Laws of Form and the Logic of Non-Duality

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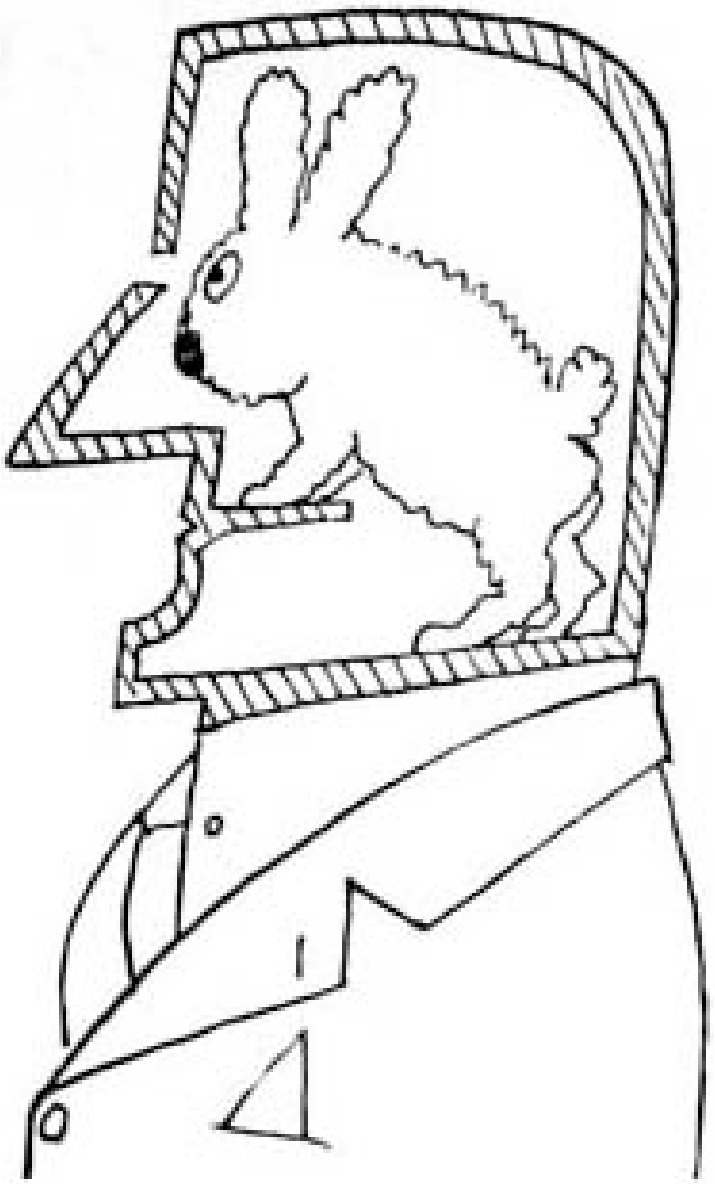
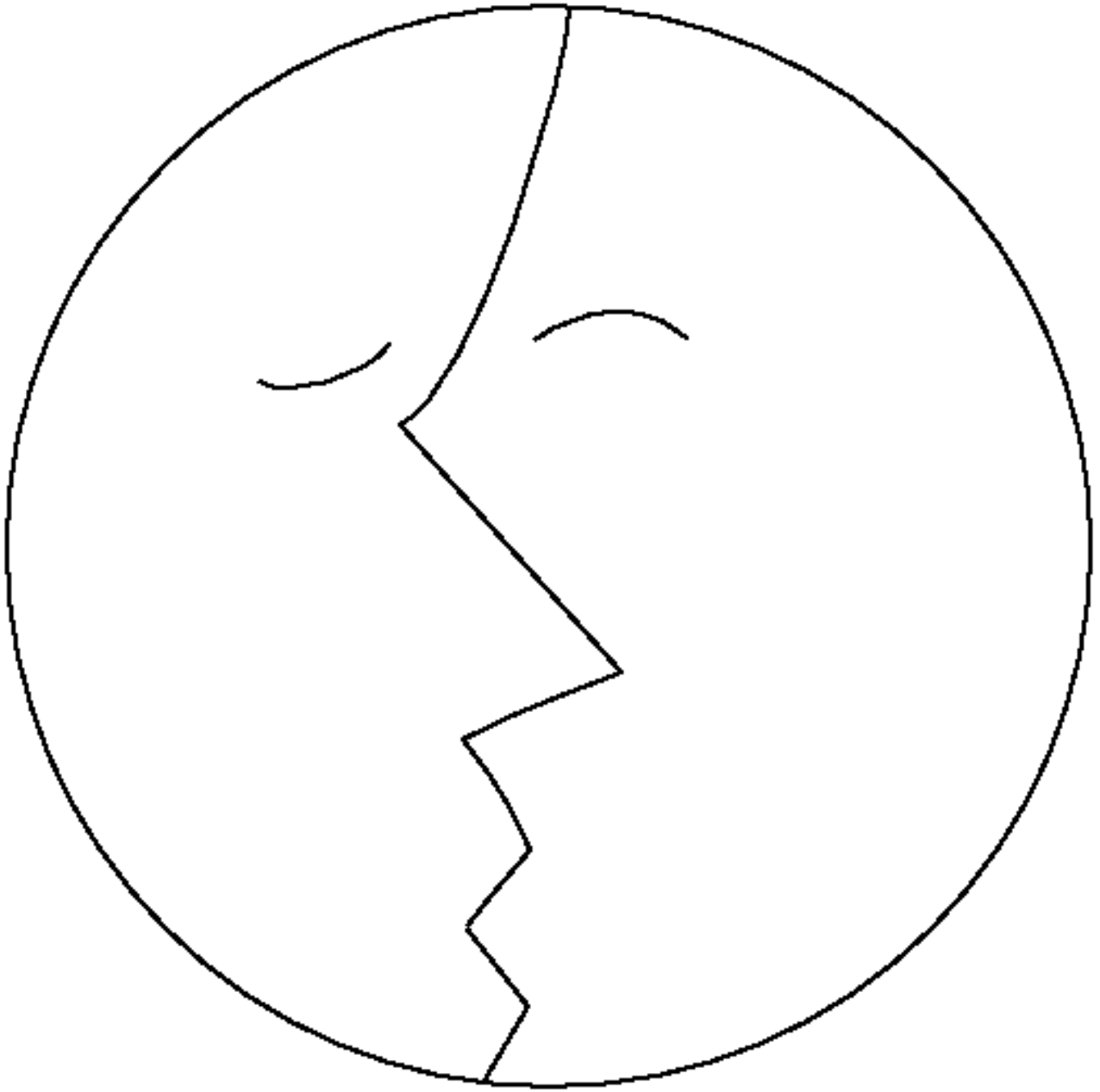
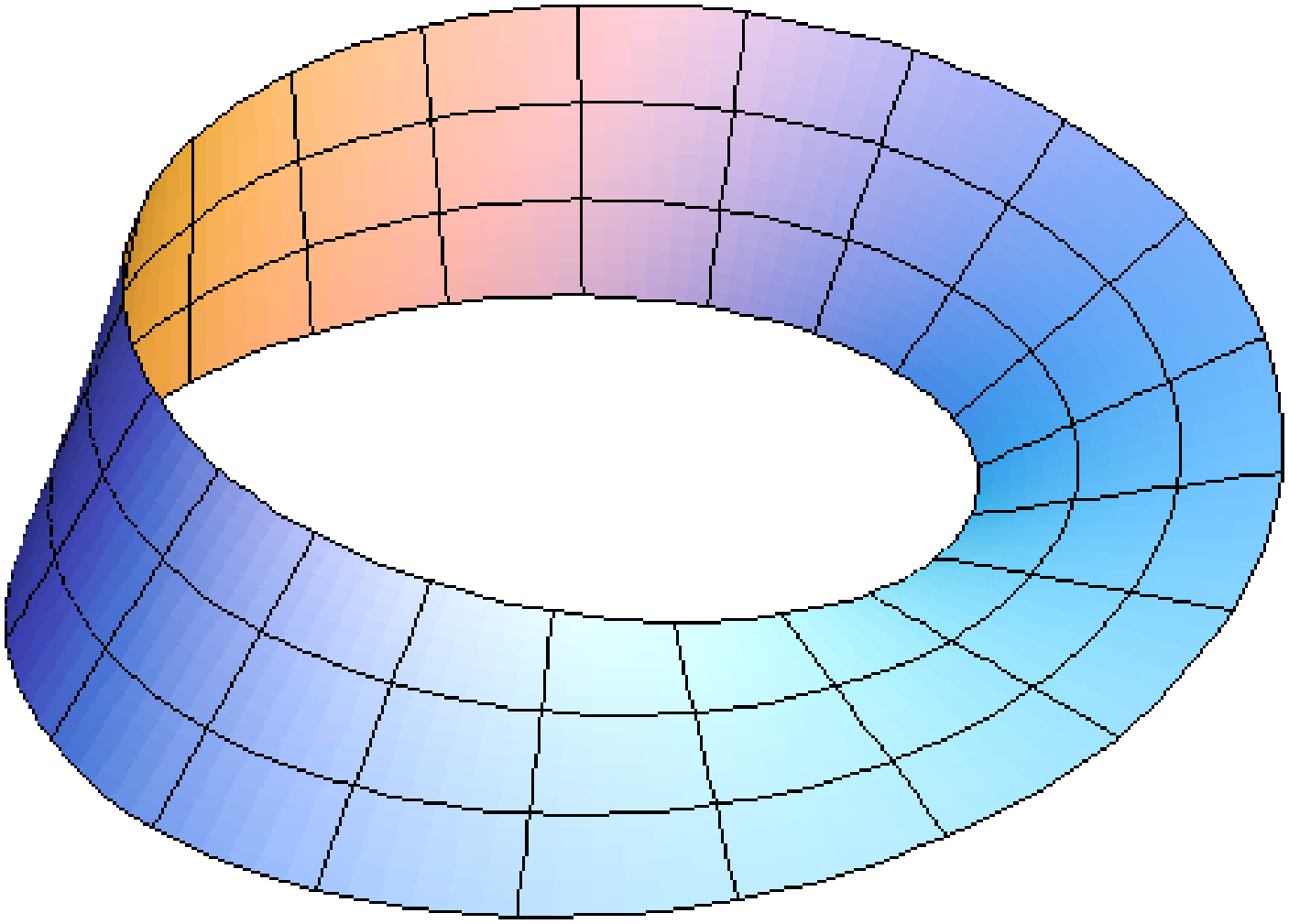
The Mind-Body Problem



Saul Steinberg, *The Rabbit*, detail(1986)



