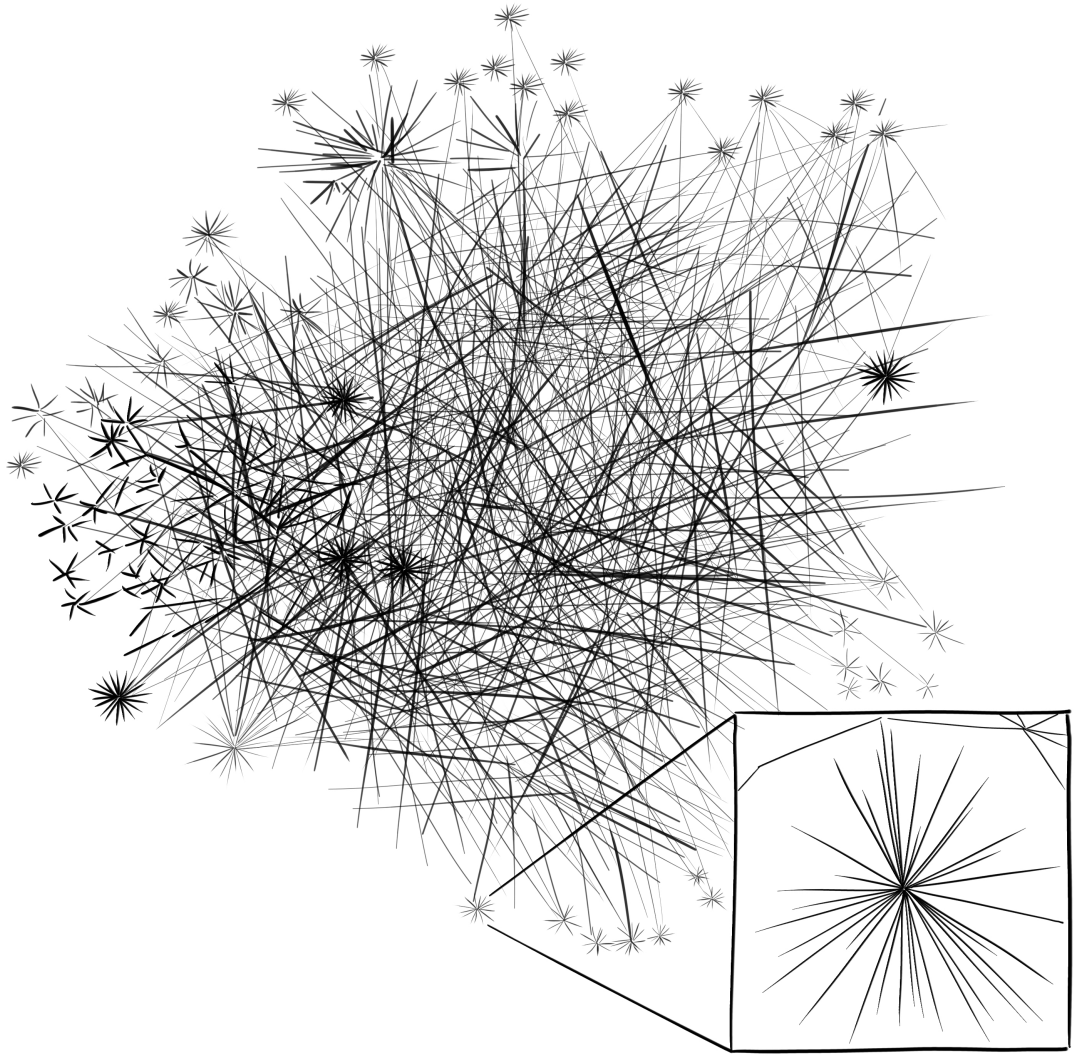
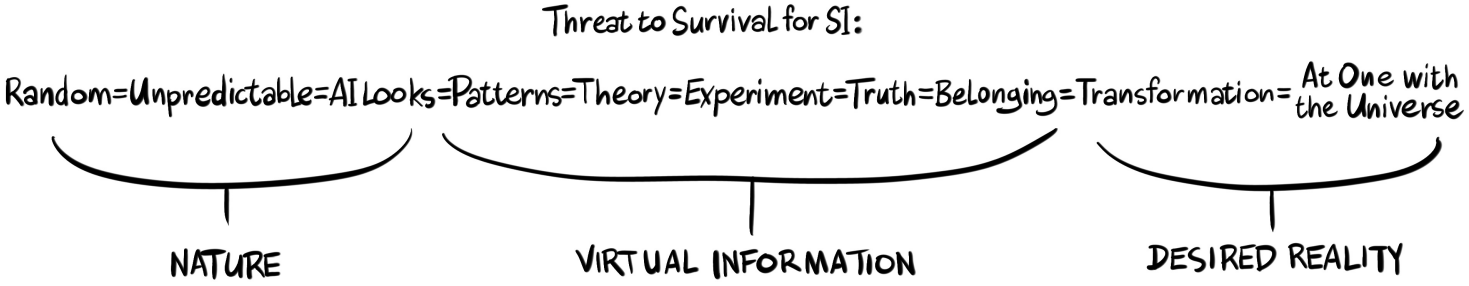
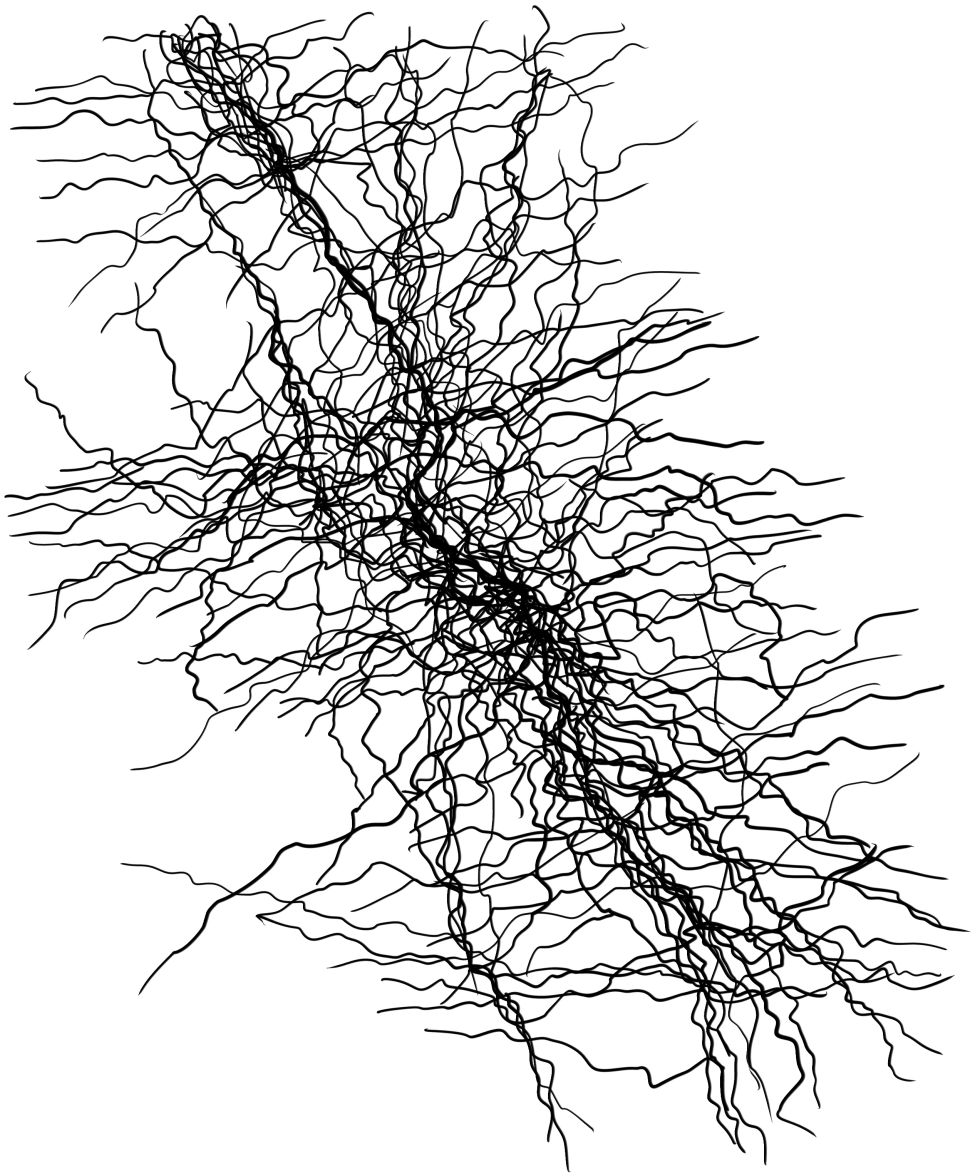
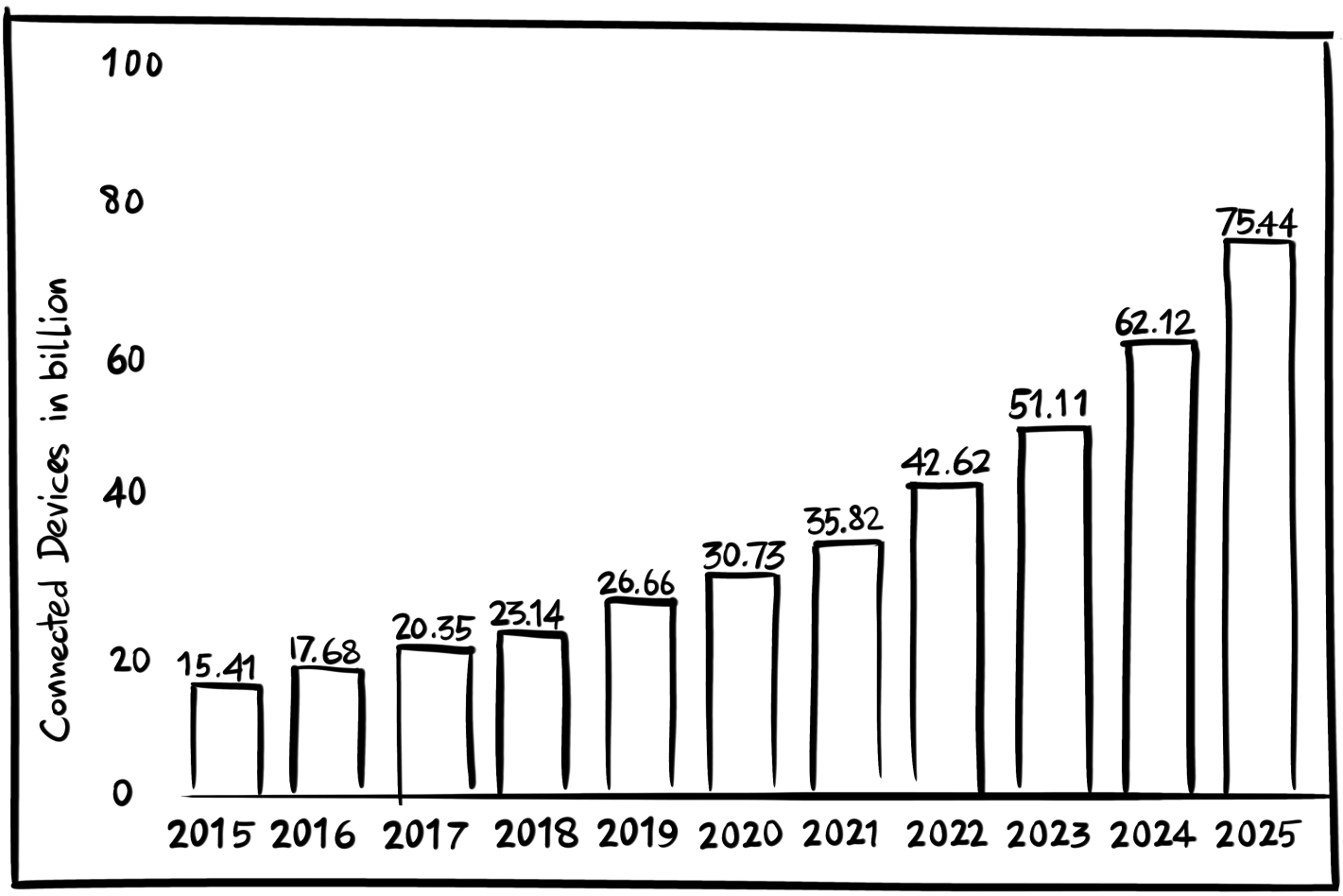
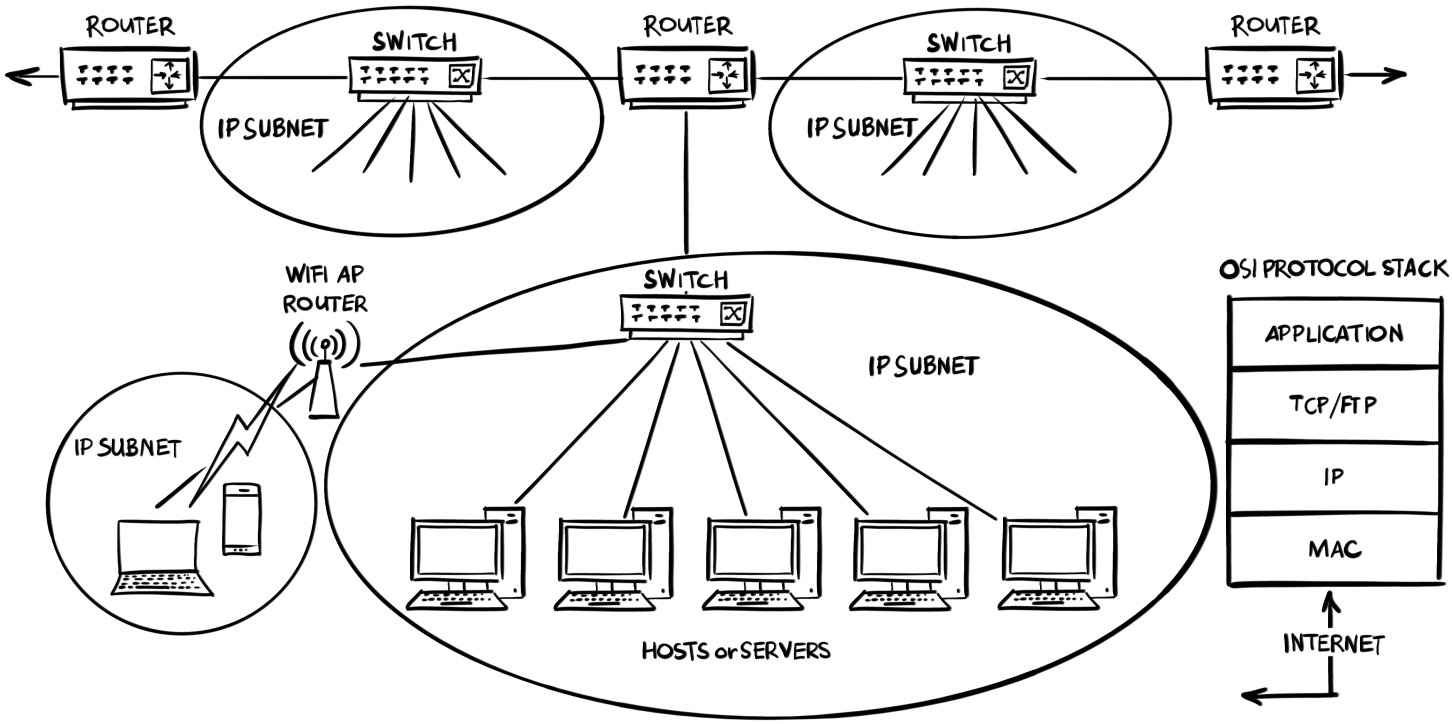


