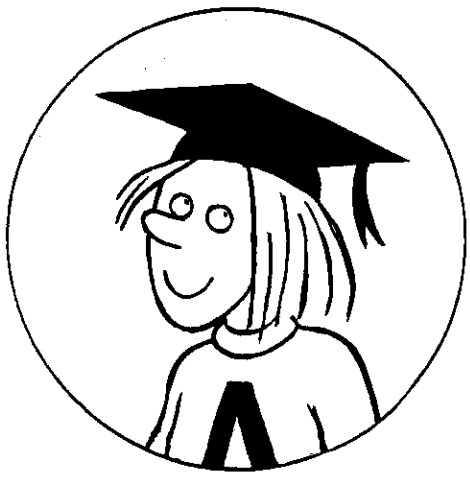
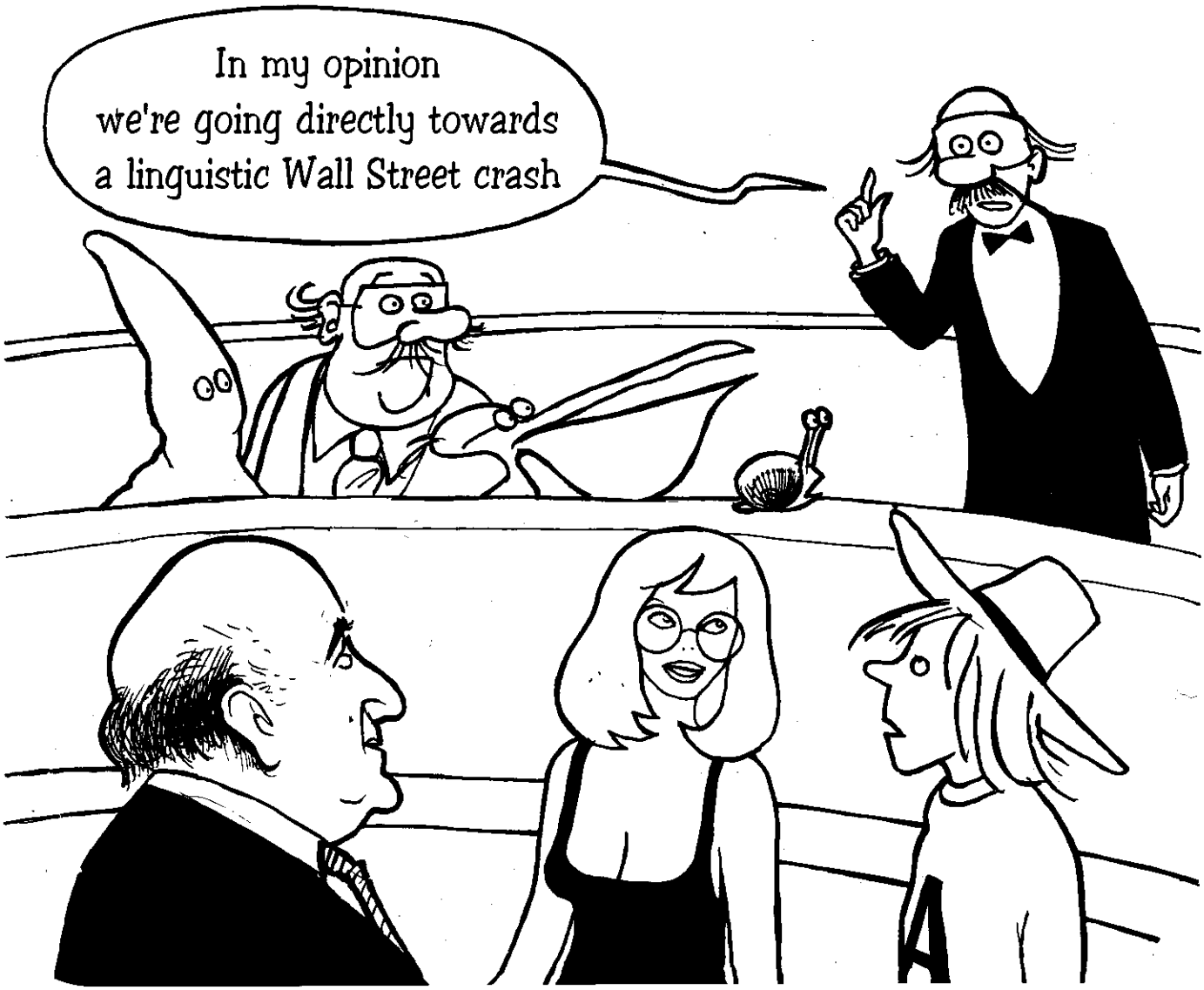
THE LOGOTRON

Jean-Pierre Petit



Translated by : John Murphy



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Jean-Pierre Petit **Gilles d'Agostini**

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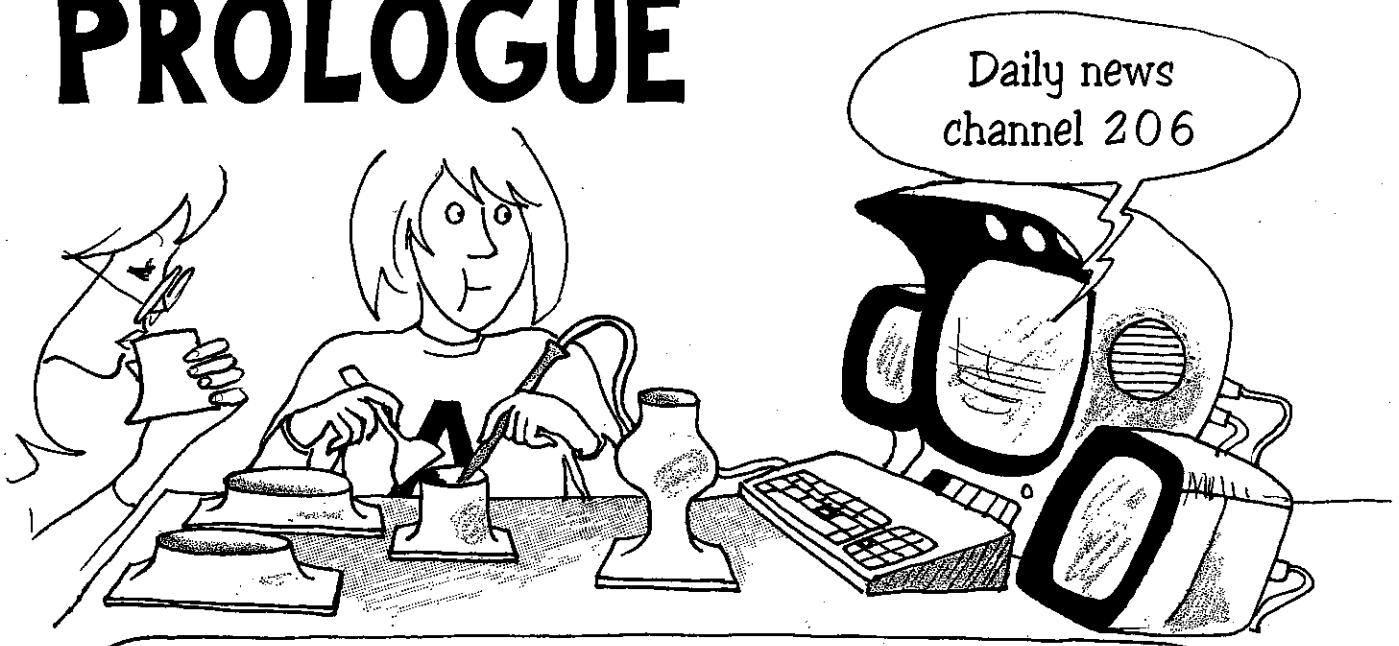
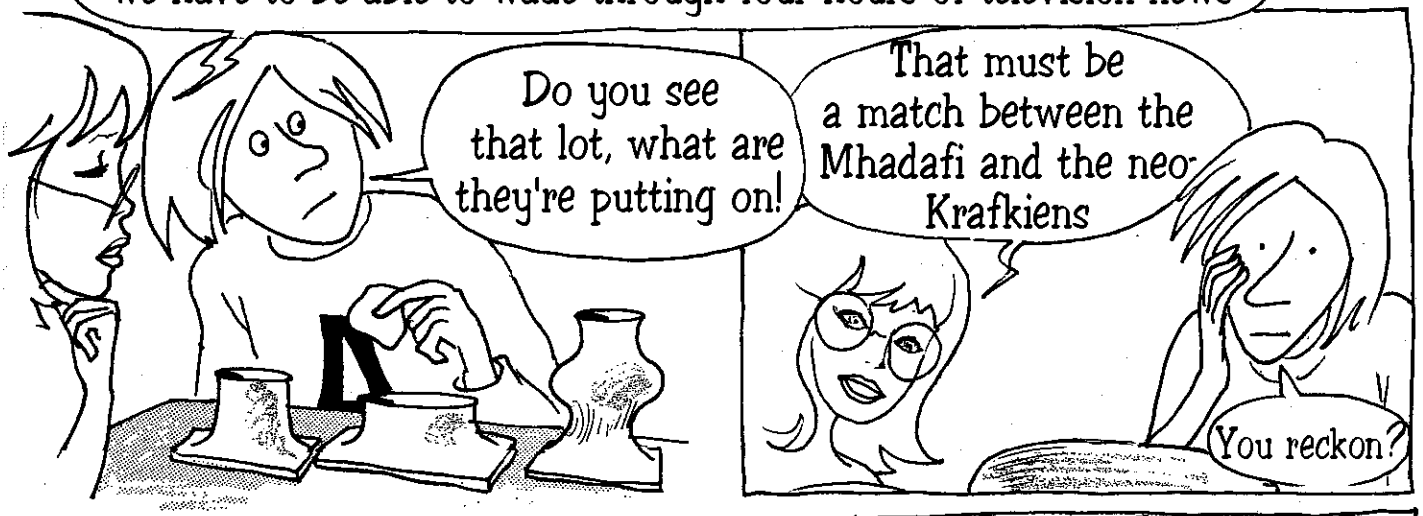
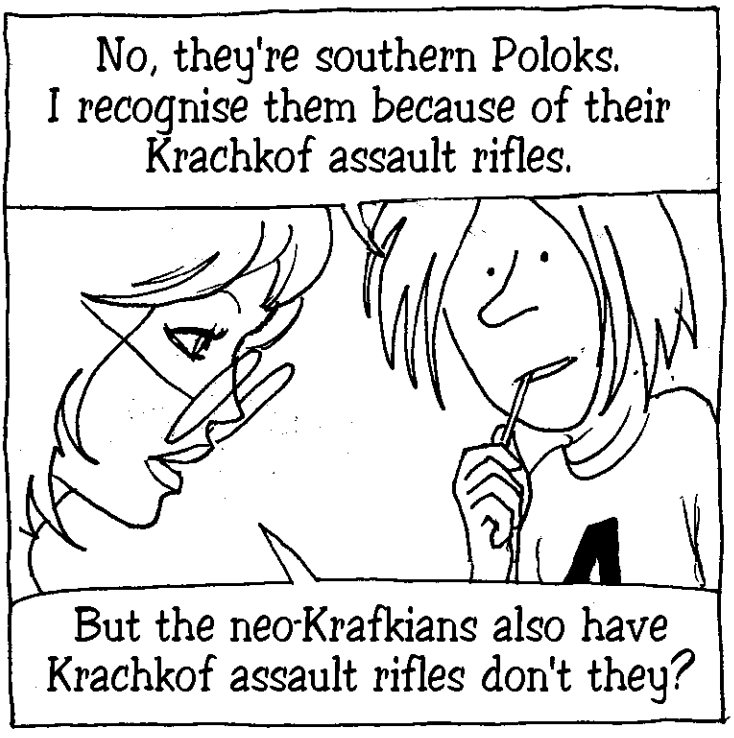
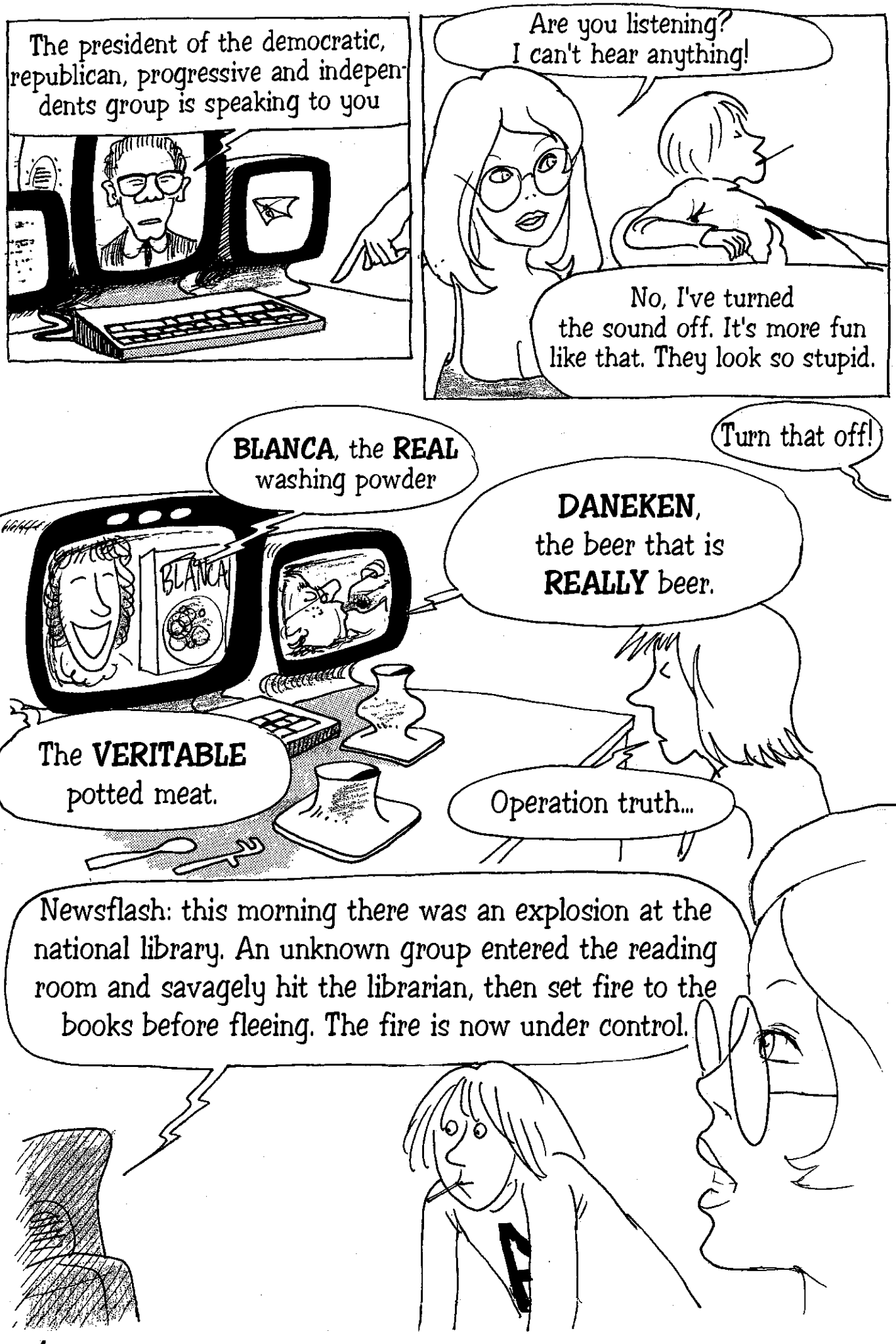
PROLOGUE

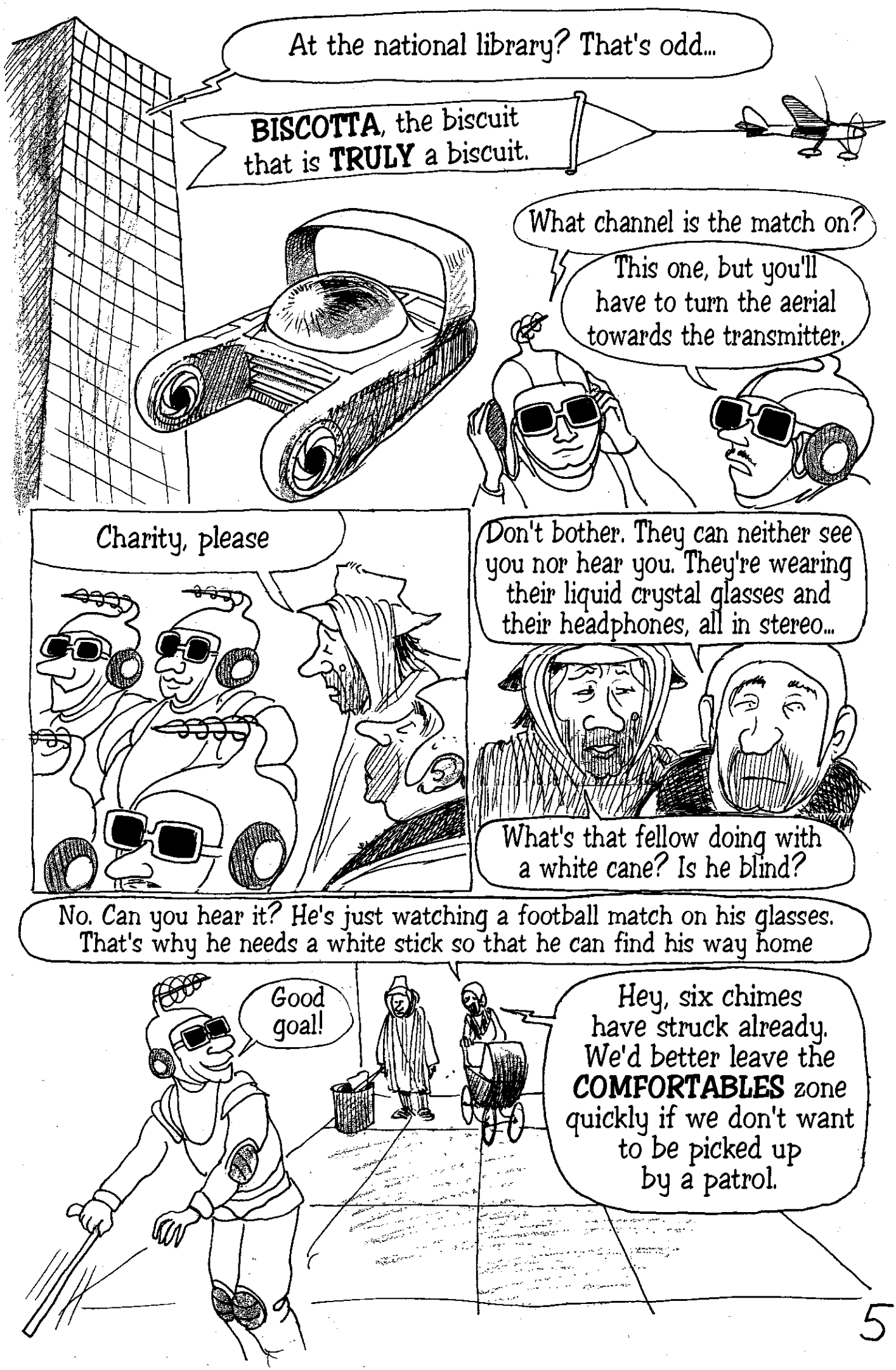


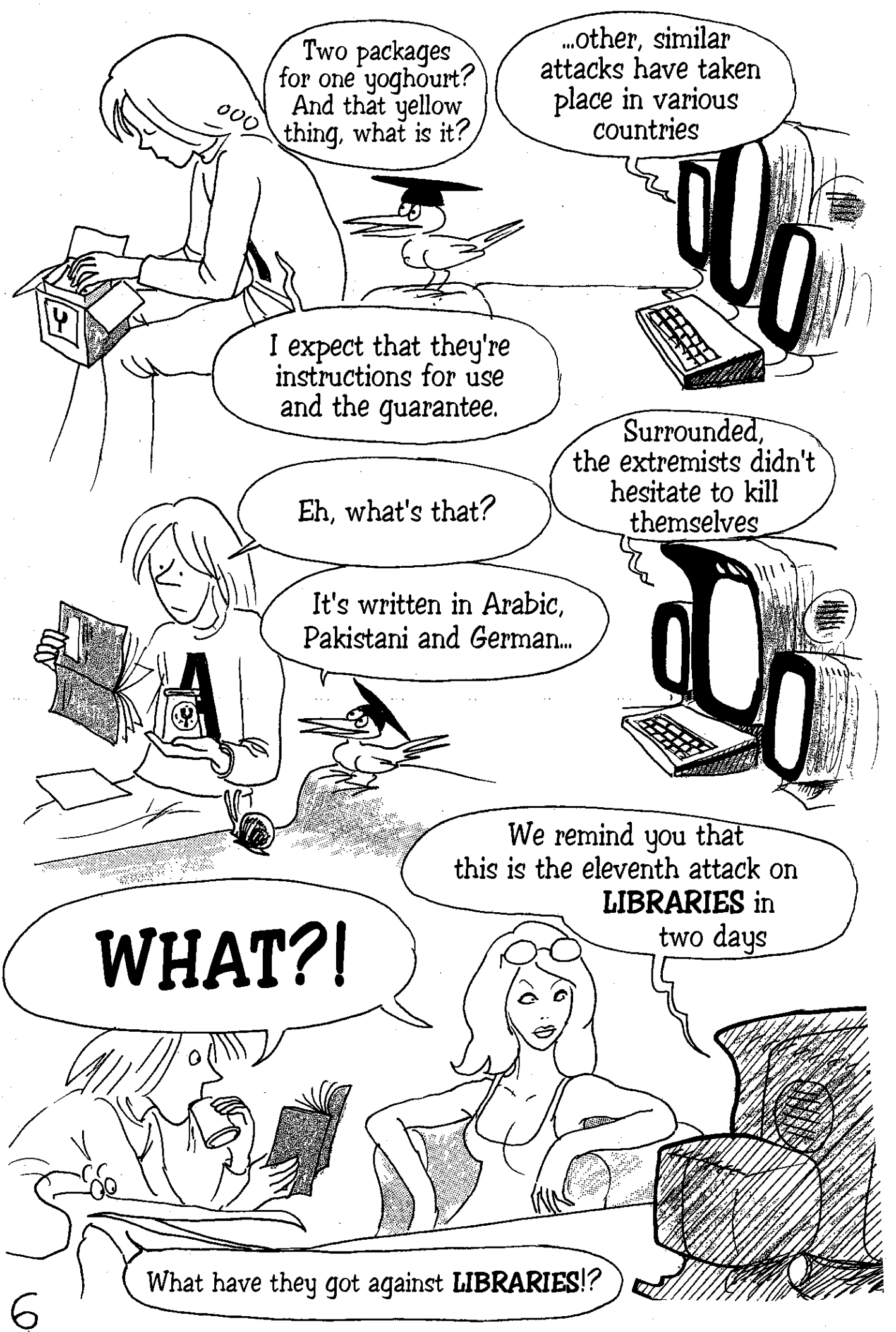
It's crazy. If we want to know something about what is happening, we have to be able to wade through four hours of television news



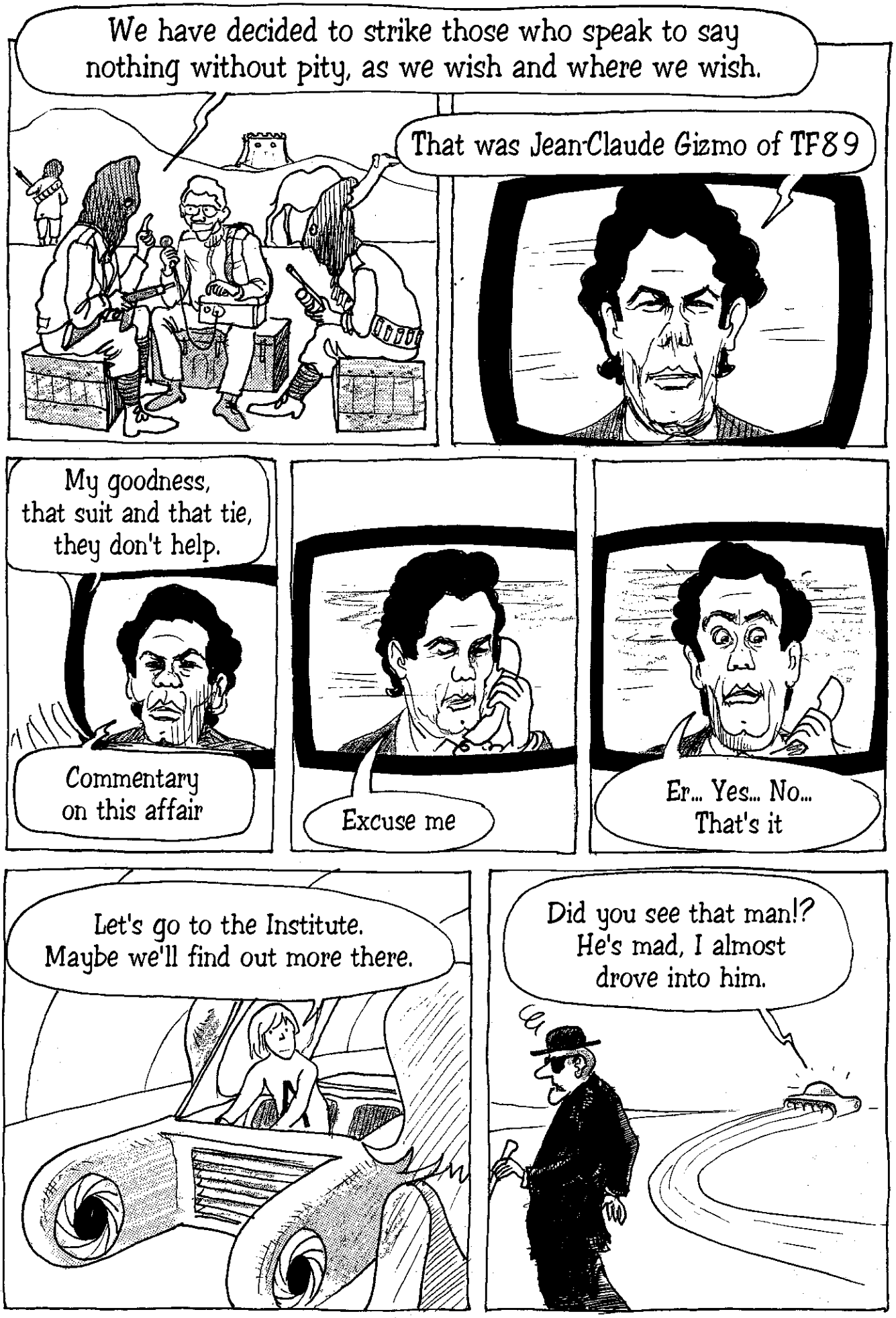


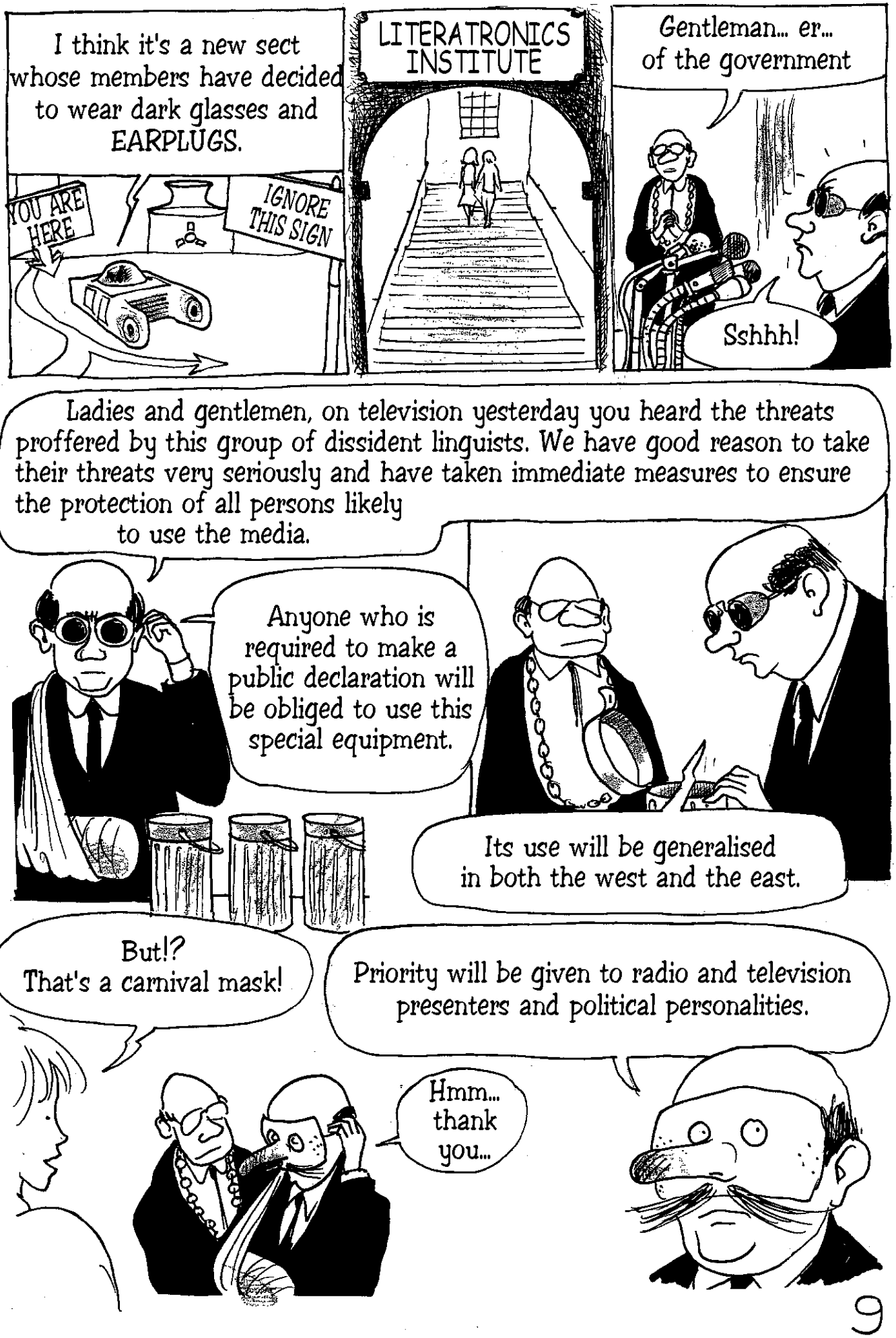

The president of the democratic, republican, progressive and independents group is speaking to you
Are you listening? I can't hear anything!
No, I've turned the sound off. It's more fun like that. They look so stupid.
Turn that off!
BLANCA, the REAL washing powder
DANEKEN, the beer that is REALLY beer.
BLANCA
The VERITABLE potted meat.
Operation truth...
Newsflash: this morning there was an explosion at the national library. An unknown group entered the reading room and savagely hit the librarian, then set fire to the books before fleeing. The fire is now under control.