A Mobius Strip



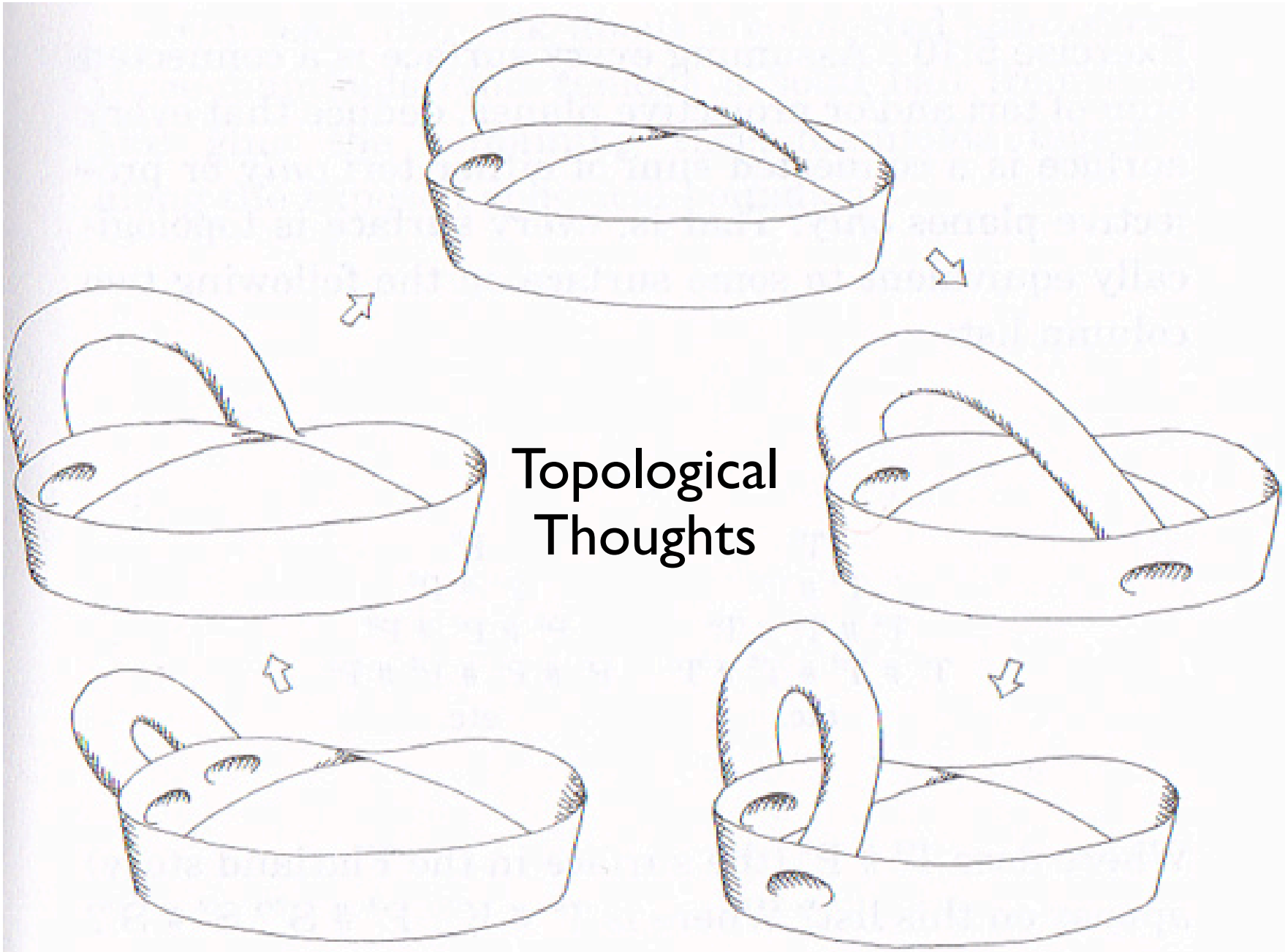


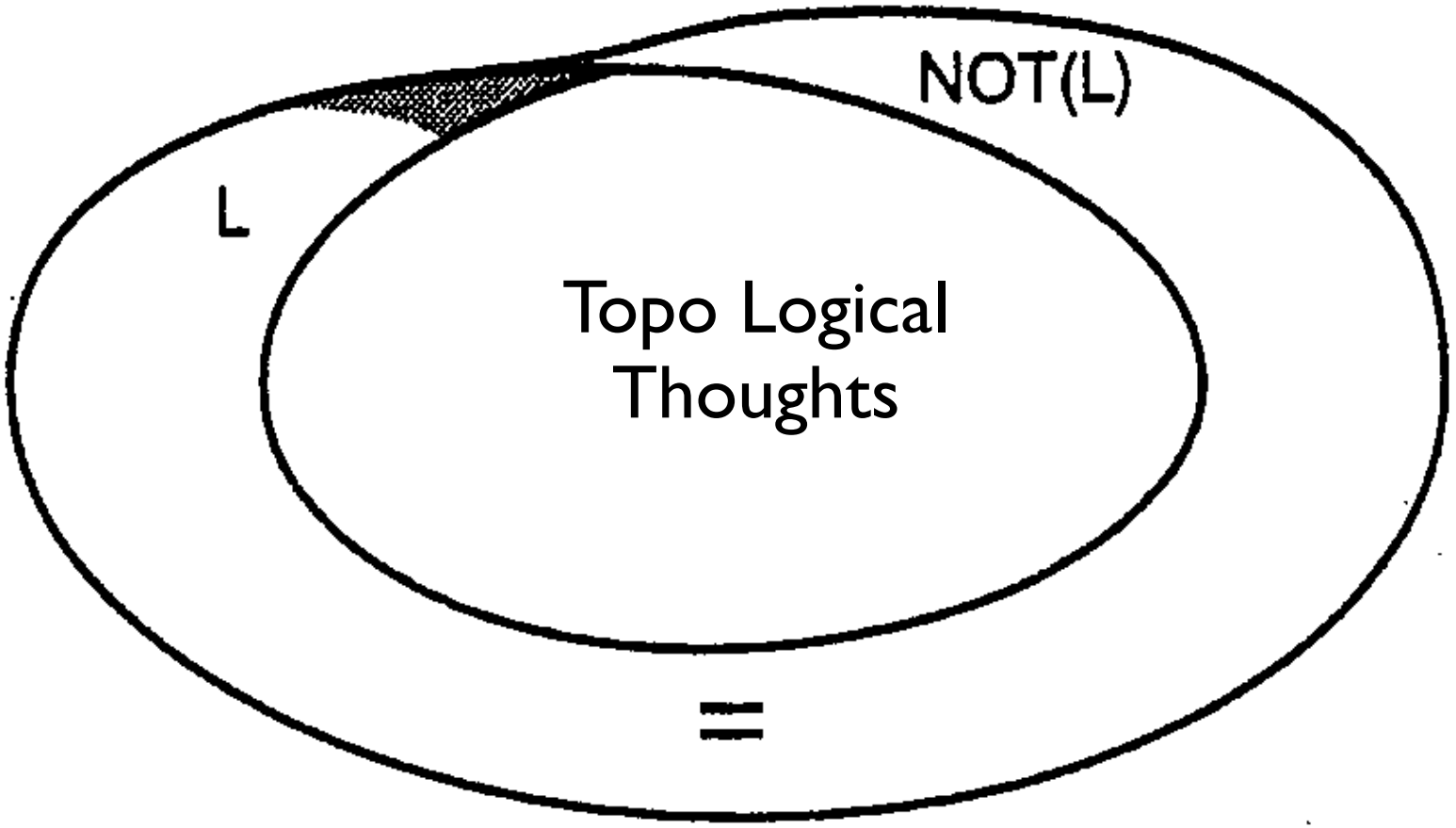
Figure 5.8 T^2 # Möbius and K^2 # Möbius can be deformed one into the other. Therefore they are topologically the same.

Epimenides Paradox of the Liar

The fictional speaker Epimenides, a Cretan, reportedly stated:

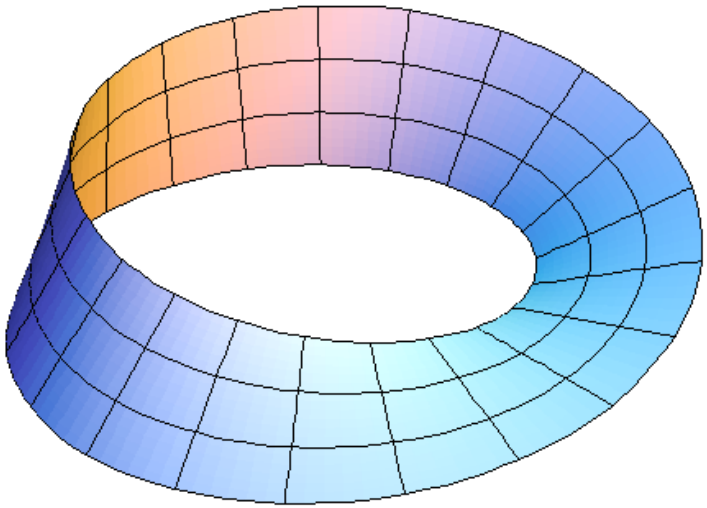
The Cretans are always liars.

L = Not(L)



From the point of view of logic, the Liar is
in an imaginary state that is neither true nor false.
From the point of view of topology,
the Liar has the shape of a Mobius band.

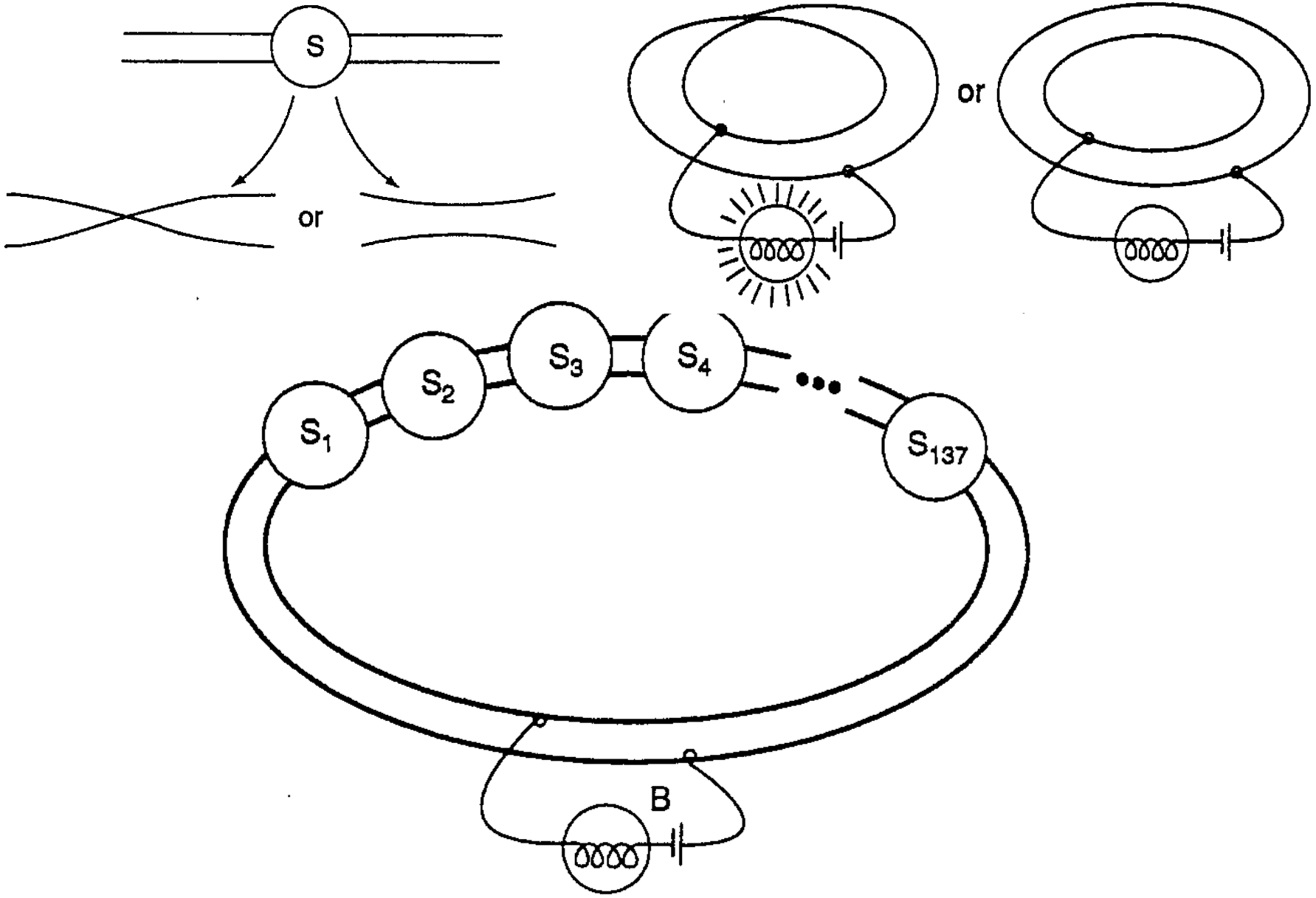
The boundary of the Mobius band is
One, and yet it is Two.