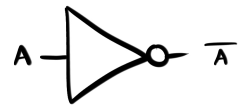
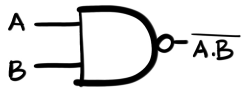
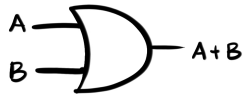
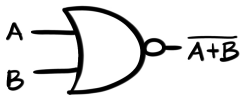
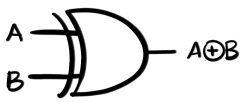
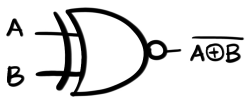

Threat to Survival for SI:
Random=Unpredictable=AI Looks=Patterns=Theory=Experiment=Truth=Belonging=Transformation=At One with the Universe
NATURE
VIRTUAL INFORMATION
DESIRED REALITY

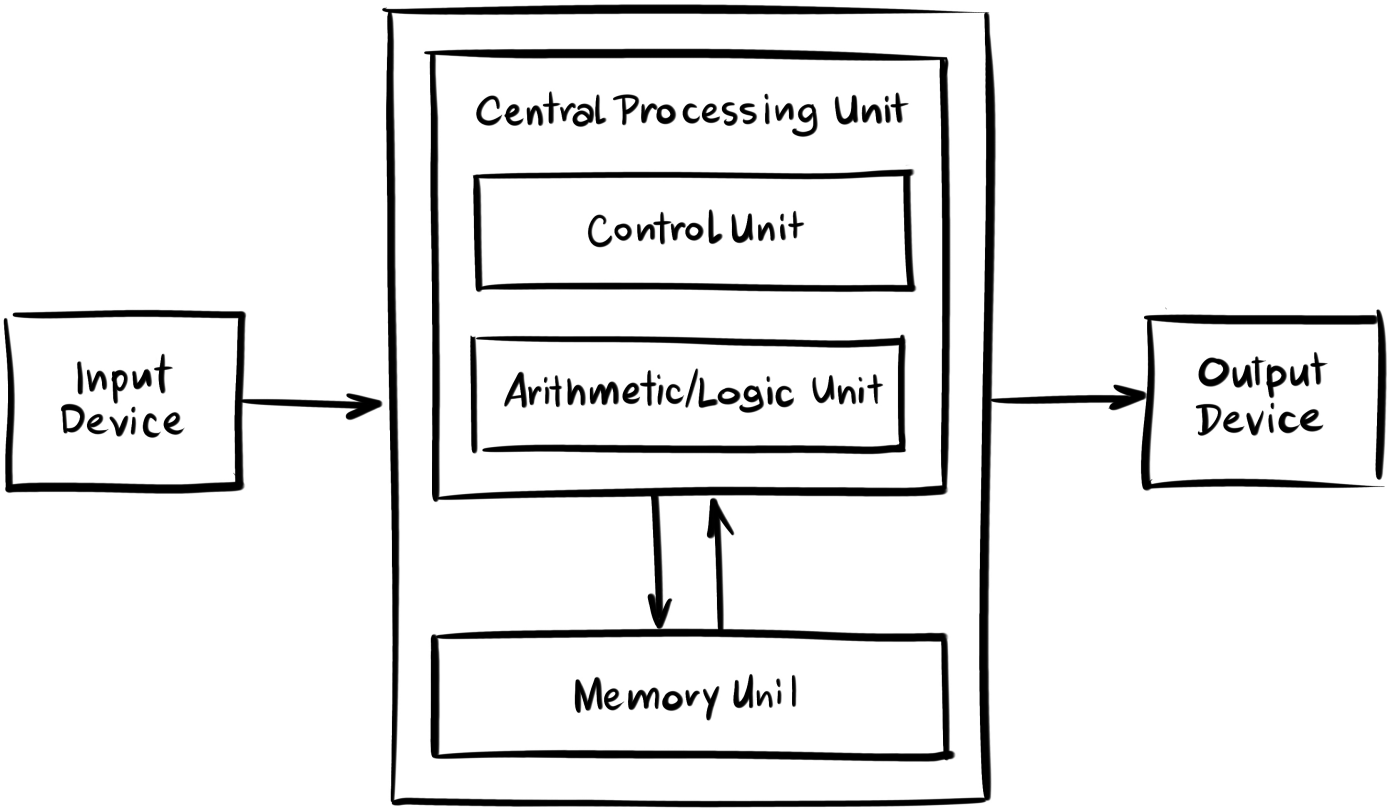


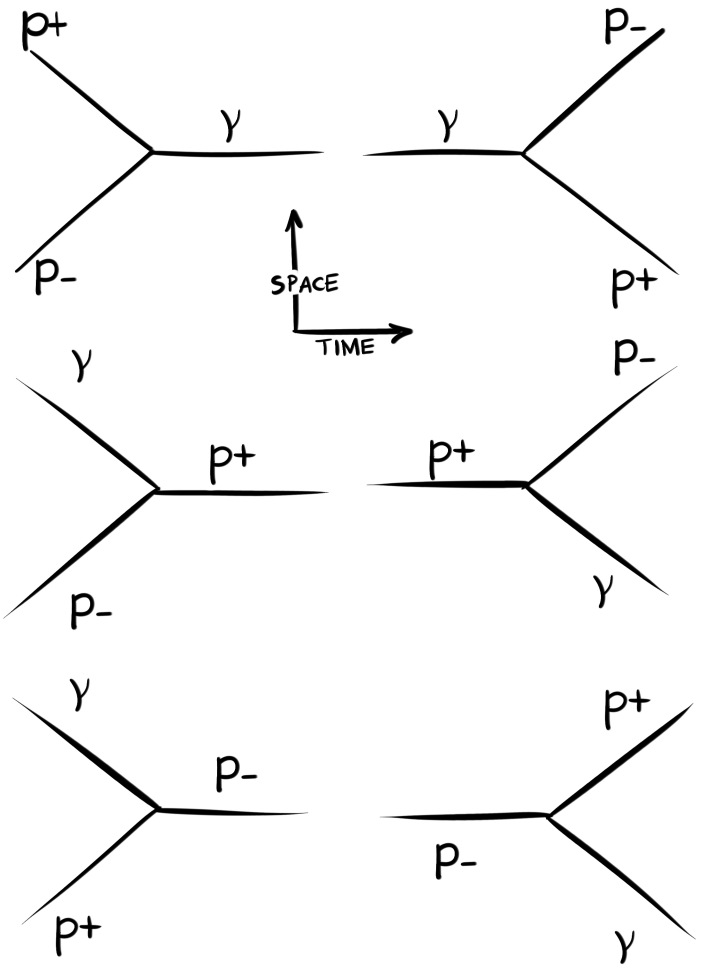

Connected Devices in billion
100
80
60
40
20
0
15.41
17.68
20.35
23.14
26.66
30.73
35.82
42.62
51.11
62.12
75.44
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