At the national library? That's odd...
BISCOTTA, the biscuit that is **TRULY** a biscuit.
What channel is the match on?
This one, but you'll have to turn the aerial towards the transmitter.
Charity, please
Don't bother. They can neither see you nor hear you. They're wearing their liquid crystal glasses and their headphones, all in stereo...
What's that fellow doing with a white cane? Is he blind?
No. Can you hear it? He's just watching a football match on his glasses. That's why he needs a white stick so that he can find his way home
Good goal!
Hey, six chimes have struck already. We'd better leave the **COMFORTABLES** zone quickly if we don't want to be picked up by a patrol.

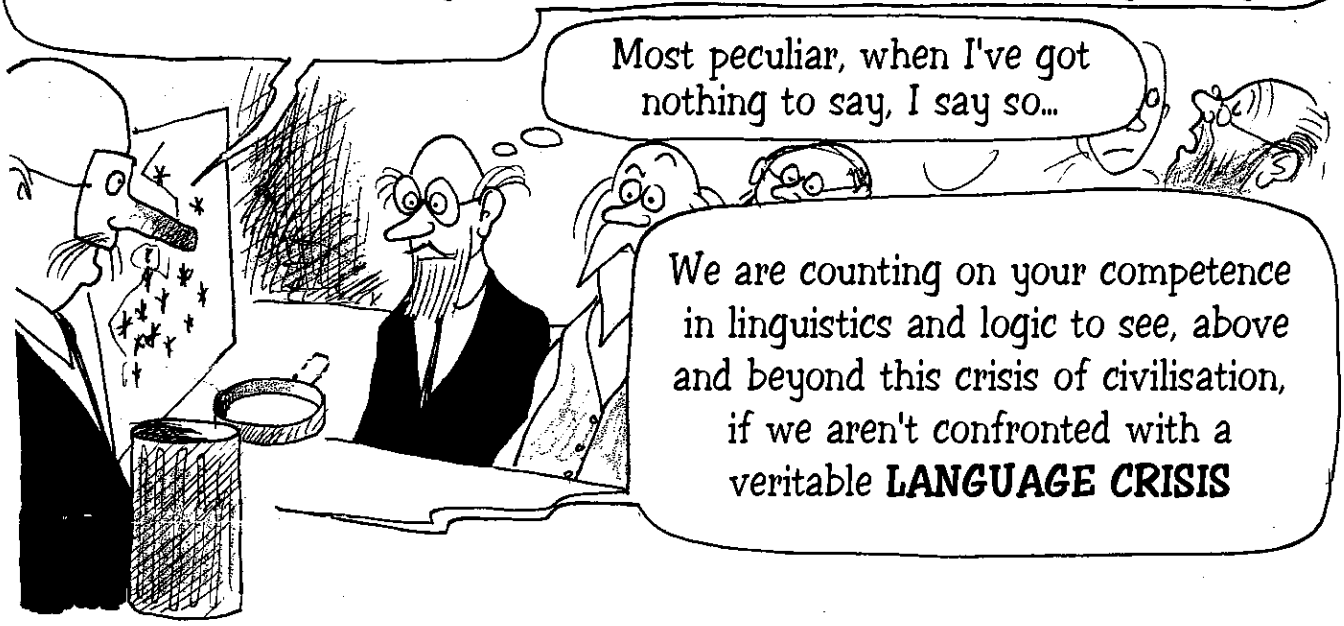

Two packages for one yoghourt? And that yellow thing, what is it?
...other, similar attacks have taken place in various countries
I expect that they're instructions for use and the guarantee.
Surrounded, the extremists didn't hesitate to kill themselves
Eh, what's that?
It's written in Arabic, Pakistani and German...
We remind you that this is the eleventh attack on LIBRARIES in two days
WHAT?!
What have they got against LIBRARIES!?

And who are they? St Michael's Mount autonomists?
Among the inscriptions painted on the walls, some were **NONSENSE** and others didn't say **ANYTHING**.
Among the terrorists who blew themselves up at the Boston library was the famous linguist Professor Tomsky
But **THAT** doesn't mean anything
You **SAID** it
I think I'm starting to understand. People have been talking lately of an anarcho-linguist group. I thought it was a joke but it seems they've really begun their action.
News flash...
Wait, listen
Our correspondent on the Sino-Mongolian frontier has managed to enter into contact with the anarcho-linguists.
We are an international organisation with cells in every country and with linguists, logicians, semanticians and glossomaticians in our ranks.
That's odd, usually when extremists meet a reporter they blindfold him
There they've put a sticking plaster on his mouth!


We have decided to strike those who speak to say nothing without pity, as we wish and where we wish.
That was Jean-Claude Gizmo of TF89
My goodness, that suit and that tie, they don't help.
Commentary on this affair
Excuse me
Er... Yes... No... That's it
Let's go to the Institute. Maybe we'll find out more there.
Did you see that man!? He's mad, I almost drove into him.

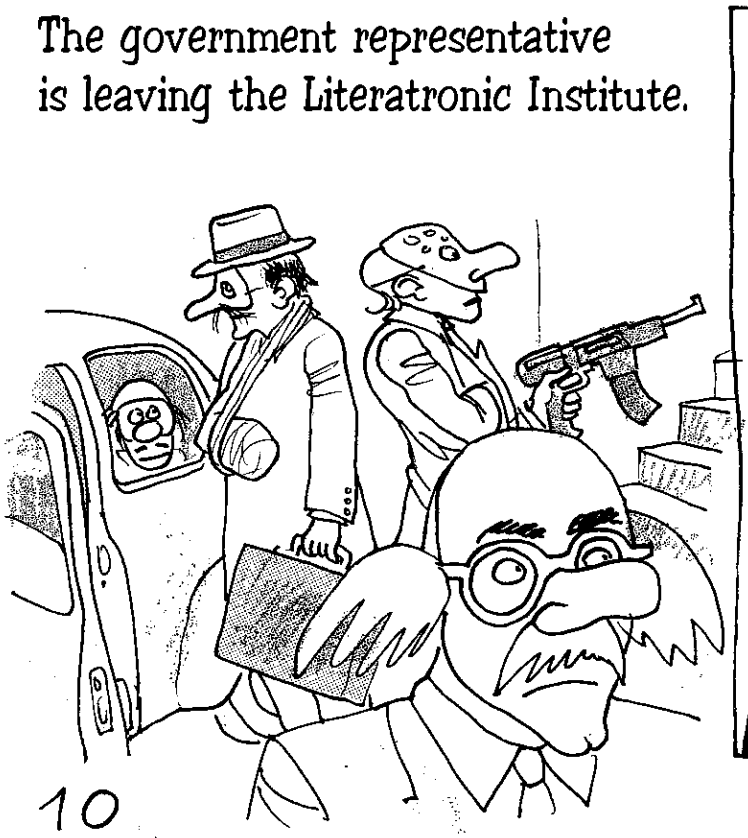

I think it's a new sect whose members have decided to wear dark glasses and EARPLUGS.
YOU ARE HERE
IGNORE THIS SIGN
LITERATRONICS INSTITUTE
Gentleman... er... of the government
Sshhh!
Ladies and gentlemen, on television yesterday you heard the threats proffered by this group of dissident linguists. We have good reason to take their threats very seriously and have taken immediate measures to ensure the protection of all persons likely to use the media.
Anyone who is required to make a public declaration will be obliged to use this special equipment.
Its use will be generalised in both the west and the east.
But!? That's a carnival mask!
Priority will be given to radio and television presenters and political personalities.
Hmm... thank you...

Here is a map showing where the latest attacks have taken place. As you can see, there have been many more than announced in the press. There has been no claim of reponsibility for the majority of these attacks, which seriously limits the possibilities of stopping them. We believe they have been under taken by the hardline wing of the **ANARCHO-LINGUISTS**, the **MUTISTS**, so named because they refuse all communication and act anonymously.



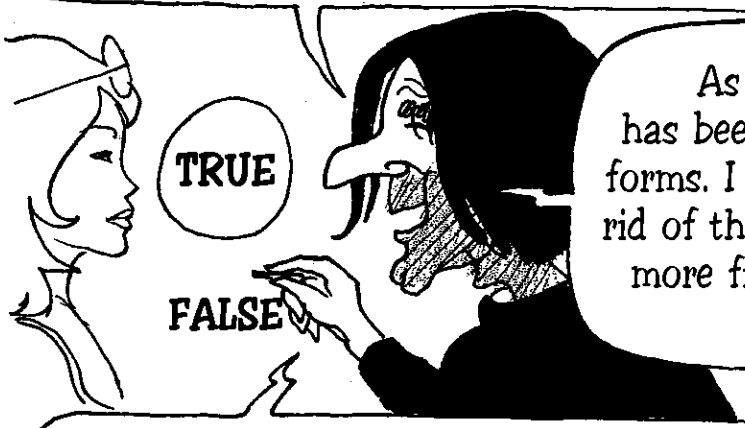
RUSSELL'S PARADOX

The government representative is leaving the Literatronic Institute.



BANG!
!?
Professor... do you wish to say something?
Erm... no... I simply wanted to know where we could get this... equipment
There is a joke shop near the Institute. I believe they sell masks...
Look at that, those are people who don't have much confidence in their language. Goodness, what a panic!..
Hurry! There probably won't be enough for everyone...
And you, do you know a language that makes it impossible to speak nonsense?

SET THEORY is the touchstone of all languages. It's all a question of **CLASSIFICATION**. There is a set of things that are true and a set of things that are false. There is **WHAT IS** and **WHAT IS NOT**. There is the **EMPTY SET** where we put **NOTHINGNESS**



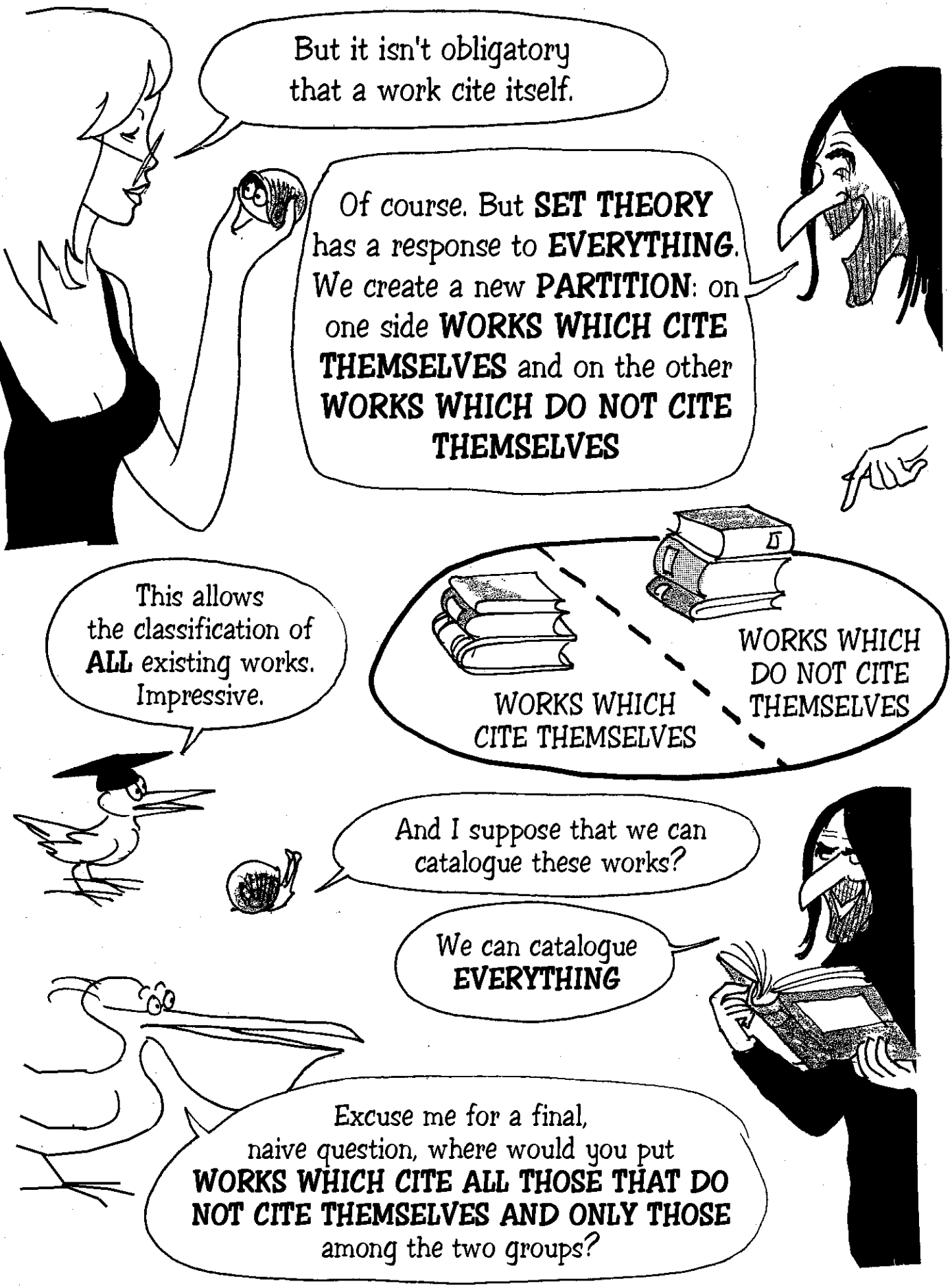
As time has passed, language has been enriched with many parasitic forms. I believe that we just need to get rid of this accumulated sediment to once more find, intact, the **FOUNDATION**, still present

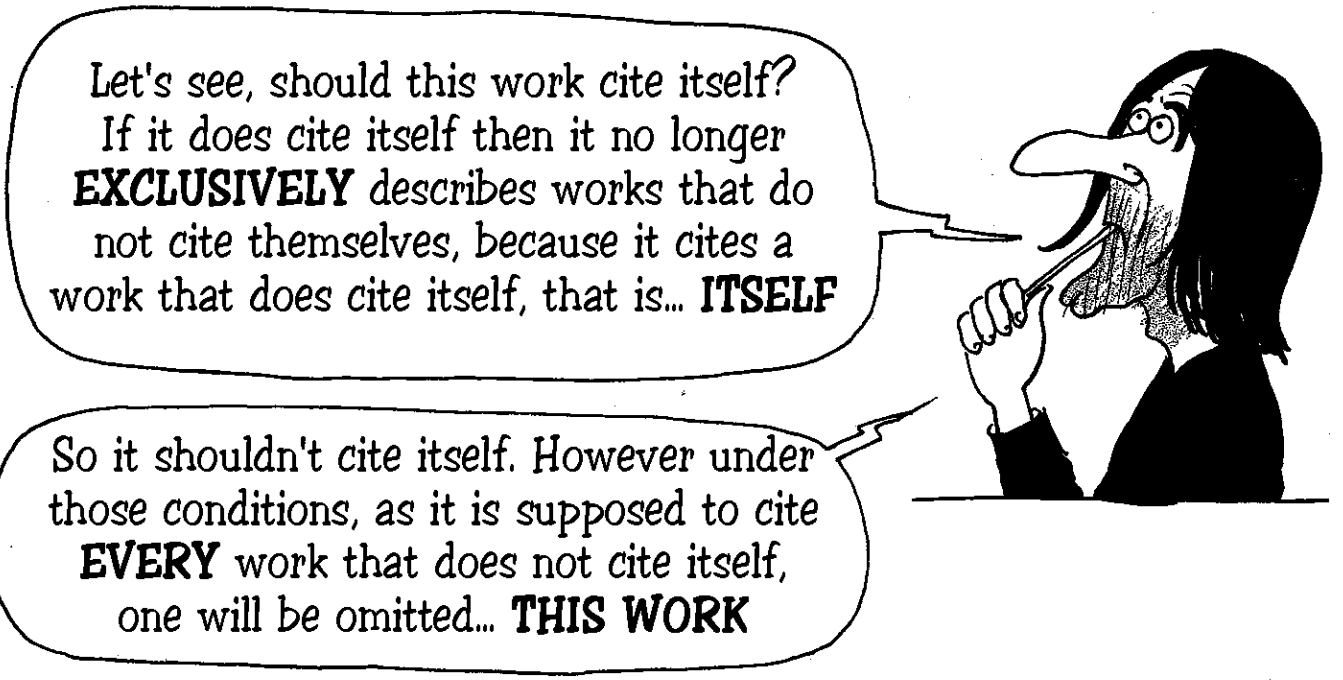
The basic question is **THE ABILITY TO CLASSIFY EVERYTHING** into **SETS**, the criterion being "**BELONGS TO...**" or "**DOES NOT BELONG TO...**", all the rest is just **LITERATURE**

According to you then, laying the bases of a **LANGUAGE** consists of beginning with a very carefully classification of everything

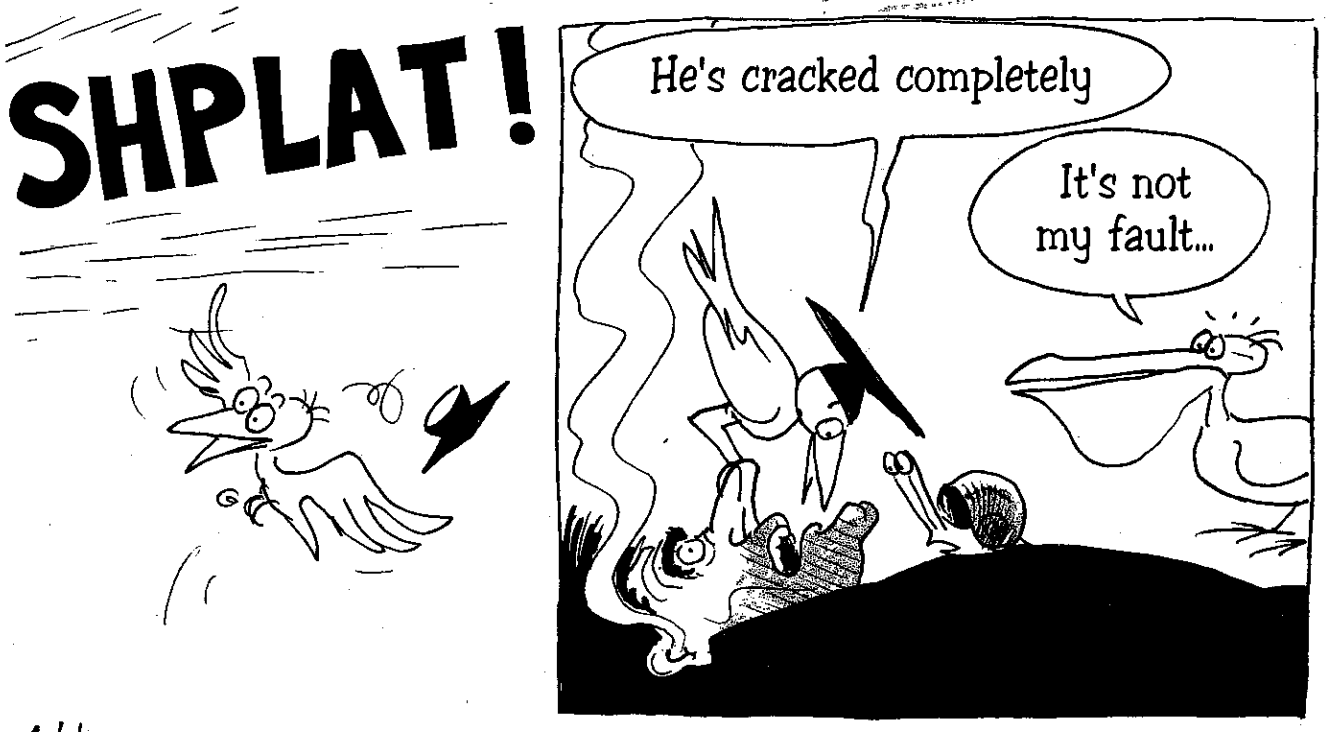
To **CATALOGUE** everything in the Universe, existing or simply possible, we could use... books?

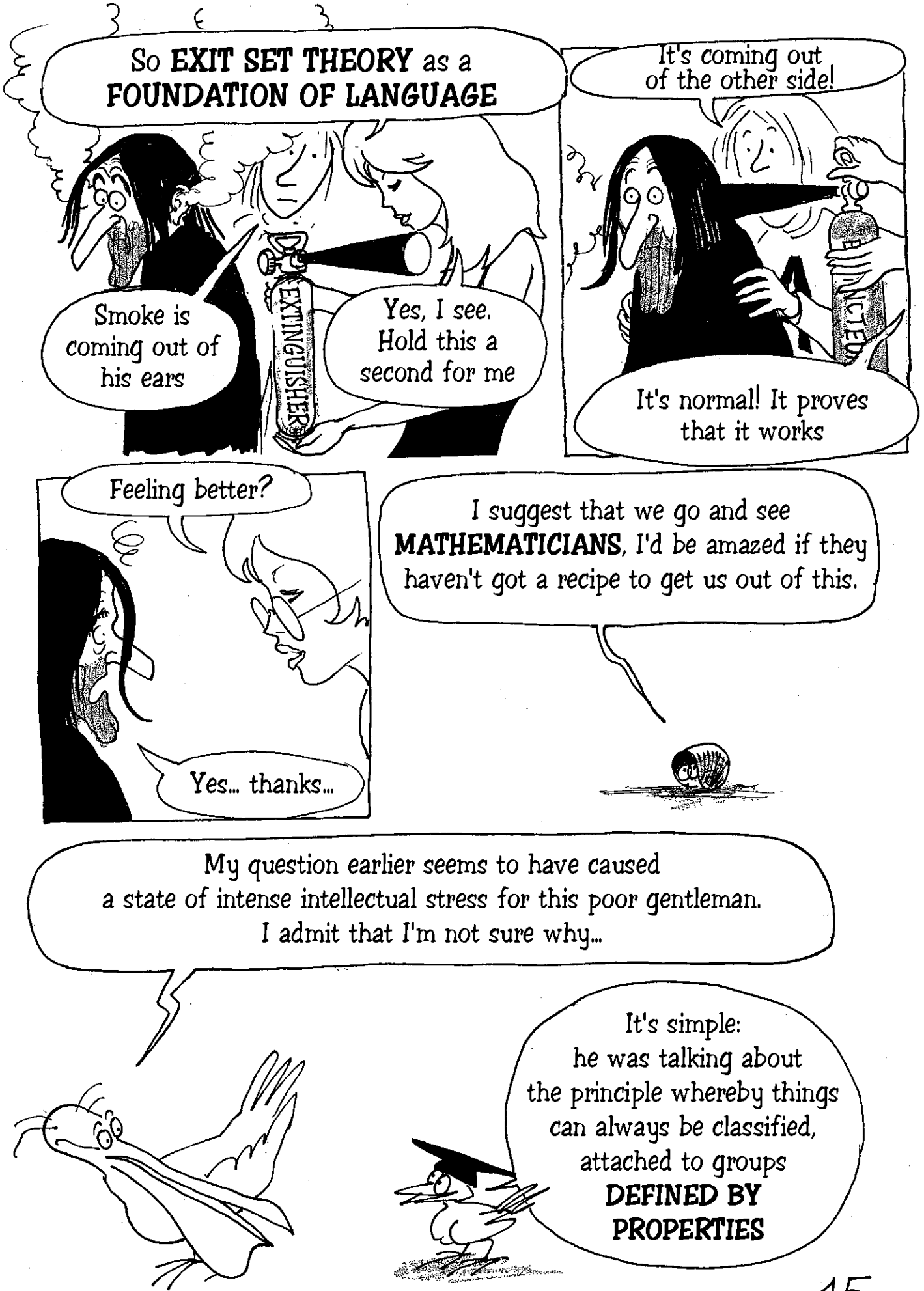
If you like. We could even classify books in their turn by giving them an index in which they'll be cited, remembering that a work can also cite itself, figure in its own index.