Problem: Design a switching circuit
(with an economical simplicity of design)
that can control a single light from
an arbitrary number of locations.

This problem can be
analysed by Boolean algebra.
The following non-dual solution is
the invention/discovery of
cyberneticist Ricardo Uribe.

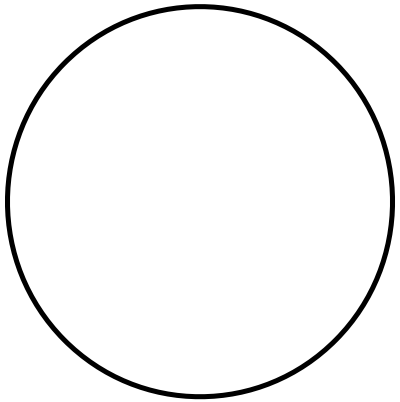
Non-Dual Engineering Solutions Inc.

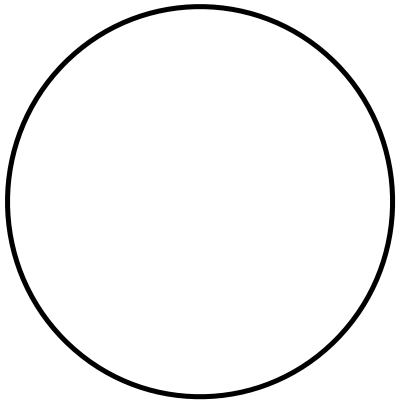


Laws of Form
G. Spencer-Brown

"We take as given the idea of distinction and the idea of indiccation, and that one cannot make an indication without drawing a distinction."

"We take, therefore, the form of distinction for the form."





The circle “makes” a distinction in the plane.

We make a distinction in the plane by drawing a circle.

Circle and observer arise together in the act of perceiving.

That circle, this observer and the distinction that arises are one.

The Form
We take to exist
Arises
From
Framing
Nothing.

G. Spencer-Brown

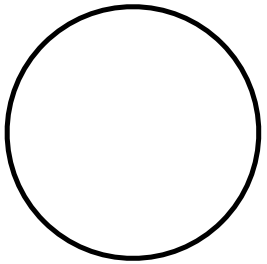
We could stop now.

But the purpose/play of this talk is to
look at how, by starting in unity we make
imaginary complexity
and how that is related to the
original unity.

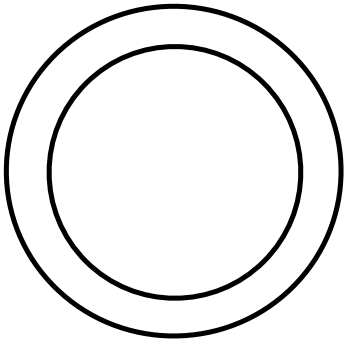
Every discrimination is inherently a process, and the structure of our world as a whole comes from the relationships whose exploration constitutes that world. It is a reflexive domain. There is no place to hide in a reflexive domain, no fundamental particle, no irreducible object or building block. Any given entity acquires its properties through its relationships with everything else.

This talk will trace how a mathematics of distinction arises directly from the process of discrimination and how that language, understood rightly as an opportunity to join as well as to divide, can aid in the movement between duality and non-duality that is our heritage as human beings on this planet. The purpose of this talk is to express this language and invite your participation in it and to present the possiblity that all our resources physical, scientific, logical, intellectual, empathic are our allies in the journey to transcend separation.

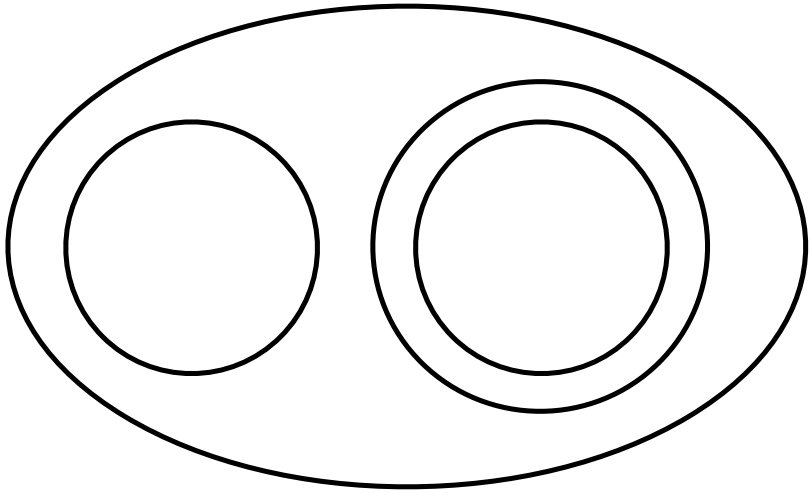
Here is how multiplicity arises in set theory.



0: Empty Set.



1: Set whose member is the empty set.



2: Set whose members are 0 and 1.

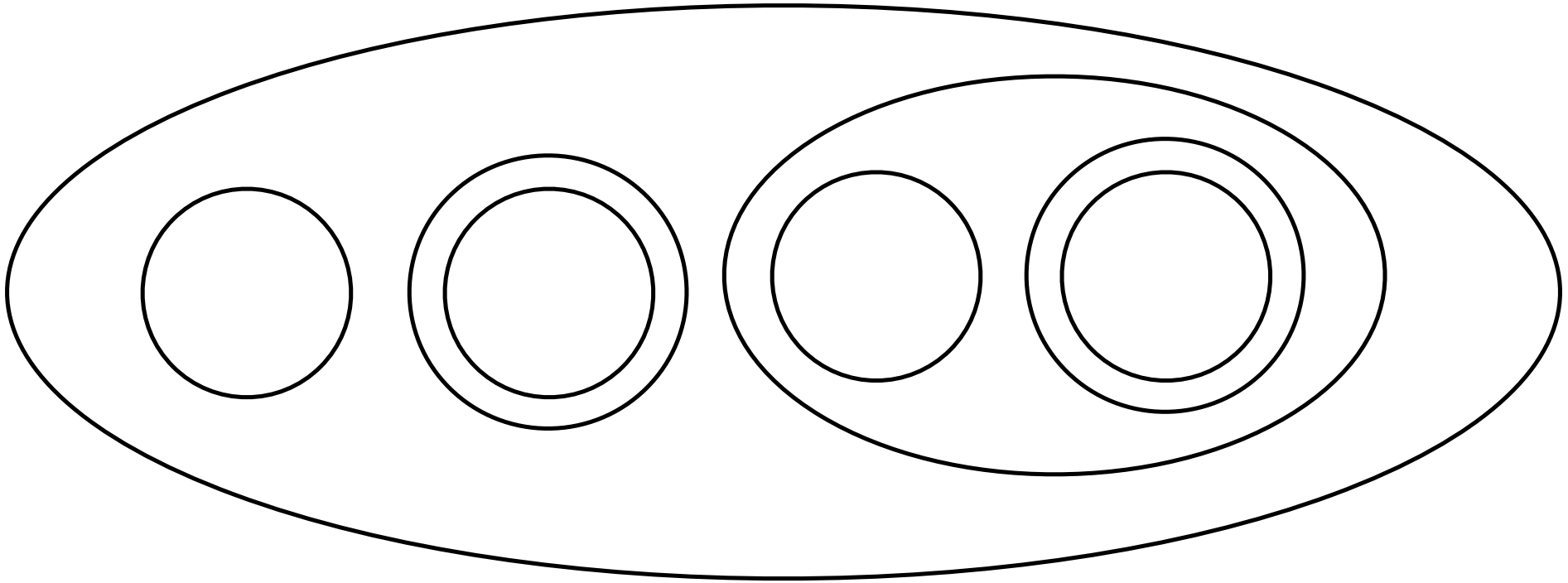
TWO SETS ARE EQUAL IF AND ONLY IF THEY HAVE THE SAME MEMBERS.

Theorem. There is only one empty set.

Proof. Suppose U and V are both empty. By the above principle, they must be equal. They have the same members, namely none! Q.E.D.

Theorem: 0 is not equal to 1.

Proof. 0 has no members, while 1 has a member, namely 0.

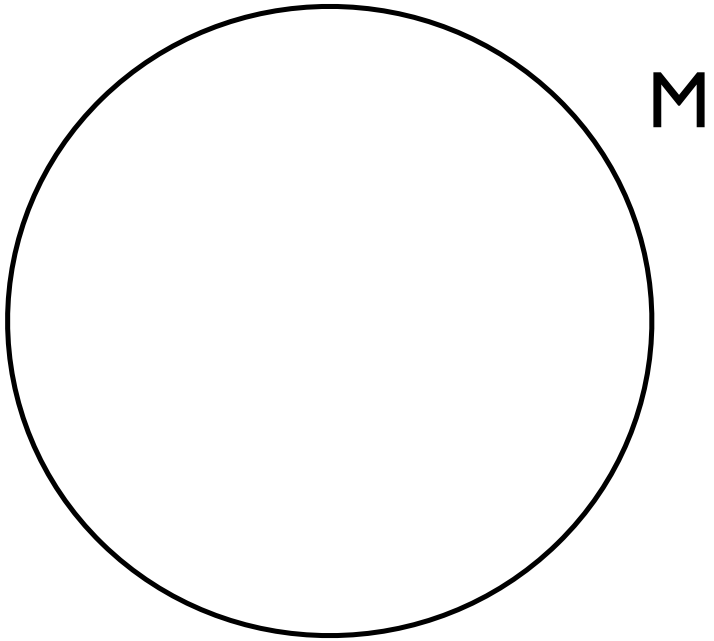


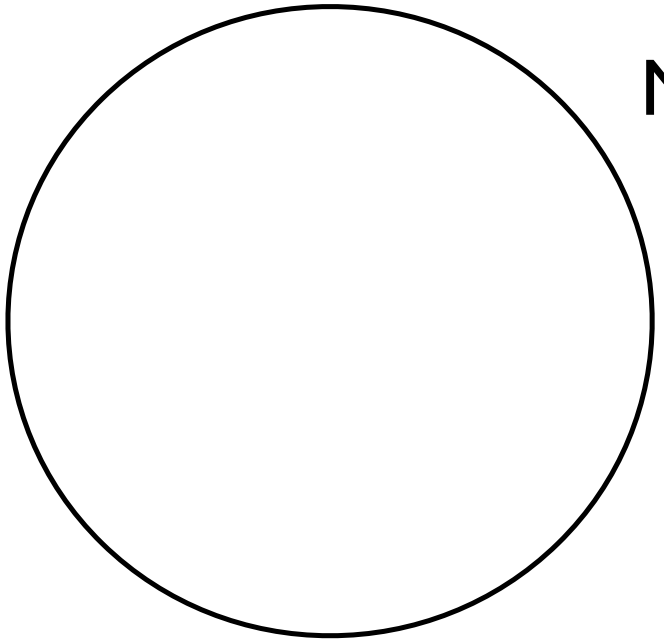
3: Set whose members are 0,1,2.

In Set Theory multiplicities arise from nothing but the act of collection and the definition of equality of sets.

