

THE FOUNDATIONS OF LOGIC

BOOK I,II, III and IV

A Complete Treatise on Propositional Logic, First-Order Logic, Set theory
and Metalogical Theorems

BOOK I

PROPOSITIONAL LOGIC

The Unseen Maze



The Unseen Maze

Prologue: The Unseen Maze

Twenty years ago, a logician named Vibhuda L. Dor built a maze.

He did not build it from stone or metal. He built it from logic — from rules of truth and falsehood, from the grammar of propositions, from the architecture of implication and equivalence. Every wall was a theorem. Every **R**oom was a proof. Every door was a step toward completion.

Dor believed logic could be made physical. If you built a structure from the laws of thought, he argued, you could walk through it and emerge with truth in your hands. He believed the final metatheorems — Soundness and Completeness — could be proven not only on paper but in stone and metal.

He was almost right.

His team was small: logicians, engineers, mathematicians, and a psychologist named K. Komar. They worked in secret, deep beneath the earth, carving the maze into existence. They called it the Unseen Maze because it was hidden from the world, and because they believed truth itself was hidden, waiting to be found.

They reached the core. They reached **G**, the last **G**ear in a sequence of gears that spiralled through the Unseen Maze, each one containing a metatheorem encoded in its turning. This final **G** held the Completeness theorem, the proof that would seal the maze's logic. It was within their grasp. Then one mistake — one proof that did not hold — and the maze answered.

The walls moved. Passages rearranged. Doors sealed. Dor and his team were not killed so much as erased: sealed inside a space that no longer existed for the world outside. Only K. Komar survived. He had been in the control room, monitoring the experiment through the maze's cameras and sensor feeds. Komar had insisted on watching the human element — the hesitation, the way a mind breaks under paradox — and that insistence kept him at the screens when the maze closed. He watched the walls seal and heard the silence that followed. He has not slept properly since. His eyes are hollow from watching feeds that show nothing but shifting corridors and impossible geometry.

Over the next twenty years others entered the Unseen Maze. They did not stumble in by accident. They came by choice: rumour, ambition, the promise of a machine that could prove anything. Travellers arrived from the world of sets and functions, from the halls of mathematics and philosophy, because the maze seemed to offer mastery, discovery, the thrill of solving the unsolvable. Each believed they could finish what Dor began.

They failed. Some starved. Some went mad. Some simply stopped moving, their minds buckling under the weight of proofs. Some vanished into the shifting walls,

erased like Dor and his team. The maze did not kill; it waited. It did not forgive; it tested again.

The maze remains incomplete. It cannot fly — it cannot become a complete logical machine — until the metatheorems are proven. Soundness. Completeness. The final gateway theorems that bind syntax to semantics.

And now someone has entered.

Manu did not come because darkness called him; he came because puzzles and proofs had always called him. As a child he sat at his father's knee, watching diagrams and secret games he was rarely allowed to touch, learning the cadence of arguments more by ear than by sight. On rare evenings his father led him down into hidden corridors—soft light, patient explanations, the steady weight of a guiding hand—and those visits left Manu with a private map of shapes and questions he could never quite name. His father died when Manu was young, an “accident” people murmured about, and Manu grew up with the quiet conviction that the puzzles had taken more than a life; they had taken an answer. Now, drawn by that half-remembered shape, Manu follows the call of proof with a seriousness that is neither bravado nor grief but a simple, unshakable hunger to understand.

Lopa is with him — his college friend, brilliant and obsessed with logic. She is driven by understanding, by the need to see how formal systems behave when they are made to matter. She does not know her mentor was tied to the original group. She only knows she must understand.

Anrat follows — a philosophy student who has been obsessed with Lopa since their college days. His devotion is old and quiet; it has shaped the choices that brought him here. He follows because she follows, because proximity feels like purpose, because his questions have always been tethered to her presence.

They do not know what waits for them. They do not know that every room is a theorem, that every proof is a step toward survival. They do not know the maze feeds on proof, hums with the gears of logic, or that it is waking.

This is the Unseen Maze: a machine of truth and falsehood, of proof and contradiction. Those who enter must prove themselves — not once, but at every step. Each theorem must be proven in multiple ways — with the number and selection of proof methods varying according to the theorem's demands. Throughout the maze, you will encounter truth table, natural deduction, axiomatic, contradiction — and each successful proof buys time. Each failure costs it.

The maze is not cruel. It is simply logical.

Manu, Lopa, and Anrat have entered its depths.

They will not leave the same.