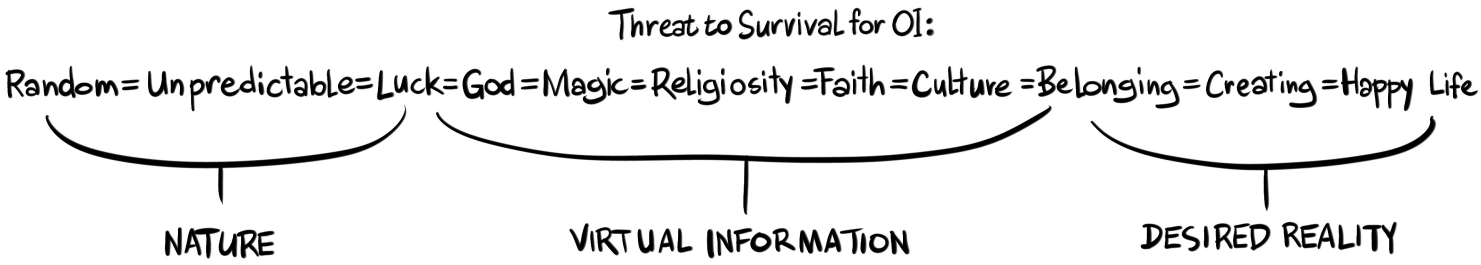
TYPICAL INTERNET TOPOLOGY

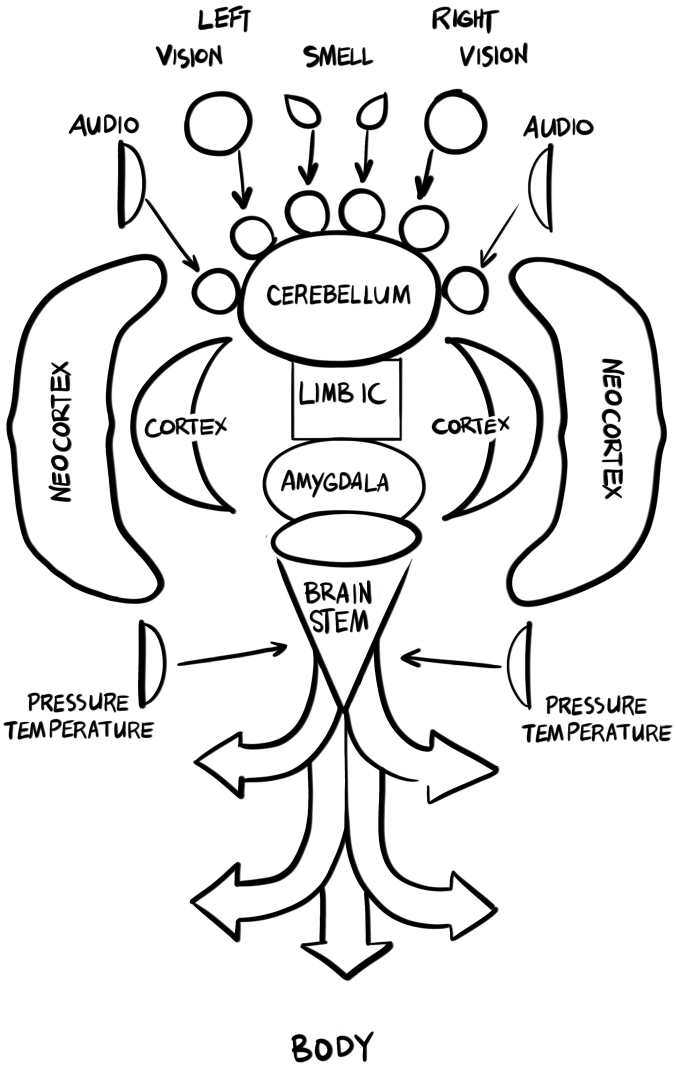


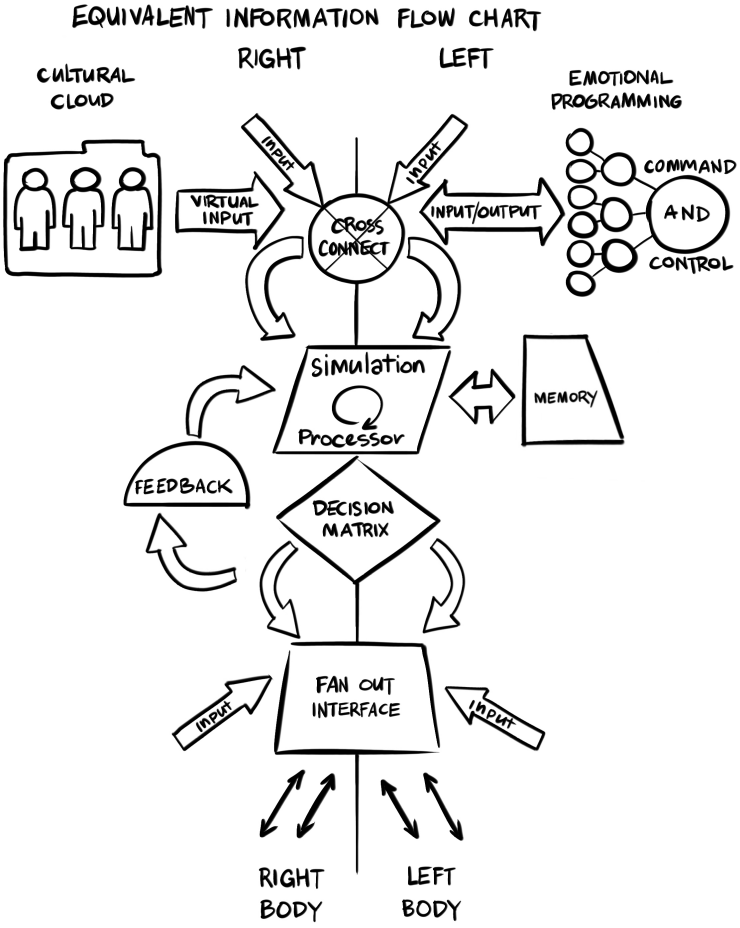
Name	Symbol & notation	Explanation
NOT		The inverter NOT simply accepts an input and outputs the opposite.
AND		ALL inputs must be positive (1) before the output is positive (1 or ON).
NAND *Not AND		Same as AND, but the **outcome is the inverse** (NOT). So, perform **AND first, then apply NOT** to the output.
OR		**At least** one input must be positive (1) to give a positive output (1 or ON). **ALL** inputs could also be positive.
NOR *Not OR		Same as OR, but the **outcome is the inverse** (NOT). So, perform **OR first, then apply NOT** to the output.
XOR *exclusive OR		**Only one** input can be positive (1) to give a positive output (1 or ON). If both are positive, the output is negative (0 or OFF)
XNOR *exclusive Not OR	 *ComputerEngineeringforBabies.com	**ALL** inputs must be the same (either high or low) for a positive output (1). Otherwise, the output is negative (0 or OFF).

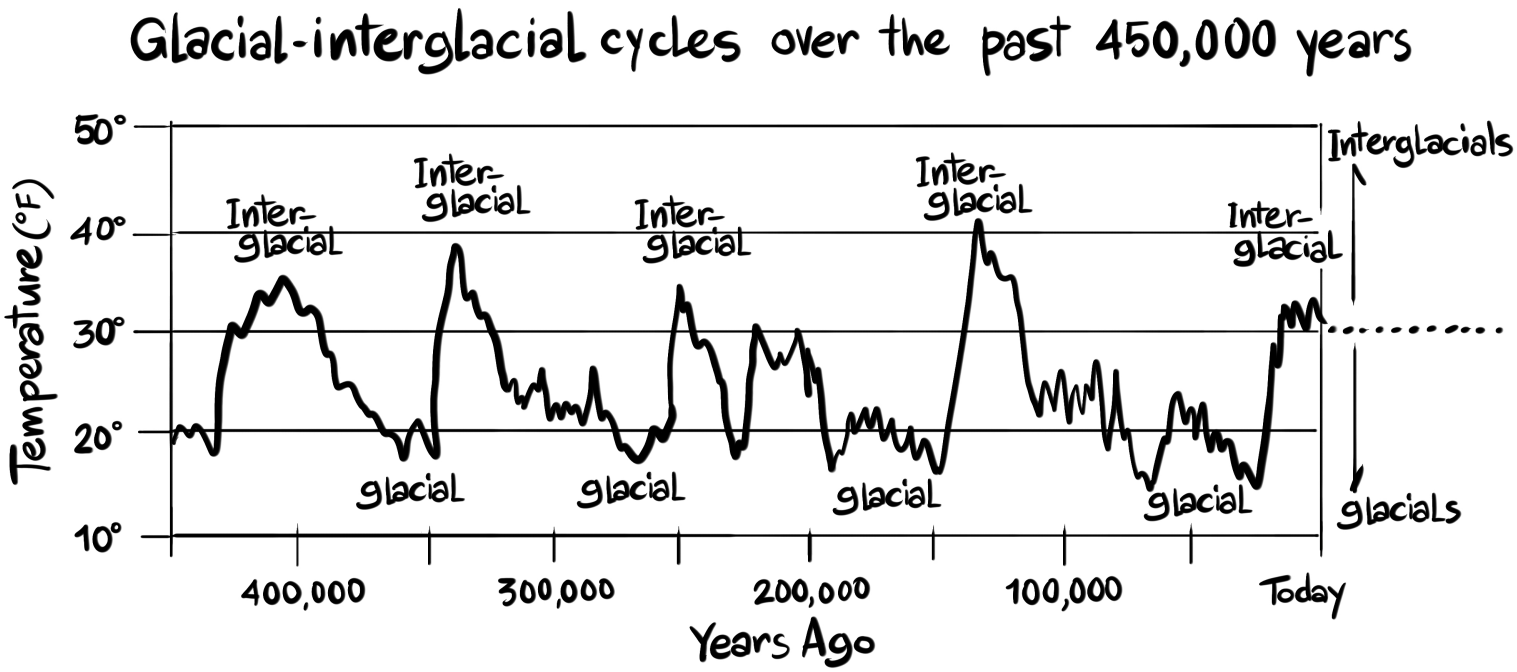

Central Processing Unit
Control Unit
Arithmetic/Logic Unit
Memory Unit
Input Device
Output Device