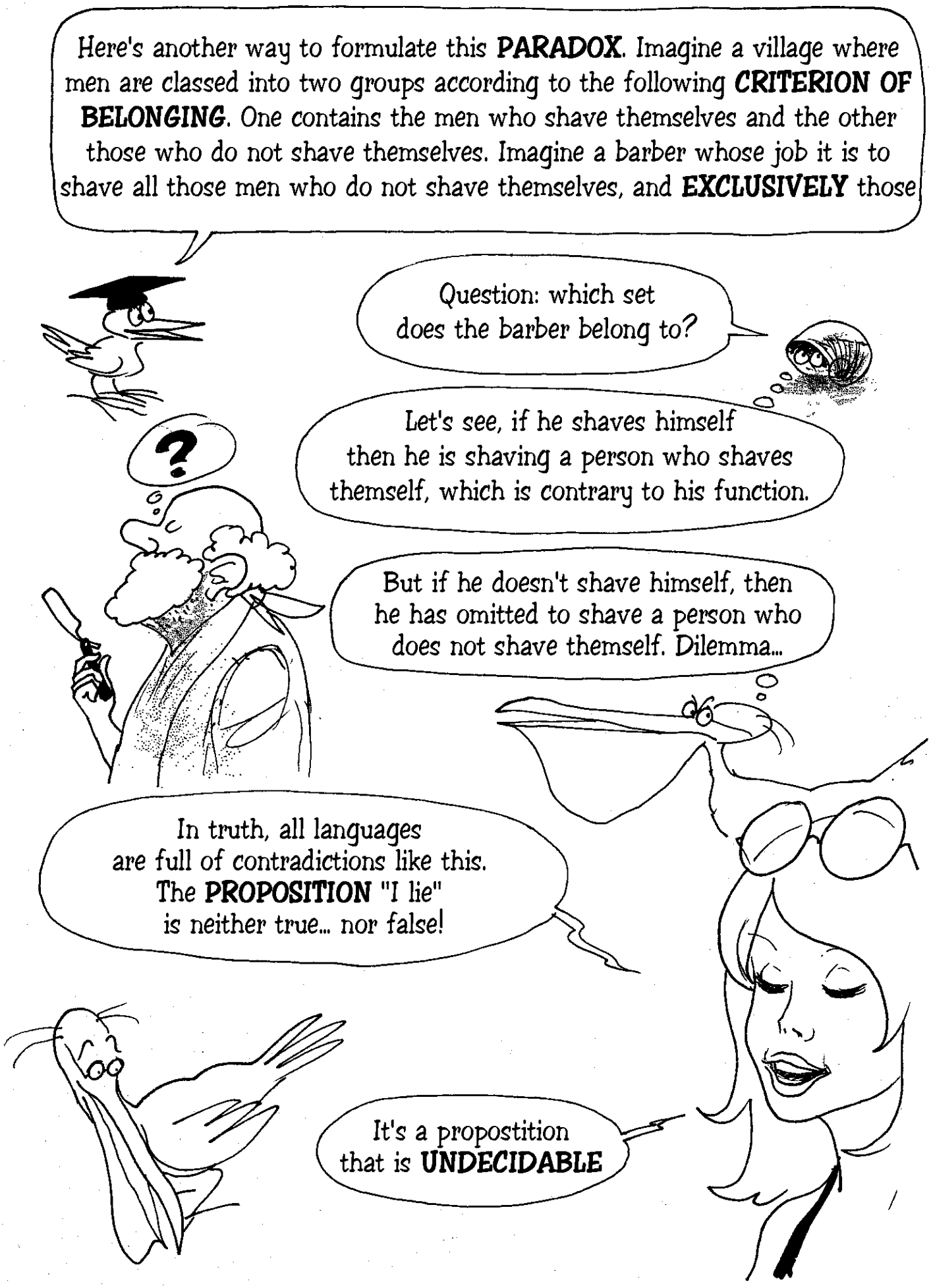

But it isn't obligatory that a work cite itself.
Of course. But SET THEORY has a response to EVERYTHING. We create a new PARTITION: on one side WORKS WHICH CITE THEMSELVES and on the other WORKS WHICH DO NOT CITE THEMSELVES
WORKS WHICH CITE THEMSELVES
WORKS WHICH DO NOT CITE THEMSELVES
This allows the classification of ALL existing works. Impressive.
And I suppose that we can catalogue these works?
We can catalogue EVERYTHING
Excuse me for a final, naive question, where would you put WORKS WHICH CITE ALL THOSE THAT DO NOT CITE THEMSELVES AND ONLY THOSE among the two groups?


Let's see, should this work cite itself? If it does cite itself then it no longer **EXCLUSIVELY** describes works that do not cite themselves, because it cites a work that does cite itself, that is... **ITSELF**
So it shouldn't cite itself. However under those conditions, as it is supposed to cite **EVERY** work that does not cite itself, one will be omitted... **THIS WORK**

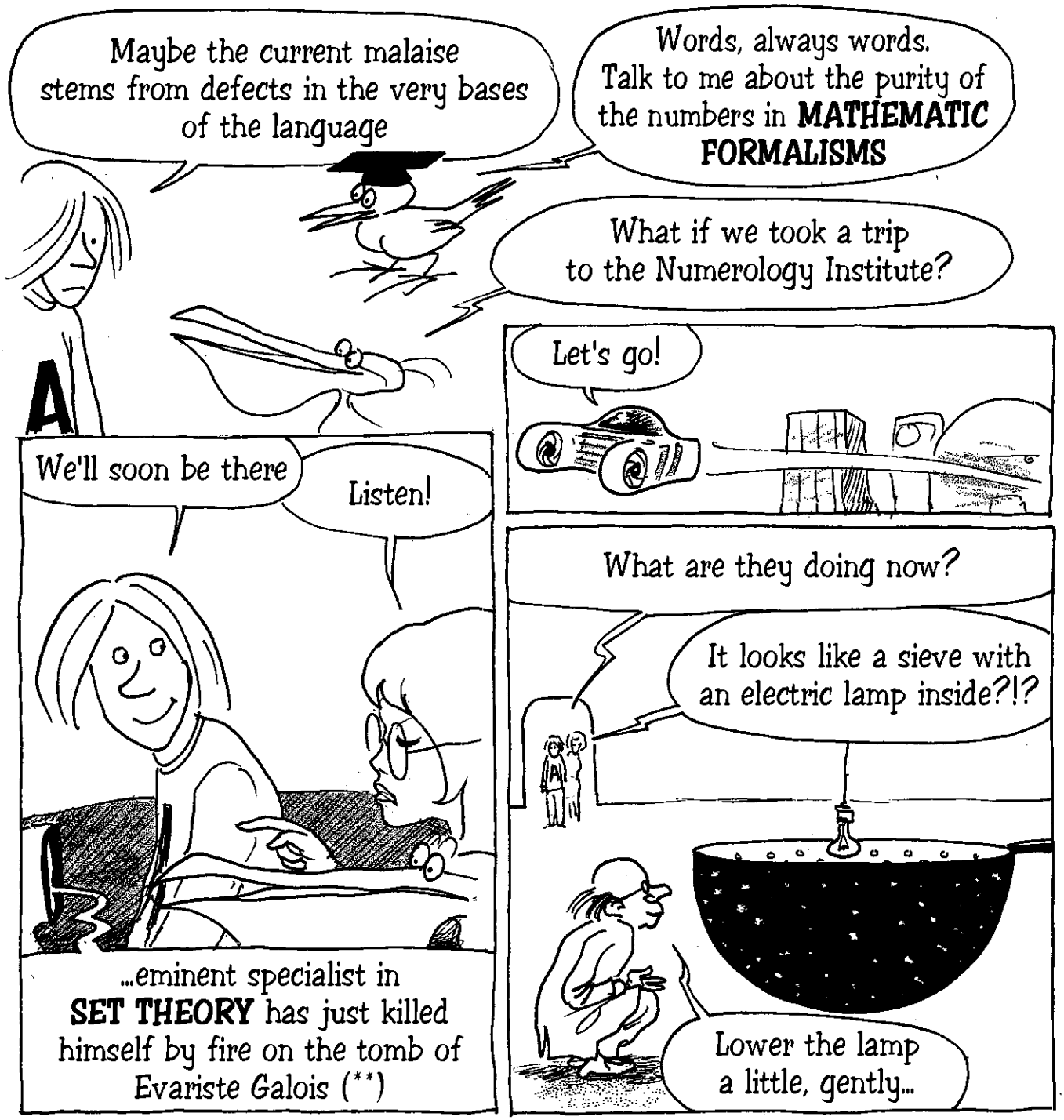
AAARGH!
What... what... what did I say?


SHPLAT!
He's cracked completely
It's not my fault...


So EXIT SET THEORY as a FOUNDATION OF LANGUAGE
Smoke is coming out of his ears
EXTINGUISHER
Yes, I see. Hold this a second for me
It's coming out of the other side!
It's normal! It proves that it works
Feeling better?
Yes... thanks...
I suggest that we go and see MATHEMATICIANS, I'd be amazed if they haven't got a recipe to get us out of this.
My question earlier seems to have caused a state of intense intellectual stress for this poor gentleman. I admit that I'm not sure why...
It's simple: he was talking about the principle whereby things can always be classified, attached to groups DEFINED BY PROPERTIES


Here's another way to formulate this **PARADOX**. Imagine a village where men are classed into two groups according to the following **CRITERION OF BELONGING**. One contains the men who shave themselves and the other those who do not shave themselves. Imagine a barber whose job it is to shave all those men who do not shave themselves, and **EXCLUSIVELY** those
Question: which set does the barber belong to?
?
Let's see, if he shaves himself then he is shaving a person who shaves themself, which is contrary to his function.
But if he doesn't shave himself, then he has omitted to shave a person who does not shave themself. Dilemma...
In truth, all languages are full of contradictions like this. The **PROPOSITION** "I lie" is neither true... nor false!
It's a propostition that is **UNDECIDABLE**

NON-CANTORiAN SETS (*)

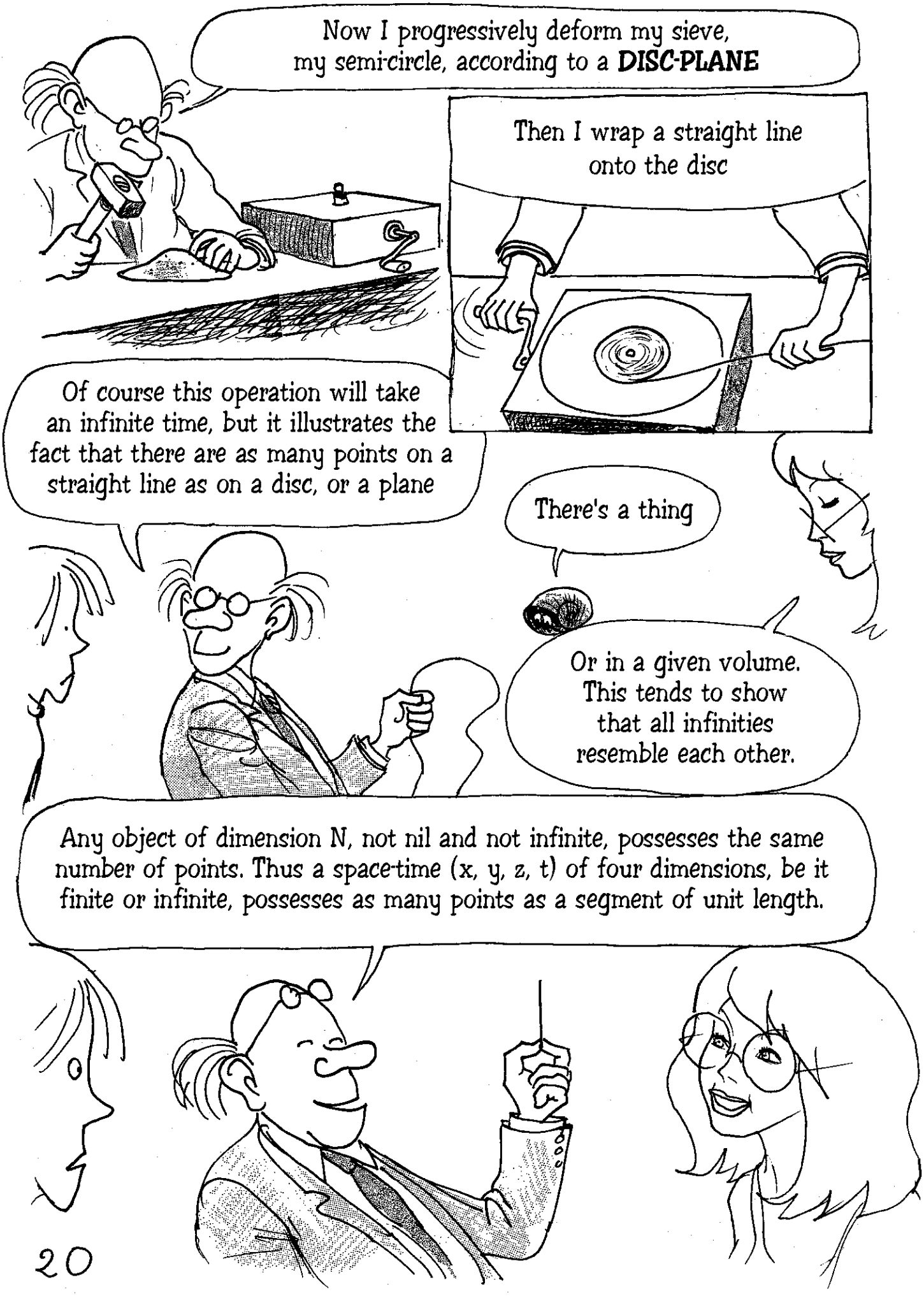


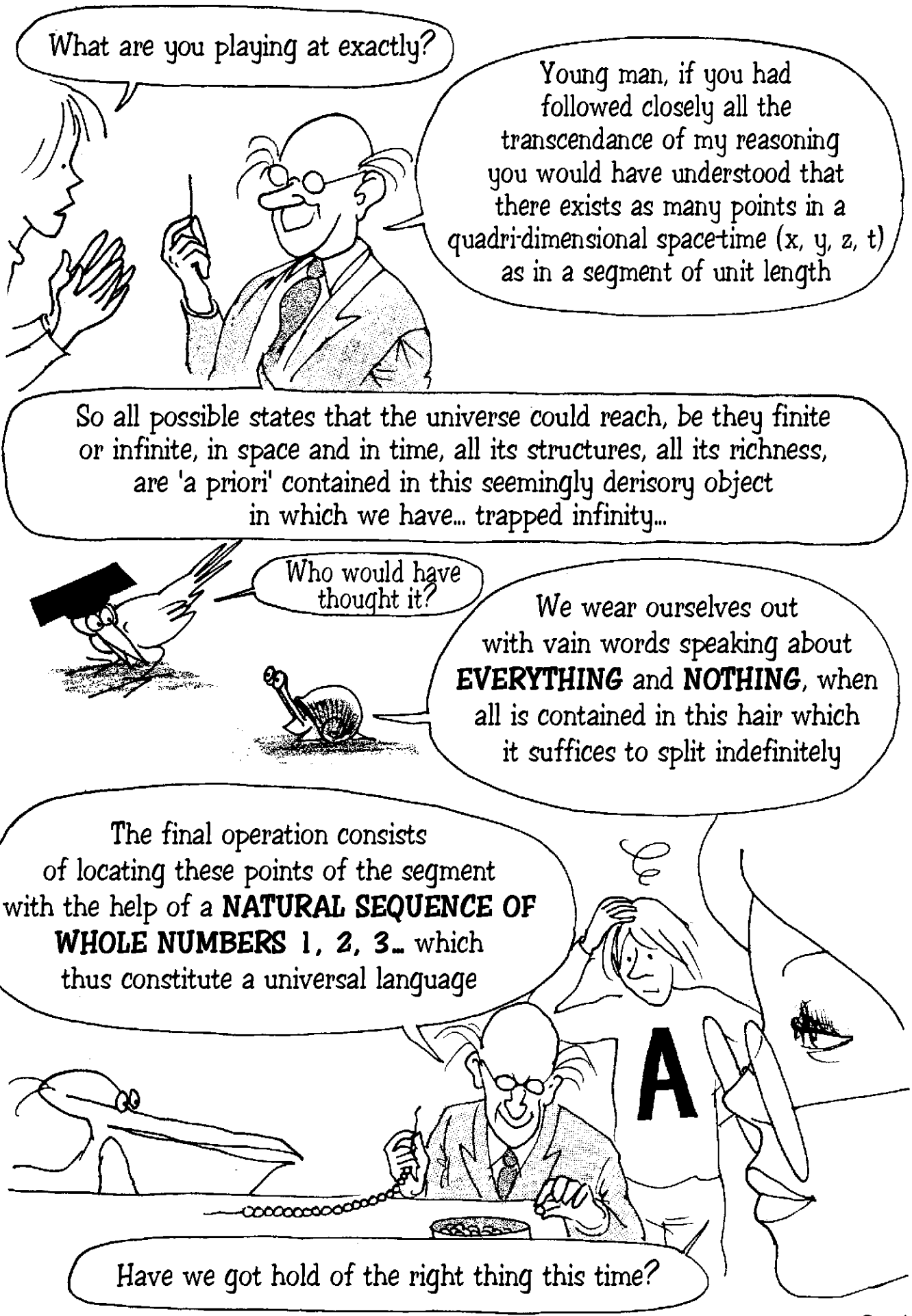
(*) From the name of the German mathematician Georg Cantor (1845-1918), creator of set theory.

(**) French mathematician (1811-1832). Killed in a duel.

Go on, turn it on
Marvel of marvels! It works!
But what are you up to for heaven's sake?
Can't you SEE? Thanks to this system I can make each hole in the plane correspond to a hole made in the sieve.
But a plane possesses an infinity of points?
Well you just need a sieve with an infinity of holes
P
P'
In the same way we can link two by two the infinity of points in a straight line to the infinity of points present in the arc of a circle

Do you understand the transcendance of this discovery? There is an infinity of points on a straight line and, equally, an infinity of points on a semi-circle. But the preceding experiment shows that there are **AS MANY**. The same as there are as many on an infinite plane as on a hemisphere, or a disc
With his sieve he's caught infinity
But hey, infinity is infinite isn't it?
We can compare two infinities with each other, verify if they are **COMMENSURABLE**. After what we have just seen, we can see that the straight line and the half circle have the same number of points. It's the same for the plane and the hemisphere.
Now let's deform the semi-circle according to a segment of a straight line
Wait... The segment is itself a part of the straight line. So when we reason on the infinite, **THE PART CONTAINS AS MUCH AS THE WHOLE !?!**


Now I progressively deform my sieve, my semi-circle, according to a **DISC-PLANE**
Then I wrap a straight line onto the disc
Of course this operation will take an infinite time, but it illustrates the fact that there are as many points on a straight line as on a disc, or a plane
There's a thing
Or in a given volume. This tends to show that all infinities resemble each other.
Any object of dimension N, not nil and not infinite, possesses the same number of points. Thus a space-time (x, y, z, t) of four dimensions, be it finite or infinite, possesses as many points as a segment of unit length.

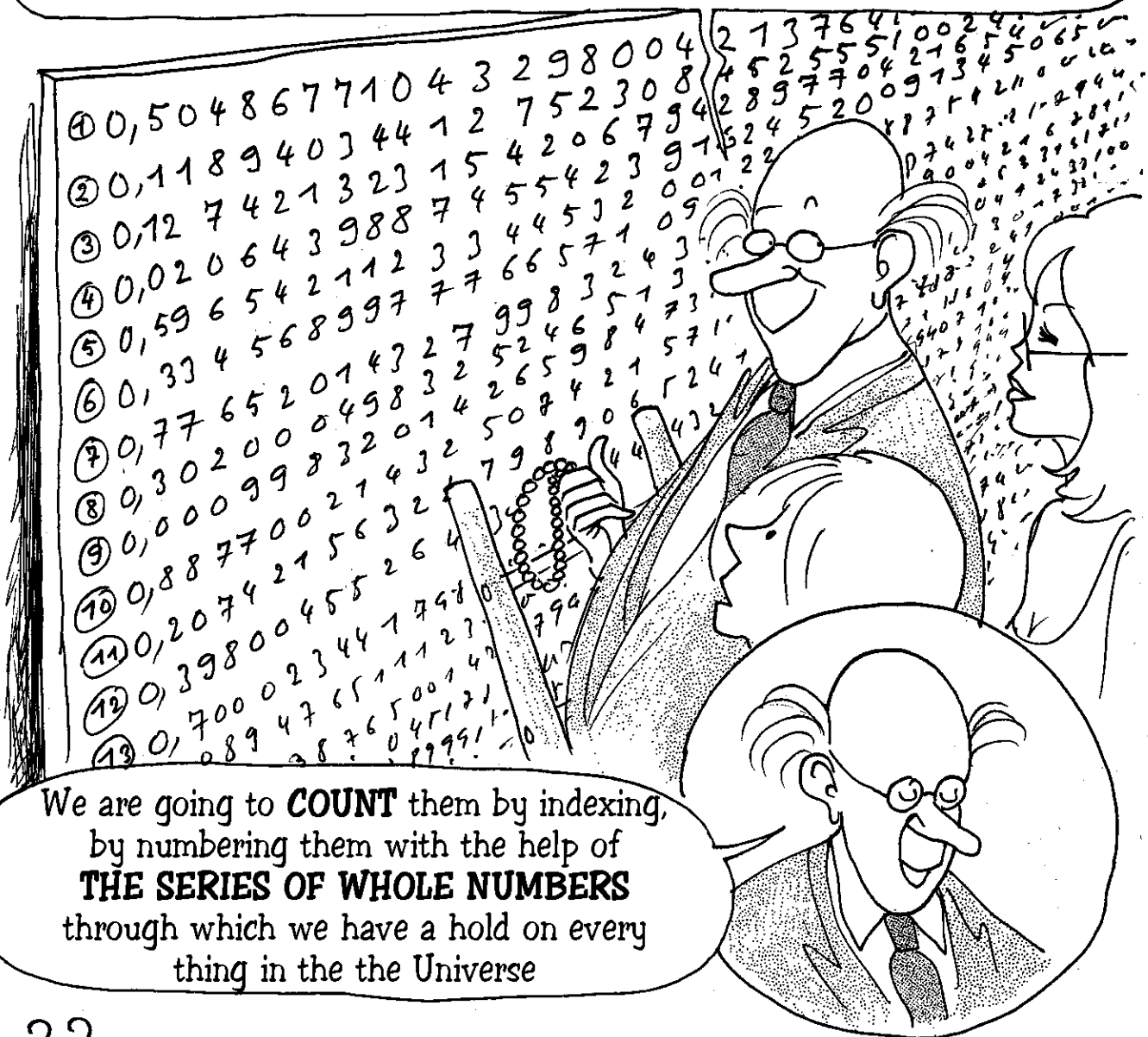

What are you playing at exactly?
Young man, if you had followed closely all the transcendance of my reasoning you would have understood that there exists as many points in a quadri-dimensional space-time (x, y, z, t) as in a segment of unit length
So all possible states that the universe could reach, be they finite or infinite, in space and in time, all its structures, all its richness, are 'a priori' contained in this seemingly derisory object in which we have... trapped infinity...
Who would have thought it?
We wear ourselves out with vain words speaking about EVERYTHING and NOTHING, when all is contained in this hair which it suffices to split indefinitely
The final operation consists of locating these points of the segment with the help of a NATURAL SEQUENCE OF WHOLE NUMBERS 1, 2, 3... which thus constitute a universal language
A
Have we got hold of the right thing this time?

One and one and one...

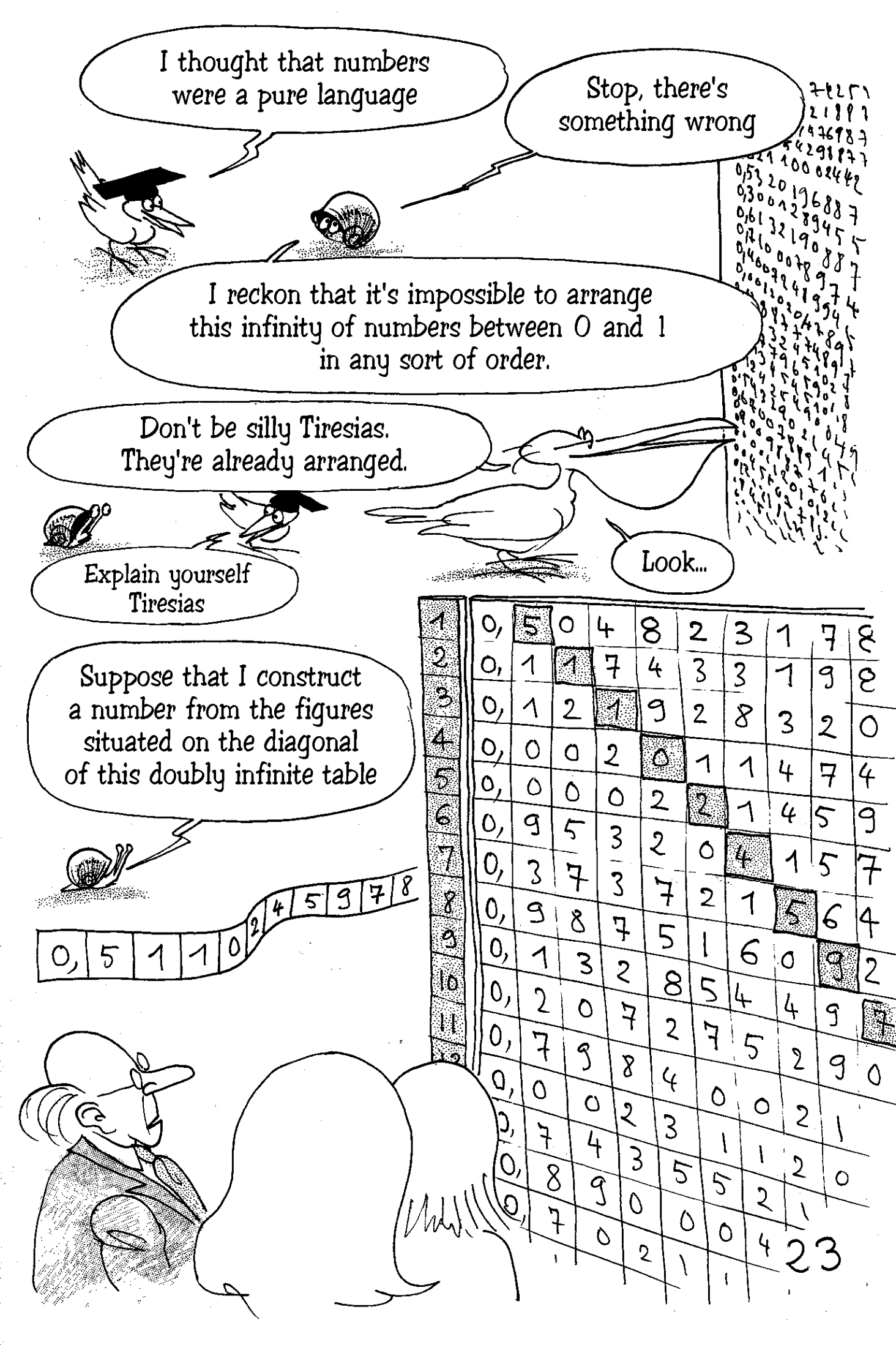
Erm... I...

Can you feel the transcendance Leon?

The set of points of the segment (0,1), located by their abscissus, constitutes an infinite number of numbers that begin at 0, etc... But if we arrange them in order, we won't see anything. In effect, in the area of very low values, it begins with 0,000000000000000000.... There must be something at the end of this series, but after... an infinity of zeros! The only way to consider this table is by arranging these number in disorder. It doesn't matter what, because the important thing is to **NUMBER** them.