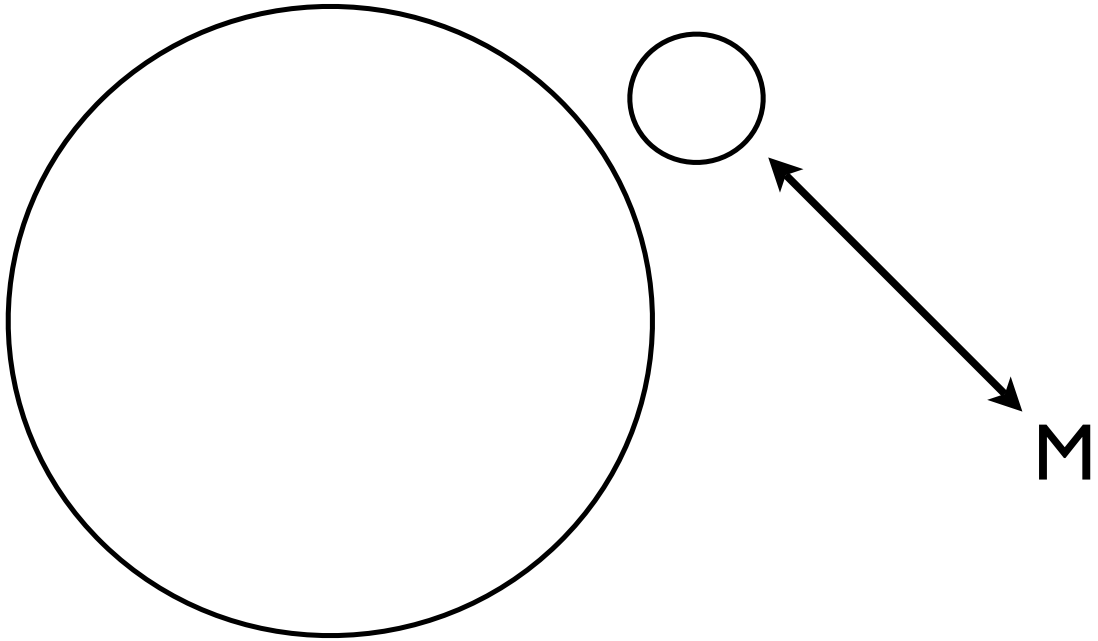
The initial act of distinction.

For the distinction to be (distinct) there must be a difference between the sides. Let us call one side Marked. The other side is Unmarked.



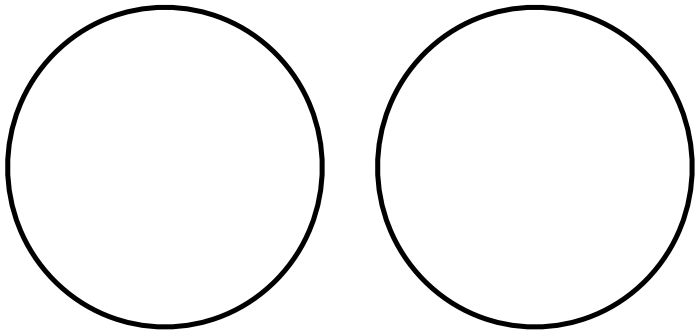


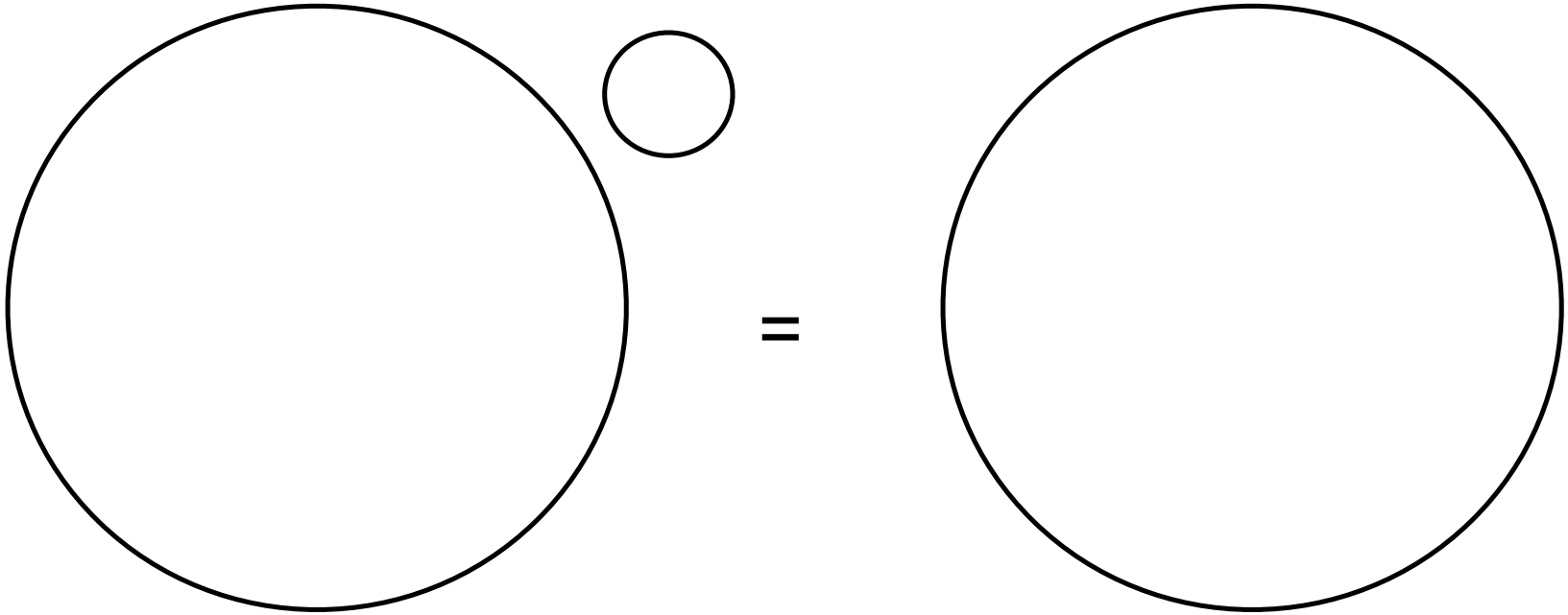
Economy.
The distinction is a circle.
Let the circle itself stand for the marked state.



Now Circle has a name-tag in her own form.

The tag and the name of the tag can be confused.

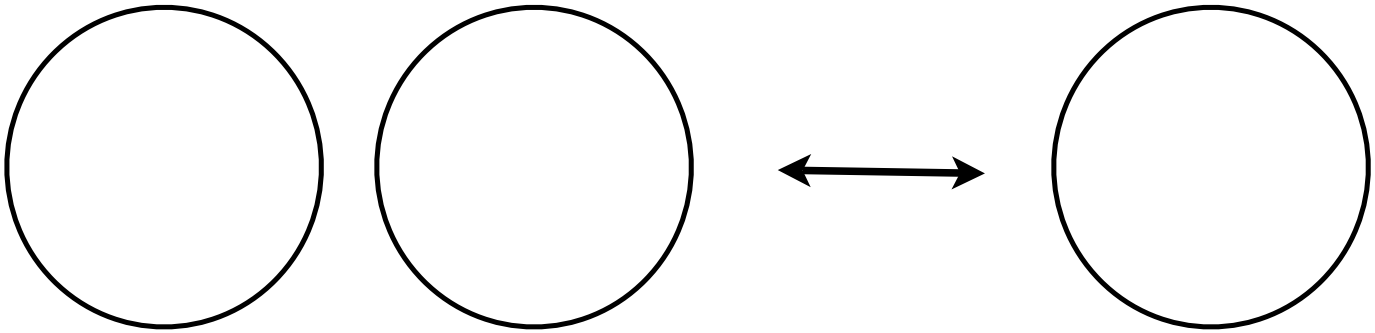




The name tag is not needed to identify the outside of our mark of distinction (in this representation).

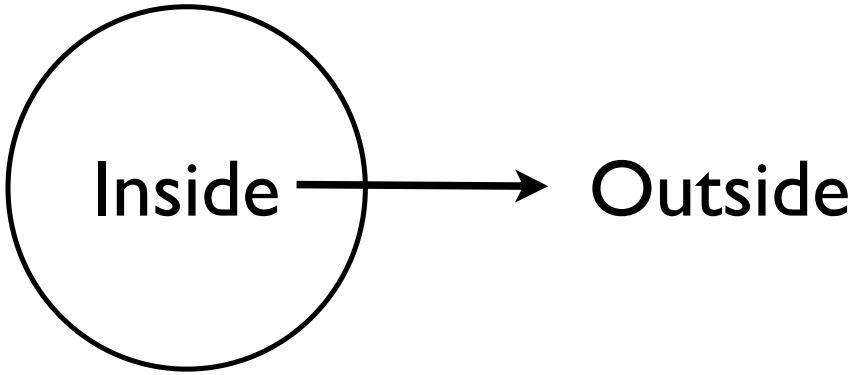
The principle that "the value of a call (of a name) made again is the value of the call" is quite general.

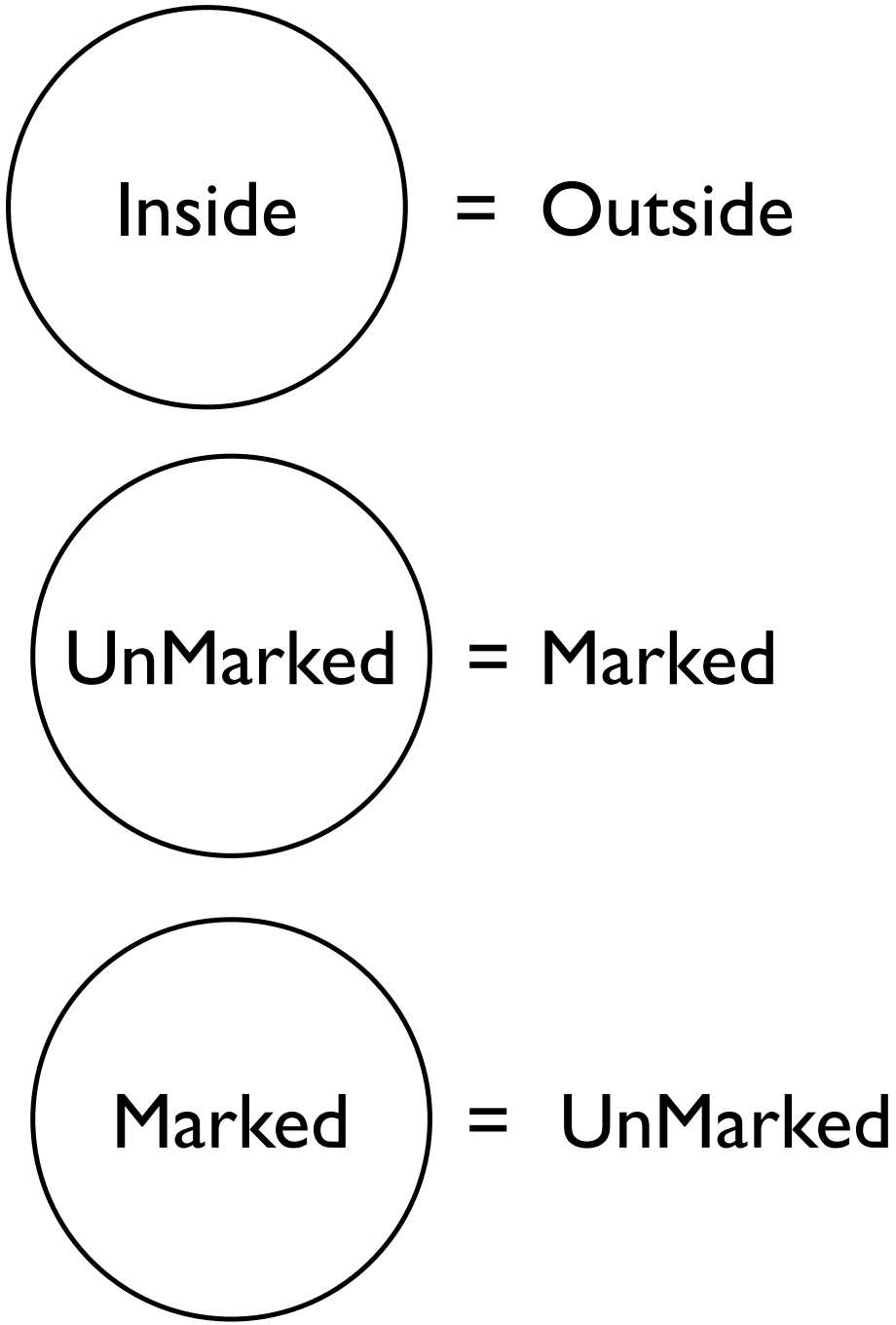
Spencer-Brown:
"The value of a call made again
is the value of the call."

