

My Story

Two of the deepest theorems that modern “meta-mathematics” has so far been able to produce are called the “Completeness Theorem” and the “Incompleteness Theorem”.

Both theorems were first proven by a towering figure in mathematics & logic, whether the ancient world or the modern is taken as the backdrop against which his achievements are assessed: Kurt Gödel.

Only his Incompleteness Theorem applies for all “orders” of mathematics above the “first”.

Those “higher orders” are so-named because they take increasingly abstract qualities of mathematical ideas as the “objects” that they explicitly address -- up to qualities of qualities of qualities... .

The “first order” mathematical logic explicitly addresses only the qualities of individual, basal mathematical, mental “objects”, e.g., those of individual “natural” numbers -- 1, 2, 3,... .

Uniquely, at this “first order” level of logical language, both the Completeness Theorem and the Incompleteness Theorem apply.

This may sound impossible, contradictory.

In reality, it is revelatory.

This “first order” conjunction of completeness & incompleteness means that something unintended & unexpected -- something deeply surprising for mathematicians, as well as for others -- is true about mathematics.

The whole thrust of the development of the “symbolic logic” of mathematics, as it burgeoned forth from the later 1800s, up to Gödel’s “shattering” discoveries of the early 1930s, verging upon the pit of the first “Great Depression”, was to prove mathematics to be “consistent” -- non-self-contradictory -- and also “complete” -- able to deductively generate all of the truths within it, from just a handful of “indisputable” assumptions, called “axioms”, or “postulates”, five “postulates” for “natural” arithmetic, akin to the famous Euclid’s five “postulates” for geometry.

During 1930-1931, with his proof of the Incompleteness Theorems, Kurt Gödel proved that this “Holy Grail” of mathematics was but an impossible dream.

He proved that, if mathematics as a whole, starting from the most basic arithmetic, was to be non-self-contradictory, then it must also be incomplete -- harboring hidden truths, inaccessible to deductive derivation within the systems wherein those hidden truths reside.

At the level of the “first order” mathematical logic, Gödel’s proofs, taken together, mean that, even for the most ordinary arithmetic, there cannot be only a single, “standard”, monolithic “model” of the first four, “first order” postulates of that arithmetic.

That is, the “existence” of the “first order”, “standard model” of, e.g., the most “natural” arithmetic, that of the numbers 1, 2, 3, and so on, which was the only “model” that the makers of mathematical logic ever meant to assert, inescapably brings with it the equal “existence” of many more “non-standard models” of that arithmetic.

The inhabitants of these alternative arithmetics are new, *different kinds* of “numbers”. They are “numbers” that “behave” vastly-differently from our familiar “standard numbers”. In this they are akin to the non-standard spaces of the non-Euclidean geometries. One of the latter is now our best-yet model for actual, *physical* space[-time].

This inadvertent establishment of these “non-standard” arithmetics was entirely unintended by those who arduously built-up the esoteric, symbolic, ideographical artificial language of mathematical logic, from Leibniz’s *circa* 1666+ unpublished manuscripts, to Boole’s mid-1800s independent *rediscovery* of parts of Leibniz’s discoveries, paving the way to the ‘Boolean computers’ of today, to Frege’s, Peano’s, and Russell’s works of the late 1800s to the early 1900s, and beyond.

And yet, ever since Gödel’s pair of theorems, we know, about these “non-standard” arithmetics, that *there they are*, lurking in the long-unfathomed depths of the implications of the logic of the “standard” numbers.

And that is where *my* life’s story comes into this, vaster, Story; this *many lives* Story.

The completeness and incompleteness theorems, together, prove that, if the logical existence of the “standard” arithmetic is given, then “non-standard” arithmetics must also, *and inescapably so*, co-exist.

Alas, these theorems do not include complete plans for actually **constructing** such “non-standard” arithmetics -- e.g., for actually finding the “non-standard” complement of their axioms.

But suppose that, in the course of your life’s quest -- a quest driven by an equation, seen in your childhood, during a sleeping yet lucent, unforgettably vivid dream -- that you stumbled onto just one of these “non-standard” arithmetics, perhaps the one that is, among all of them, the most ‘antipolar’ opposite to the “standard” one?