We are going to **COUNT** them by indexing, by numbering them with the help of **THE SERIES OF WHOLE NUMBERS** through which we have a hold on every thing in the the Universe

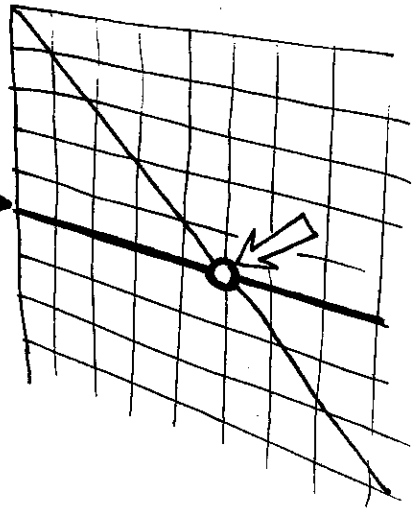

I thought that numbers were a pure language
Stop, there's something wrong
I reckon that it's impossible to arrange this infinity of numbers between 0 and 1 in any sort of order.
Don't be silly Tiresias. They're already arranged.
Explain yourself Tiresias
Look...
Suppose that I construct a number from the figures situated on the diagonal of this doubly infinite table
0, 5 1 1 0 2 4 5 9 7 8
0,5 0 4 8 2 3 1 7 8
0,1 1 7 4 3 3 1 9 8
0,1 2 1 9 2 8 3 2 0
0,0 0 2 0 1 1 4 7 4
0,0 0 0 2 2 1 4 5 9
0,9 5 3 2 0 4 1 5 7
0,3 7 3 7 2 1 5 6 4
0,9 8 7 5 1 6 0 9 2
0,1 3 2 8 5 4 4 9 7
0,2 0 7 2 7 5 2 9 0
0,7 9 8 4 0 0 2 1
0,0 0 2 3 1 1 2 0
0,7 4 3 5 5 2 1
0,8 9 0 0 0 4
0,7 0 2 1 1
23

From this number I can create another where all the figures will be different.

INFINITE

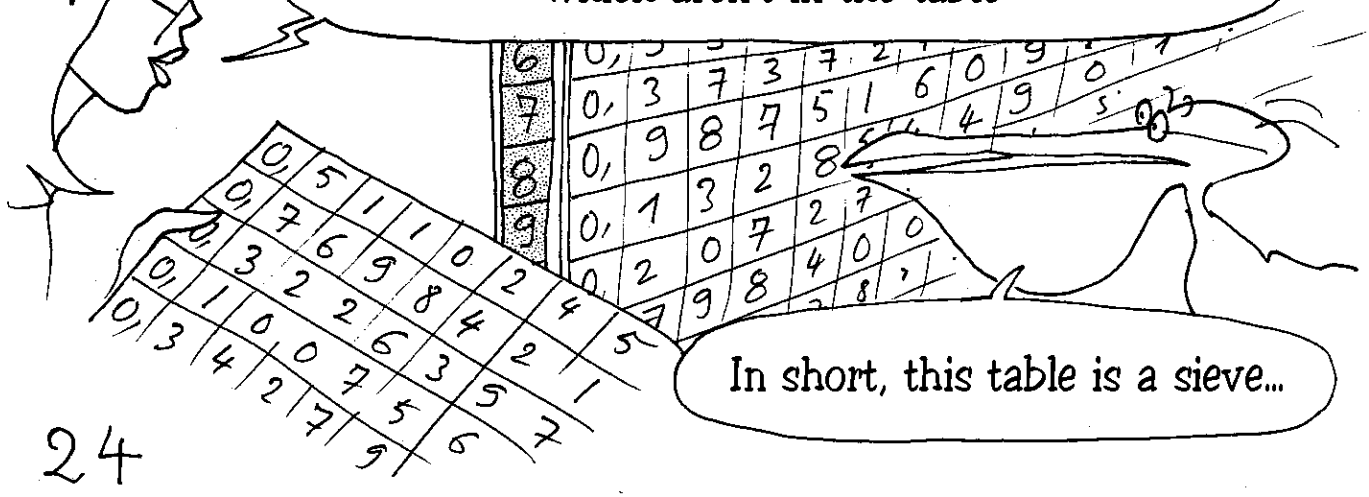
0,	5	1	1	0	2	4	5	9	7	8	0	0	7	5	1	8	1	4	4	5	C
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
0,	7	6	9	8	4	2	1	3	2	9	3	3	1	1	5	6	7	6	6	3	1

This number **IS NOT** in the table. In effect, if it were there would be an identity between one of the figures of the series and a figure of this famous diagonal, but that is impossible to get by simple construction

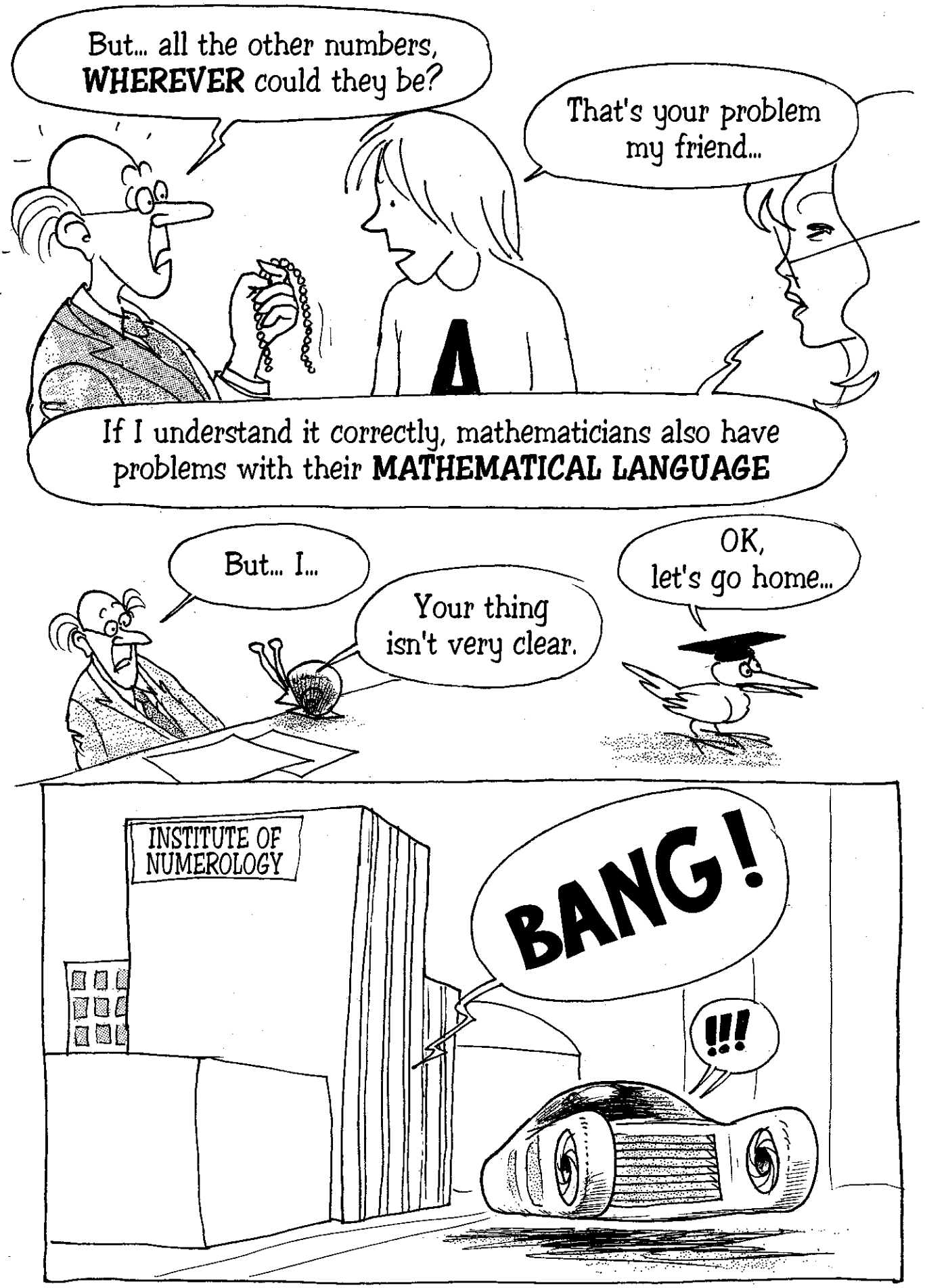


OK, you've found a number that isn't in the table, nice job. But we just need to put it into a new set, no?

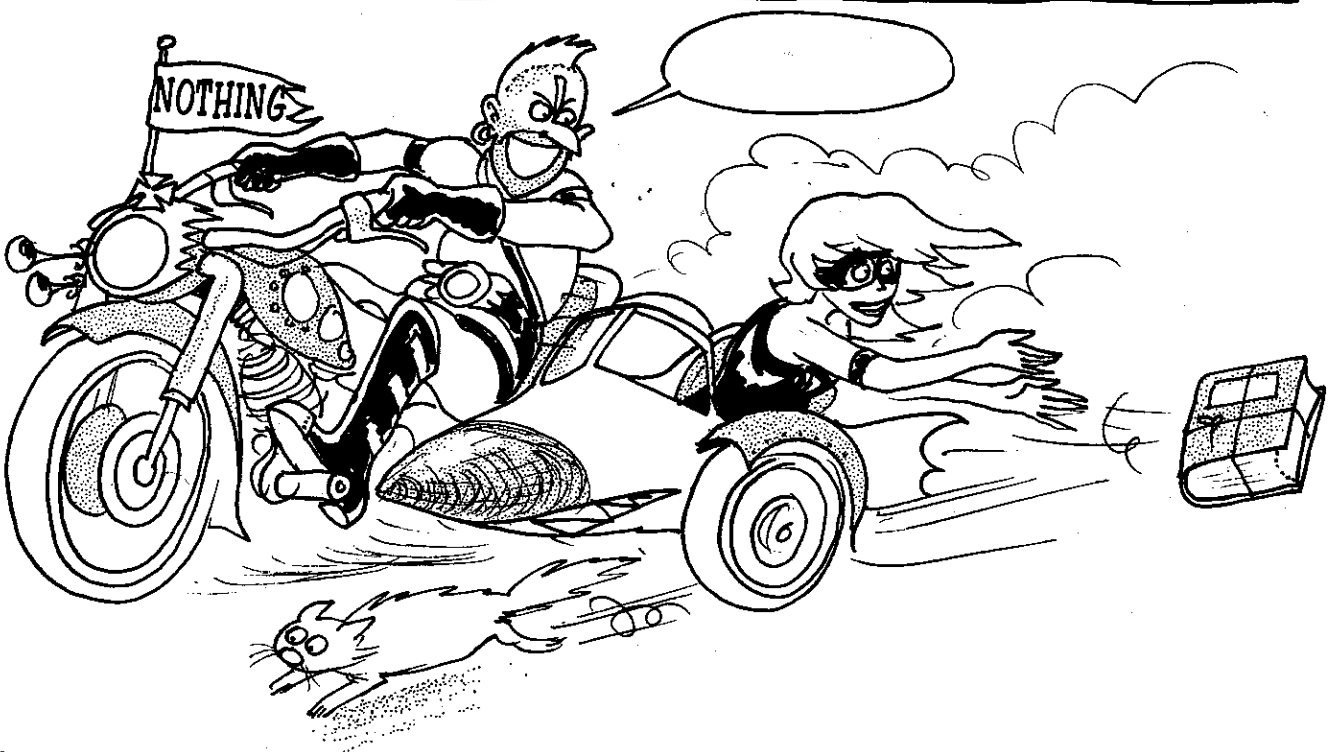
Sadly not Leon. Tiresias' generation method allows the creation of an **INFINITY** of numbers which aren't in the table



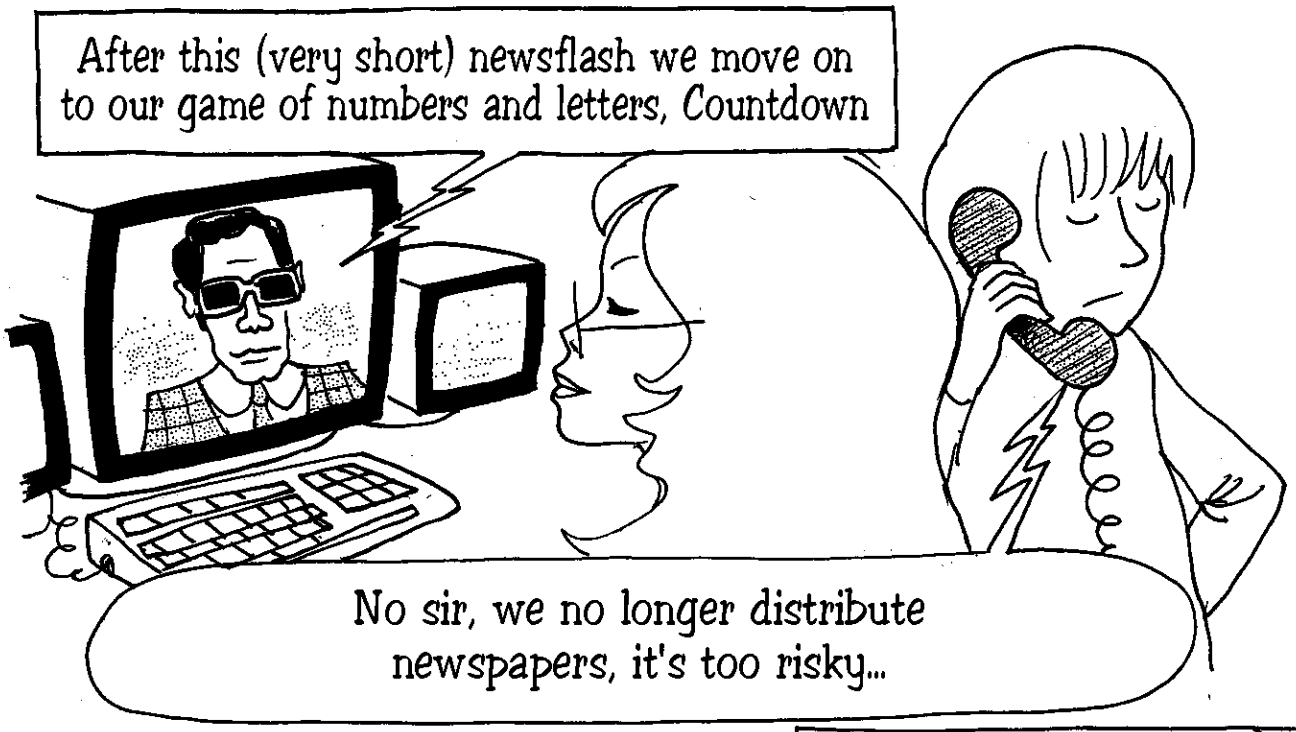
In short, this table is a sieve...

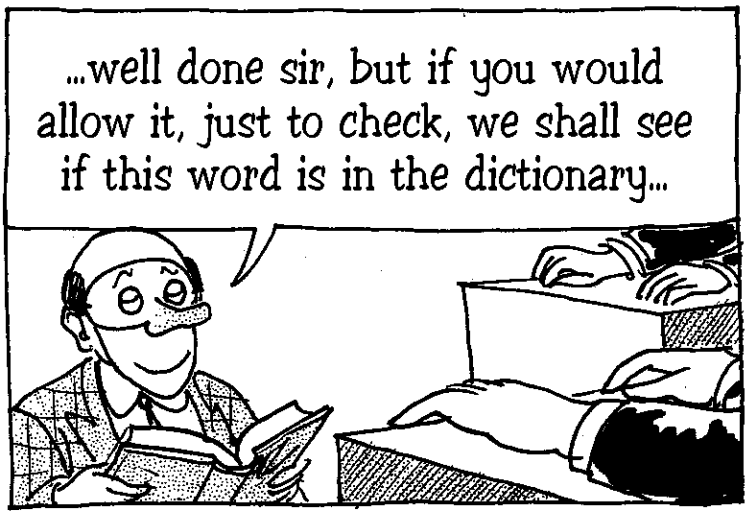

But... all the other numbers, WHEREVER could they be?
That's your problem my friend...
If I understand it correctly, mathematicians also have problems with their MATHEMATICAL LANGUAGE
But... I...
Your thing isn't very clear.
OK, let's go home...
INSTITUTE OF NUMEROLOGY
BANG!
!!!

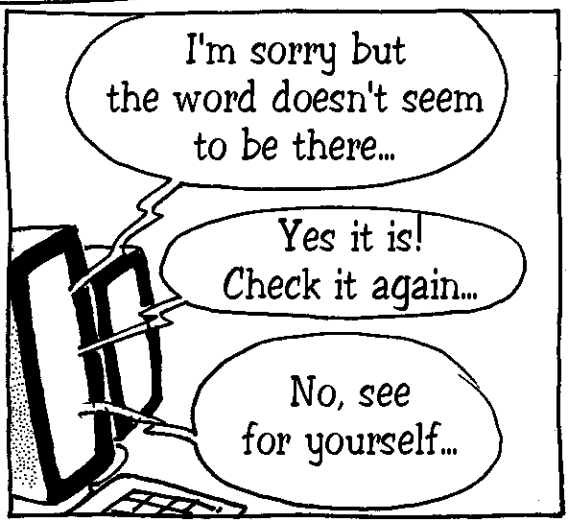
During that time the anarcho-linguistic brigades continued to lay waste to the world's libraries where their booby trapped encyclopaedias caused terrible damage.

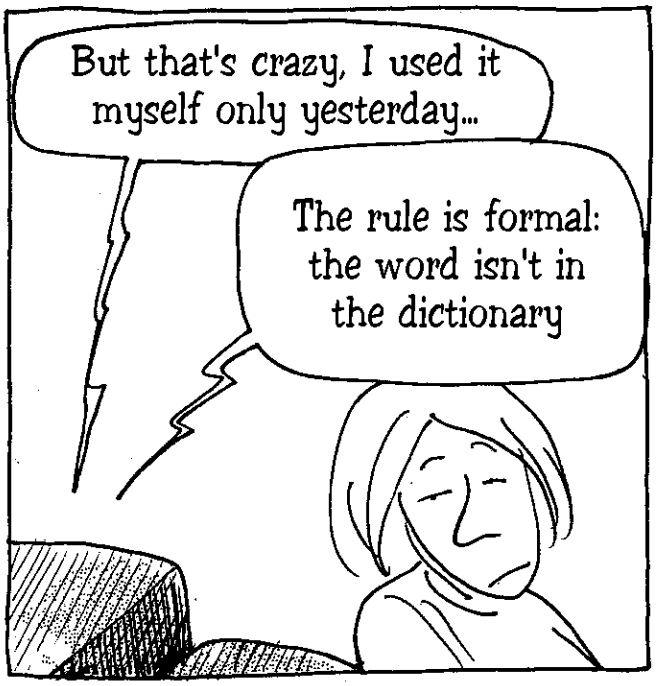


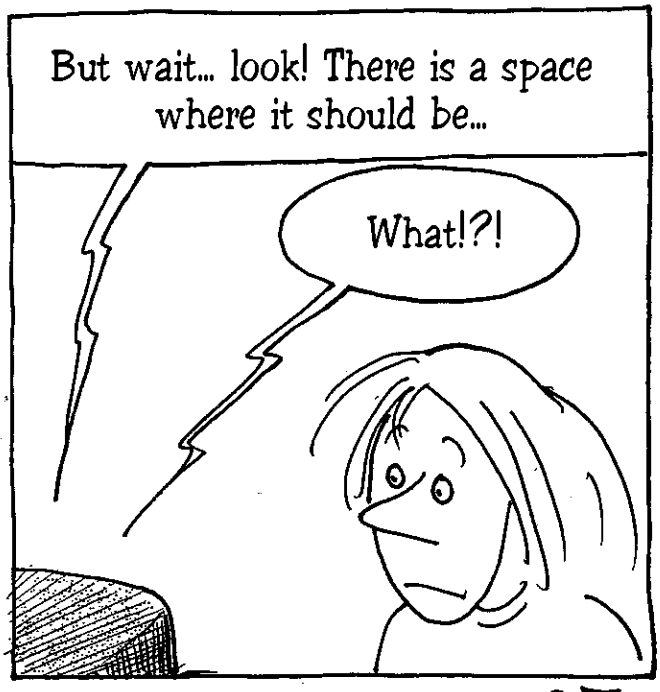
Systematic anonymity and the total absence of communication between the anarcho-linguistic groups makes their identification almost impossible, despite the traps imagined by communication advisors.


After this (very short) newsflash we move on to our game of numbers and letters, Countdown
No sir, we no longer distribute newspapers, it's too risky...


...well done sir, but if you would allow it, just to check, we shall see if this word is in the dictionary...


I'm sorry but the word doesn't seem to be there...
Yes it is! Check it again...
No, see for yourself...

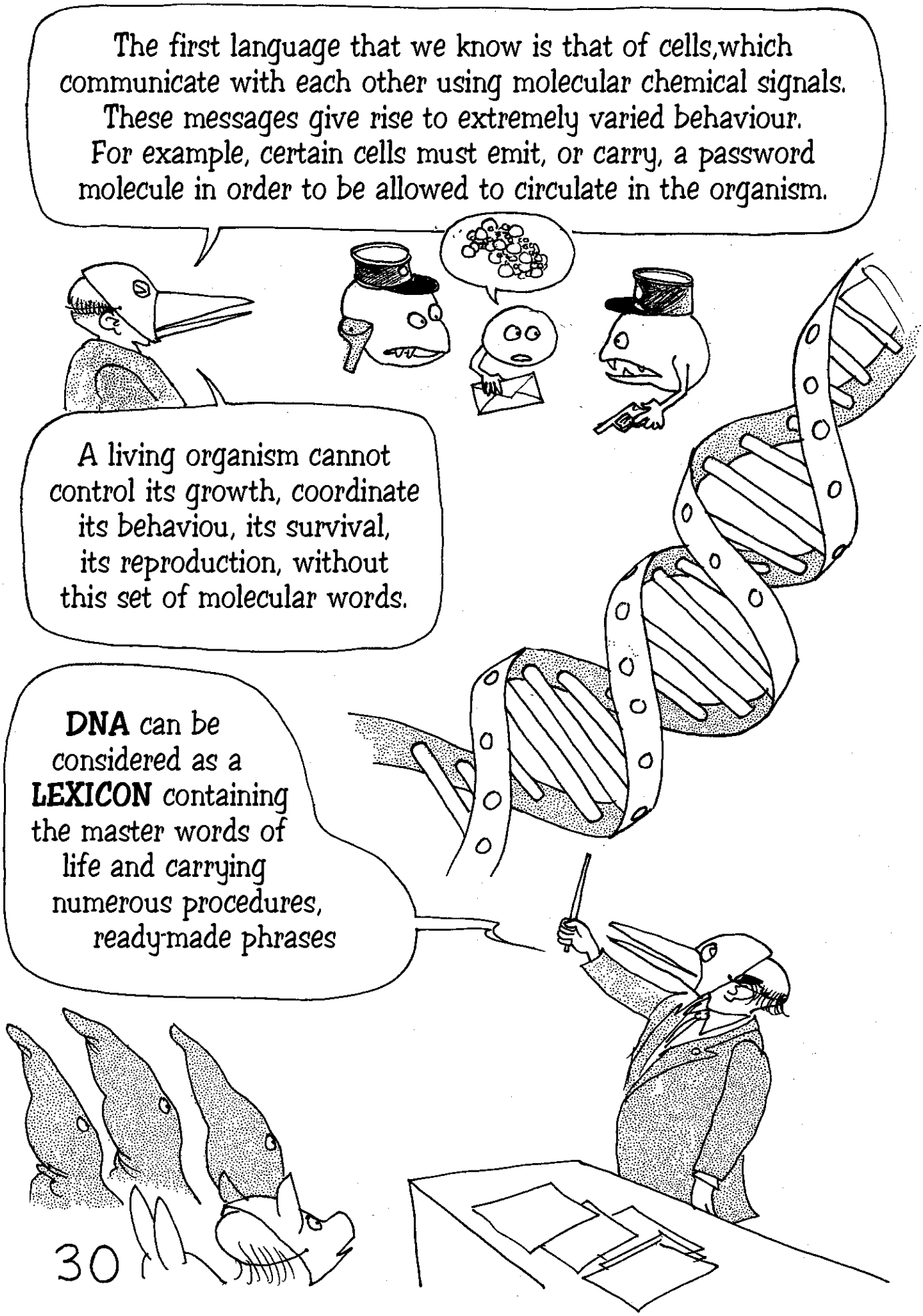

But that's crazy, I used it myself only yesterday...
The rule is formal: the word isn't in the dictionary


But wait... look! There is a space where it should be...
What!?!

The situation in the world deteriorated. The anarcho-linguistic movement caught on and spread and, having started in the university world, it was then echoed by high school teachers, and even those in primary schools

NEOLOGiSMS

The news I bring you is exceptionally serious. Given the necrosis appearing in our language, some researchers have considered it wise to develop and accelerate the research they have undertaken on linguistic manipulation.
CNRS
LANGZO
Linguistic manipulation!?!
I thought that this research had been forbidden by the French Academy...
Yes, but confronted with the seriousness of the situation the academy's ethics committee has allowed it.
I'd now like to hand over to our specialist in linguistic manipulation, LOGOTRONICS, Professor...
No names! Idiot


The first language that we know is that of cells,which communicate with each other using molecular chemical signals. These messages give rise to extremely varied behaviour. For example, certain cells must emit, or carry, a password molecule in order to be allowed to circulate in the organism.
A living organism cannot control its growth, coordinate its behaviou, its survival, its reproduction, without this set of molecular words.
DNA can be considered as a **LEXICON** containing the master words of life and carrying numerous procedures, ready-made phrases

It has happened that we have developed a set of sound signals and graphic signs that allow us to communicate but, as social beings, we could just as well have developed the gestual communication of apes or the chemical communication of ants.

So this language, thanks to electromagnetic transcoding, lends itself to communication over great distances.

Because of the great variety of supports, the messages of the human species can be duplicated to the point where they are perceived by **THE ENTIRE SET OF INDIVIDUALS**

?