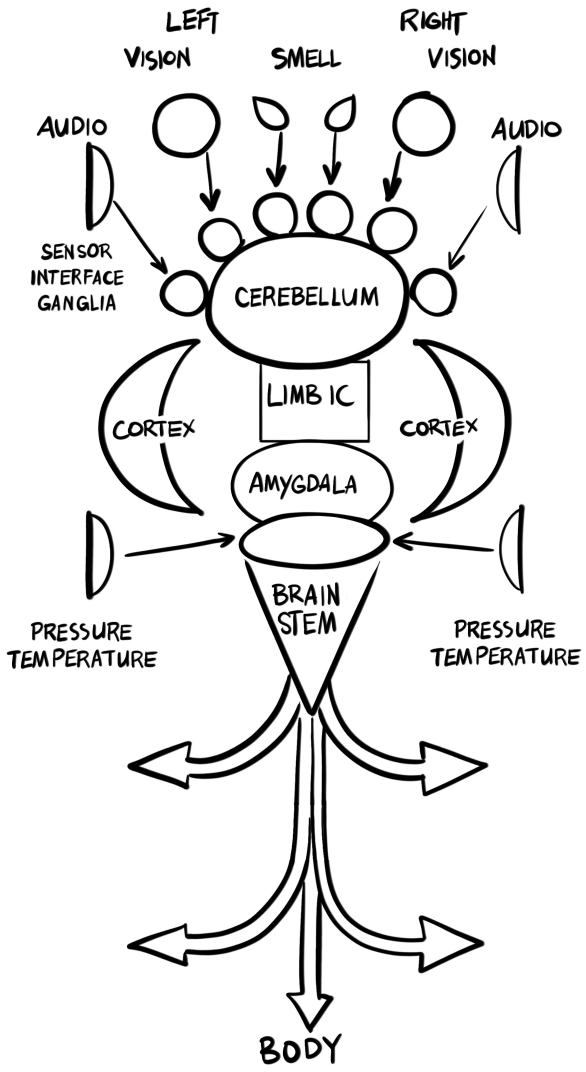

p+
p-
γ
γ
p-
p+
SPACE
TIME
γ
p-
p+
p+
p-
γ
γ
p-
p+
p-
p+
γ

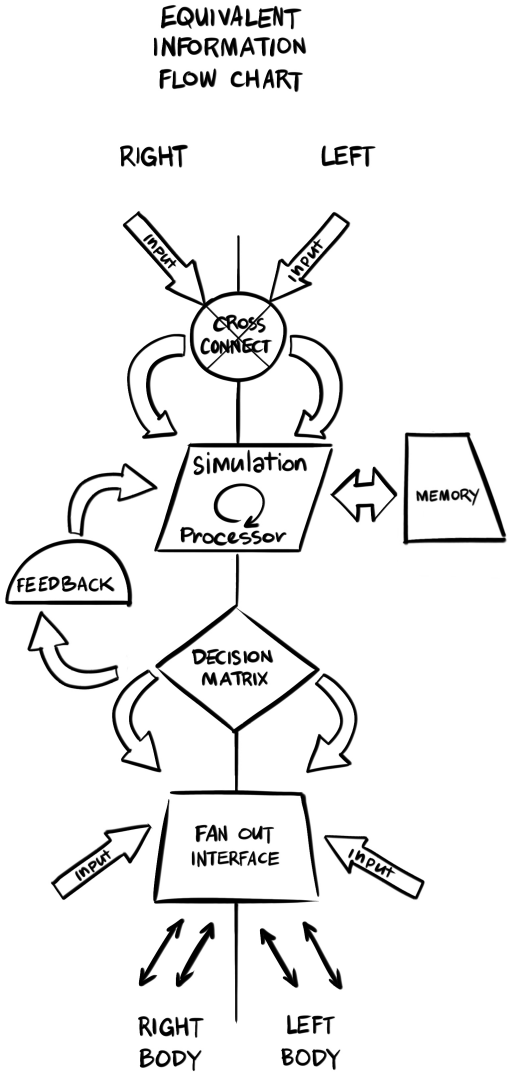

Threat to Survival for OI:
Random=Unpredictable=Luck=God=Magic=Religiosity=Faith=Culture=Belonging=Creating=Happy Life
NATURE
VIRTUAL INFORMATION
DESIRED REALITY

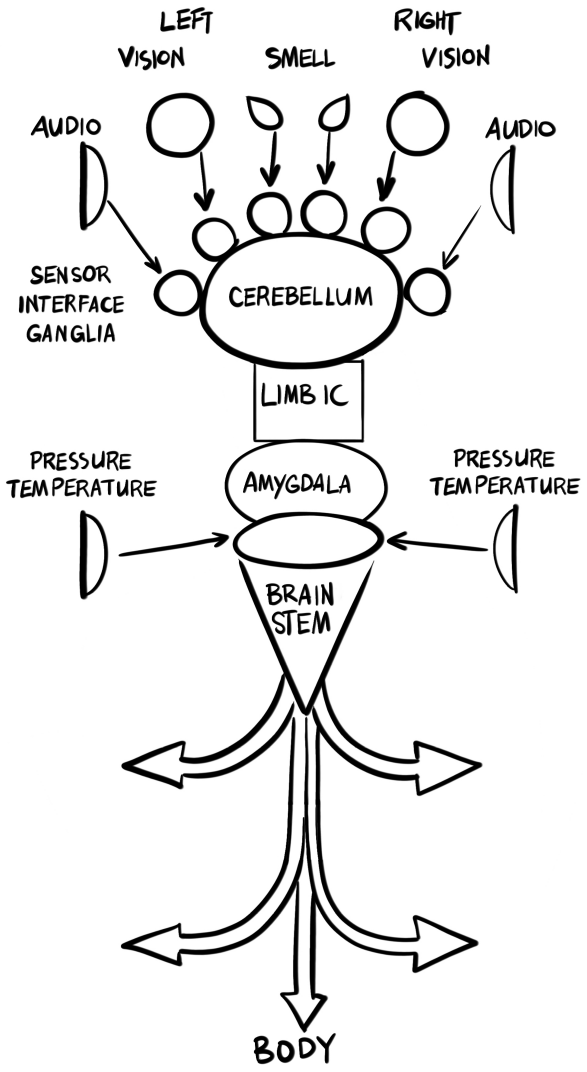

LEFT
VISION
SMELL
RIGHT
VISION
AUDIO
AUDIO
CEREBELLUM
NEOCORTEX
CORTEX
LIMBIC
CORTEX
NEOCORTEX
AMYGDALA
BRAIN
STEM
PRESSURE
TEMPERATURE
PRESSURE
TEMPERATURE
BODY

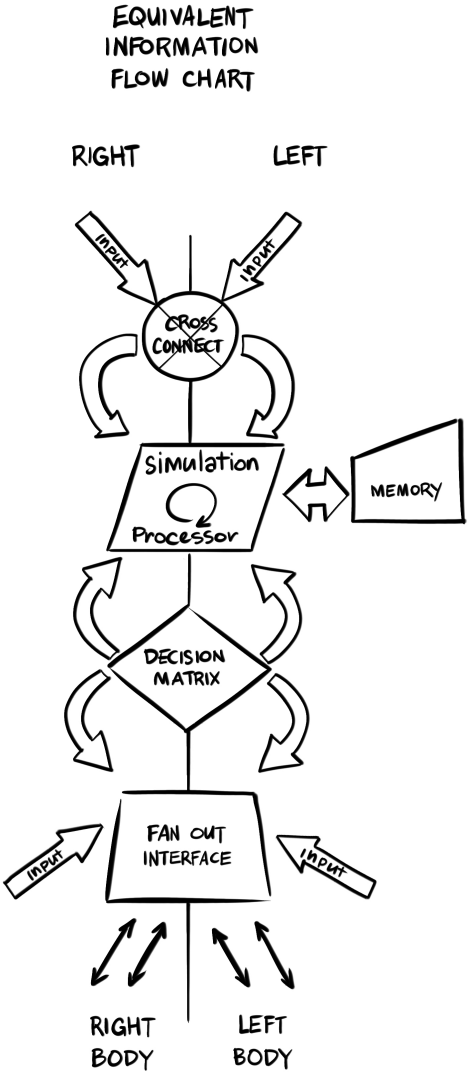

EQUIVALENT INFORMATION FLOW CHART
RIGHT
LEFT
CULTURAL
CLOUD
EMOTIONAL
PROGRAMMING
INPUT
INPUT
VIRTUAL
INPUT
CROSS
CONNECT
INPUT/OUTPUT
COMMAND
AND
CONTROL
simulation
Processor
MEMORY
FEEDBACK
DECISION
MATRIX
FAN OUT
INTERFACE
INPUT
INPUT
RIGHT
BODY
LEFT
BODY

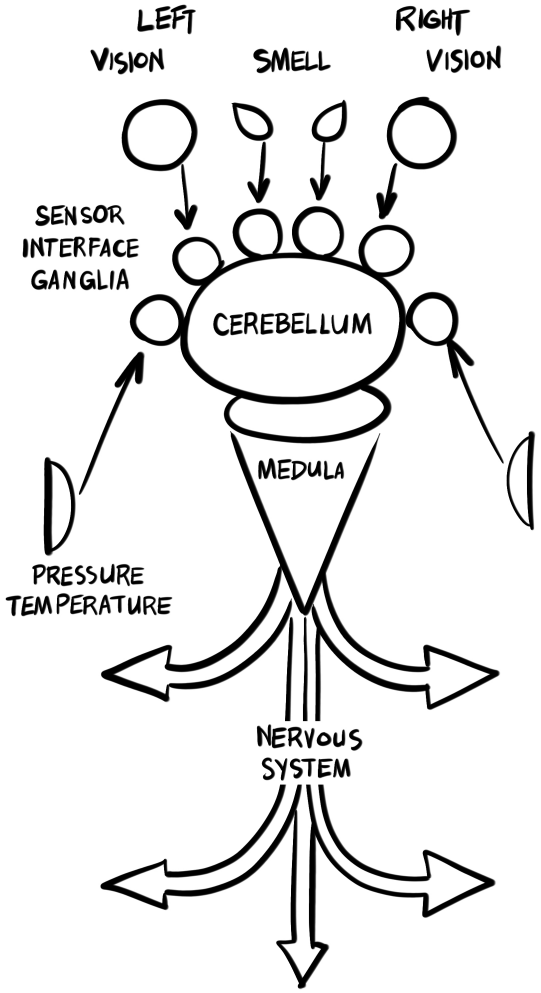

Glacial-interglacial cycles over the past 450,000 years
Temperature (°F)
50°
40°
30°
20°
10°
Inter-glacial
Inter-glacial
Inter-glacial
Inter-glacial
Inter-glacial
glacial
glacial
glacial
glacial
400,000
300,000
200,000
100,000
Today
Years Ago
Interglacials
Glacials

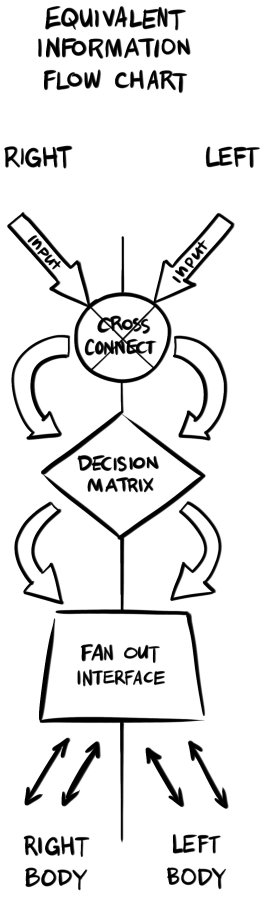

LEFT
VISION
SMELL
RIGHT
VISION
AUDIO
AUDIO
SENSOR
INTERFACE
GANGLIA
CEREBELLUM
LIMBIC
CORTEX
CORTEX
AMYGDALA
BRAIN
STEM
PRESSURE
TEMPERATURE
PRESSURE
TEMPERATURE
BODY