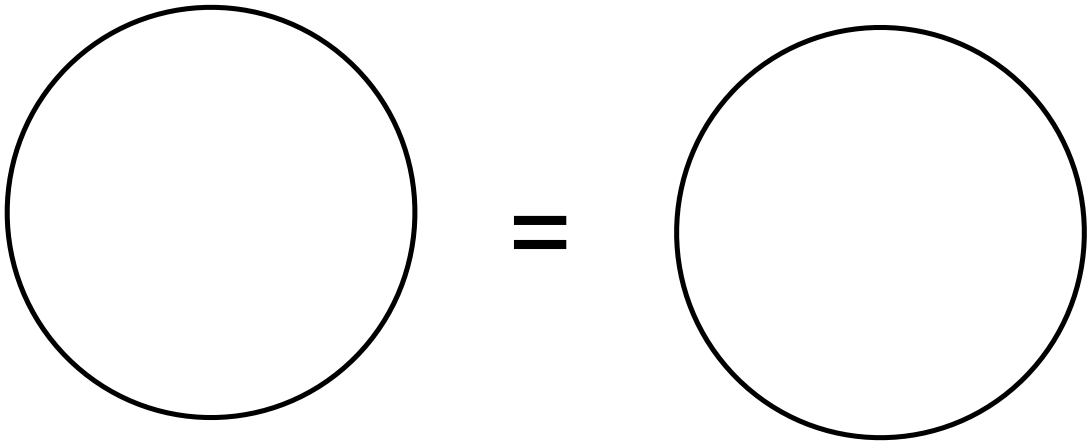


So far we have focused on the distinction
as the locations of its sides and their names.

Let the mark/circle/distinction
be seen as a
TRANSFORMATION
from the state indicated on its inside to
the state indicated on the outside.



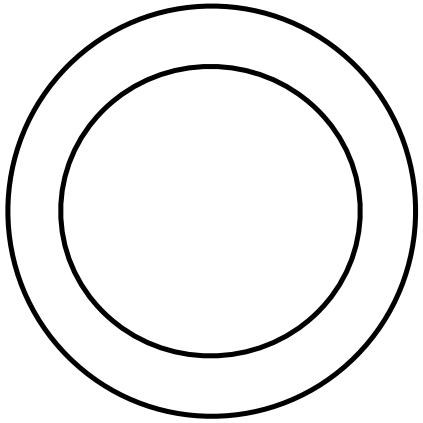

Inside
= Outside
UnMarked
= Marked
Marked
= UnMarked



Cross from the unmarked state.

The marked state.

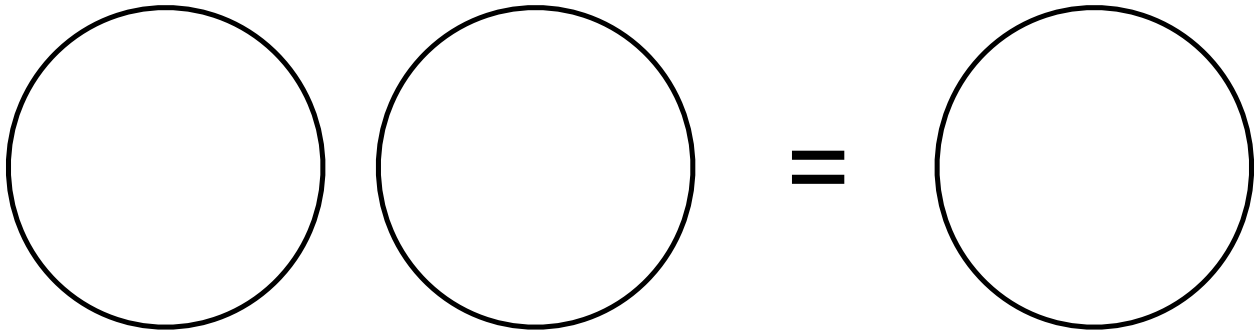
"The value of a crossing made again
is not the value of the crossing."

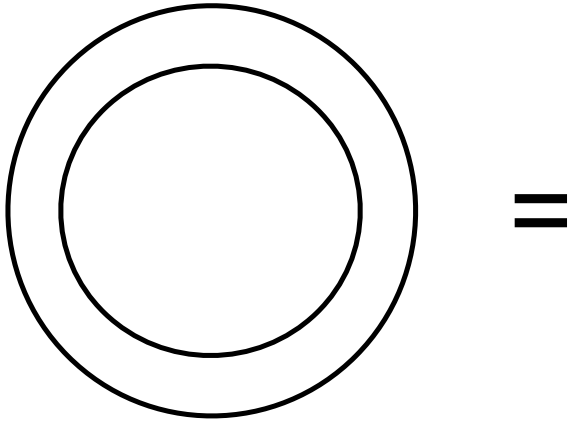


=

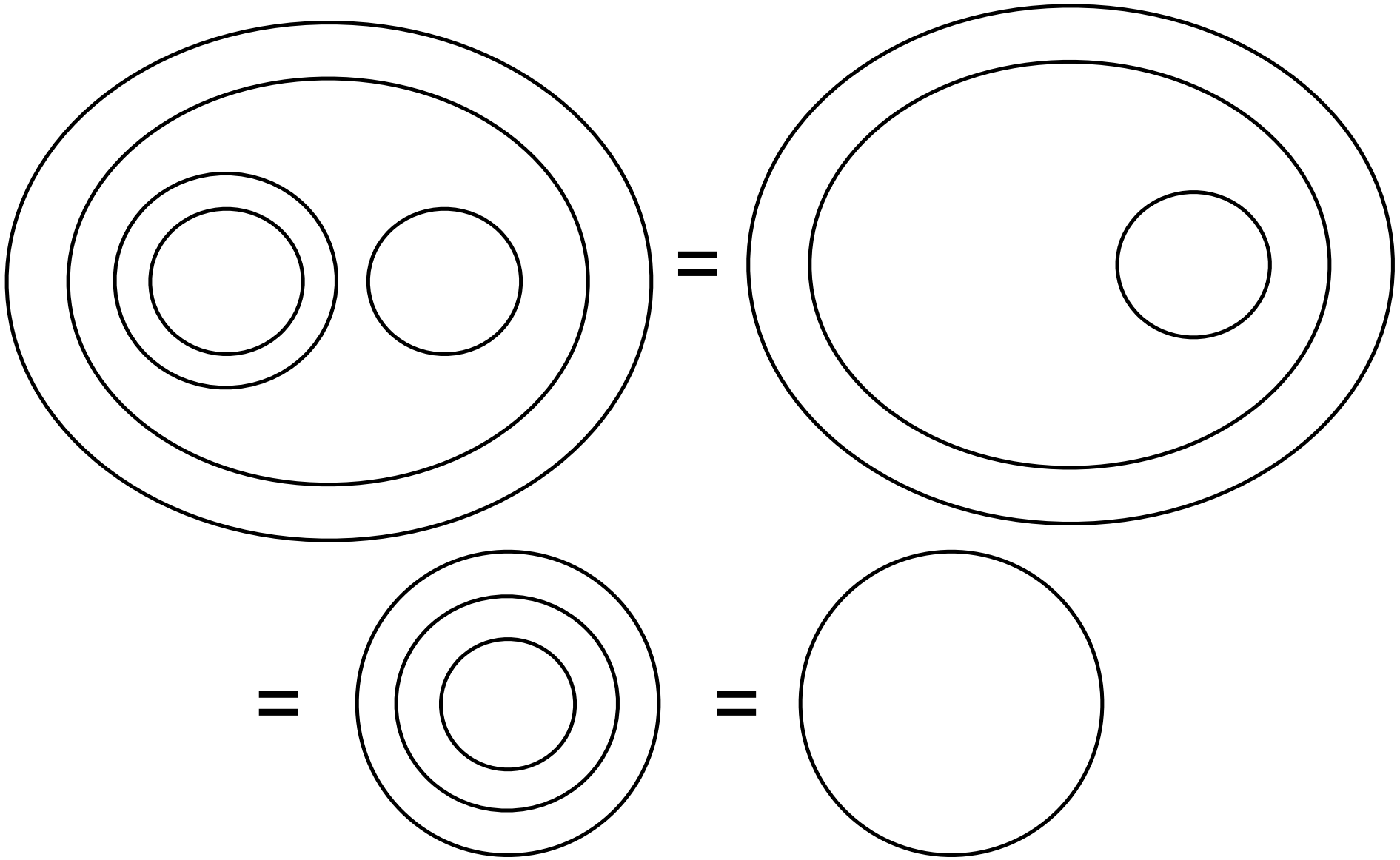
Cross from
the marked state.

Summary of Calling and Crossing



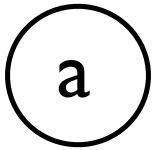


Example



We have constructed an arithmetic of forms (patterns of distinction) that is a language speaking about a single distinction.

Arithmetics have algebras, and the first algebra associated with this arithmetic is Boolean algebra, the algebra of classical Aristotelian logic. Using

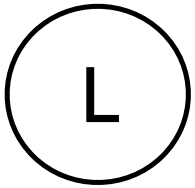


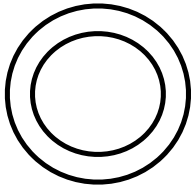
= Not a.

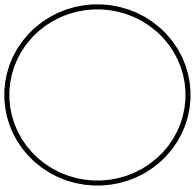
So we see that the classical logic with all its dualities comes from and returns to a source that is the production and dissolution of imaginary distinctions in a world where there are no discriminations in the first place.

Further play is fun and illuminating.

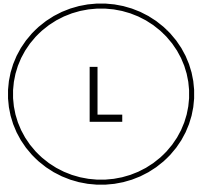
For example, we can return to the Liar paradox like this.