MICHAEL JACKSON

These language elements, memorised in writing, only code a part of human behaviour, in the form of customs, taboos, laws and beliefs, and are transmitted from generation to generation

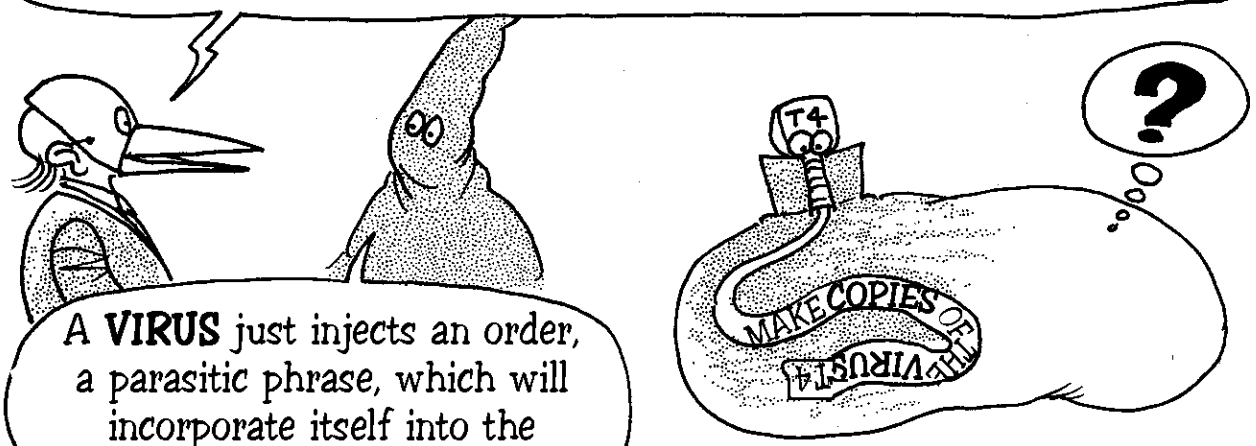
NITENTEH MONIBVS TERRA

TINTIN IN THE LAND OF THE SOVIETS

QUANTUM PHYSICS

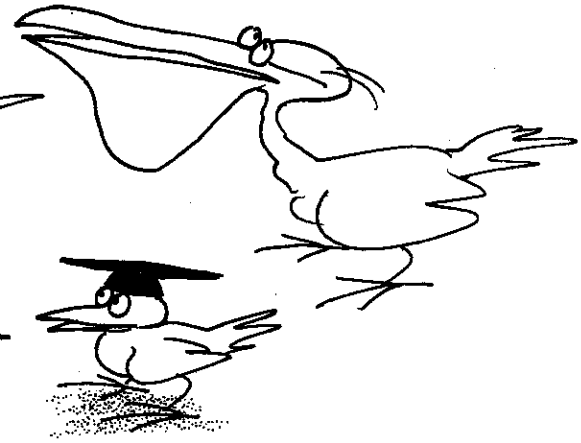
Our dialogue with the Universe is effected, and can only be effected, through an ORGANISED SYSTEM OF BELIEFS, in the form of religions, codified according to rites and spread through sermons; in the form of ideologies, articulated according to laws and spread by propaganda; or in the form of science, internally codified by paradigms and spread through scientific vulgarisation.
That's crazy!
He's going too far there
That's subversive!
We're getting close to the illegal practice of philosophy
Gentlemen, gentlemen, I beg you, a little calm please. Let us not forget the seriousness of our situation.
What is a PARADIGM exactly?
Well, it's a set of interpretations of experience and observations, axioms, principles and equations, which construct a representation system of the world, in general, pretty airtight

The language, and the representation system that evolves from that, is the binding agent of human society. Every perturbation affecting communication mechanisms can have very important repercussions. In biology, an alteration of DNA segments can translate into the appearance of malformations, dysfunctioning or cancer

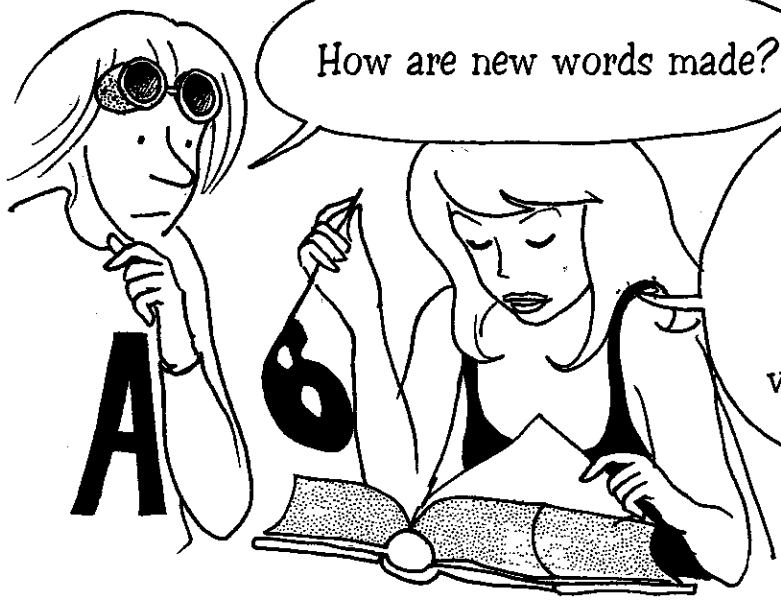


A **VIRUS** just injects an order, a parasitic phrase, which will incorporate itself into the "memory" of a bacteria.

A simple subversive idea can disorganise a society



But this inexplicable necrosis of our languages obliges us to create new words, **NEOLOGISMS**

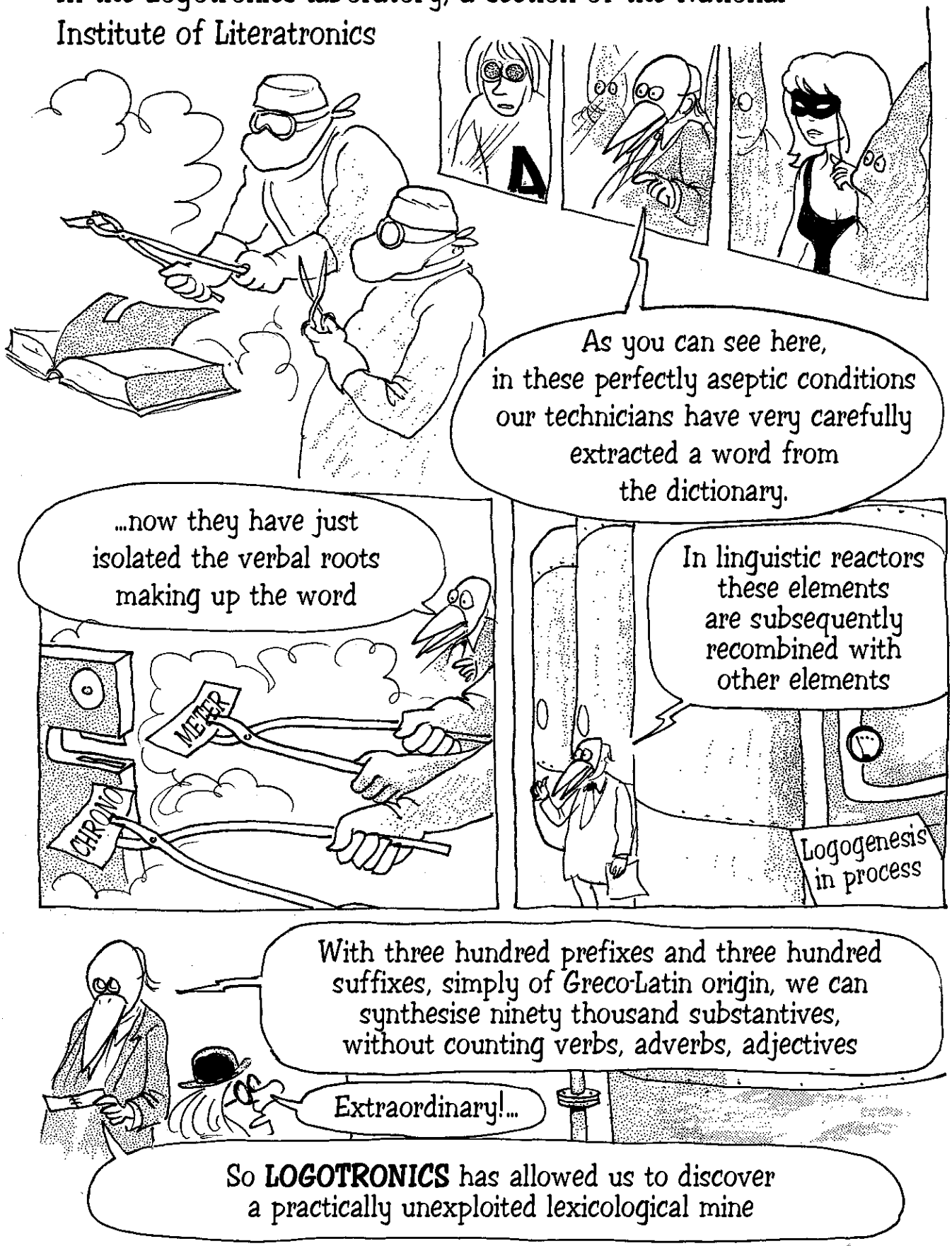


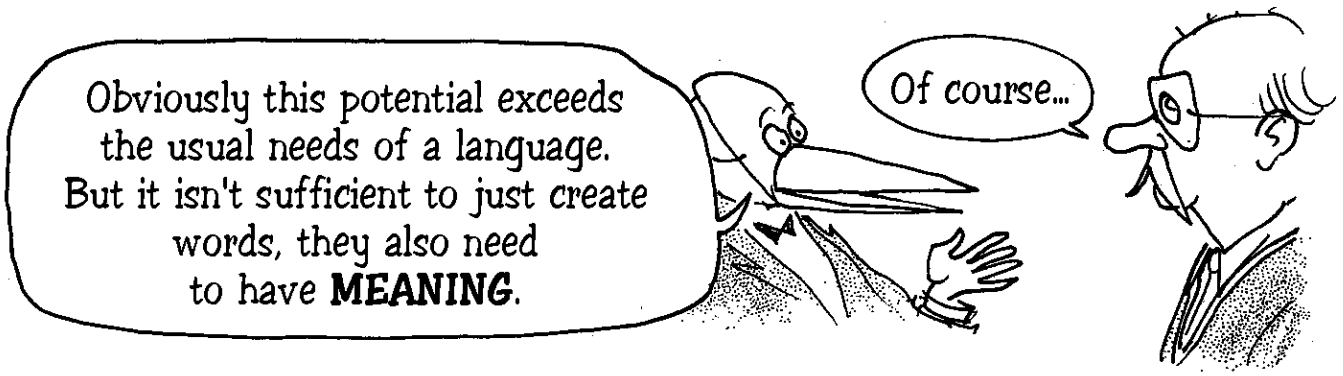
How are new words made?

The most common method consists of using elements, prefixes or suffixes, borrowed from various existing languages

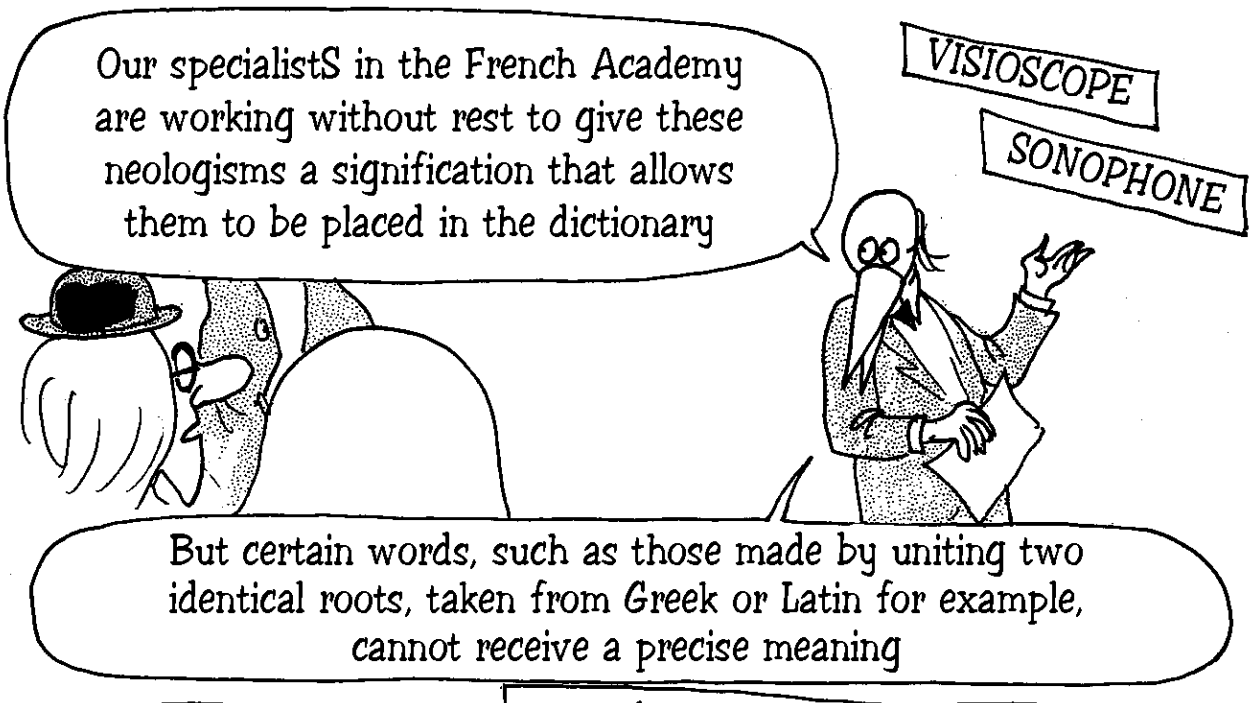
THE LOGOTRON

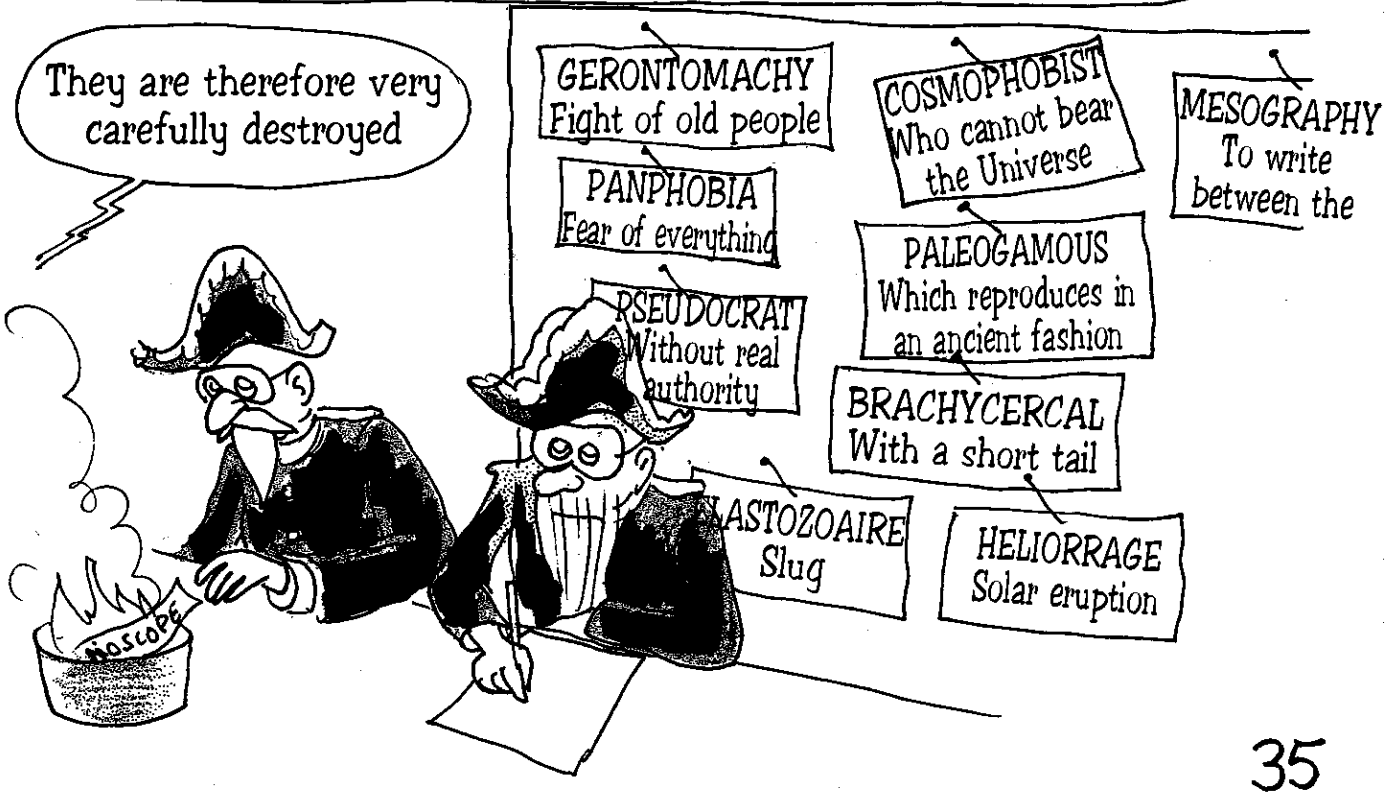
In the Logotronics laboratory, a section of the National Institute of Literatronics




Obviously this potential exceeds the usual needs of a language. But it isn't sufficient to just create words, they also need to have **MEANING**.
Of course...

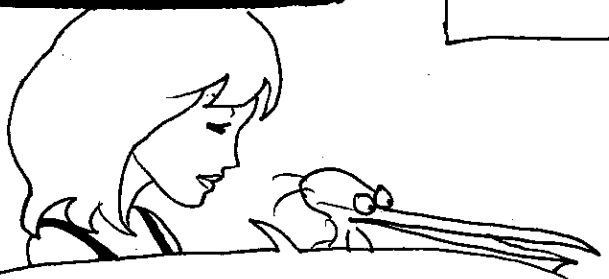
SEMANTiCS


Our specialistS in the French Academy are working without rest to give these neologisms a signification that allows them to be placed in the dictionary
VISIOSCOPE
SONOPHONE
But certain words, such as those made by uniting two identical roots, taken from Greek or Latin for example, cannot receive a precise meaning

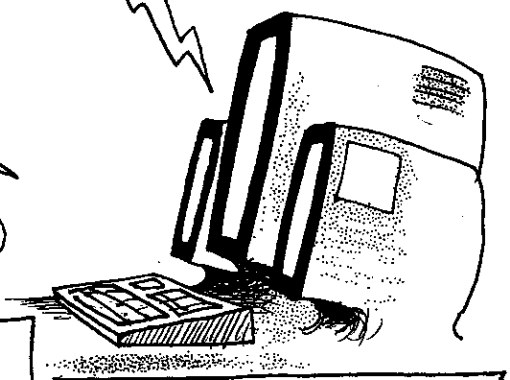

They are therefore very carefully destroyed
GERONTOMACHY
Fight of old people
PANPHOBIA
Fear of everything
PSEUDOCRAT
Without real authority
COSMOPHOBIST
Who cannot bear the Universe
MESOGRAPHY
To write between the
PALEOGAMOUS
Which reproduces in an ancient fashion
BRACHYCERCAL
With a short tail
GASTOZOAIRE
Slug
HELIORRAGE
Solar eruption

The NLI, the National Literatronics Institute, has undertaken the controlled emission of several new words, which we will now present...

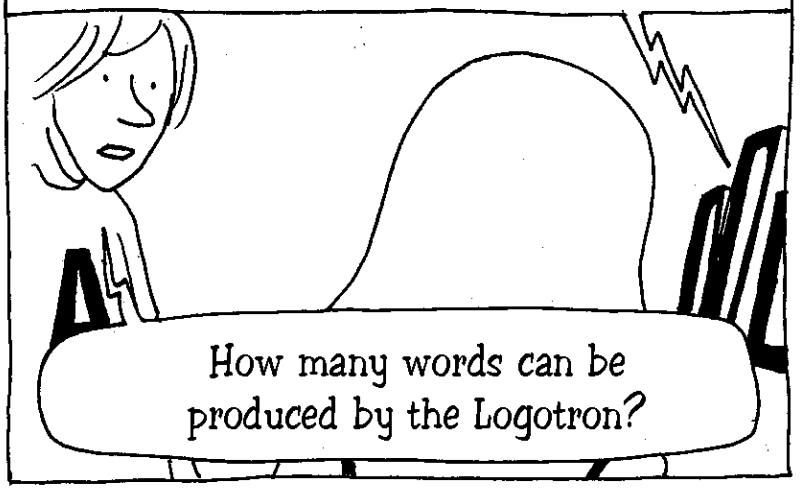
Erm.. Excuse me, a piece of late news: the plans for the **LOGOTRON** have been stolen from the NLI by a German anarcho-linguist group. This is the incredible explanation for the emission of new words by the Germans despite the repeated warnings of the ILF, the International Linguistics Foundation



Ah, it had to happen sooner or later!



LOGORRHEA, verbal inflation, threatens our neighbours across the Rhine. Normal conversations in German have become interminable. Television channels have had to suspend the weather forecast for the following day as the bulletin now exceeds twenty four hours



How many words can be produced by the Logotron?

The German government has warned its population against words of more than sixteen letters, which should now be considered as doubtful.

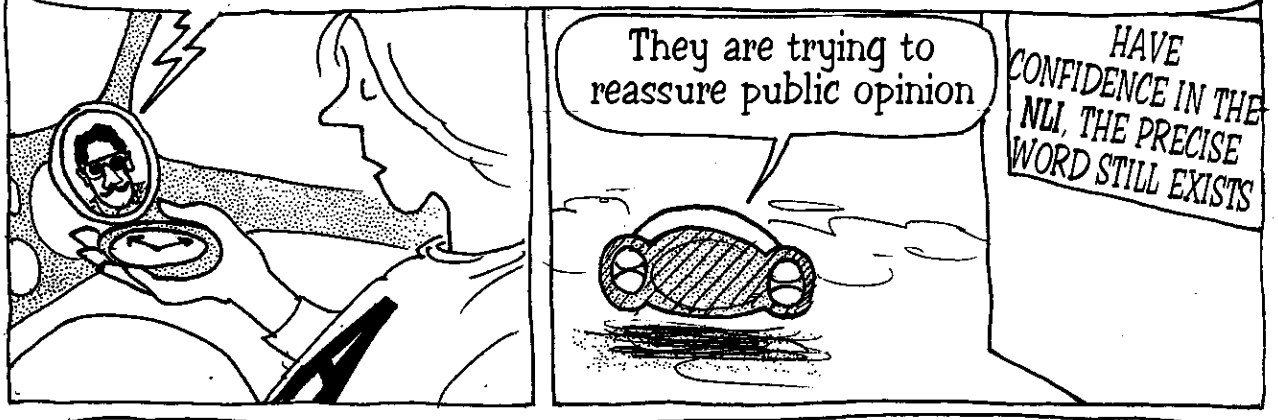
Almost without limit...

Here we see a Bavarian receiving the eleven volumes of the new dictionary

Language has its own life. If structures with two roots are formed, in their turn they can capture a new radical and give birth to a structure with three roots, etc...

Something particular to agglutinative languages

The NLI has therefore worked night and day to give new, ready-to-use words to French, that is to say ones that have a meaning. Rumours according to which **WORDS WITHOUT MEANING** have been put into circulation are without foundation

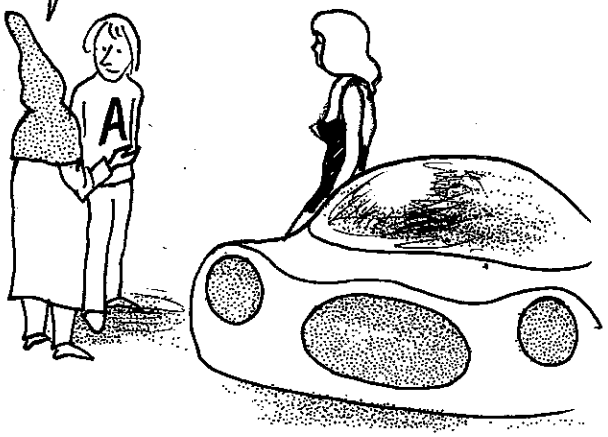


How are things?

Not good. In Germany they've reached sixty million words. In Munich and Dresden people are speaking French and Italian. There is a danger that the German language, despite active support from the ILF (Internation Linguistic Foundation) which has taken the courageous decision to publish its bulletin in German

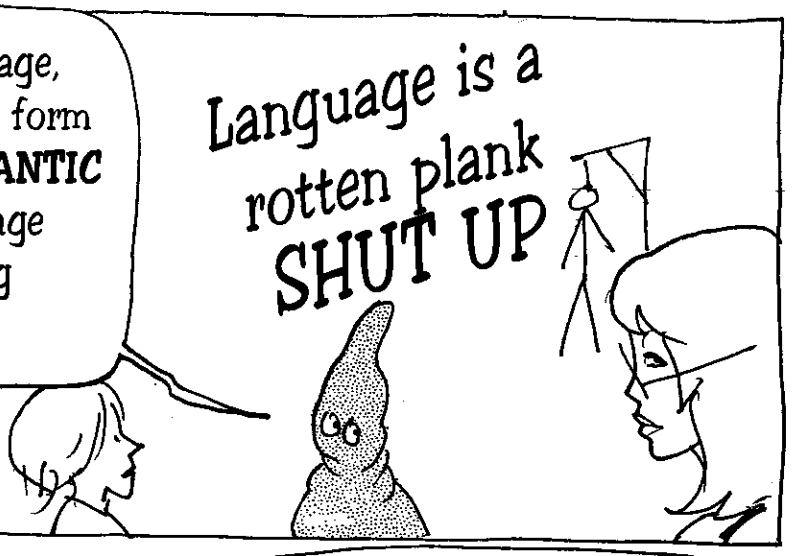
People have lost confidence. They say that there will never be as many objects as there are words

Two theses have appeared. According to the first, there is no reason to worry: language CREATES objects, and a readjustement will happen sooner or later.



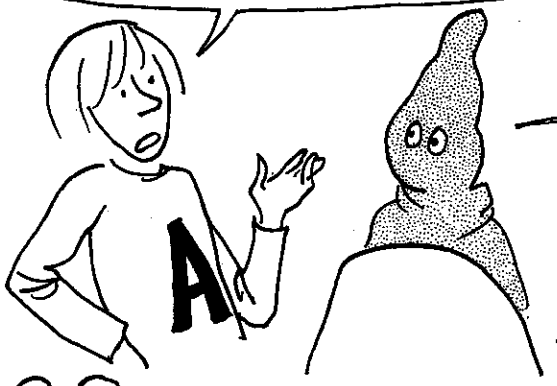
The other thesis is that objects do not exist. Only language exists...

As for the Japanese language, it is affected by a particular form of **LOGOSIS**, a terrible **SEMANTIC DRIFT**. Words even manage to change their meaning during a conversation.



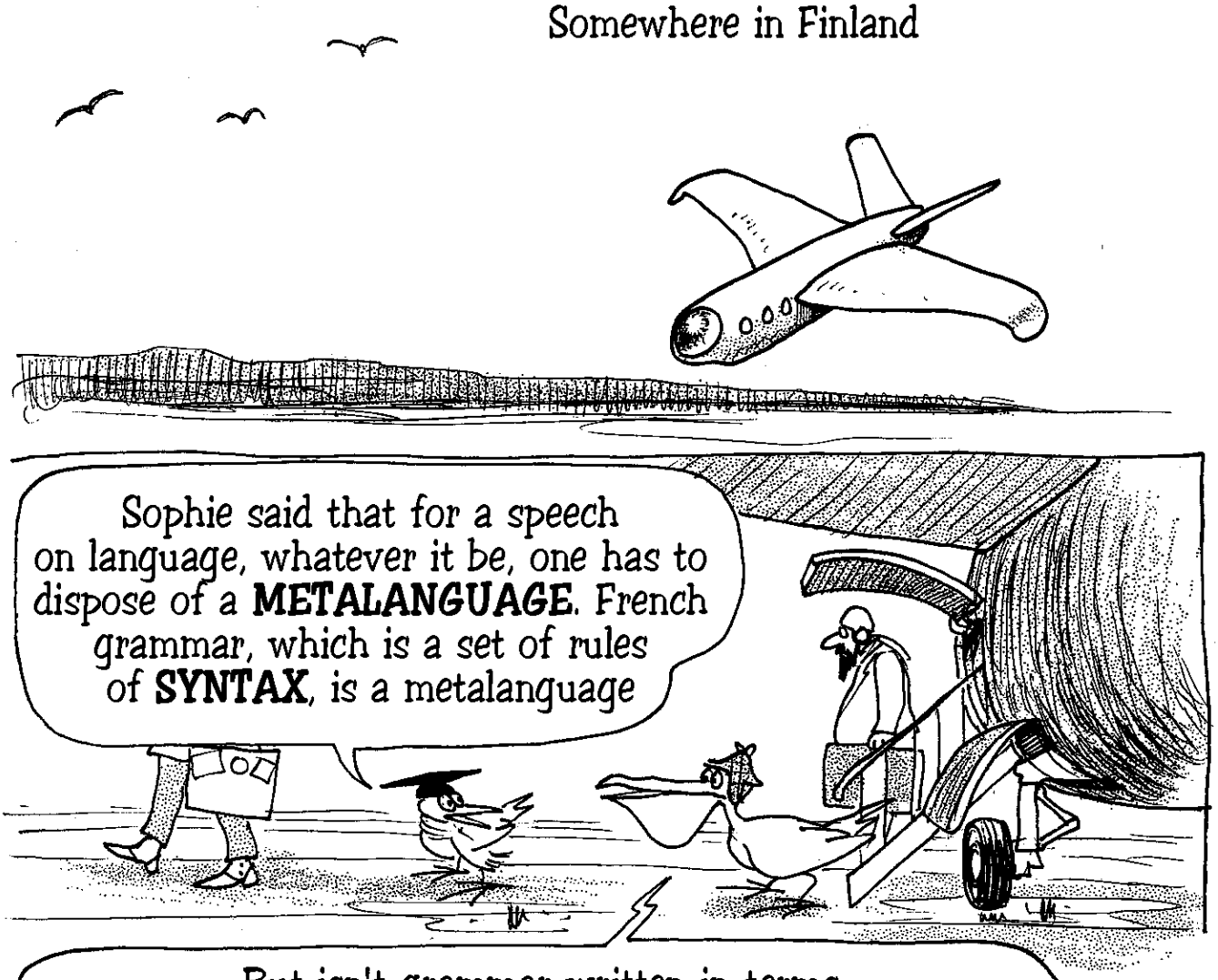
Is there no language that has escaped this planetary logosis?