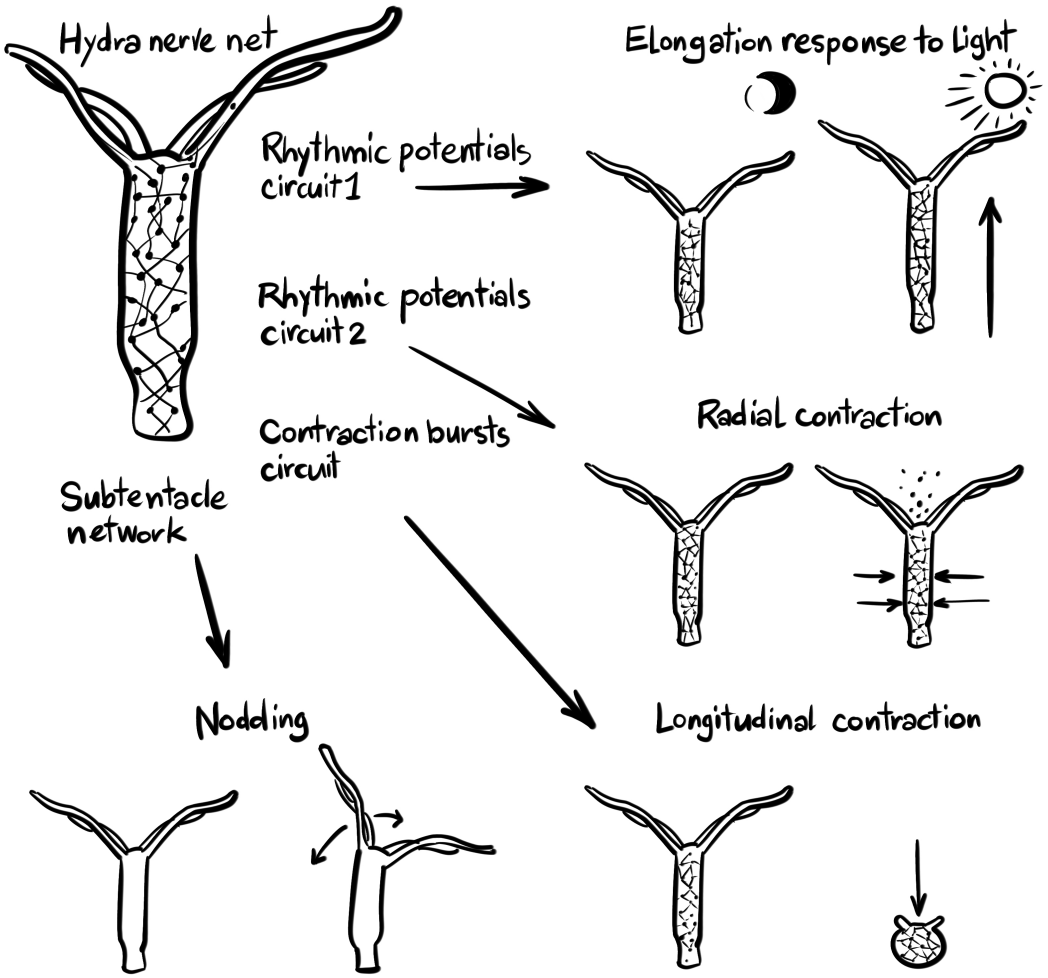

EQUIVALENT
INFORMATION
FLOW CHART
RIGHT
LEFT
INPUT
INPUT
CROSS
CONNECT
Simulation
Processor
MEMORY
FEEDBACK
DECISION
MATRIX
FAN OUT
INTERFACE
INPUT
INPUT
RIGHT
BODY
LEFT
BODY

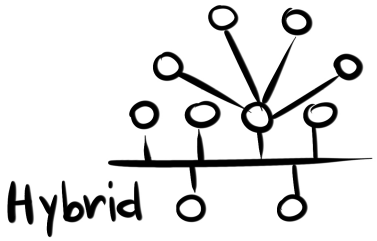

LEFT
VISION
SMELL
RIGHT
VISION
AUDIO
AUDIO
SENSOR
INTERFACE
GANGLIA
CEREBELLUM
LIMBIC
PRESSURE
TEMPERATURE
AMYGDALA
PRESSURE
TEMPERATURE
BRAIN
STEM
BODY

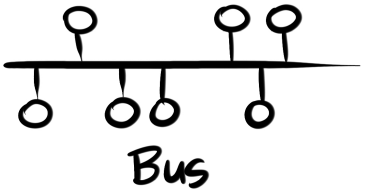

EQUIVALENT
INFORMATION
FLOW CHART
RIGHT
LEFT
INPUT
INPUT
CROSS
CONNECT
Simulation
Processor
MEMORY
DECISION
MATRIX
FAN OUT
INTERFACE
INPUT
INPUT
RIGHT
BODY
LEFT
BODY

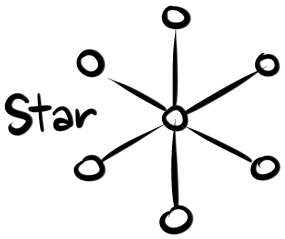

LEFT
VISION
SMELL
RIGHT
VISION
SENSOR
INTERFACE
GANGLIA
CEREBELLUM
MEDULA
PRESSURE
TEMPERATURE
NERVOUS
SYSTEM

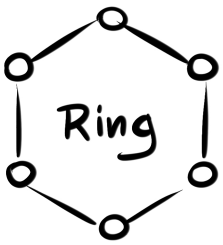

EQUIVALENT
INFORMATION
FLOW CHART
RIGHT
LEFT
INPUT
INPUT
CROSS
CONNECT
DECISION
MATRIX
FAN OUT
INTERFACE
RIGHT
BODY
LEFT
BODY

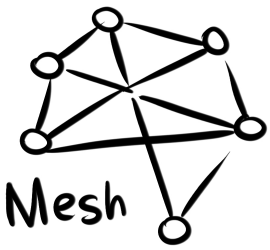

Hydra nerve net
Rhythmic potentials circuit 1
Rhythmic potentials circuit 2
Contraction bursts circuit
Subtentacle network
Elongation response to light
Radial contraction
Nodding
Longitudinal contraction