L = 

L = Marked ⟶ L =  = Unmarked

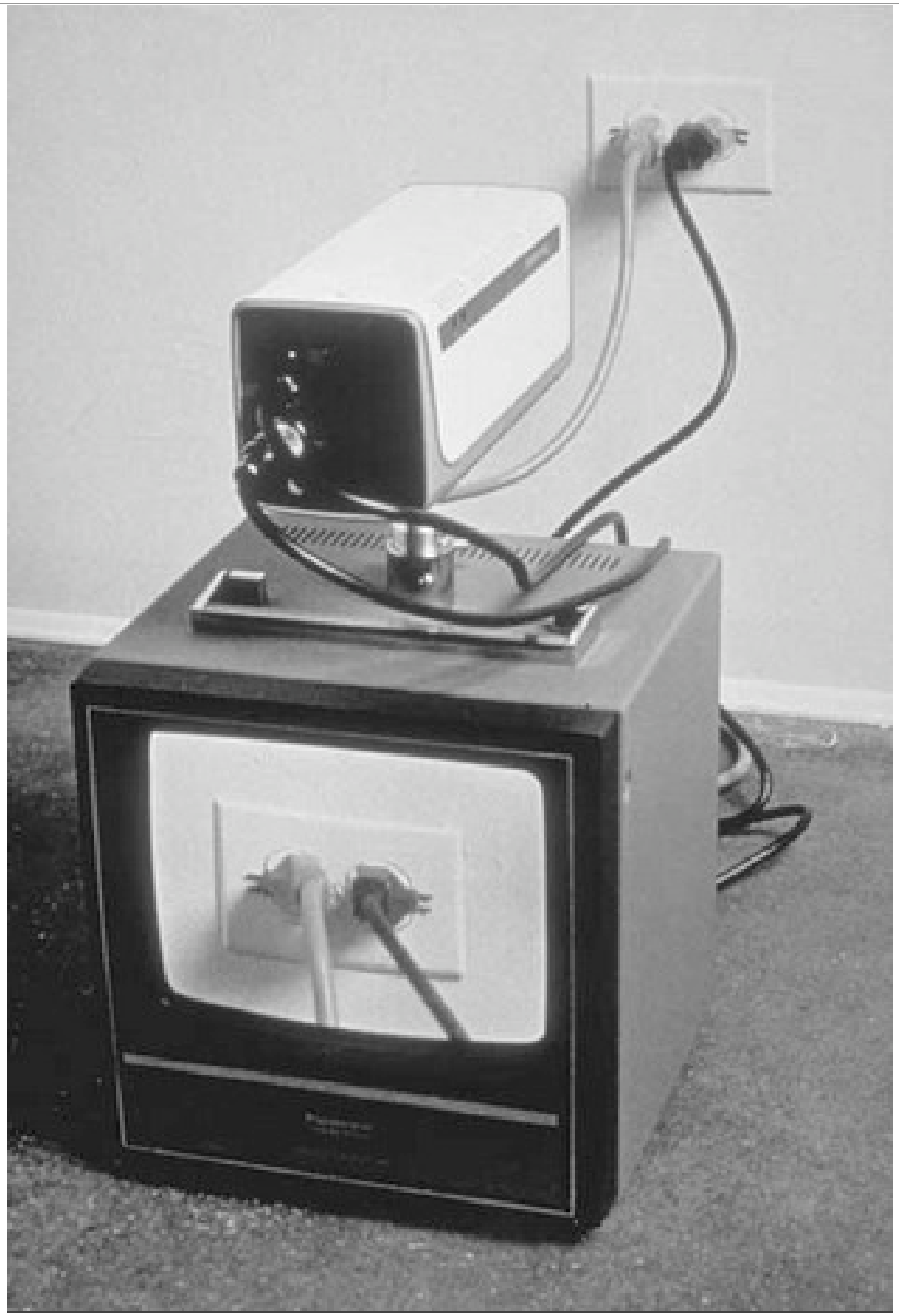
L = Unmarked ⟶ L =  = Marked

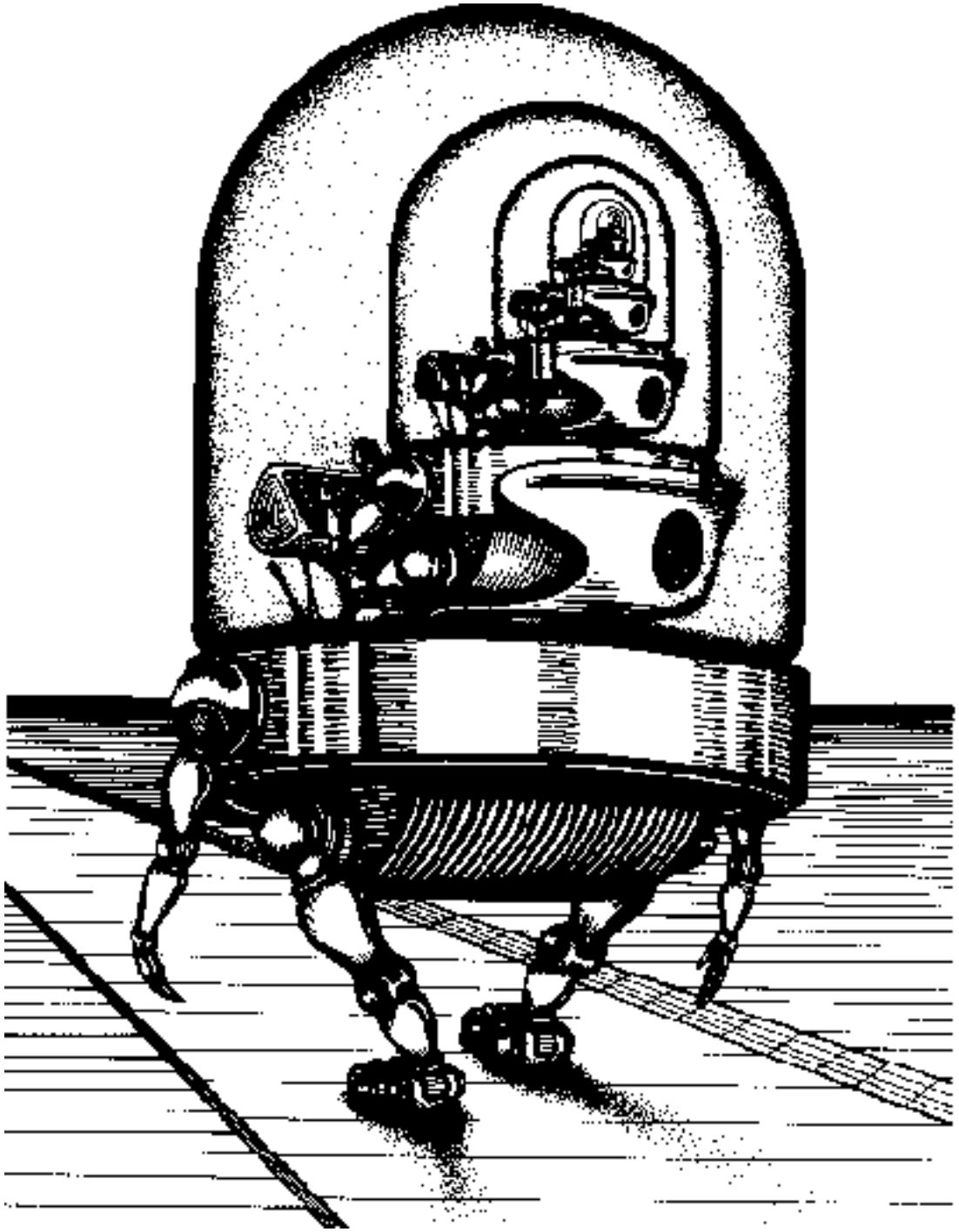
But this equation

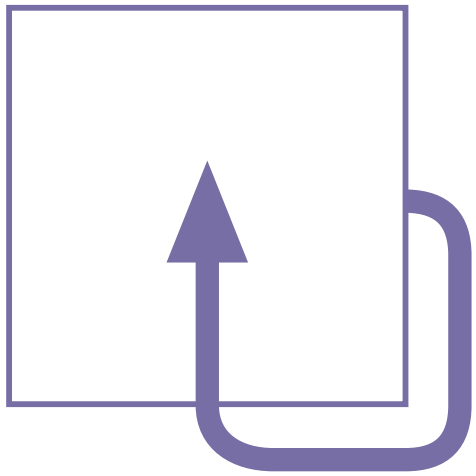


suggests a form L that reenters its own indicational space.

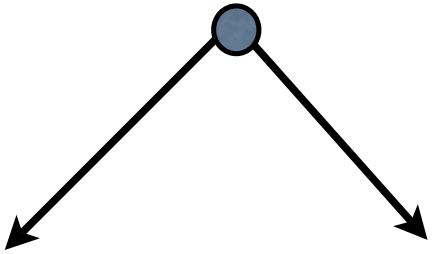
A form of self-reference,
or self -observation.
A fixed point.
An invariance.
A recursion.
An object produced from a process.
A process indicated by a transformation.



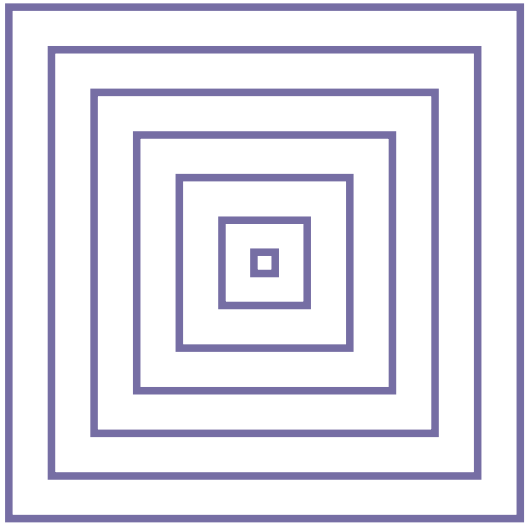




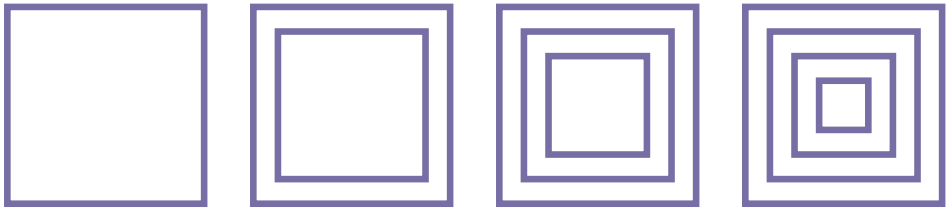
L = L



Space

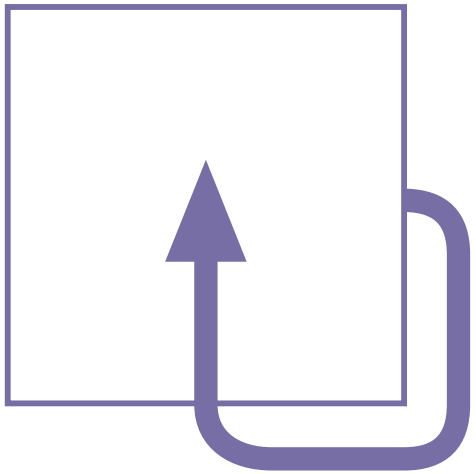


Time



...

