

Much Ado About Nothing or Nothing Up My Sleeve

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*"God made everything out of nothing.
But the nothingness shows through."
-- Paul Valéry*

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The Void / Nothing

- No Thing, prior to distinction
- Not a spatial or mathematical object
Not the vacuum, the empty set, a coord system
- No properties or attributes
Not emptiness, no measure or dimensionality
- No location or place
Not here or there, yet everywhere
- Unique, shared by all, in common
The same for all viewpoints

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The Void / Nothing (con't)

- No consequences or effects
- Cannot be combined with anything
Yet is always being combined, everywhere
- Cannot be named, referenced, pointed to
Yet is always dominated, available, free
"The Tao that is named is not the Eternal Tao."

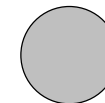
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First Distinction

- First Thing -- Simplicity Itself
- Pure difference, discrimination
- Pure form, no interpretation yet
- Smallest possible, unavoidable step from the Void
- Both object and action
- Big Bang?



*"The fundamental delusion of humanity is to suppose that I
am here and you are out there." -- Yasutani Roshi*

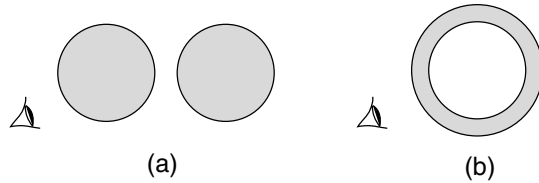
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Second Distinction

- Two possibilities
 - a) outside - symmetrical, cardinality
 - b) inside - asymmetrical, ordinality
- Allows first contradiction, paradox



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Logics

- 1-valued (Spencer-Brown, Kauffman, Bricken)
 - Void / 1st Distinction \Rightarrow (NoExist) / True
 - Enough for most of classical logic
- 2-valued (Boole, Cantor, etc)
 - Redundant, not minimal
 - Express contradiction in arith, paradox in algebra
- 2-valued w imaginary (Varela, Kauffman)
 - True, paradox values
- 3-valued w imaginary (Peirce, Lukasiewicz, etc)
 - Hold simple paradox as a value
- 3x1-valued (James)
 - Numbers up to exponentiation
- 4-valued (Kauffman, Hellerstein, Shoup)
 - Symmetrical, from 2-valued
 - Hold full contradiction, paradox as values

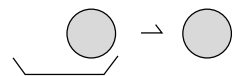
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1-Valued Boundary Logic

- Nothing / Everything, Self / Universe
- Existence, objects
- Unique, Simplicity Itself
- Purely relative to observer / me
- Dominance, "wired OR"
- No opposition, no contradiction in arith
 - Belief, religion
- Pushing Nothing Around
 - Void + Void = Void
 - Void + Something = Something
 - Something + Something = Something



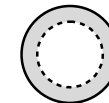
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2-Valued Boundary Logic

- 2nd Distinction, no collapse
- Symmetrical, std boolean
- Contradiction in arith, paradox in algebra

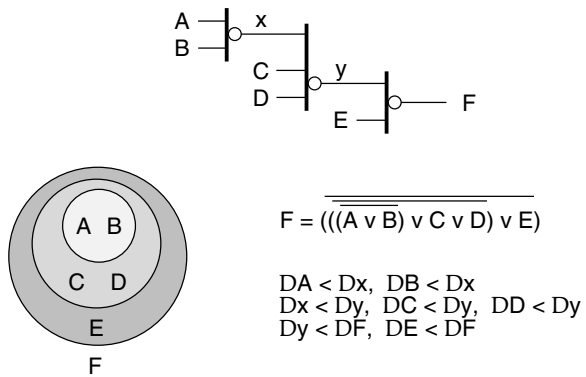


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Combinational Logic is Timeless

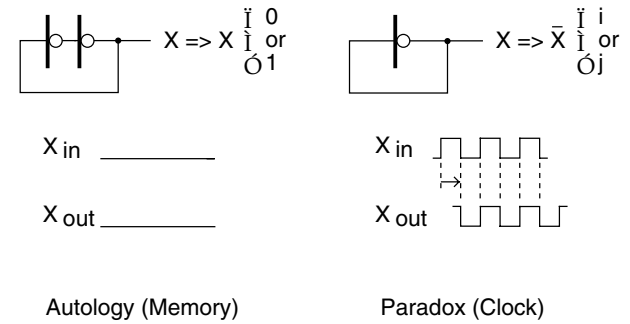


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Self-Reference - the Origin of Time

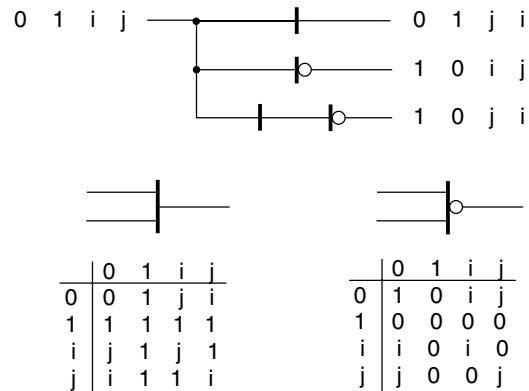


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4-Valued Logic Holds Paradox



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i : Logic :: $\div -1$: Reals

