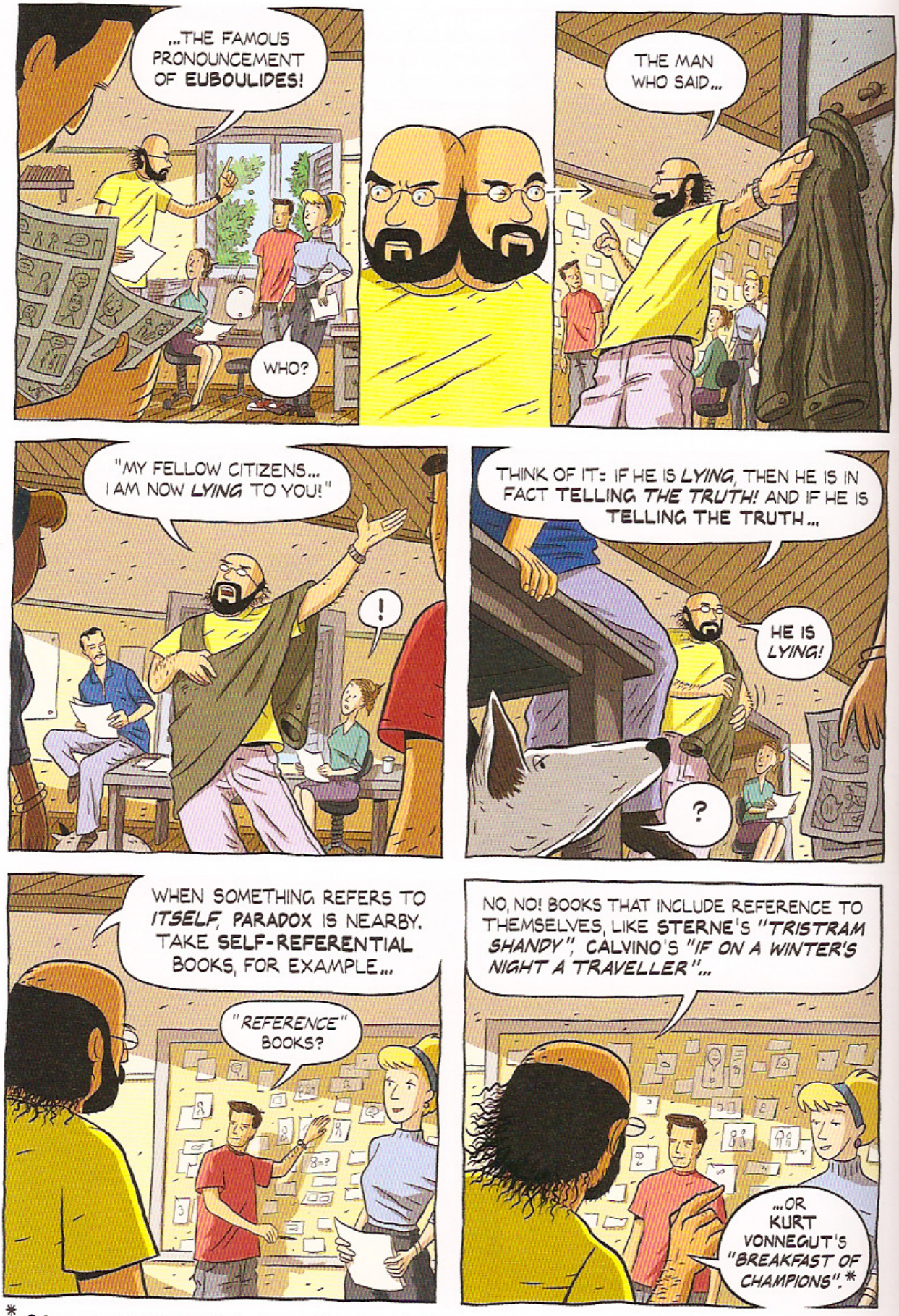

Anyway...
...I'm here to speak about my affair with Logic. So I'll stick to *that* — as much as life will let me.
SETS, YOU SAY? I THOUGHT YOU WERE INTERESTED IN **NUMBERS!**
In my research, I made much use of the simple idea of the priest Bolzano...
I AM! BUT **SETS** ARE AT THE *BASIS* OF **NUMBER!**
OH?
WHAT IS "3" BUT THE **SET OF ALL SETS** WITH ***THREE*** **ELEMENTS?**
"THREE-NESS" IS THE ***COMMON PROPERTY*** OF *THREE* UMBRELLAS, *THREE* HORSES...
THREE HATS...
THREE COOKIES.
SETS HAVE ***MOST*** INTERESTING **PROPERTIES!**
REALLY? AND I THOUGHT THEM *BORING!*


FOR EXAMPLE, A SET CAN CONTAIN OTHER SETS OR... EVEN ITSELF!
HOW CAN IT CONTAIN ITSELF?
THE SET OF ALL IDEAS IS AN IDEA...
...THEREFORE, IT CONTAINS ITSELF AS AN ELEMENT.
BUT NOT ALL SETS CONTAIN THEMSELVES?
NO! THE SET OF ALL BIRDS IS NOT A BIRD!
I SAY... THAT'S AN INTERESTING DICHOTOMY: THE SET OF SETS WHICH CONTAIN THEMSELVES...
...AND THE SET OF SETS WHICH DON'T.
ABOUT WHICH, WE CAN WELL ASK...
DOES IT CONT—
!?
WAIT A MINUTE!