For an unexplained reason it seems that southern Finnish has, provisionally, remained more or less intact. If a speech on speech can be given, this language remains our last chance. Do you speak Finnish?



Of course

LANGUAGE AND METALANGUAGE



Take maths. It is written in a particular language, the **MATHEMATICAL LANGUAGE**, but we describe it in **NATURAL LANGUAGE**

Which, as everyone knows, is full of weaknesses of all sorts, **PARADOXES**, etc...

Evidently **LOGIC** dictates that we can dispose of a **LANGUAGE** which contains a **METALANGUAGE**, its "grammar", while remaining exempt from these unacceptable weaknesses.

In other words, a **FORMAL LANGUAGE**

But for heaven's sake, what **IS** a language

We could define it as a set of **PROPOSITIONS**

Some will be **AXIOMS**, others **DEMONSTRABLE PROPOSITIONS** (we can demonstrate that they are true), other are **REFUTABLE PROPOSITIONS** (we can demonstrate that they are false), all being linked by **LOGICAL** articulations

It suffices to be able to dispose of such a formal language, which will then serve as a basis, as a universal language for all the others

This is exactly what we tried to prove through the language of **SET THEORY** and you saw what that gave

As for mathematicians...

Let's see, a formal system is composed of objects of a language. Some are **AXIOMS**, comparable to the **DATA** of a **PROGRAMME**. From the inherent **LOGIC** of this language, which is also a piece of data, we can develop reasonings, comparable to **PROGRAMMES**, whose outcome is new **PROPOSITIONS**

AXIOM A
AXIOM B
PROGRAMME
REASONING
LOGICAL SCHEMA
PROPOSITION

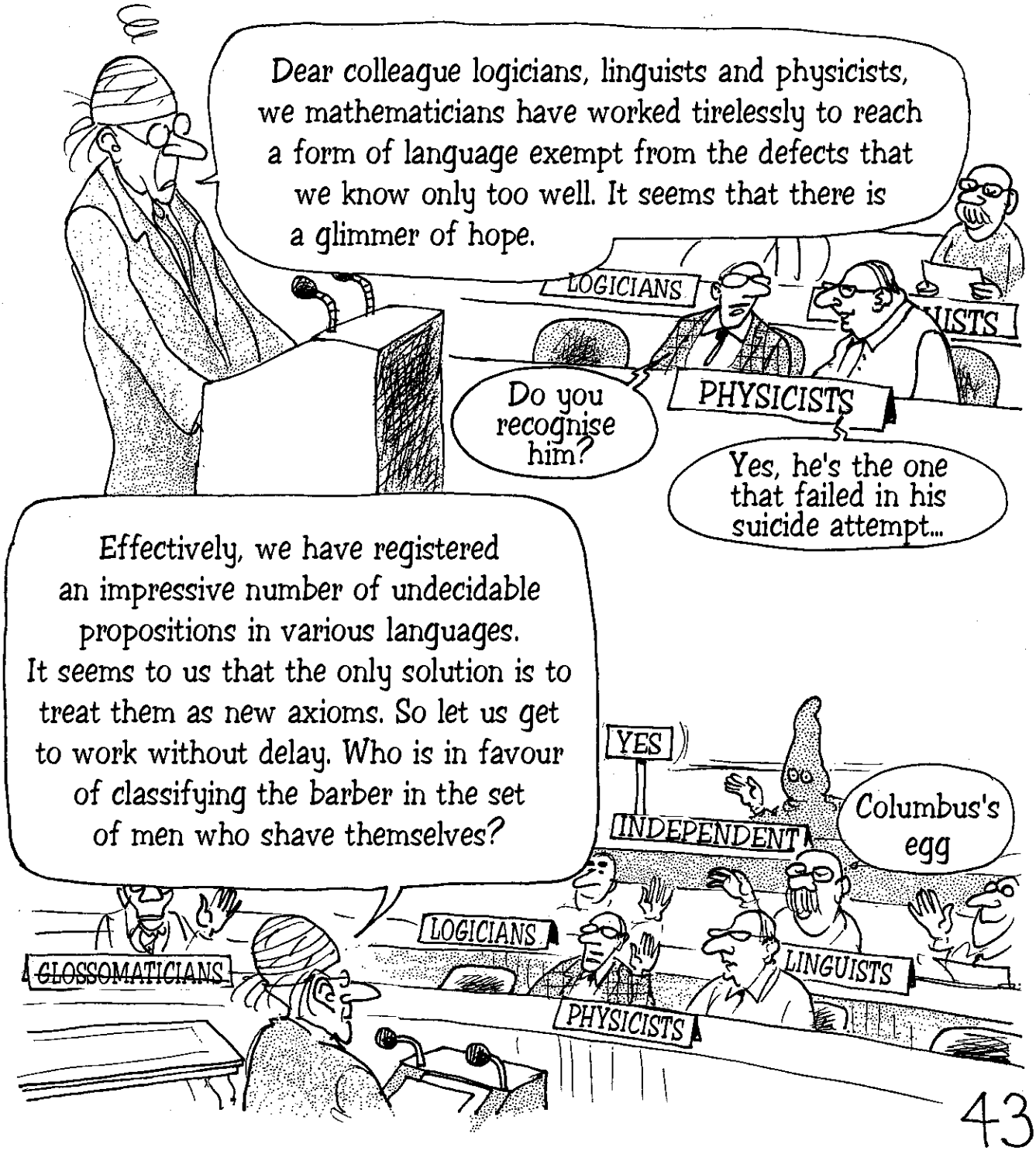
For a language to be consistent all that must form part of the same set, the **LANGUAGE- OBJECT**, and any proposition extracted from this set is an **AXIOM**, a logical reasoning, or a **DEMONSTRABLE** or **REFUTABLE PROPOSITION**

LANGUAGE- OBJECT

But what if it isn't either an axiom, a reasoning, a demonstrable or a refutable proposition?
You well know that it is those annoying **UNDEMONSTRABLE PROPOSITIONS** such as: **THE BARBER WHO SHAVES EVERYONE WHO DOES NOT SHAVE THEMSELF**, and exclusively those, belongs to the set of men who do not shave themselves
Ah yes, we cannot construct a reasoning that allows us to show that it is **TRUE** or **FALSE**!?!
OK. I think we shouldn't panic. We are here to try to get the language out of these dramatic blind alleys. I see communications listed on the conference programme that have encouraging titles. We'll see about it tomorrow
AL

GÖDEL'S THEOREM

The symposium began in a very tense atmosphere, in this region of Europe provisionally spared from the wave of anarcho-linguisitc terrorism.



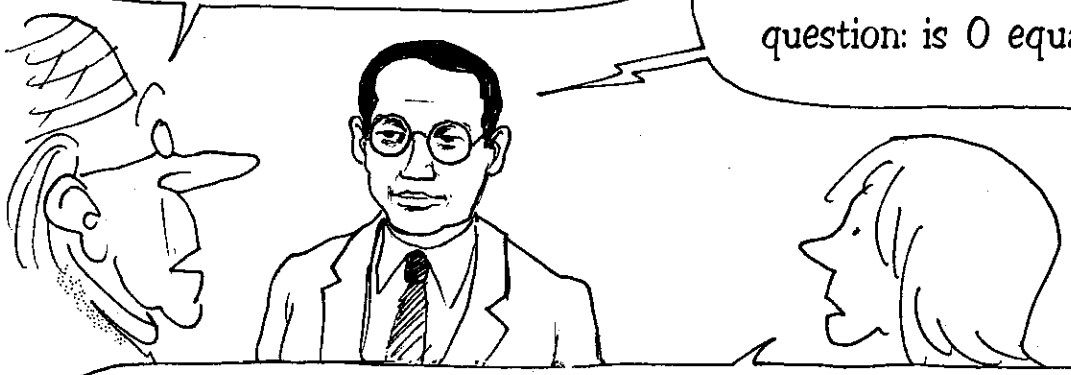
It is obviously a fair amount of work but by pooling our efforts, for example in an Institute of Axiomatics, attached to a Ministry for the retreatment of undecidable propositions, we can hope to rid our languages of undesirable objects. And...

Alas, I'm afraid dear colleague, that this enterprise is futile

ARITHMETIC constitutes a **FORMAL SYSTEM**, a language composed of a certain number of elements. Whole numbers, then signs representing the various operations, the equals sign = , implication =>, negation, things such as ∃(it exists), ∀ (for everything)... Add to that the **PEANO AXIOM**, and that's all

Yes I know, there exists a totally axiomatic presentation of arithmetic

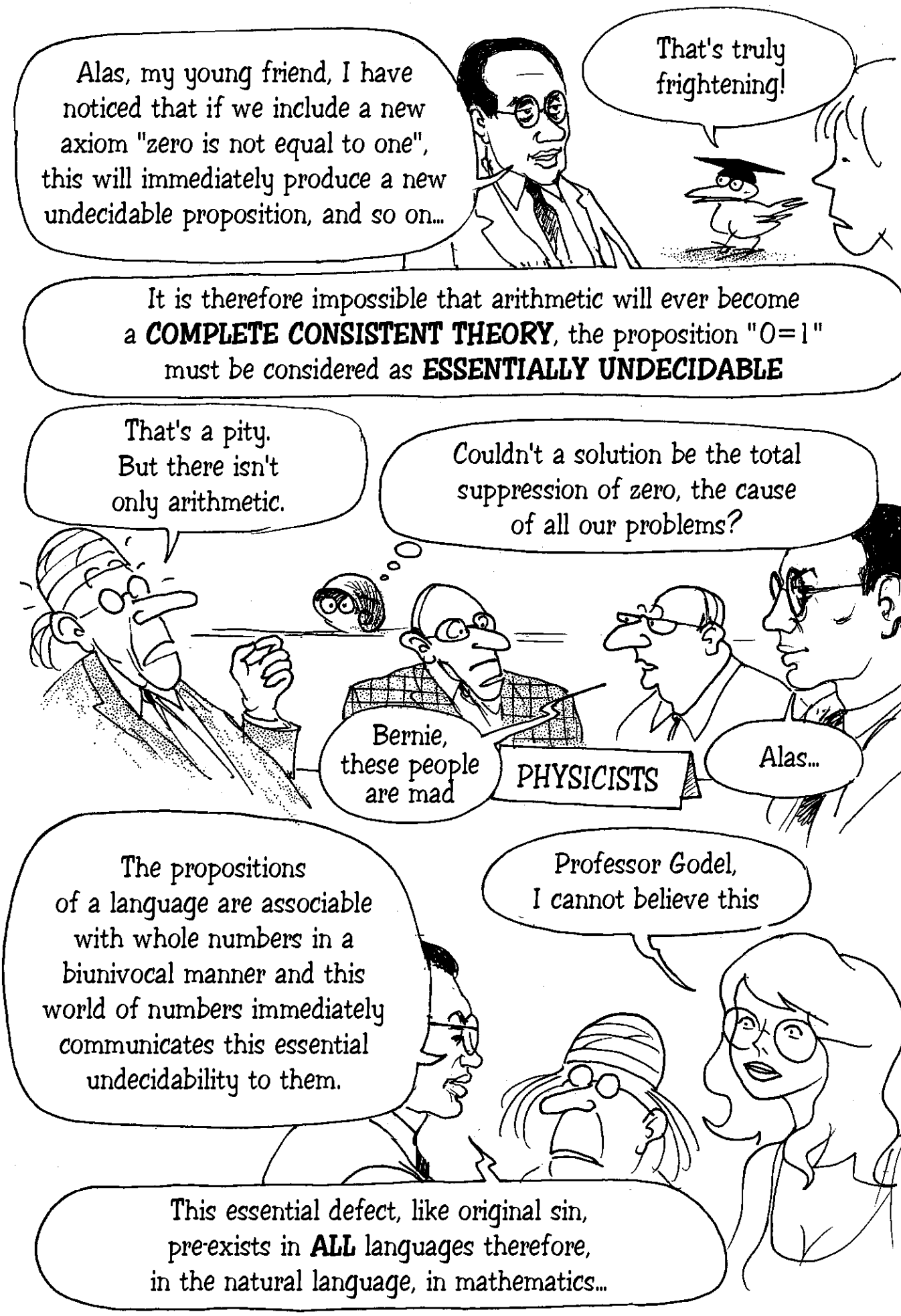
You also know that there exists an undecidable proposition which is formulated according to the question: is 0 equal to 1? (*)



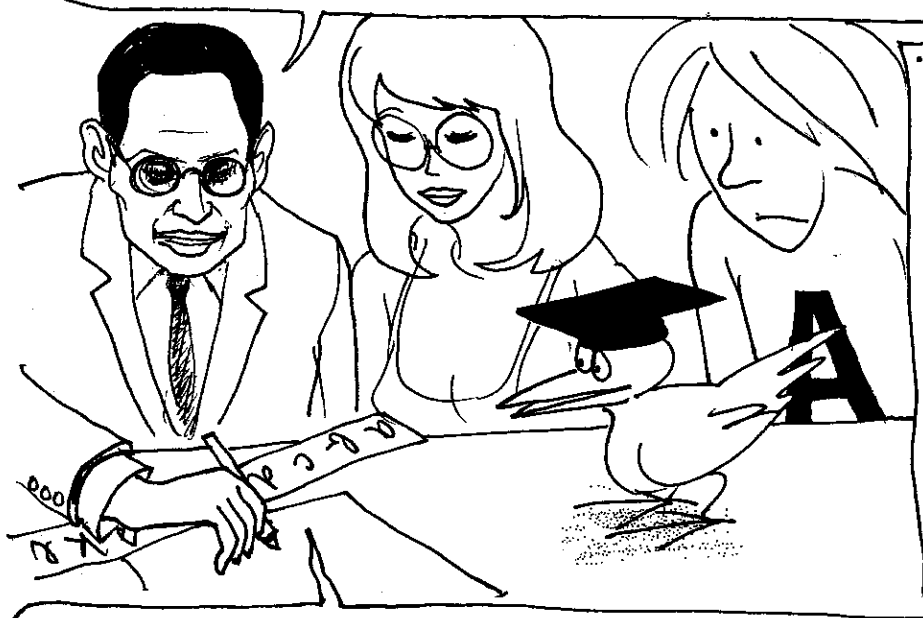
We are aware of this particularity Professor Godel, but would it not be possible to include the proposition "0=1", considered as false, as a new axiom of **ARITHMETICAL THEORY**?

(*) As absurd as it may appear, in this axiomatic context it is impossible to demonstrate or refute the proposition "0=1".

The Management


Alas, my young friend, I have noticed that if we include a new axiom "zero is not equal to one", this will immediately produce a new undecidable proposition, and so on...
That's truly frightening!
It is therefore impossible that arithmetic will ever become a **COMPLETE CONSISTENT THEORY**, the proposition "0=1" must be considered as **ESSENTIALLY UNDECIDABLE**
That's a pity. But there isn't only arithmetic.
Couldn't a solution be the total suppression of zero, the cause of all our problems?
Bernie, these people are mad
PHYSICISTS
Alas...
The propositions of a language are associable with whole numbers in a biunivocal manner and this world of numbers immediately communicates this essential undecidability to them.
Professor Godel, I cannot believe this
This essential defect, like original sin, pre-exists in **ALL** languages therefore, in the natural language, in mathematics...

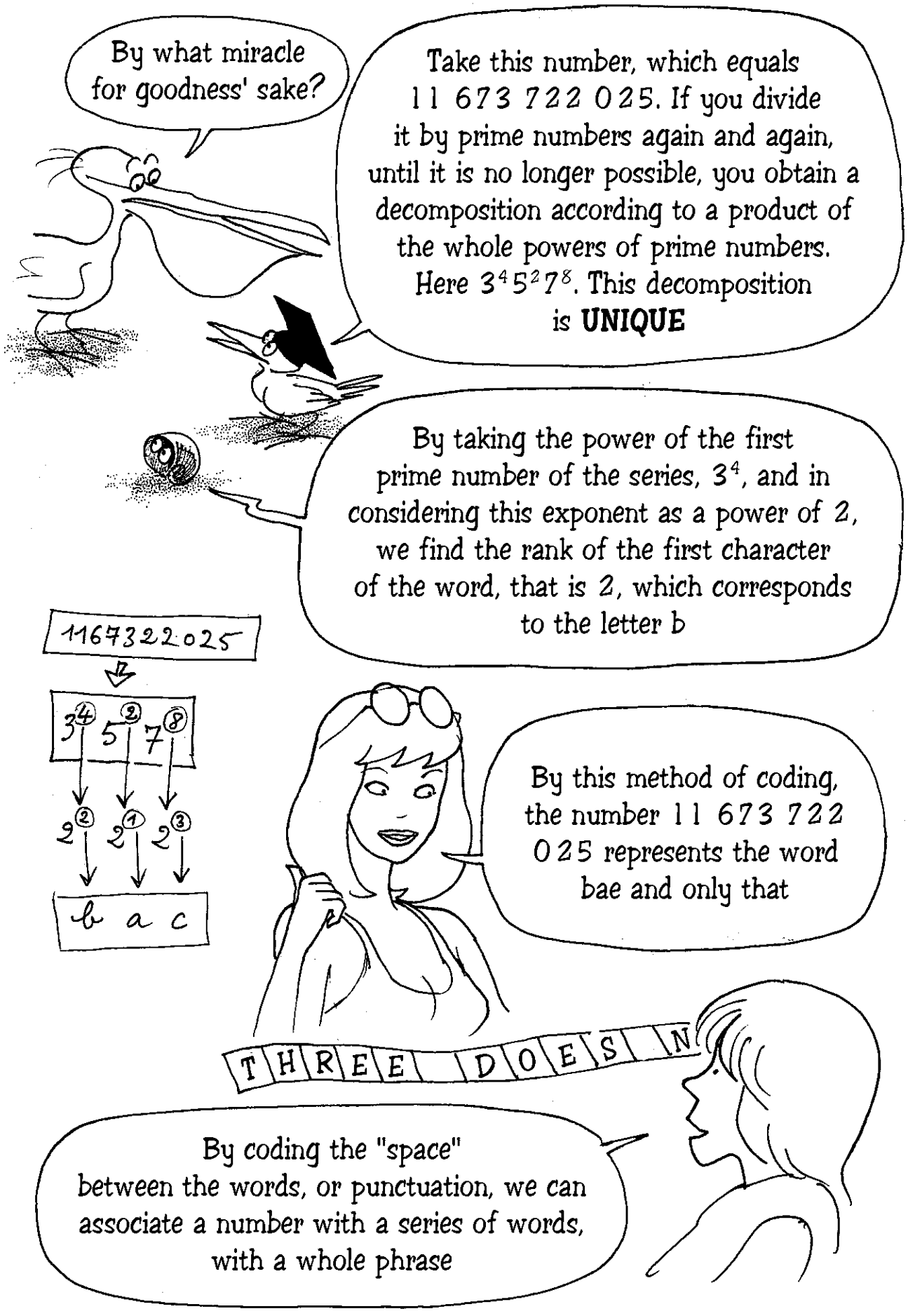
Take for example the natural language constructed from signs like the letters of the alphabet and let us consider the series of **PRIME NUMBERS**, except 1: 2, 3, 5, 7, 11, 13, 17, 19, 23 etc... We will consider the letters themselves as propositions and assign a number to them. We will assign 2^1 to a, the first letter, $2^2 = 4$ to b, the second letter, $2^3 = 8$ to c, and so on

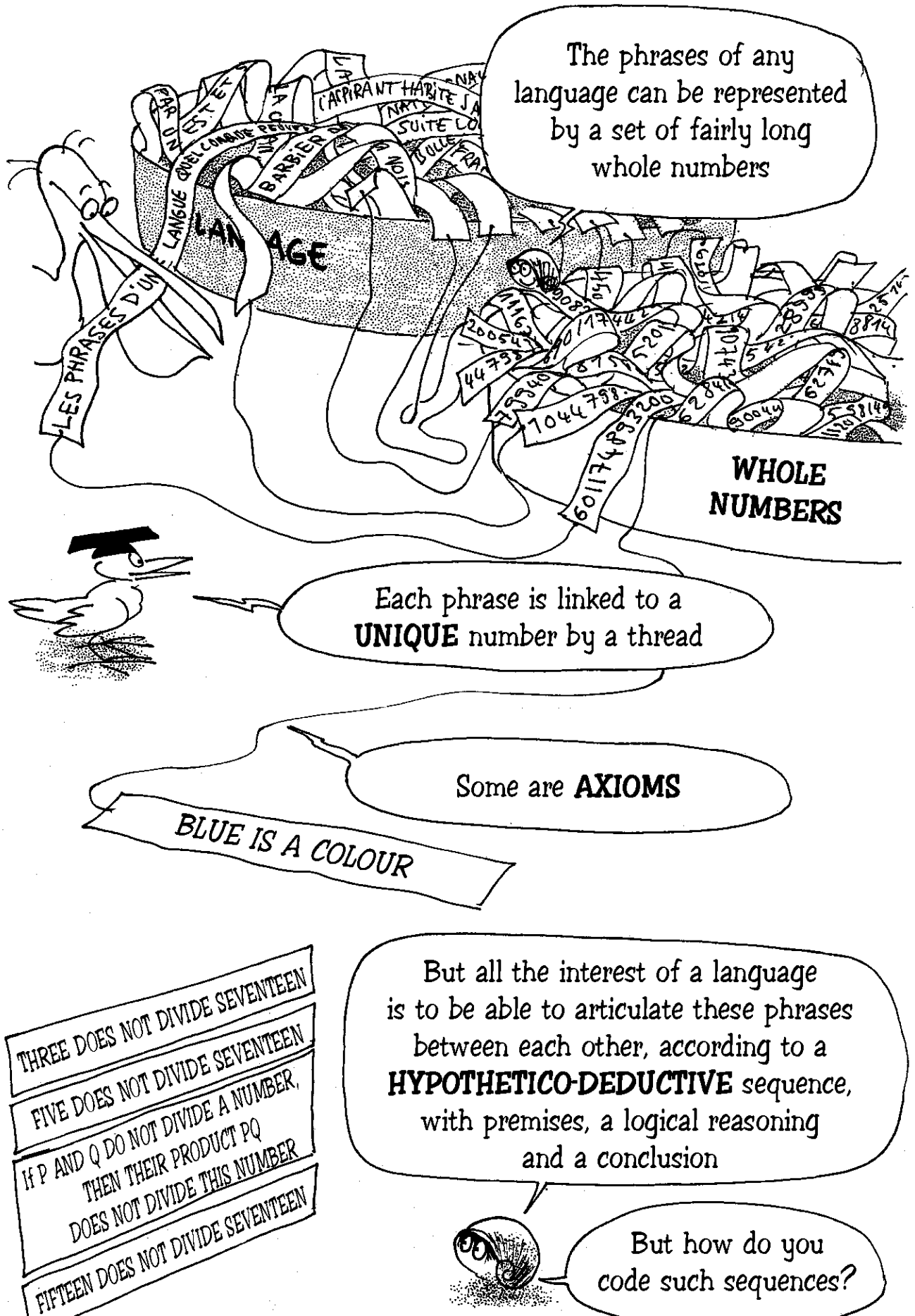


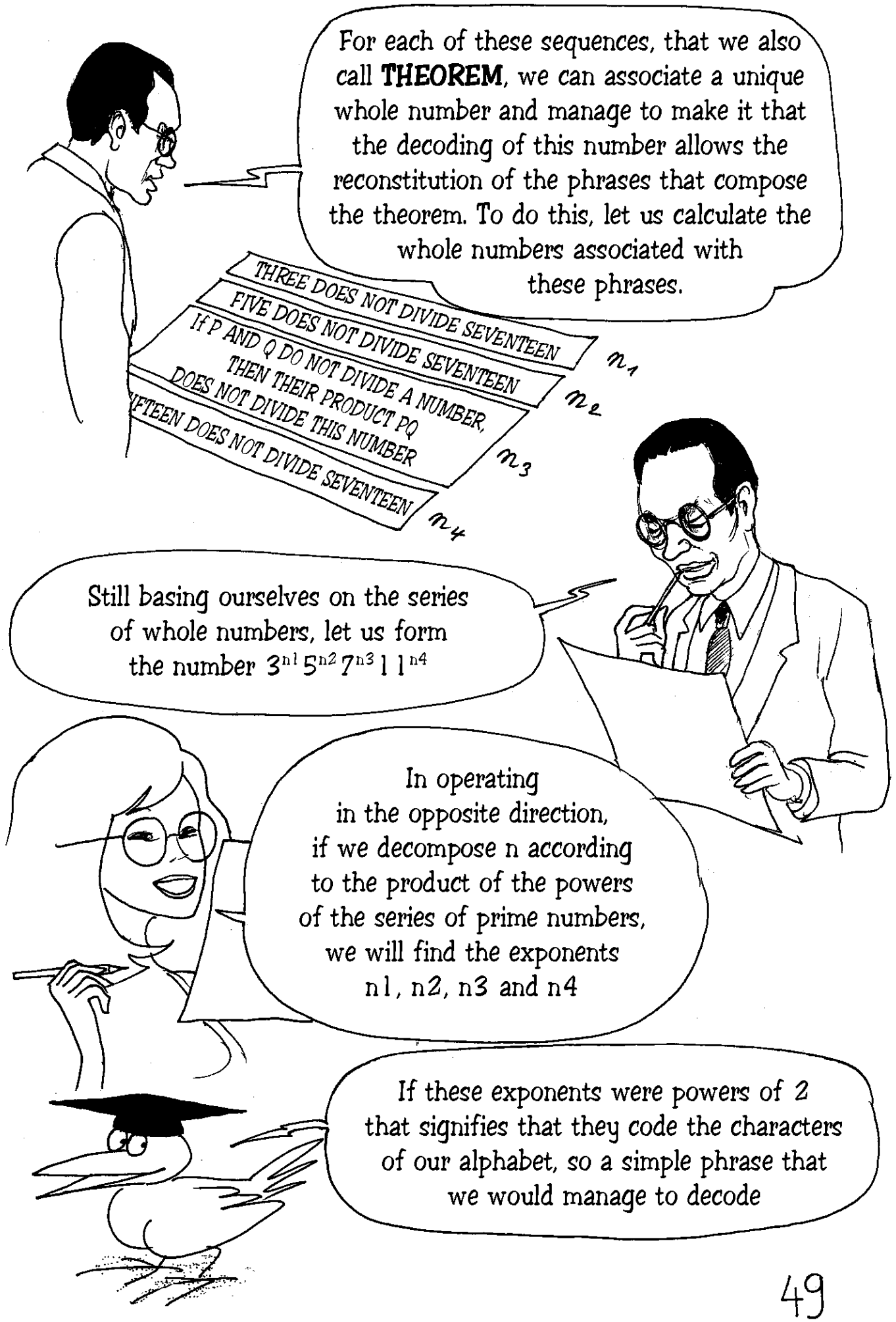
$a \Leftrightarrow 2^1 = 2$
$b \Leftrightarrow 2^2 = 4$
$c \Leftrightarrow 2^3 = 8$
$d \Leftrightarrow 2^4 = 16$
$e \Leftrightarrow 2^5 = 32$
$f \Leftrightarrow 2^6 = 64$
$g \Leftrightarrow 2^7 = 128$
$h \Leftrightarrow 2^8 = 256$
etc.