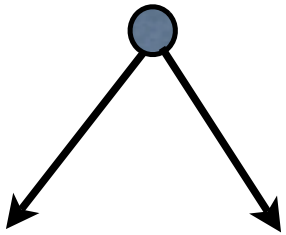
i = -1/i



ii = -1

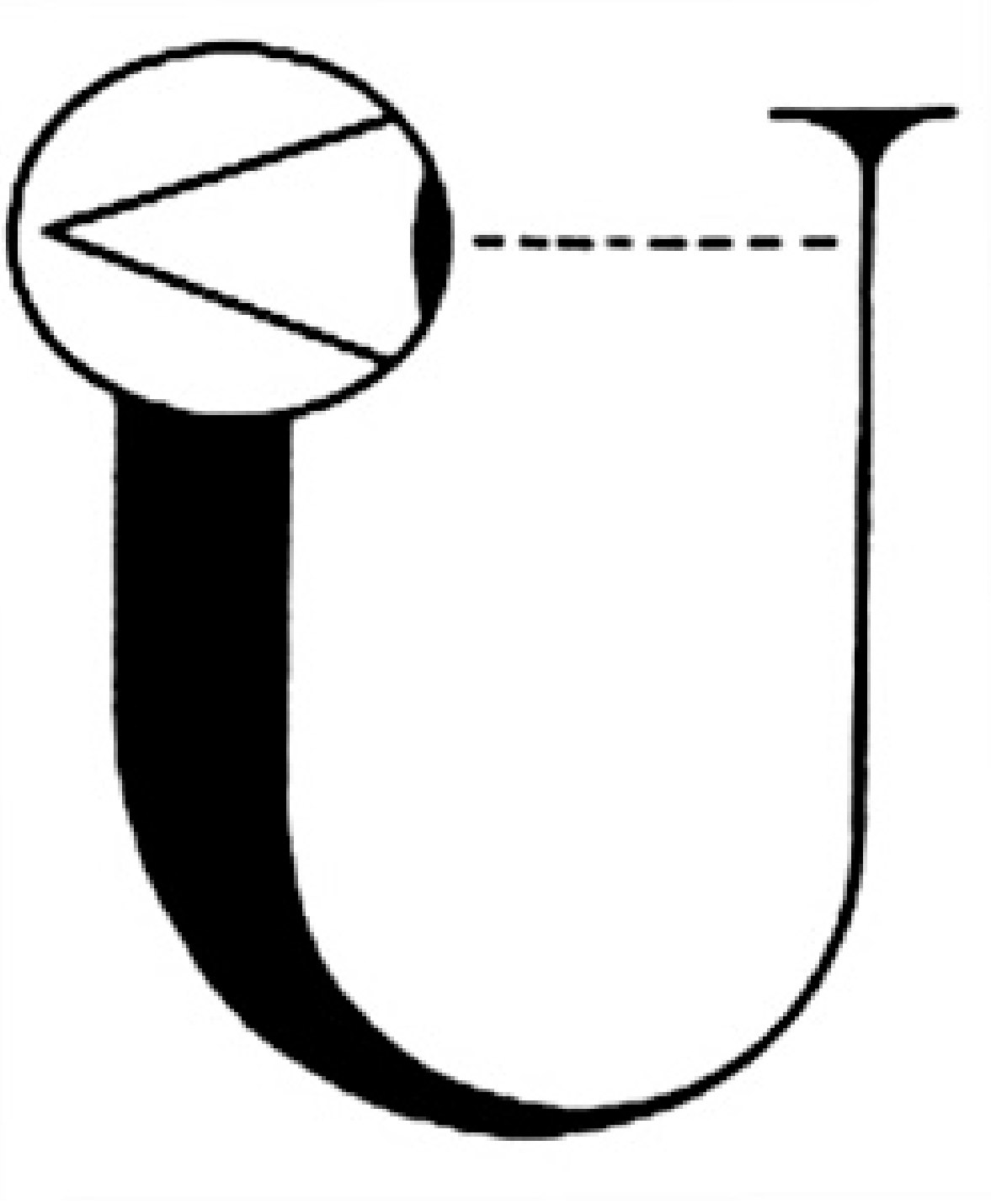
The square root
of minus one
"is"
a discrete oscillation.

... +1, -1, +1, -1, +1, -1, ...



[-1,+1] [+1,-1]

On encountering reentering
and reflexive structures
we leave simple dualities for a complex world.
Once this sort of pattern sets it is a challenge to go back to the beginning.



One can be aware of
one's own
thoughts.

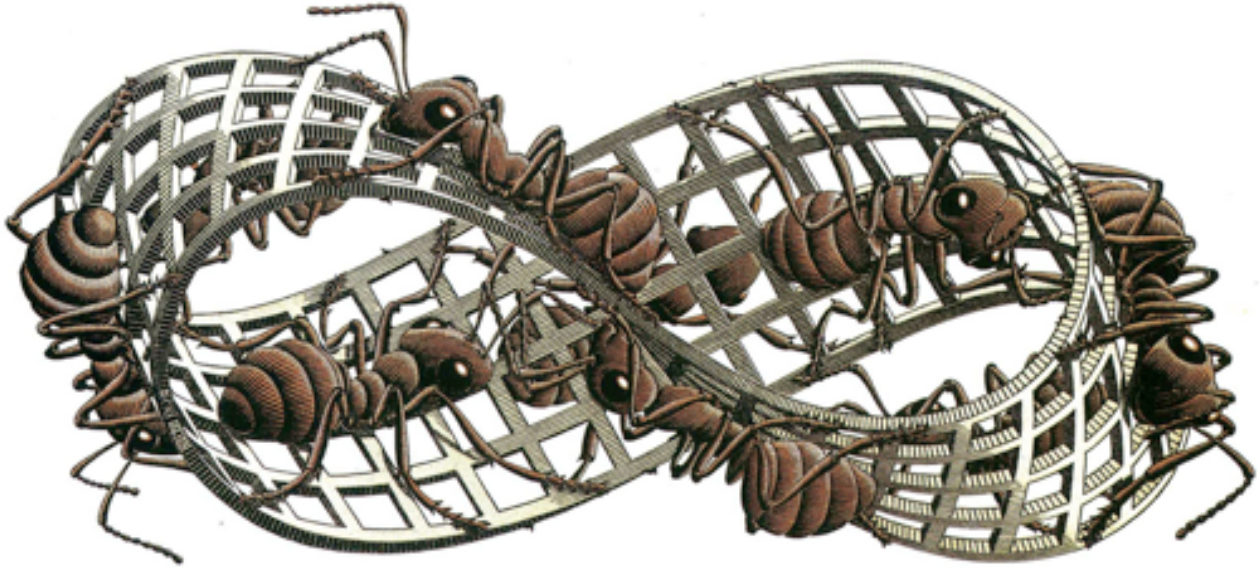
An organism produces
itself
through its
own productions.

A market is composed of
individuals
whose actions
influence the market
just as the
actions of the
market influence
these
individuals.

The participant is
an observer
but
not
an
objective observer.

There is no objective observer.

There is no objective observer, and yet
objects, repeatablity,
a whole world of actions,
and a reality to be explored
arise
in the relexive domain.



Describing Describing

Describing Describing

Consider the consequences of
describing
and then
describing that description.

We begin with one entity:

*

And the language of the numbers:
1,2,3.

Yes, just ONE, TWO, THREE.

*

Description: “One star.”

1*

Description: “One one, one star.”

111*

Description: “Three ones, one star.”

311*

Description: “One three, two ones, one star.”