In my life to date, I have written dozens of books and hundreds of articles... I've given thousands of lectures.
But I suspect my name will survive, if it does at all...
...For a confounded paradox I discovered that year.
A paradox that brought Logic upside down...
I'll give you a taste of it.
COCK A DOODLE DOOoo
Imagine a town with a strict law on shaving.
By it, every adult male is required to shave daily.
But it's not obligatory to shave yourself...
...For those who don't want to, there is a barber.
In fact, the law decrees: "Those who don't shave themselves are shaved by the barber."


"Those who don't shave themselves are shaved by the barber." It sounds innocuous... However, if taken literally, it leads straight to paradox!
For, you see, the question arises:
"Who will shave the barber?"
?
He obviously cannot choose to shave himself, for...
...Being the barber, it would mean that he is shaved by the man who shaves only...
#
...Those who don't shave themselves!
But he can't "go to the barber", for, again, that will mean he'll shave himself, which the barber isn't for!
D'YOU SEE THE PROBLEM?
I'M NOT SURE!
IT'S VERY MUCH LIKE THE PARADOX OF THE LIAR!
VICH "LIAR"?



* Of course **LOGICOMIX** is also self-referential.


SUPPOSE NOW YOU MAKE A COMPLETE CATALOGUE OF ALL BOOKS THAT ARE NOT SELF-REFERENTIAL!
IT WILL BE A BIG CATALOGUE, ZIS...
SURE! BUT THE QUESTION IS...
WILL IT CONTAIN ITSELF?
?
GOT IT!
IF IT DOES, ZEN IT DOES NOT! AND IF IT DOES NOT, IT DOES!!!
...THE STUDENT GETS AN A-PLUS!
SO? WHAT'S THIS GOT TO DO WITH RUSSELL'S PARADOX?
LIKE THESE EXAMPLES, IT HAS SELF-REFERENCE AT ITS CORE!


"Does the set of all sets which do not contain themselves contain itself?" To which the answer is...
..."If it does, then it doesn't. And if it doesn't, then it does!"
Voilà, "Russell's Paradox"!
It sounds like a parlor witticism. But it subverts the notion of "set" as a collection defined by a common property...
...And with it, Logic!
The publication of my paradox made me an overnight celebrity in international mathematical circles.
Some greeted it with joy...
...Like Poincaré, who saw in the paradox strong arguments against any attempt to create purely logical foundations for Mathematics.
His oft-repeated credo that "Logic is barren" now found a perfect justification...
ACTUALLY, IT'S NOT BARREN: IT BREEDS CONTRADICTIONS!
PRINCIPLES
HA, HA! THIS RUSSELL HIT TWO BIRDS WITH ONE STONE: LOGIC AND SET THEORY ARE BOTH DESTROYED!
Rather surprisingly, Cantor's reaction was also quite positive.
"...THEREFORE, IF WE TAKE THE PROPERTY 'S BELONGS TO S' AND CONSIDER ITS NEGATION AS DEFINING THE SET..."
"... OF SETS WHICH DO NOT –"
GLORY BE TO ALMIGHTY GOD!!!


I'M A FREE MAN AT LAST! DON'T YOU UNDERSTAND??? THE ENGLISHMAN PROVED THE "SET OF ALL SETS" IS AN IMPOSSIBILITY!
!
PRINCIPLES
MY MONSTER, THE USURPER OF GOD'S ABSOLUTE GREATNESS THUS NO LONGER EXISTS!!!
Given the right amount of irrationality, one can read religion even in Logic.
I'M SAVED...
But in the "pro-set" camp there was bewilderment and consternation. Logicians were devastated.
Giuseppe Peano in Turin...
?
NON È POSSIBILE!
NON È POSSIBILE!
NON È POSSIBILE!
David Hilbert in Göttingen...
THERE MUST BE SOME WAY AROUND THIS, HERR PROFESSOR...
PRINCIPLES
JA, JA THERE MUST BE!
DAMNED, UPSTART BRIT!
And of course...


Gottlob Frege in Jena.
He read my paradox on the very day when he was to give the go-ahead to print volume two...
...Of his "Foundations of Arithmetic".
In an instant, he realized the import of my discovery.
PRINCIPLES
Frege, too, had built his edifice on the ground of Bolzano's simple idea of set.
And now he had seen that this ground was rotten – it had given way.
By implanting sets into Logic, he had injected a lethal canker into its body. So: the "Foundations of Arithmetic" were... unfounded.
DON'T BE LATE FOR DINNER, GOTTLOB!

In the end, he did publish volume two of the "*Foundations of Arithmetic*". But with an addendum.

ADDENDUM

Hardly anything more unfortunate can befall a scientific writer, than to have one of the foundations of his edifice shaken after the work is finished. I was placed in this position by a letter of Mr. Bertrand Russell, just when the printing of this volume was nearing its completion.

The collapse of one of my laws, to which Mr. Russell's paradox leads, seems to undermine not only the foundations of my Arithmetic but the only possible foundations of Arithmetic as such.

Of all the acts of intellectual honesty I have witnessed in my life, none compares with Gottlob Frege's reaction to my paradox.

There cannot be greater intellectual courage than this...

...To put the Truth above all else.