Logic

$$x = \sim x$$

$$x = i \text{ or } j$$

$$0, 1, i, j \approx$$

Numbers

$$x = -1/x \quad (x^2 = -1)$$

$$x = \div -1 = i$$

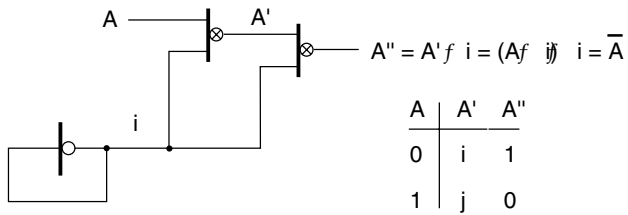
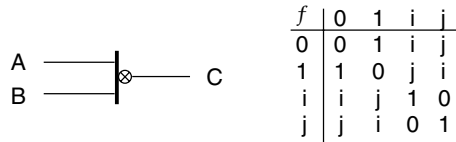
$$1, -1, i, -i \bullet$$

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Square Root of NOT

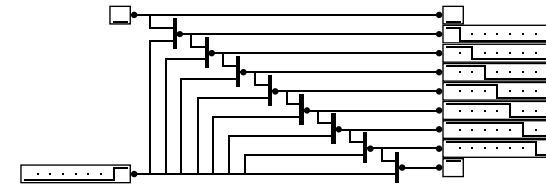


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Eighth Root of NOT

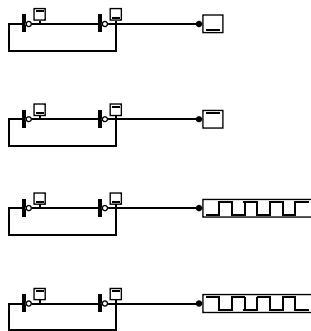


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Memory & Superposition



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The Whole Story

- Void/Nothing
- Distinction / Something / Selection
- Connection / Multiplicity / Linking
- Self-reference / Paradox-Memory -> Space-Time
- Relations -> Link Theory -> Quantum Mechanics

"Things are entirely what they appear to be and behind them ... there is nothing." -- Jean Paul Sartre

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Connections

- Combinatorial Hierarchy (Parker-Rhodes, Bastin & Kilmister)
Begin with 2nd Distinction
- Bit Strings (Noyes)
XOR, bit counts
- Co-occurrence, co-exclusion (Manthey)
- Networks & knots (Kauffman)
- Link/Shape Theory (Etter)



Link Theory (Etter)

- Compound relations
Case tables as in a Relational Database
- Case count: sum of possibilities
Negative cases -> interference
- Link of tables \Leftrightarrow Multiply by transformation matrix
- Not explained
How to get started? What is the theory *about*?
How to get negative case counts?
How to get apparent randomness/choice?

"An elementary particle is not an independently existing, unanalyzable entity. It is, in essence, a set of relationships that reach outward to other things." -- Henry Stapp

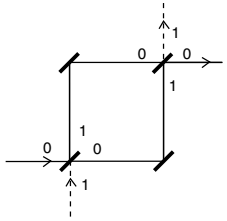


Linking Two NOTs - classical

$$\begin{array}{c}
 \begin{array}{c|c} a & b \end{array} \quad \begin{array}{c|c} a' & b' \end{array} \Rightarrow \begin{array}{c|c|c|c} a & b & a' & b' \end{array} \\
 \\
 \begin{array}{c|c|c} a & b & n \\ \hline 0 & 0 & 0 \\ 0 & 1 & 1 \\ 1 & 0 & 1 \\ \hline -1 & -1 & 0 \end{array} \approx \begin{array}{c|c|c} a' & b' & n' \\ \hline 0 & 0 & 0 \\ 0 & 1 & 1 \\ 1 & 0 & 1 \\ \hline -1 & -1 & 0 \end{array} \Rightarrow \begin{array}{c|c|c|c} a & b & a' & b' & n' \\ \hline 0 & 1 & 1 & 0 & 1 \\ 1 & 0 & 0 & 1 & 1 \\ \hline -1 & 0 & -1 & 0 & -1 \end{array} \Rightarrow \begin{array}{c|c|c} a & b' & n \\ \hline 0 & 0 & 1 \\ 1 & 1 & 1 \end{array} \\
 \\
 \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \Rightarrow \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}
 \end{array}$$



Linking Two Sqrt(NOT)s - interference



$$\begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \Rightarrow \begin{bmatrix} 0 & 2 \\ -2 & 0 \end{bmatrix}$$

$$\begin{array}{c|c|c} a & b & n \\ \hline 0 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & -1 \\ 1 & 1 & 1 \end{array} \approx \begin{array}{c|c|c} a' & b' & n' \\ \hline 0 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & -1 \\ 1 & 1 & 1 \end{array} \Rightarrow \begin{array}{c|c|c|c} a & ba' & b' & n' \\ \hline 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & -1 \\ 1 & 0 & 0 & -1 \\ 1 & 0 & 1 & -1 \\ 1 & 1 & 0 & -1 \\ 1 & 1 & 1 & 1 \end{array} \Rightarrow \begin{array}{c|c|c} a & b' & n' \\ \hline 0 & 0 & 0 \\ 0 & 1 & 2 \\ 1 & 0 & -2 \\ 1 & 1 & 0 \end{array}$$