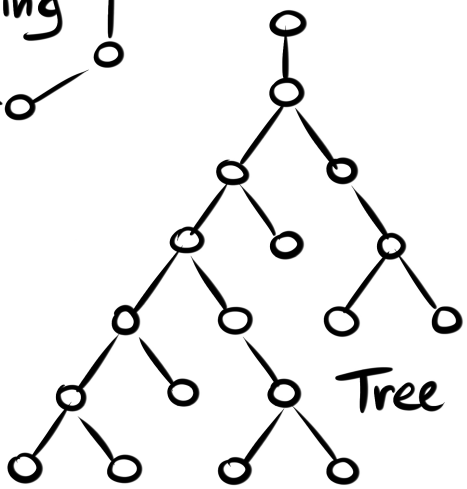

Hybrid

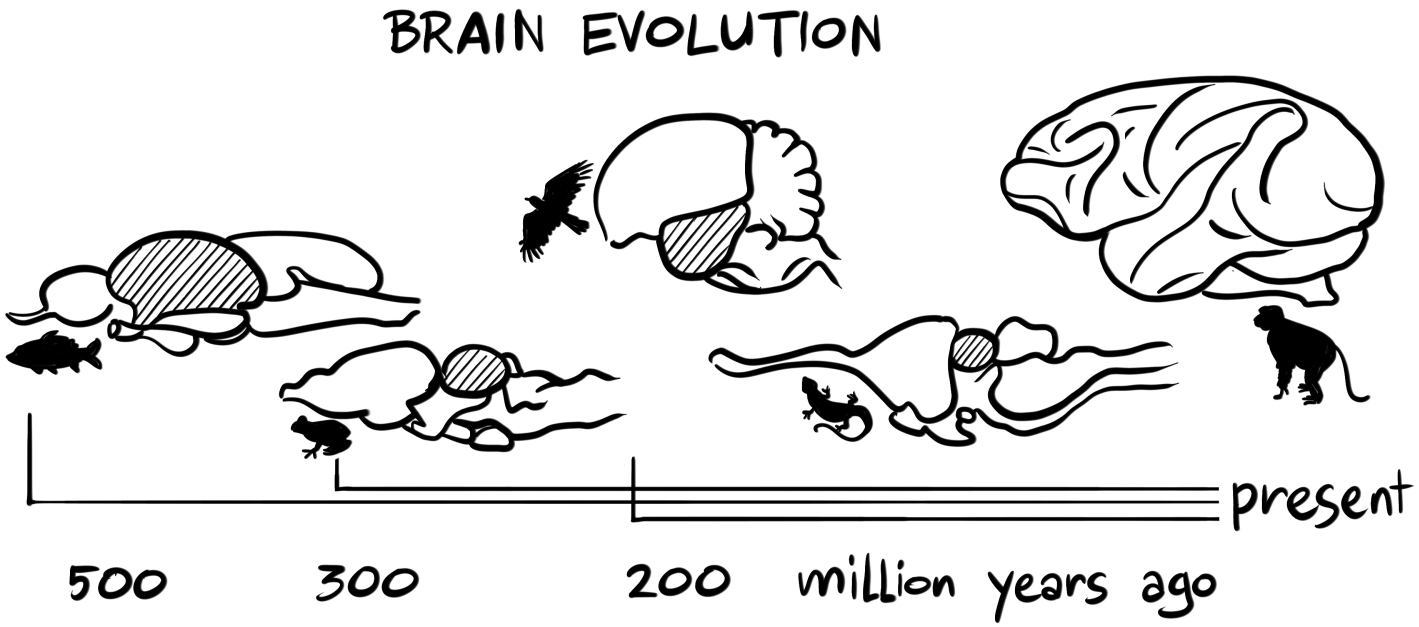

Bus

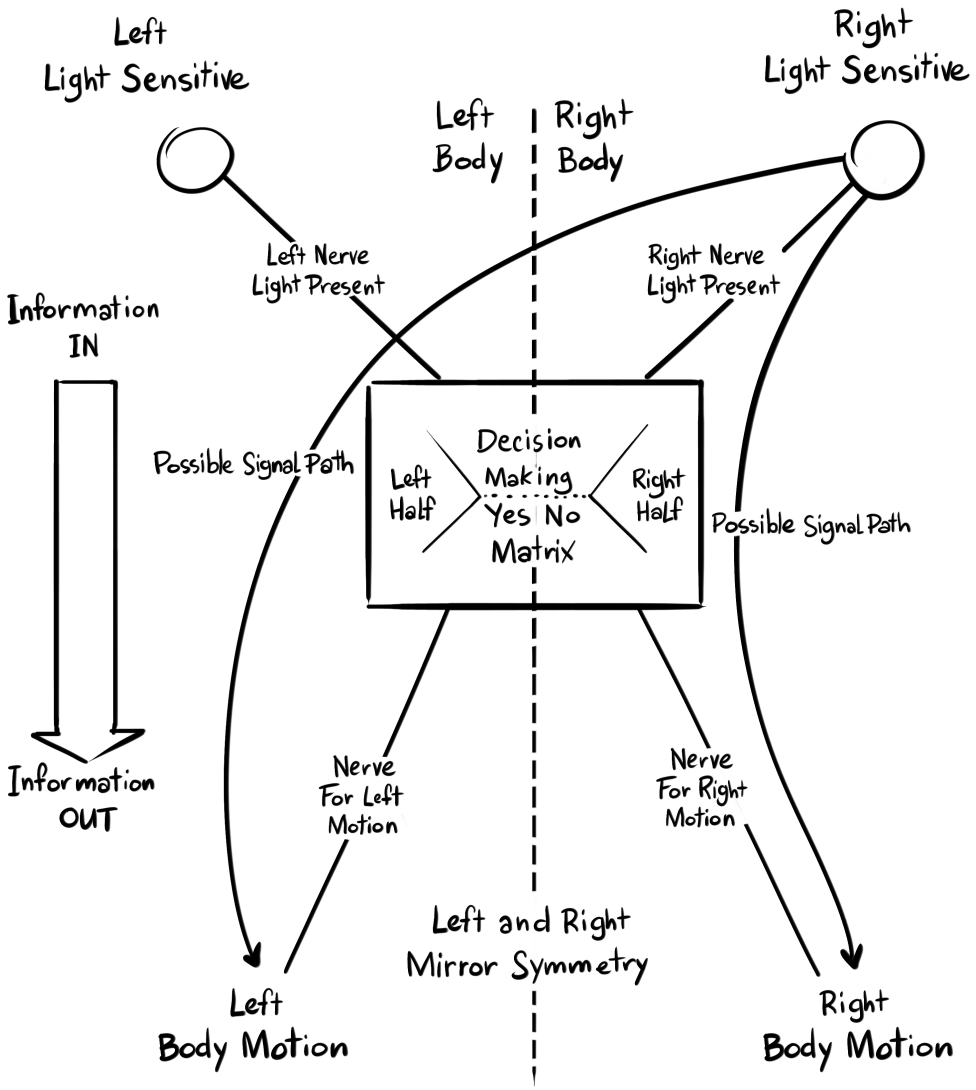

Star

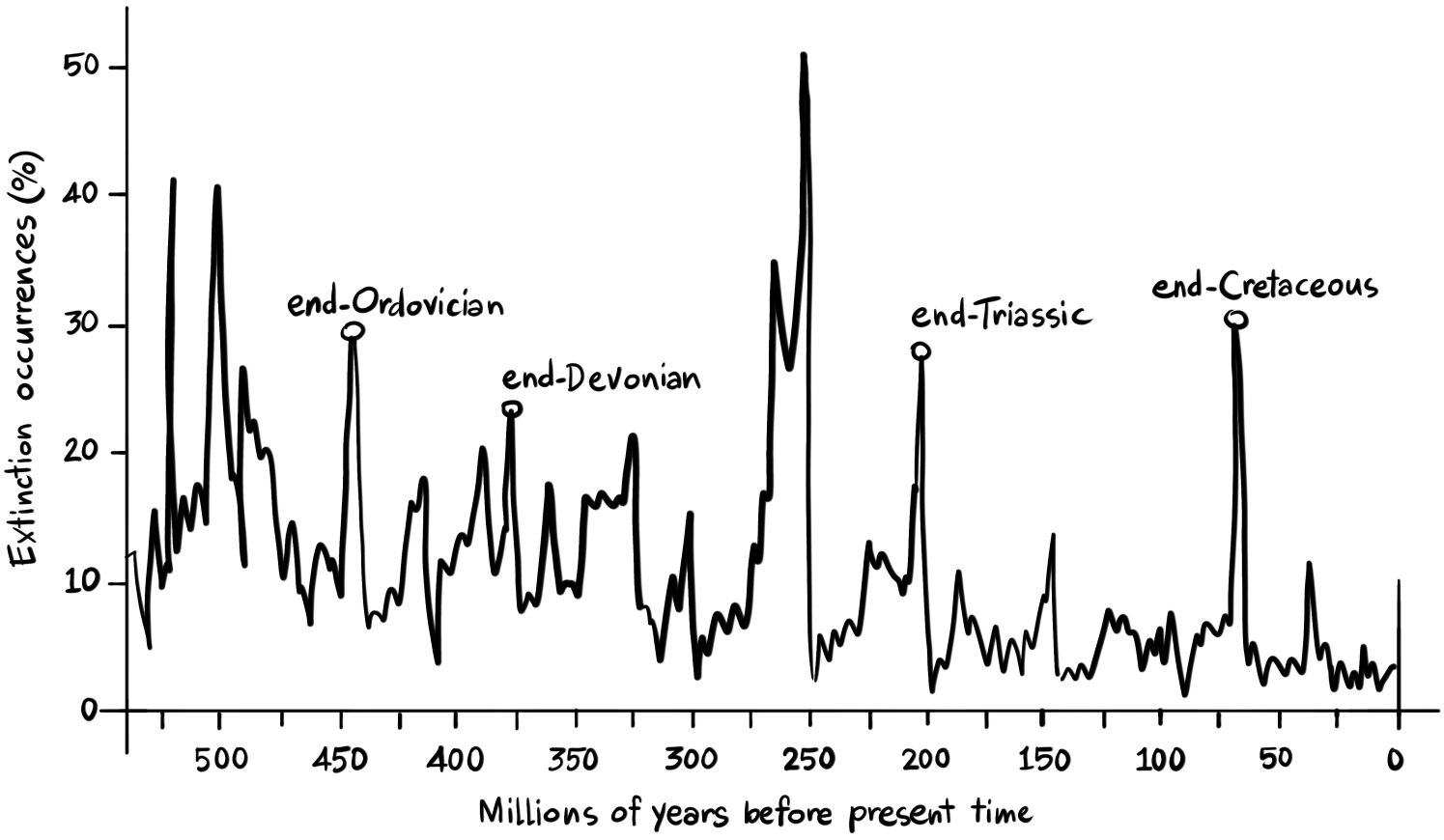

Ring


Mesh

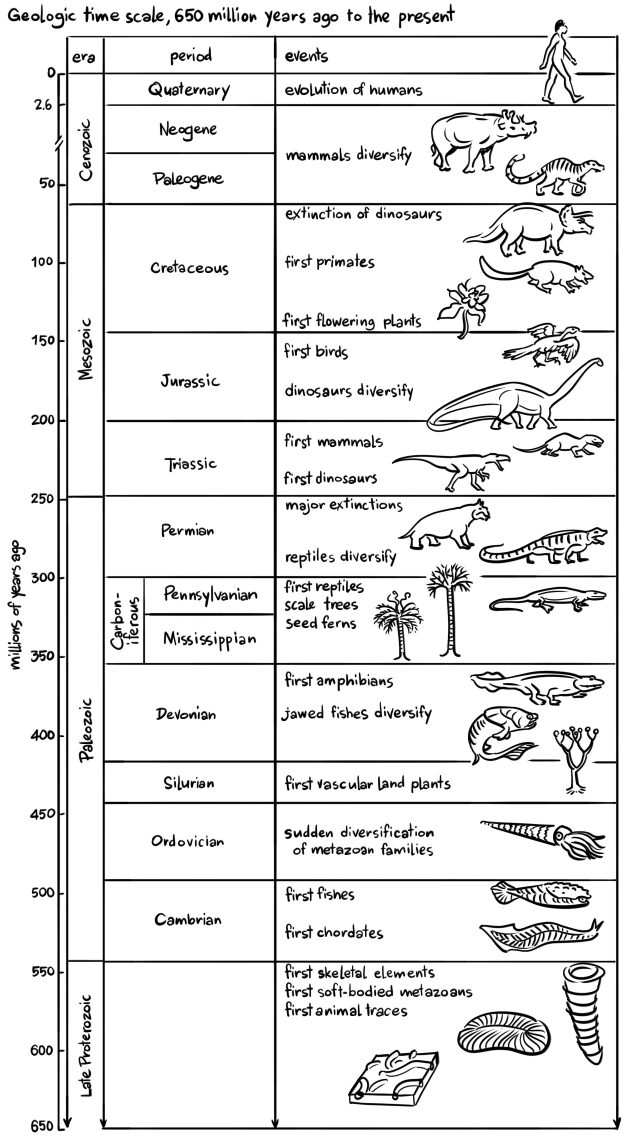

Tree

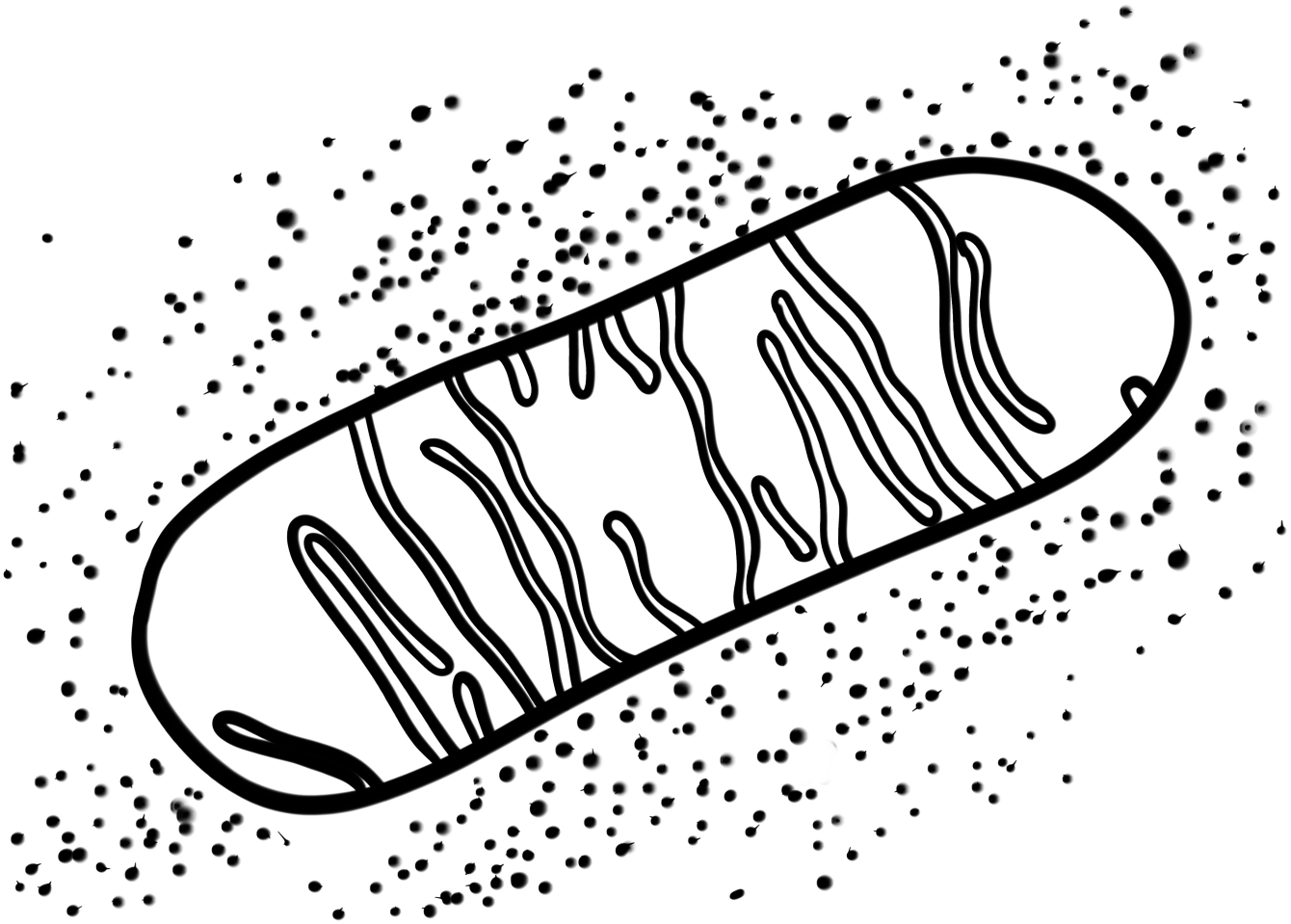

BRAIN EVOLUTION
present
500
300
200
million years ago

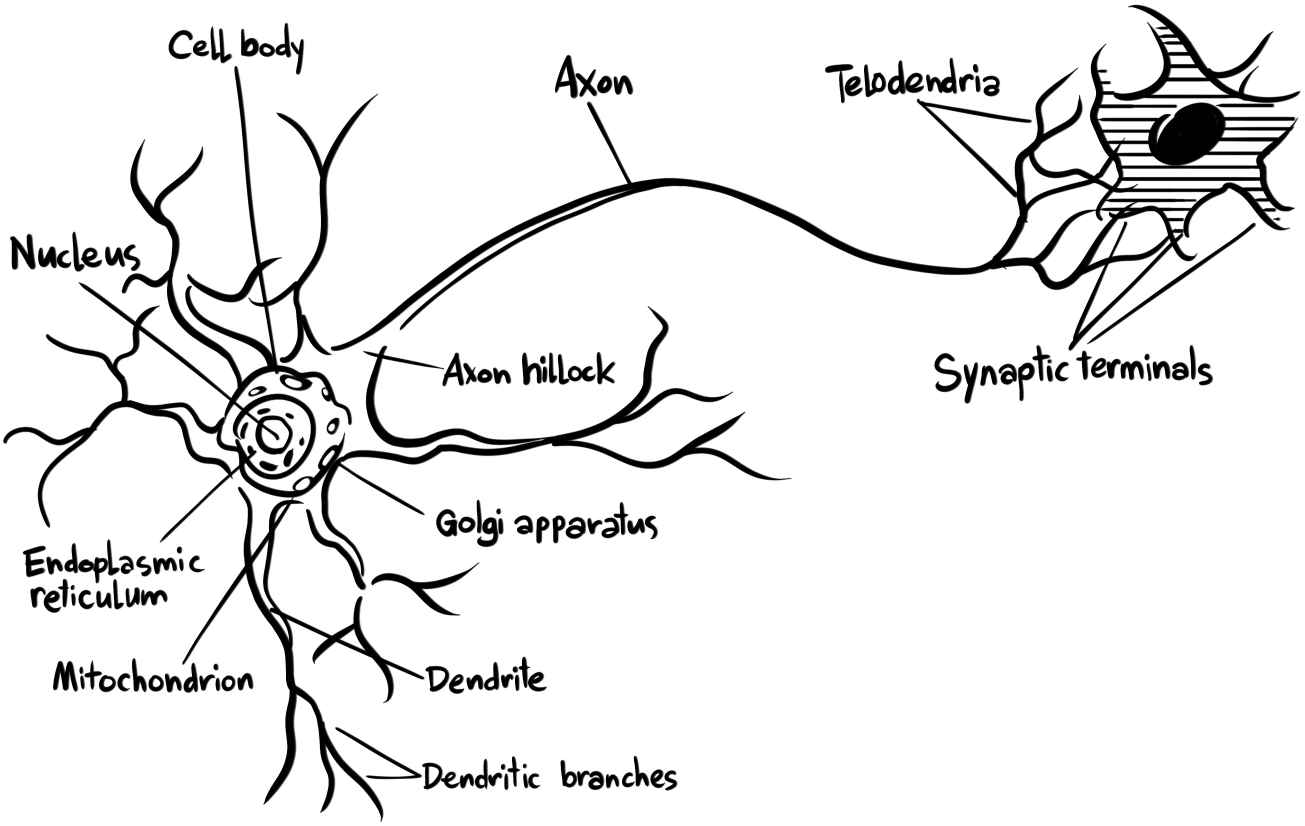

Left
Light Sensitive
Right
Light Sensitive
Left
Body
Right
Body
Left Nerve
Light Present
Right Nerve
Light Present
Information
IN
Possible Signal Path