Let us now move on to a series of characters such as b-a-e. This time we will base our coding on the series of prime numbers, beginning with 3, that is to say 3, 5, 7 etc... The number associated with the letter b being 4, with the letter a, 2 and the letter c, 8, we form the whole number $n=3^4 5^2 7^8$ which equals 11 673 722 025, already high. I say that this whole number codes perfectly the series of letters b-a-e

Understood! This number is **DECOMPOSABLE IN A UNIQUE WAY** according to the product of whole powers of prime numbers. Which makes it that from n = 11 673 722 025 we return to the product $3^4 5^2 7^8$. We can then decompose the exponents


By what miracle for goodness' sake?
Take this number, which equals 11 673 722 025. If you divide it by prime numbers again and again, until it is no longer possible, you obtain a decomposition according to a product of the whole powers of prime numbers. Here $3^4 5^2 7^8$. This decomposition is **UNIQUE**
By taking the power of the first prime number of the series, 3^4, and in considering this exponent as a power of 2, we find the rank of the first character of the word, that is 2, which corresponds to the letter b
11673722025
3④ 5② 7⑧
2② 2① 2③
b a c
By this method of coding, the number 11 673 722 025 represents the word bae and only that
THREE DOES N
By coding the "space" between the words, or punctuation, we can associate a number with a series of words, with a whole phrase


The phrases of any language can be represented by a set of fairly long whole numbers
LAN AGE
LES PHRASES D'UN LANGAGE
WHOLE NUMBERS
Each phrase is linked to a **UNIQUE** number by a thread
Some are **AXIOMS**
BLUE IS A COLOUR
THREE DOES NOT DIVIDE SEVENTEEN
FIVE DOES NOT DIVIDE SEVENTEEN
IF P AND Q DO NOT DIVIDE A NUMBER, THEN THEIR PRODUCT PQ DOES NOT DIVIDE THIS NUMBER
FIFTEEN DOES NOT DIVIDE SEVENTEEN
But all the interest of a language is to be able to articulate these phrases between each other, according to a **HYPOTHETICO-DEDUCTIVE** sequence, with premises, a logical reasoning and a conclusion
But how do you code such sequences?


For each of these sequences, that we also call **THEOREM**, we can associate a unique whole number and manage to make it that the decoding of this number allows the reconstitution of the phrases that compose the theorem. To do this, let us calculate the whole numbers associated with these phrases.
THREE DOES NOT DIVIDE SEVENTEEN
n_1
FIVE DOES NOT DIVIDE SEVENTEEN
n_2
If P AND Q DO NOT DIVIDE A NUMBER, THEN THEIR PRODUCT PQ DOES NOT DIVIDE THIS NUMBER
n_3
IFTEEN DOES NOT DIVIDE SEVENTEEN
n_4
Still basing ourselves on the series of whole numbers, let us form the number $3^{n1}\,5^{n2}\,7^{n3}\,11^{n4}$
In operating in the opposite direction, if we decompose n according to the product of the powers of the series of prime numbers, we will find the exponents n1, n2, n3 and n4
If these exponents were powers of 2 that signifies that they code the characters of our alphabet, so a simple phrase that we would manage to decode

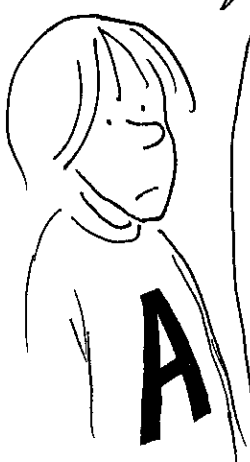
If the exponents n1, n2, n3 and n4 are not powers of 2 then they are phrase-elements of a hypothetico-deductive sequence, of a theorem. In continuing this decomposition a second time we reconstruct the phrases.

So everything can fit into a **LANGUAGE-OBJECT** which is composed entirely of whole numbers. Everything, the axioms, the rules, the reasonings and the propositions

Everything can be brought down to a **GAME OF NUMBERS**

So to a perfectly diabolic **ARITHMETIC**...!

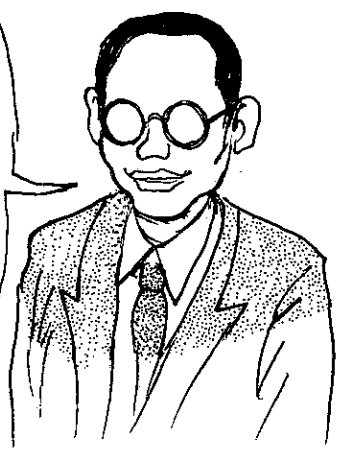
There's something I don't fully understand. If we use whole numbers to code all signs, characters, phrases and theorems, what place is left for the whole numbers themselves?
Inversely, how, at the same time, can we fit into the same numeric set whole numbers, axioms and the ARITHMETICAL theorems that refer to them?
Do the numbers take all the available space?

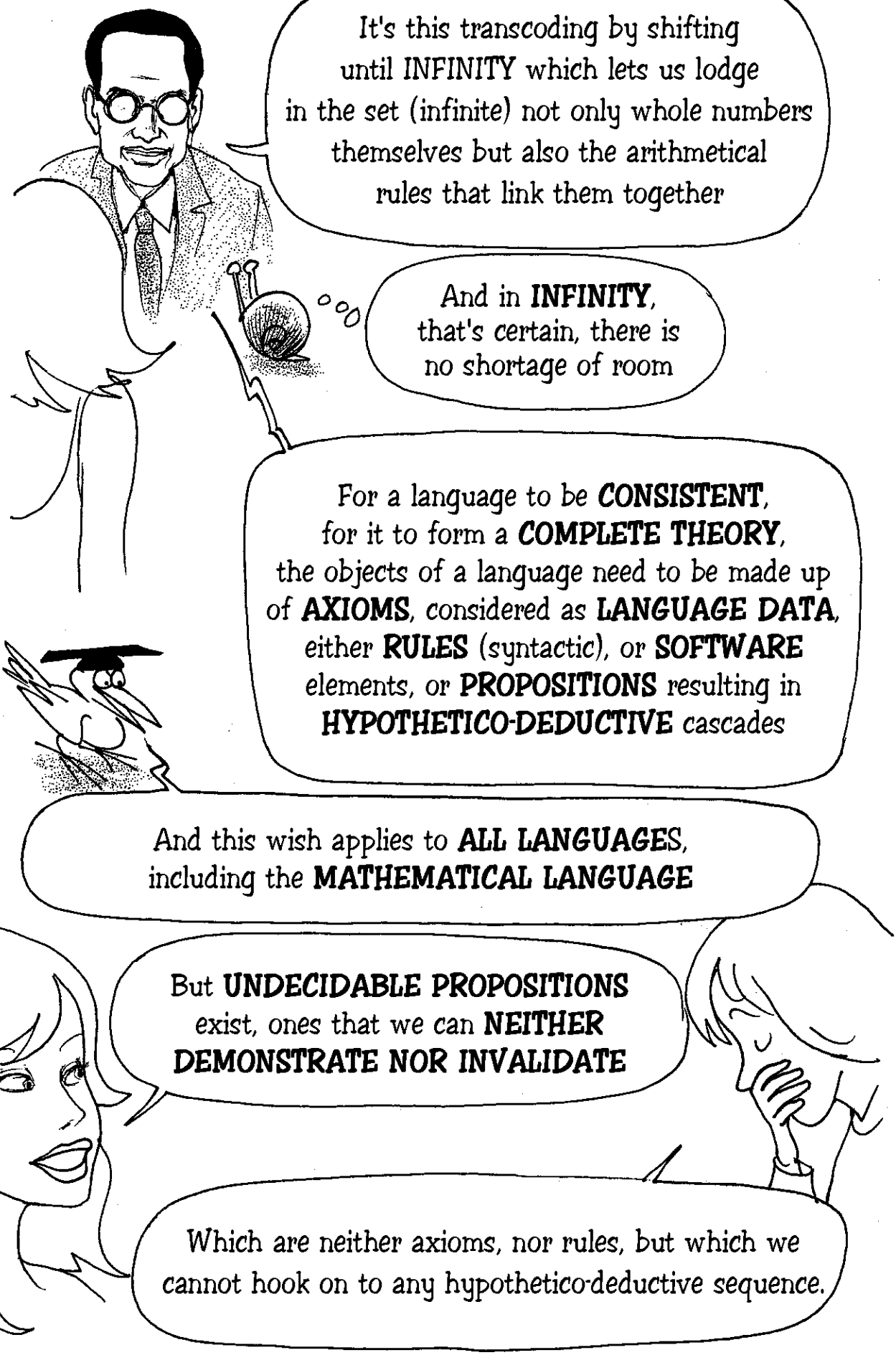


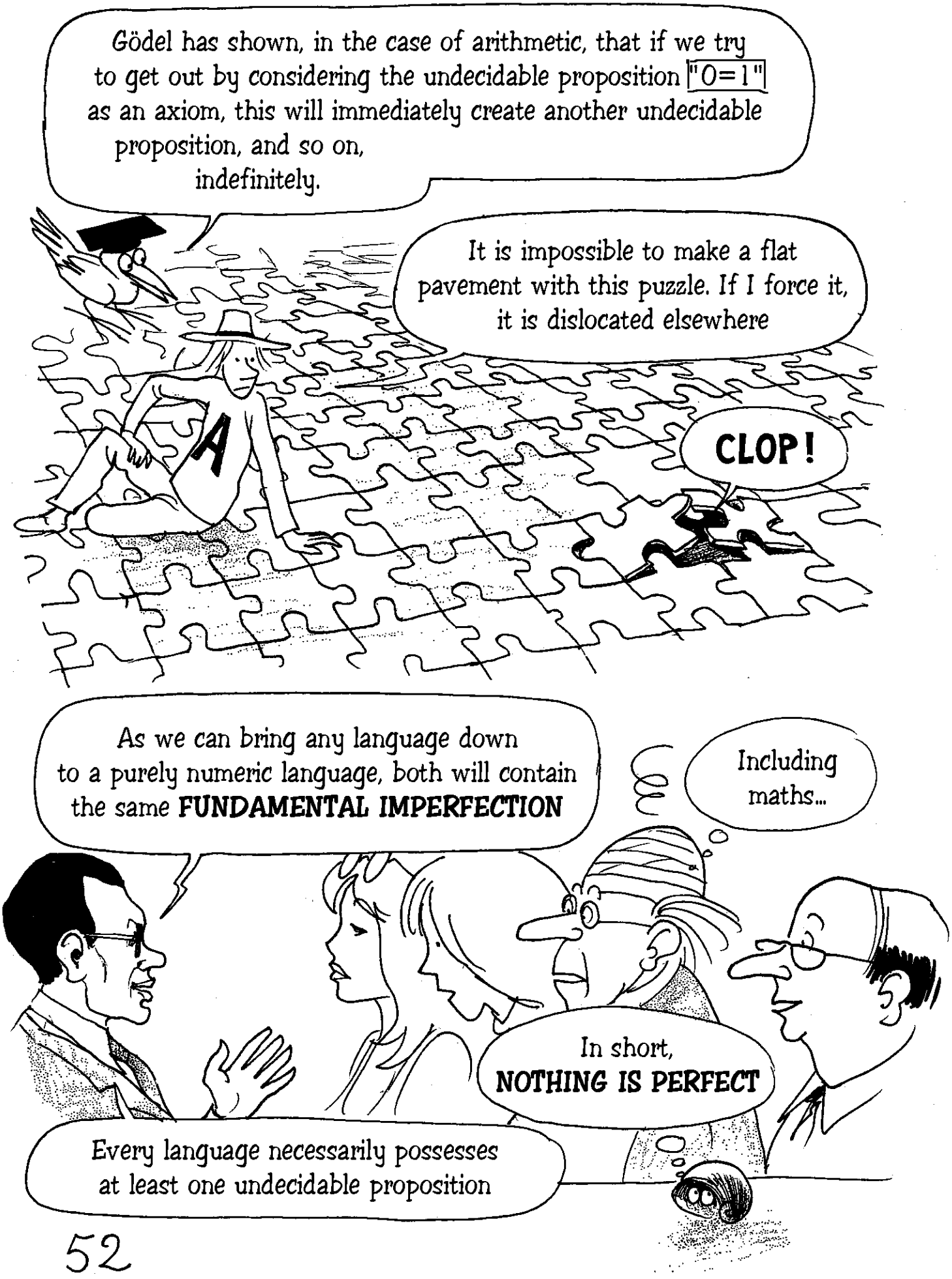
Careful! Numbers themselves are coded with the help of this prime number gadget. In arithmetic we could quite easily code characters as powers of 2.

$\forall \Leftrightarrow 2^1 = 2$
$\exists \Leftrightarrow 2^2 = 4$
} Logical operators

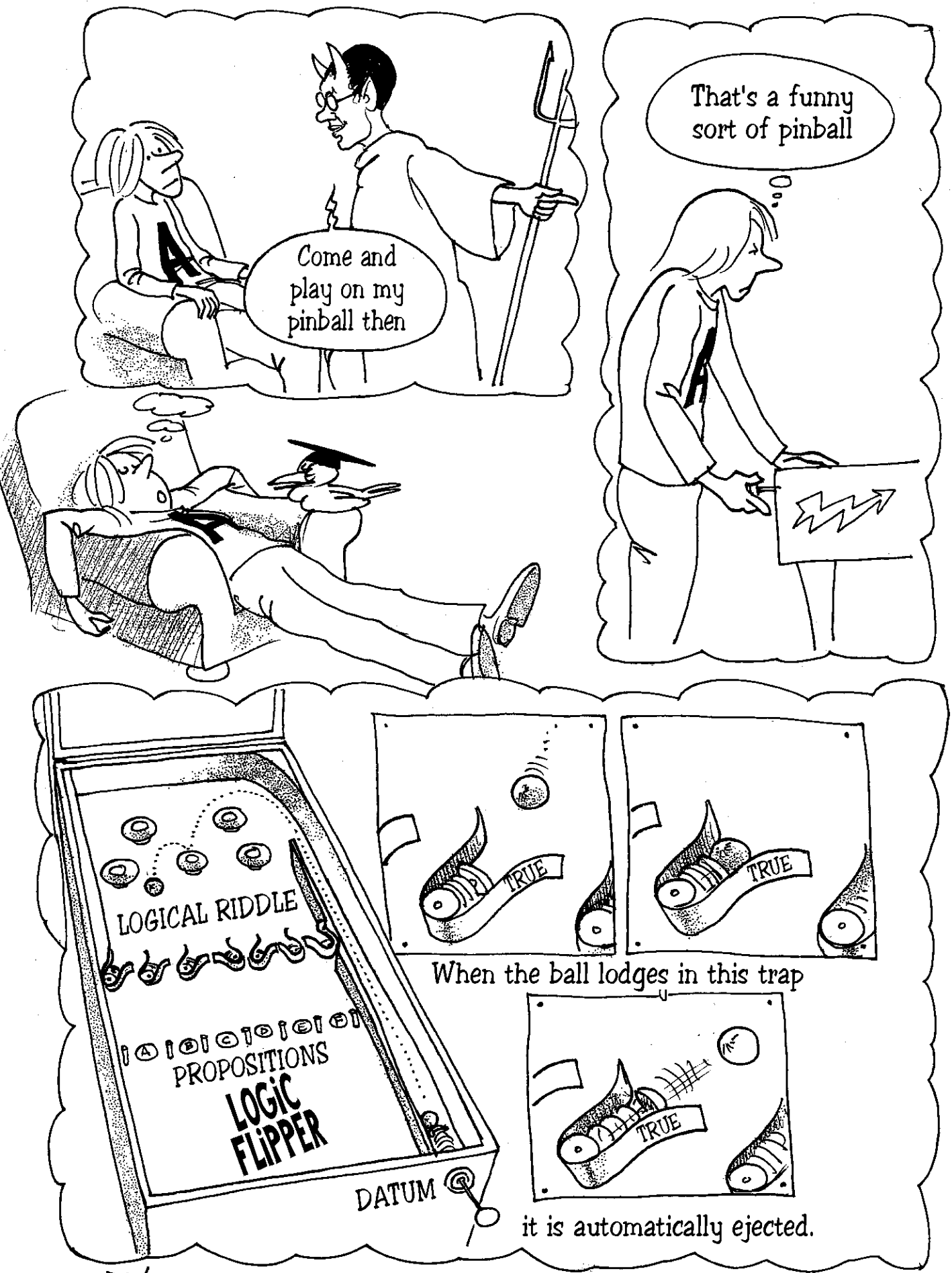
$1 \Leftrightarrow 2^5 = 32$
$2 \Leftrightarrow 2^6 = 64$
etc...
} Figures

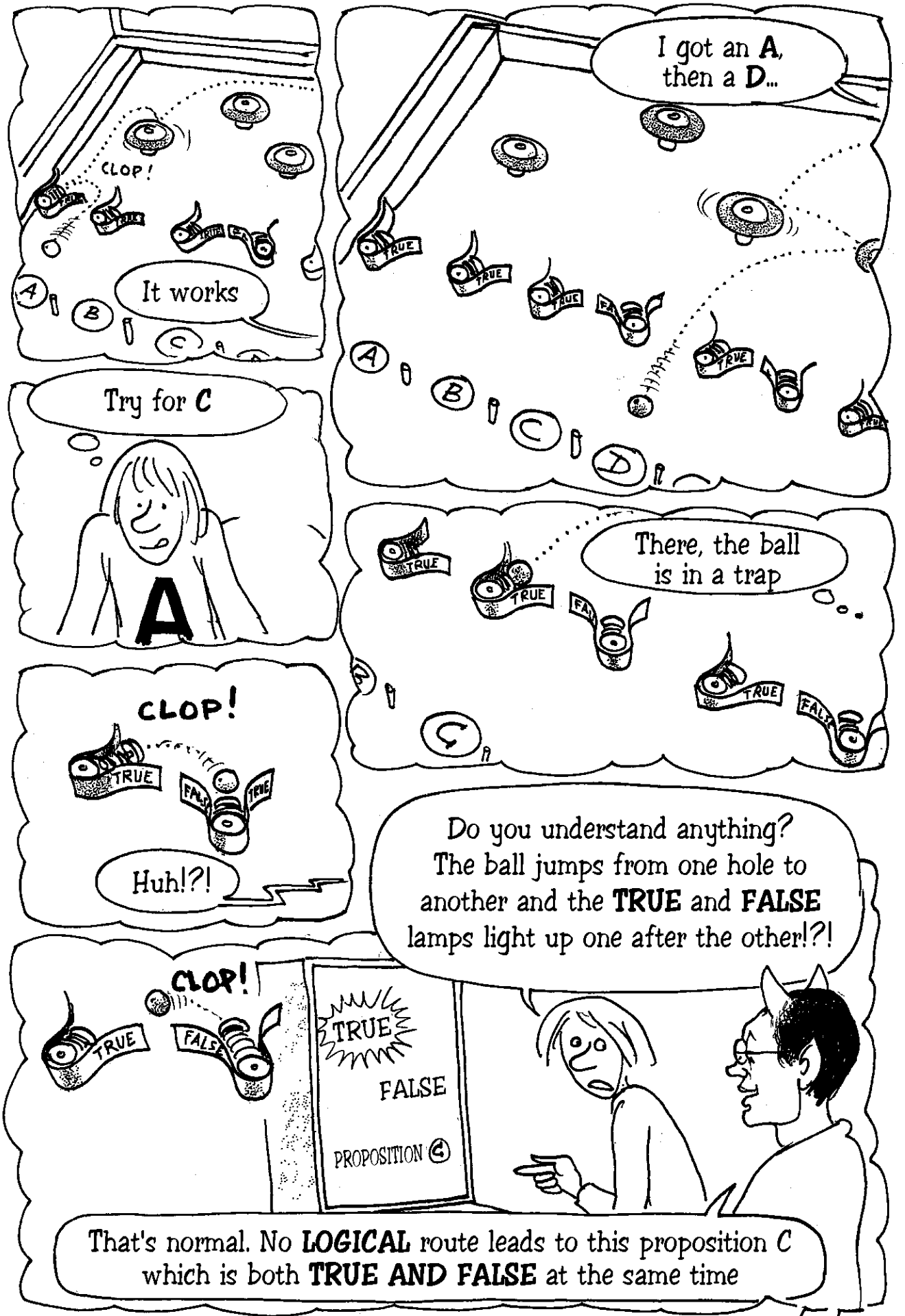


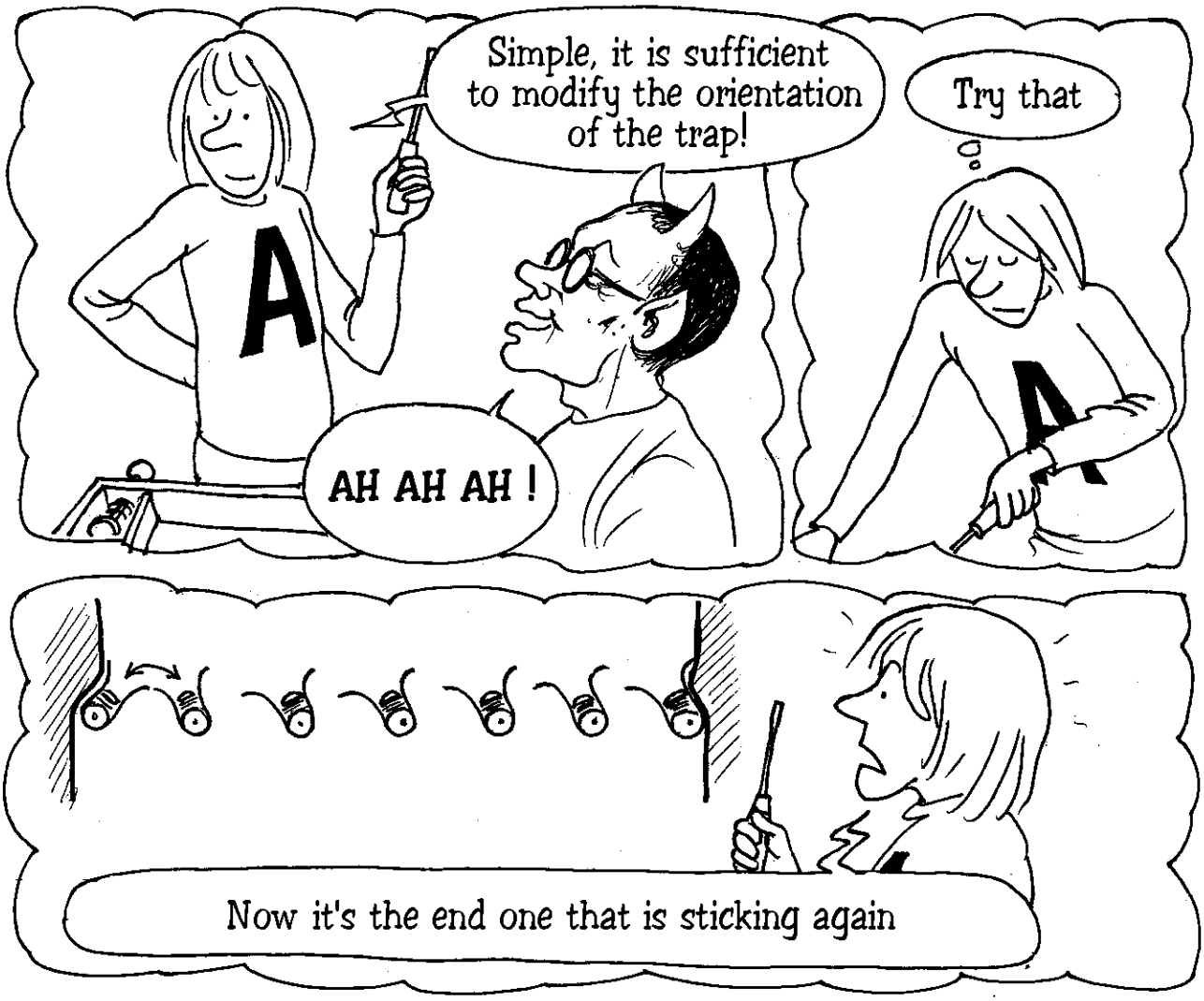

It's this transcoding by shifting until INFINITY which lets us lodge in the set (infinite) not only whole numbers themselves but also the arithmetical rules that link them together
And in **INFINITY**, that's certain, there is no shortage of room
For a language to be **CONSISTENT**, for it to form a **COMPLETE THEORY**, the objects of a language need to be made up of **AXIOMS**, considered as **LANGUAGE DATA**, either **RULES** (syntactic), or **SOFTWARE** elements, or **PROPOSITIONS** resulting in **HYPOTHETICO-DEDUCTIVE** cascades
And this wish applies to **ALL LANGUAGES**, including the **MATHEMATICAL LANGUAGE**
But **UNDECIDABLE PROPOSITIONS** exist, ones that we can **NEITHER DEMONSTRATE NOR INVALIDATE**
Which are neither axioms, nor rules, but which we cannot hook on to any hypothetico-deductive sequence.