And suppose that you discovered, to your initial surprise, that this new, until-then unnoticed “natural” arithmetic coincided with an also “non-standard” arithmetic and algebra *of logic itself*? Suppose further that, from the axioms of this “non-standard” logic, there could be proven a theorem that constitutes a strong contrary to an axiom that George Boole -- the Boole whom we met earlier, as the founder, along with Leibniz, of the mathematics of logic -- assumed, and characterized as no less than “the fundamental law of thought”?

If so, then this new arithmetic evidently also models a new logic, supplementary to the “‘standard’” logic of Aristotle, Leibniz, Boole, and their successors.

And suppose that this “new” logic was found to echo a very “old” one -- one that had developed, from ancient times, alongside, but also secretly interacting with, the Aristotelian tradition of logic; one older than, and also deeply divergent from, that Aristotelian tradition?

If you so discovered -- if you stumbled upon this new arithmetic for logic, and its new algebra for logic -- then **you** would be **me**. Or, at least, you **might** have become as I have become -- perhaps better.

Imagine, moreover, that this new arithmetic-logic was able to model nothing less than **history itself**. Imagine it did this by capturing, symbolically, ‘idea-graphically’, what, for today’s knowledge, is “hidden-in-plain-sight”: The architectonic of our ‘self-building’ universe, & of the many domains within it, its ‘sub-universes’, whether they be encountered by us as ‘sub-universes’ of human ideas, or as external-physical ‘sub-universes’.

NOT just the plateaus of history, the pauses in development, whose apparently static internal relations -- of complete inclusion, or of overlap, or of complete exclusion -- hold among the different “classes” or categories of a relatively stable, temporarily quiescent “ontology”, i.e., within a fixed universe, comprising a fixed number of “kinds of things” extant.

Such can be mapped by a Boolean logic.

But imagine, instead, that this new logic-arithmetic was suited to map especially the transitions between those plateaus -- between those relative pauses in/of history. Suited to fill-in, & thus to bridge, the gaps between one plateau and its successor plateau. To describe how it is that ontologies cumulatively expand. How it is that “universes”, both universes of discourse, e.g., universes of ideas, & universes of external-physical things, expand qualitatively, ontologically, due to the incompletenesses internal to themselves. How the “horizon” of completeness ever recedes, with each ontological advance, & can never be reached.

Imagine further that you then discovered an “analytical geometry” for this logic/arithmetic -- a “space”, yes, but **NOT** some static, dead pervasion. Instead, a deeply dynamical geometry. A space which ever expands itself, from within itself. A mathematical space which “expands” itself in a most profound sense, growing itself not only in volume, but in dimensionality as well. By ever adding entire new dimensions to itself. As the ontology that it maps adds new kinds of being -- hence new kinds of becoming -- to itself. From out of its own inner ferment. From out of its own internal incompletenesses.

And suppose you found too that, *within this discovery*, of such a dimensionally self-expanding space, are borne the seeds, the potential, for an unprecedentedly ‘propagateable’ -- democratizing -- algorithmically-heuristic, advanced human capability to think through [to] reality. To profoundly probe our lived, experienced actuality, so as to symbolically re-construct our historical past(s), and so as to symbolically ‘pre-construct’ our possible and likely future(s).

Lastly, suppose that, applying this arithmetic *to itself* -- applying to itself the universal combinatoric architectonic that forms its core -- you generated a potentially infinite progression of ever richer, ever more descriptively-powerful systems of “non-standard” mathematics.

In the 7th of these systems, the “meaninglessness” [or the “∞”] of division by zero bites the dust, solving the “singularity” conundrum, and the key principles for a ‘contra-Boolean computer’ are seeded.

If so, if you so discovered, then you would find yourself waking up amid a vast adventure, and thence resistlessly embarked upon that adventure yourself -- an adventure without limit, part of a Story that, though your own story must come to an end within it, must *Itself* be, potentially, a Story Without End.

Adventures contain both peril and promise, agony as well as ecstasy.

Before you venture further here, “reader discretion is advised” -- you are advised to “fasten your seat belt”. ...