Decision
Making
Left
Half
Yes No
Matrix
Right
Half
Possible Signal Path
Information
OUT
Nerve
For Left
Motion
Nerve
For Right
Motion
Left and Right
Mirror Symmetry
Left
Body Motion
Right
Body Motion

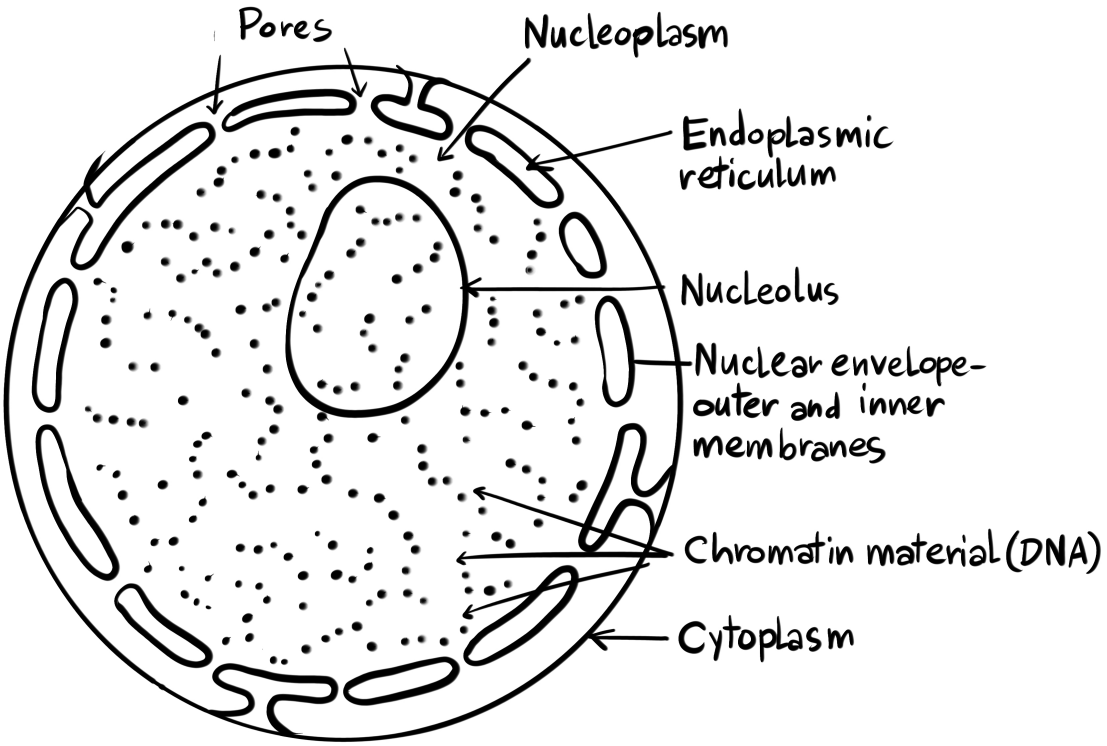

Extinction occurrences (%)
50
40
30
20
10
0
end-Ordovician
end-Devonian
end-Triassic
end-Cretaceous
500
450
400
350
300
250
200
150
100
50
0
Millions of years before present time

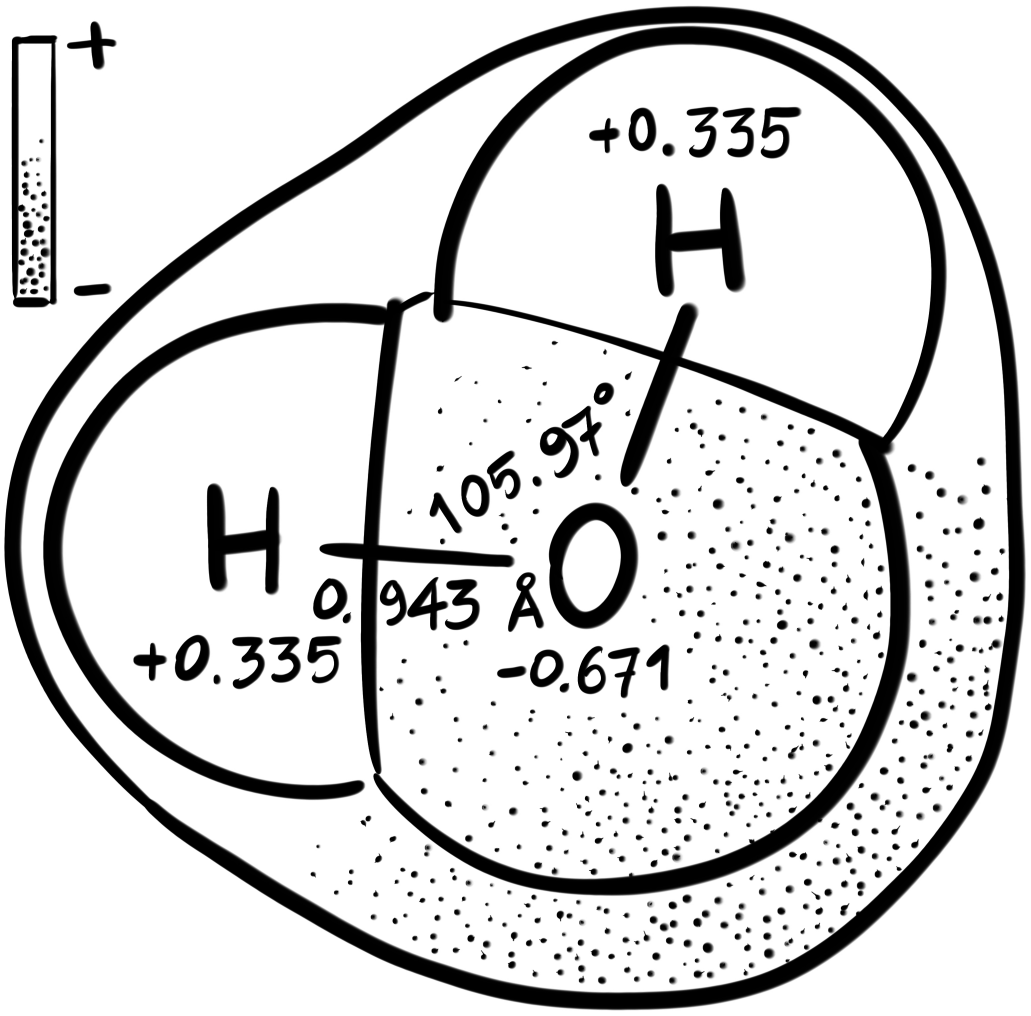
Geologic time scale, 650 million years ago to the present