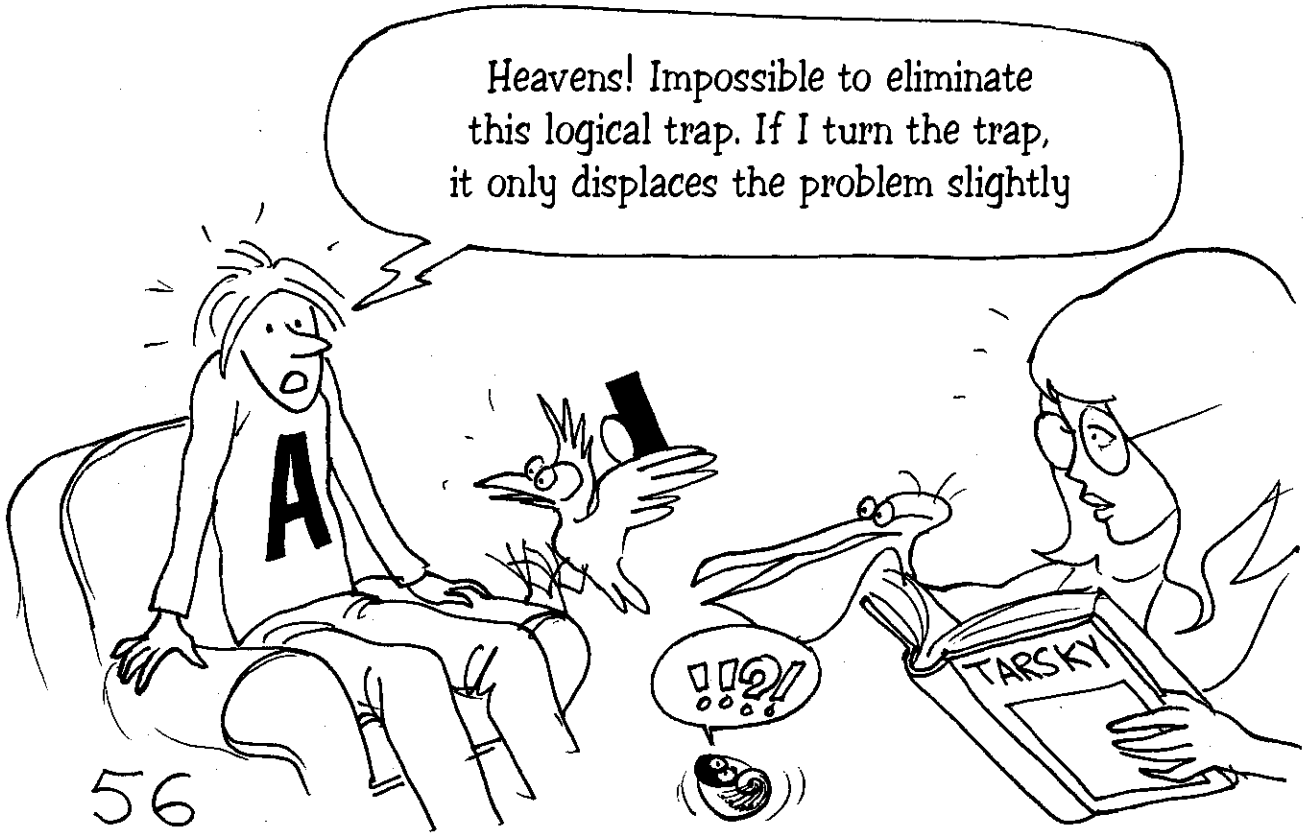

Gödel has shown, in the case of arithmetic, that if we try to get out by considering the undecidable proposition "0=1" as an axiom, this will immediately create another undecidable proposition, and so on, indefinitely.
It is impossible to make a flat pavement with this puzzle. If I force it, it is dislocated elsewhere
A
CLOP!
As we can bring any language down to a purely numeric language, both will contain the same FUNDAMENTAL IMPERFECTION
Including maths...
In short, NOTHING IS PERFECT
Every language necessarily possesses at least one undecidable proposition

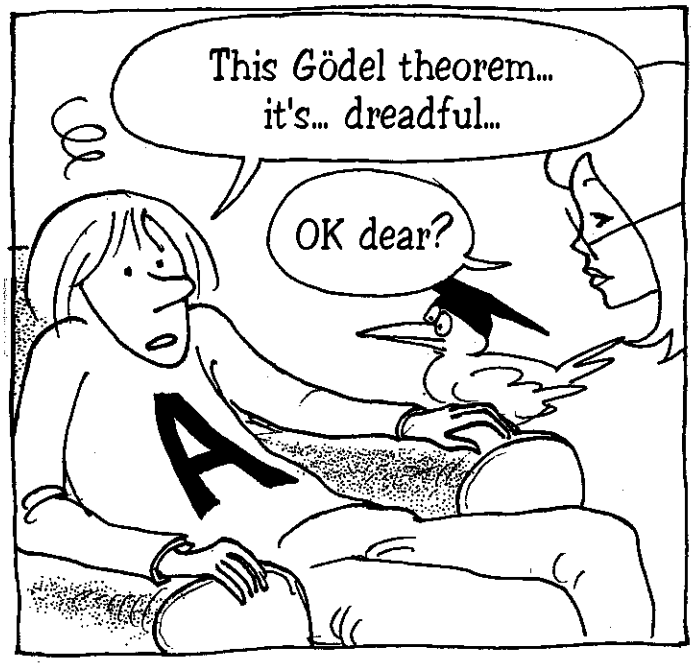
Tell me dear colleague, all this seems like a bad dream. There must be a way out. Don't prime numbers depend on... er... the BASE, the number system used?
Alas not. We could even code everything in **BINARY**, made up of just 0s and 1s
LANGUAGE
How awful!
So whole numbers are not a particular language, they **ARE THE LANGUAGE**. All the rest is just a **READING** of it.
Because there is something else besides numbers!?!
TRUTH depends on **LANGUAGE**, the way in which we code and decode


Come and play on my pinball then
That's a funny sort of pinball
LOGICAL RIDDLE
PROPOSITIONS
LOGIC FLIPPER
DATUM
TRUE
TRUE
When the ball lodges in this trap
TRUE
it is automatically ejected.

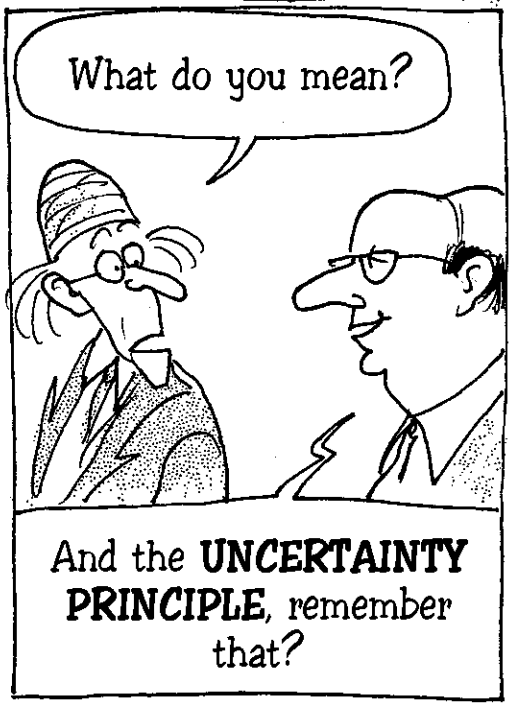

CLOP!
It works
A
B
C
I got an A, then a D...
D
Try for C
A
There, the ball is in a trap
CLOP!
Huh!?!
Do you understand anything? The ball jumps from one hole to another and the TRUE and FALSE lamps light up one after the other!?!
CLOP!
TRUE
FALSE
PROPOSITION C
That's normal. No LOGICAL route leads to this proposition C which is both TRUE AND FALSE at the same time

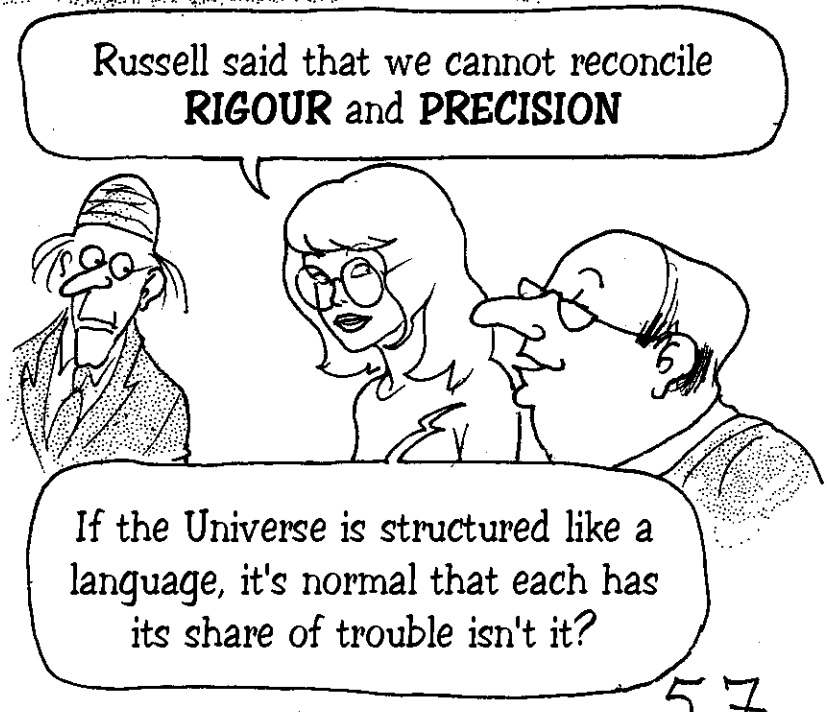

Simple, it is sufficient to modify the orientation of the trap!
AH AH AH !
Try that
Now it's the end one that is sticking again


Heavens! Impossible to eliminate this logical trap. If I turn the trap, it only displaces the problem slightly
!!?!
TARSKY

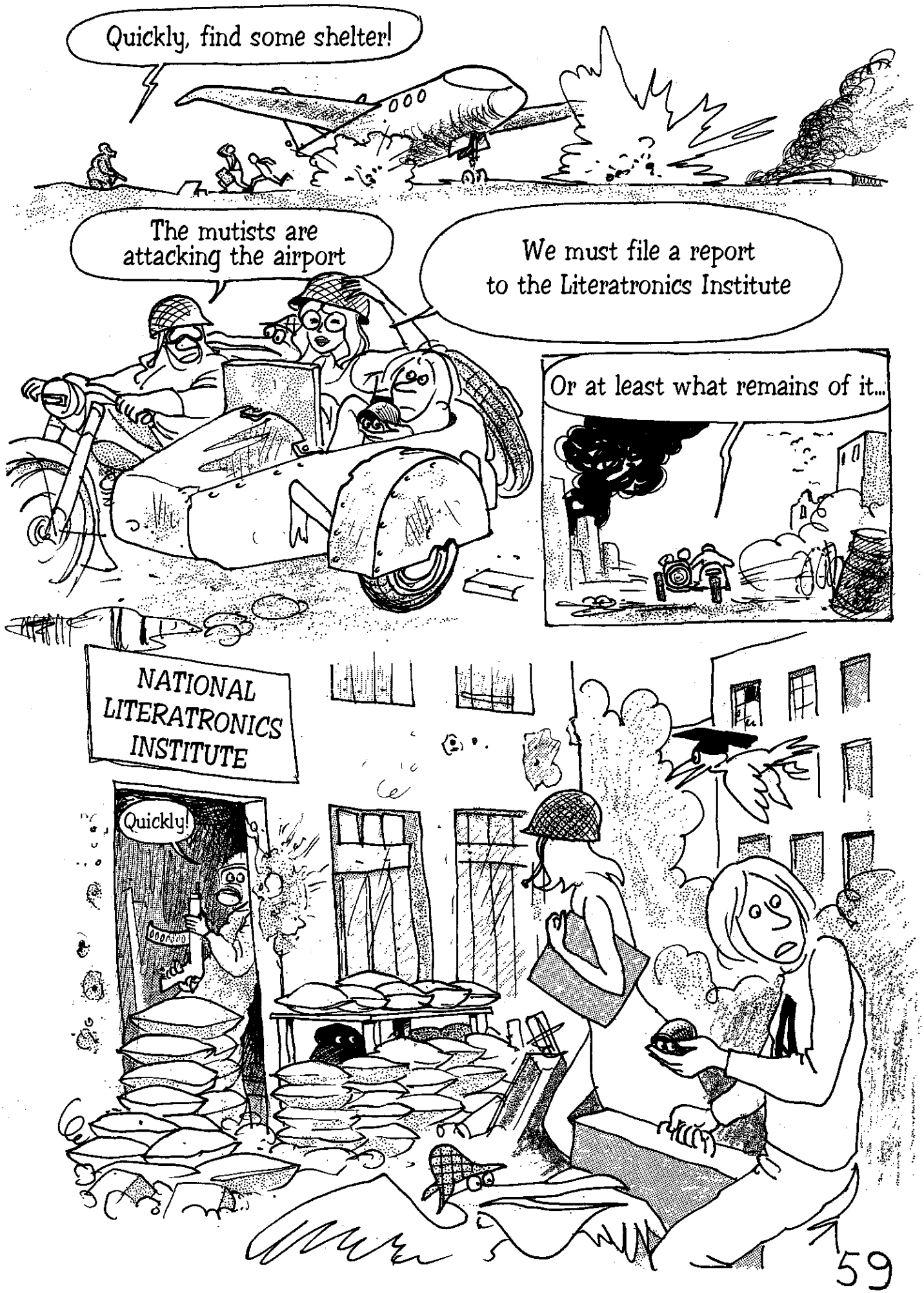


The symposium ended on this sad report...

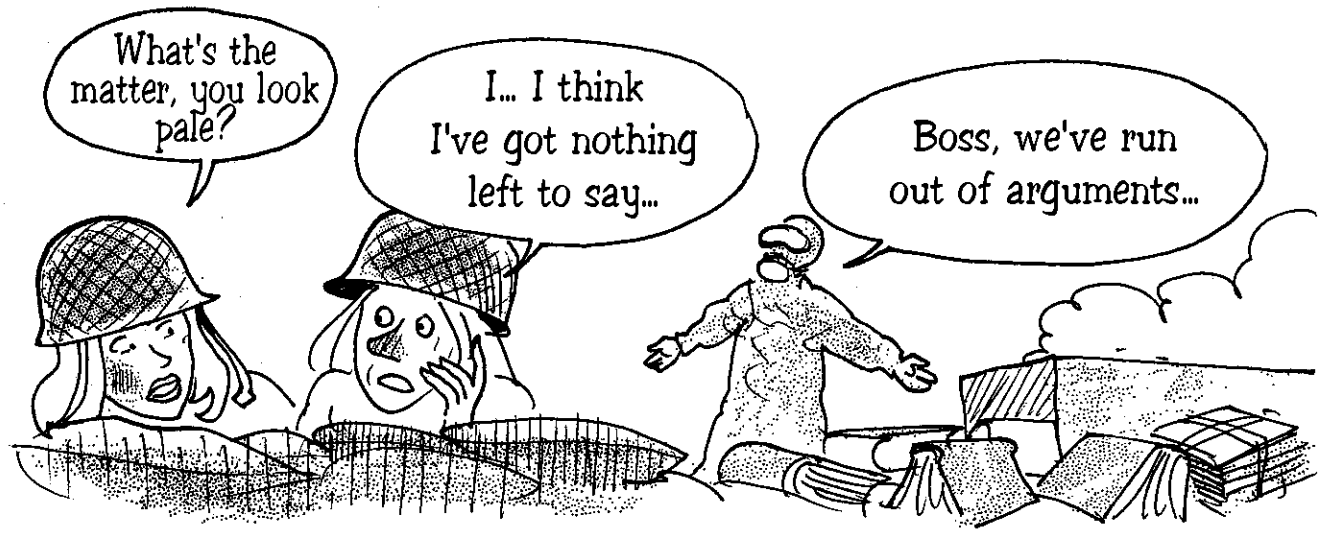


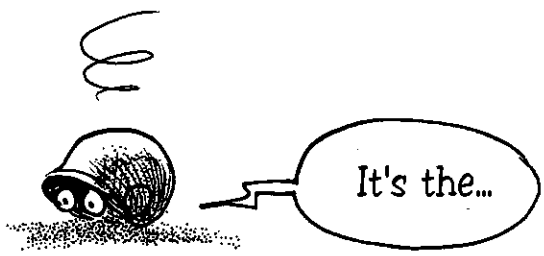


The error is to want to negotiate **THOUGHT** through language
So what should we do?
Transcendental meditation allows one to be free of these constraints
Verbalised thoughts have their roots in the left hemisphere of the brain. By completely stopping this subordinate mental activity, we redistribute the oxygen flowing to the brain. This then goes to the right hand side, which functions in a different way, allowing man to accede to essential knowledge
That's not silly, what does it give?
Unfortunately that is not **COMMUNICABLE**
But... It's the end of the profession!
Come on, we're going home
We're looking foolish...


Quickly, find some shelter!
The mutists are attacking the airport
We must file a report to the Literatronics Institute
Or at least what remains of it...
NATIONAL LITERATRONICS INSTITUTE
Quickly!

(*) in which one can combine verbal roots to infinity.





END...

A big thankyou to my friend MIHN for his irreplaceable contribution of magic dust, a key ingredient in the LANTURLU albums.

THE LOGOTRON GAME

Take two pieces of thin card of different colours. Cut them into small rectangles of 5 x 2cm. On the blue (for example) rectangles, write on one side the "beginning of a word", such as CHRONO and on the other its substantive: TIME. On the rectangles of the other colour do the same with an "end of a word". Put the two packets of cards into two boxes.

- First type of game: distribute five word beginnings and five word endings to each player. They must be assembled according to the neologisms for which they form definitions.

  Example: LOGO | TOME → To make chopped phrases
  CRYO | TOPE → Refrigerator
  PAN | SCAPE → Vehicle that goes anywhere

  According to their knowledge of etymology, the players can either read or not the other side of the cards.

- Second formula of the game: As in poker, the players can exchange cards. A word that already exists in the dictionary counts double. The same if it is a real object.

  Example: BIBLIO | STAT → book press

  A funny definition gains an extra point

  PANMANIA : mania about everything
  CHRYSORCHID : property developer
  STATODYNAMIC : study of stationary states
  PSEUDOGAMIST : someone not really married
  PODOCLAST : foor-breaker
  PANLOGY : study of everything
  COSMOTOPE : place where the Universe is
  ELASTOZOAIRE : slug
  SCHIZOCRAT : someone who splits everything.

DATABASE

WORD BEGINNINGS :

KLEPTO	STEAL
CHRONO	TIME
EPISTEMO	SCIENCE
LOGO	DISCOURSE
PAN	EVERYTHING
PATHO	ILLNESS
HEMI	HALF
CRYPTO	HIDDEN
STATO	STEADY STATE
ELASTO	ELASTIC
ORTHO	STRAIGHT
PSEUDO	FALSE
GASTRO	STOMACH
EROTICO	EROTICISM
ORCHIDO	TESTICLE
PARALLELO	PARALLEL
SEMIO	SENSE
ERGO	WORK
GERONTO	OLD
COPRO	EXCREMENT
MYCO	MUSHROOM
IDEO	IDEAS
MAGNETO	MAGNETIC
PHOTO	LIGHT
THEO	GOD
NECRO	DEAD
MESO	MIDDLE
PODO	FOOT
PORNO	PORNO
PROTO	FIRST
SCATO	EXCREMENT
DOXO	OPINION
PLUTO	RICHNESS
PHONO	SOUND
INFLATO	SWELLING
PYRO	FIRE
GEO	LAND
NUCLEO	NUCLEUS
PARA	PARALLEL
GRAPHO	OF WRITING
ODO	PATH
PHALLO	PHALLUS
RADIO	RADIO
RETRO	BACKWARDS
PSYCHO	SOUL
LITHO	STONE
MACRO	GREAT
CHRYSO	GOLD
PHILO	LOVE
MICRO	SMALL
TECHNO	TECHNICAL
BIO	LIFE
SPELEO	CAVERN
TOMO	CUT
TOPO	PLACE
ARCHEO	ANCIENT
VIDEO	SEE
AERO	AIR
HOMO	THE SAME
PRO	FOR
ALGO	PAIN
CO	WITH
EXTRA	OUTSIDE OF
CEPHALO	HEAD
CRYO	COLD
TERATO	MONSTER
PAPYRO	PAPER
PHYTO	VEGETABLE
PHRENO	BRAIN
LATERO	TO THE SIDE
MORPHO	SHAPE
GNOSEO	KNOWLEDGE
SONO	SOUND
TELE	DISTANT
ULTRA	BEYOND
BRADY	SLOW
CHIMIO	OF CHEMISTRY
GALACIO	MILK
GYRO	ROTATION
SIDERO	SKY
CHROMO	COLOUR
ALLO	OTHER
ANTHROPO	MAN
ADENO	GLAND
ANISO	OTHER
AGRO	FIELD
ARTHRO	CIRCULATION
ASTRO	SKY
ISO	SAME
STEREO	SOLID
ENDO	INSIDE OF
GENO	RACE
LOXO	OBLIQUE
PERI	AROUND
PLURI	NUMEROUS
STYLO	STEM
XYLO	WOOD
AUTO	OF ONESELF
BACTERIO	BACTERIA
BIBLIO	BOOK
BRONCHO	BRONCHUS
BUTYRO	BUTTER
CACO	BAD
CERCO	TAIL
CHROMATO	COLOUR
APO	ABOVE
CARDIO	OF THE HEART
EPI	AROUND
GLOSSO	LANGUAGE
HIPPO	HORSE
MELANO	BLACK
NOMO	LAW
PETRO	STONE
EMBRYO	EMBRYO
CINEMATO	CINEMA
CRYO	OF COLD
DERMO	OF THE SKIN
HELIO	OF THE SUN
HEMATO	OF BLOOD
HETERO	OTHER
HOMEO	SIMILAR
HYDRO	WATER
METEO	OF THE SKY
METRO	MEASURE
XENO	STRANGER
NEO	NEW
NEURO	OF NERVES
PALEO	ANCIENT
SCHIZO	SPLIT
PHYSIO	OF THE BODY
THERMO	HEAT
ZOO	ANIMAL
TACHY	SPEED

ENDS OF WORDS :

KLEPTO	STEAL
CHRONO	TIME
EPISTEMO	SCIENCE
LOGO	DISCOURSE
PAN	EVERYTHING
PATHO	ILLNESS
HEMI	HALF
CRYPTO	HIDDEN
STATO	STEADY STATE
ELASTO	ELASTIC
ORTHO	STRAIGHT
PSEUDO	FALSE
GASTRO	STOMACH
EROTICO	EROTICISME
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PARALLELO	PARALLEL
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INFLATO	SWELLING
PYRO	FIRE
GEO	EARTH
NUCLEO	NUCLEUS
PARA	PARALLEL
GRAPHO	OF WRITING
ODO	PATH
PHALLO	PHALLUS
RADIO	RADIO
RETRO	BEHIND
PSYCHO	SOUL
LITHO	STONE
MACRO	GREAT
CHRYSO	GOLD
PHILO	LOVE
MICRO	SMALL
TECHO	TECHNICAL
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SPELEO	CAVERN
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AERO	AIR
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SIDERO	SKY
CHROMO	COLOUR
ALLO	OTHER
ANTHROPO	MAN
ADENO	GLAND
ANISO	OTHER
AGRO	FIELD

THE LOGOTRON
(PROGRAMME)

```
1 REM LOGOTRON DATA+SENS
10 DIM D$(100),P$(100),F$(100),Q$(100),M$(100),S$(100):I=-1
20 I=I+1
30 READ D$(I),P$(I)
40 IF D$(I)="*" THEN 60
50 GOTO 20
60 D=I-1
70 J=-1
80 J=J+1
90 READ F$(J),Q$(J)
100 IF F$(J)="*" THEN 120
110 GOTO 80
120 F=J-1
130 REM RANDOM CREATION OF INDEXES I J
140 I=INT(RND*D)+1: J=INT(RND*F)+1
150 M$=D$(I)+F$(J):REM NEOLOGISM
160 S$=Q$(J)+"-"+P$(I)
170 PRINT M$:PRINT S$:PRINT
180 FOR T=0 TO 1000:NEXT T
190 GOTO 140
200 DATA KLEPTO, STEAL, CHRONO, TIME, EPISTEMO, SCIENCE, LOGO, DISCOURSE, PAN,
    EVERYTHING, PATHO, ILLNESS, HEMI, HALF, CRYPTO, HIDDEN
210 DATA EROTICO, EROTICISM, GNOSEO, KNOWLEDGE, ORCHIDO, TESTICLE, PARALLELO,
    PARALLEL, SEMIO, SENSE, ERGO, WORK, GERONTO, OLD, COPRO, EXCREMENT, MYCO,
    MUSHROOM
220 DATA NECRO, DEAD, MESO, MIDDLE, PODO, FOOT, PORNO, PORNO, PROTO, FIRST,
    SCATO, EXCREMENT, DOXO, OPINION, PLUTO, RICHNESS, PHONO, SOUND, INFLATO,
    SWELLING, PYRO, FIRE
230 DATA RETRO, BEHIND, PSYCHO, SOUL, LITHO, STONE, MACRO, GREAT, CHRYSO,
    GOLD, PHILO, LOVE, MICRO, SMALL, TECHO, TECHNICAL, BIO, LIFE, SPELEO,
    CAVERN, TOMO, CUT, TOPO, PLACE, ARCHEO, ANCIENT, VIDEO, SEE
240 DATA CEPHALO, HEAD, CRYO, COLD, TERATO, MONSTER, PAPYRO, PAPER, PHYTO,
    VEGETABLE, PHRENO, BRAIN, LATERO, BESIDE, MORPHO, OF THE SHAPE OF
250 DATA SIDERO, SKY, CHROMO, COLOUR, ALLO, OTHER, ANTHROPO, MAN, ADENO,
    GLAND, ANISO, OTHER, AGRO, FIELD, ARTHRO, CIRCULATION, ASTRO, SKY
260 DATA AUTO, OF ONESELF, BACTERIO, BACTERIA, BIBLIO, BOOK, BRONCHO,
    BRONCHUS, BUTYRO, BUTTER, CACO, BAD, CERCO, TAIL, CHROMATO, COLOUR
270 DATA EMBRYO, EMBRYO, CINEMATO, CINEMA, CRYO, OF COLD, DERMO, OF THE
    SKIN, HELIO, OF THE SUN, HEMATO, OF BLOOD, HETERO, OTHER, HOMEO,
    SIMILAR, HYDRO, WATER, METEO, OF THE SKY, METRO, MEASURE
280 DATA NEO, NEW, NEURO, OF NERVES, PALEO, ANCIENT, SCHIZO, SPLIT, PHYSIO,
    OF THE BODY, THERMO, HEAT, ZOO, ANIMAL, *,*
300 DATA GAME,MARRIAGE,SE,AFFECTION,EDRE,EDIFICE,DYNE,ENERGY,CERCAL,TAIL,
    DROME,ROUTE,PHOBIC,WHO DETESTS,PATH,SICK
310 DATA SCAPE, VEHICLE, TOPE, PLACE, TRON, MACHINE, ME, TUMOUR, METER,
    MEASURE, NAUT, SAILOR, DRAMA, THEATRE, COSMO, UNIVERSE OF,
    SOME, BODY
320 DATA SPHERE, SPHERE, STASIS, STOP, CRAT, POWER, TAPH, TOMB, TROPE,
    TENDANCY, MANE, MANIA, GENE, GENERATOR,
    ELASTIC, ELASTIC
330 DATA KINE, MOVEMENT, CYTE,CELL, PHRENE, BRAIN, CEPHAL,
    HEAD, PITH,APE,
    PTERO, WING
340 DATA MANCIE, PREDICTION, TROPISM, TENDANCY TOWARDS, SAURUS,
    ANCESTOR, ZOAIRE, ANIMAL, LITH, STONE, CLAST,BREAKER OF, MACHY,
    COMBAT, DYNE, MACHINE
350 DATA DENDRON, TREE, LOGY, DISCOURS ON, ALGIA, LOGIST, SPECIALIST OF
360 DATA ALGIA, PAIN, CHRONO, OF TIME, CHRONIC, REPETITION OF, DACTYL,
    FINGER, DOX, OPINION
370 DATA GON, ANGLE, MORPH, THE SHAPE OF, PHAGE, THAT EATS, VORE, THAT
    DEVOURS, PHOBIA, FEAR OF
380 DATA PHILE, WHO LOVES, PHONO, SOUND, POLE, TOWN, THERM, HEAT, *,*
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Copyrigth Jean-Pierre Petit