its caste-exclusive highway. To design a logic for the formation of rationally self-determined agents is not to concede to maleficent techno-capital, but to contribute to such public technics of necessitating the possibility of dismantling the thought of capital. In this sense, under capitalist subsumption, to renew the logic of pedagogy is to extend the learning environment far beyond the classroom into myriad particular instances of universal human experience in the hopes of corroding the fetishistic sway of the commodity over the formation of thought.

Perhaps now is the moment for a clarification: throughout this essay, by using the term 'instructor' we have meant "a person who partakes of a vaster inferential web of knowledge than a learner, and is thus able to dialectically develop concepts *with* the former". An instructor is an agent of radical universality—a school teacher, a parent, a guardian, a peer, a neighbour... We have avoided being exhortative in tone, but under this definition, it seems that an instructor could and should be *whoever* crosses our path, precisely because an instructor is also a learner. This is not hierarchical equalisation: Two radical-universalist interlocutors bootstrap one another into a reciprocal and interchangeable hierarchy structured upon the semantic noise which they unfold as meaning and knowledge in their theoretical practice. After all, it is a radical-universalist core tenet that we can only be formed as rational self-determining agents who realise their knowledge of the world, if we determinately negate, that is, *transform* oneself and one another, into true, just, and beautiful universality.

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Biography

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