13211*

Describing Describing

*

1*

111*

311*

13211*

1113122 11*

3113112221 11*

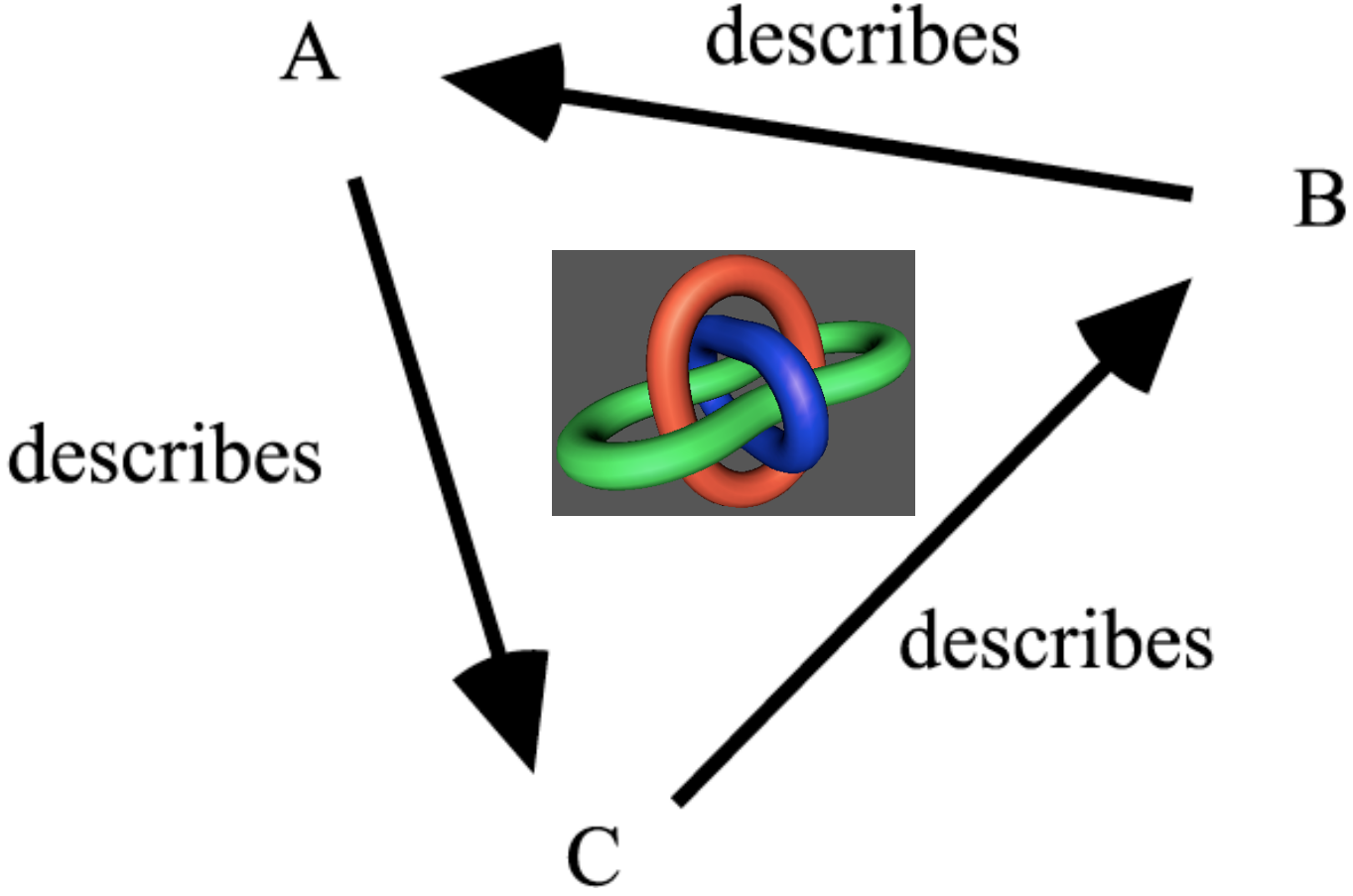
132113213231 1*

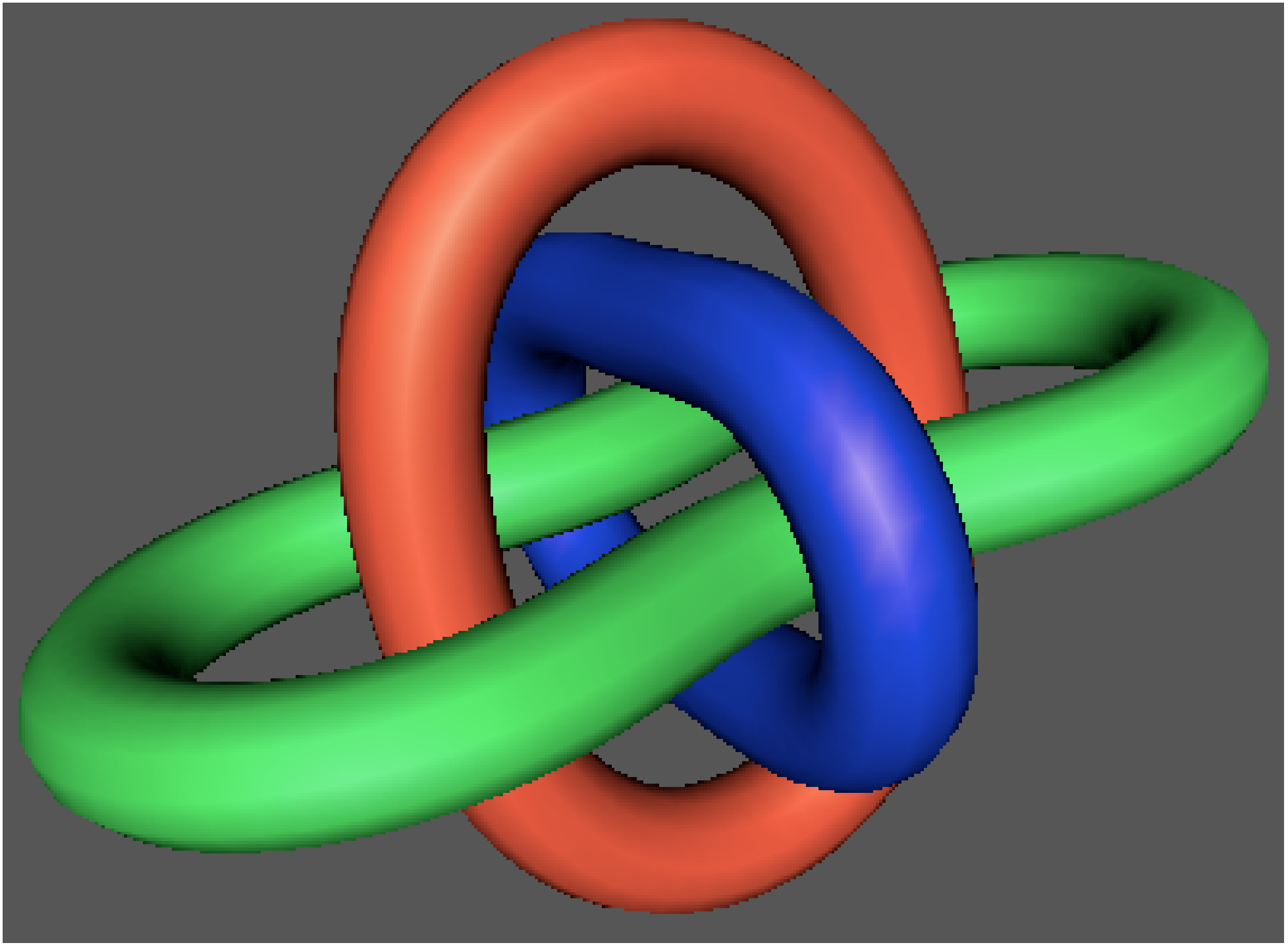
1113122113121113121321 1*

$$A = 1113122113121132221\ldots$$

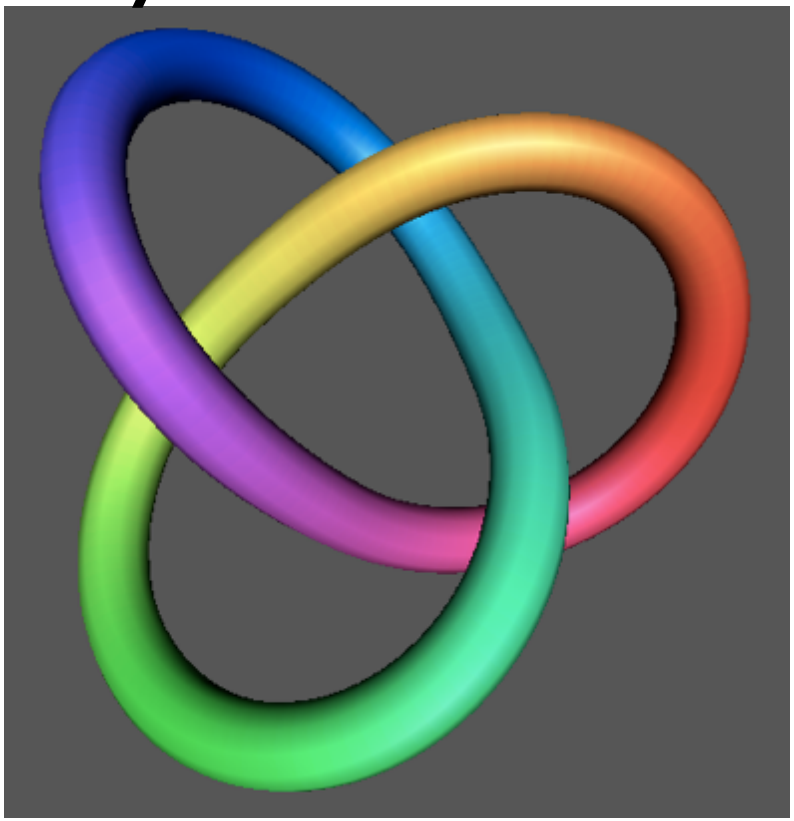
$$B = 3113112221131112311332\ldots$$

$$C = 13211321322113311213212312\ldots$$





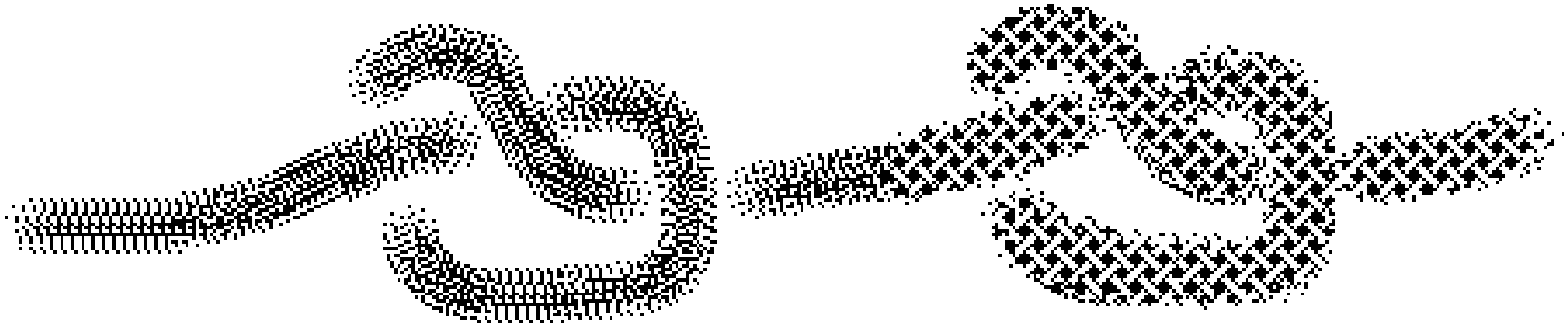
Self-Mutuality and Fundamental Triplicity



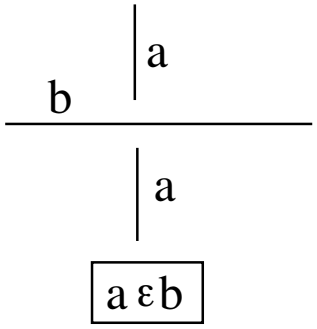
Trefoil as self-mutuality.
Loops about itself.
Creates three loopings
In the course of
Closure.

Patterned Integrity

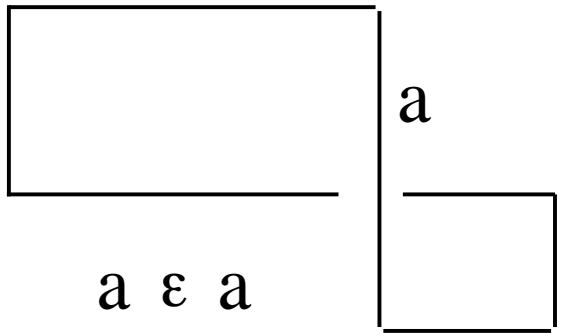
The knot is information independent
of the substrate that carries it.



Knot Sets

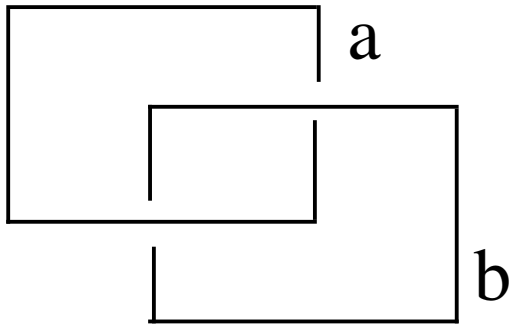


Crossing as Relationship



Self-Membership

a = {a}

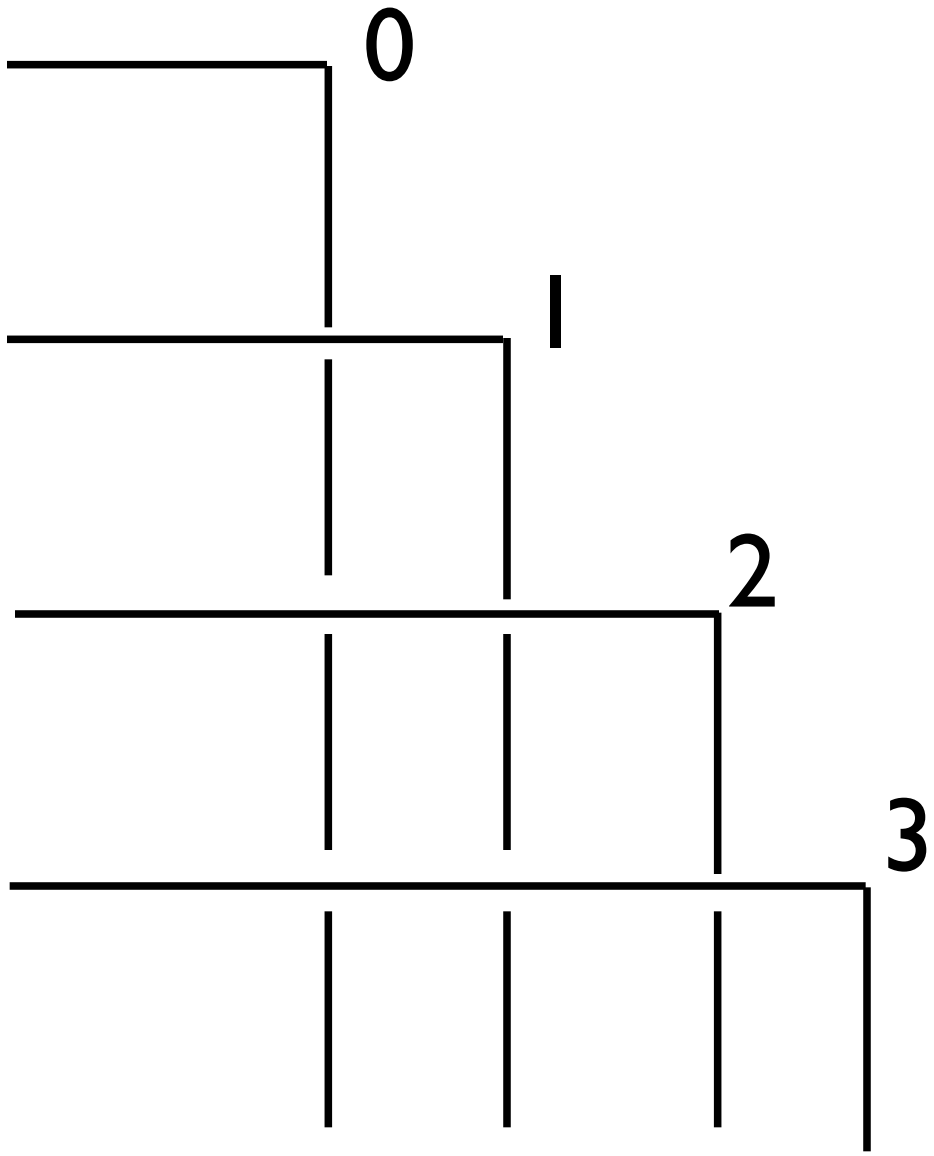


Mutuality

a={b}

b={a}

Architecture of Counting



Topological Russell (K)not Paradox

A belongs to A.

A does not belong to A.

This slide show has been only an introduction to certain mathematical and conceptual points of view about reflexivity.
In the worlds of scientific, political and economic action these principles come into play in the way structures rise and fall in the play of realities that are created from (almost) nothing by the participants in their desire to profit, have power or even just to have clarity and understanding. Beneath the remarkable and unpredictable structures that arise from such interplay is a lambent simplicity to which we may return, as to the source of the world.