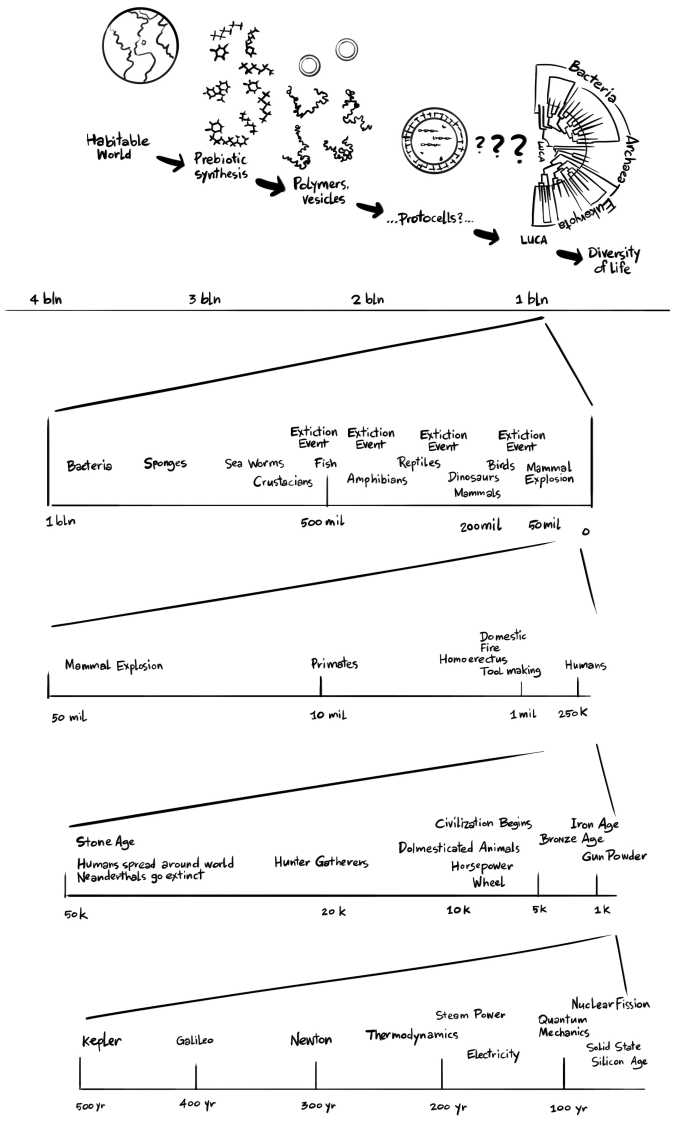


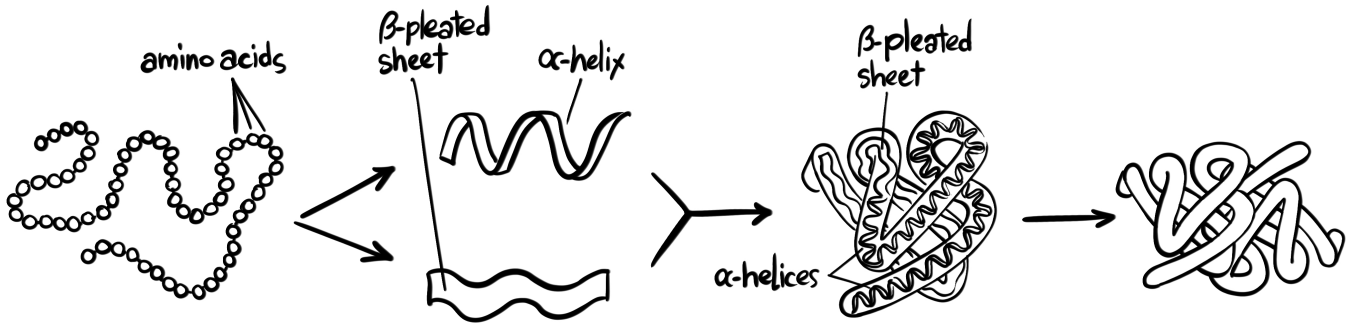



Cell body
Axon
Telodendria
Nucleus
Axon hillock
Synaptic terminals
Golgi apparatus
Endoplasmic reticulum
Mitochondrion
Dendrite
Dendritic branches


Pores
Nucleoplasm
Endoplasmic reticulum
Nucleolus
Nuclear envelope- outer and inner membranes
Chromatin material (DNA)
Cytoplasm


+
-
+0.335
H
105.97°
H
0.943 Å
O
+0.335
-0.671


Habitable World
Prebiotic synthesis
Polymers, vesicles
...Protocells?...
???
LUCA
Bacteria
Archaea
Eukaryota
Diversity of Life
4 bln
3 bln
2 bln
1 bln
Bacteria
Sponges
Sea Worms
Crustacians
Extiction Event
Fish
Extiction Event
Amphibians
Extiction Event
Reptiles
Dinosaurs
Mammals
Extiction Event
Birds
Mammal Explosion
1 bln
500 mil
200 mil
50 mil
0
Mammal Explosion
Primates
Domestic Fire
Homo erectus
Tool making
Humans
50 mil
10 mil
1 mil
250 k
Stone Age
Humans spread around world
Neanderthals go extinct
Hunter Gatherers
Civilization Begins
Domesticated Animals
Horsepower
Wheel
Iron Age
Bronze Age
Gun Powder
50 k
20 k
10 k
5 k
1 k
Kepler
Galileo
Newton
Thermodynamics
Steam Power
Electricity
Quantum Mechanics
Nuclear Fission
Solid State
Silicon Age
500 yr
400 yr
300 yr
200 yr
100 yr

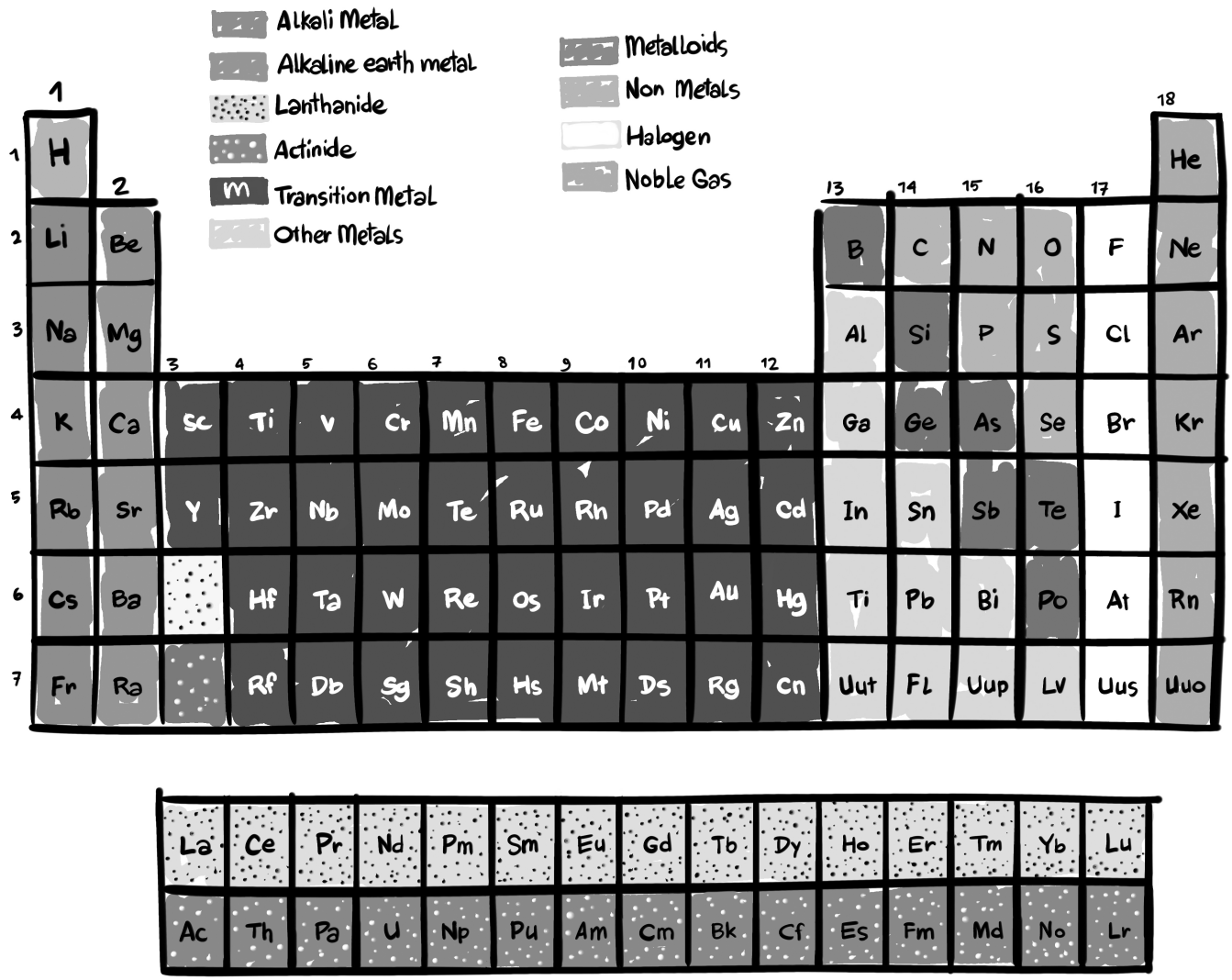


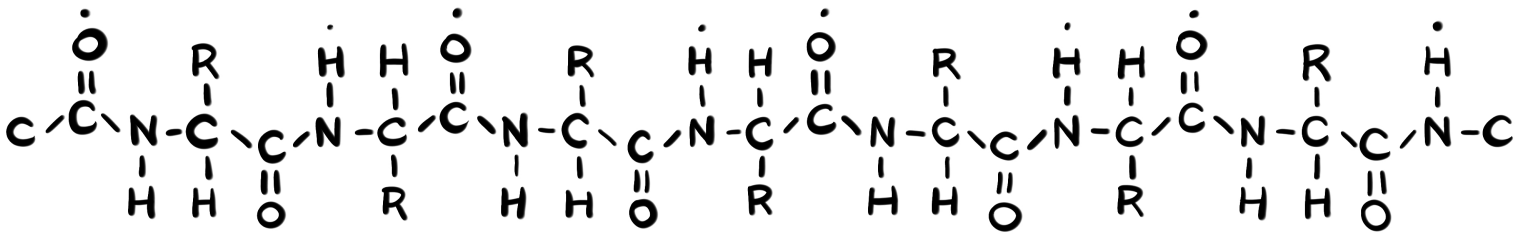
Primary Protein Structure
Sequence of a chain of amino acids

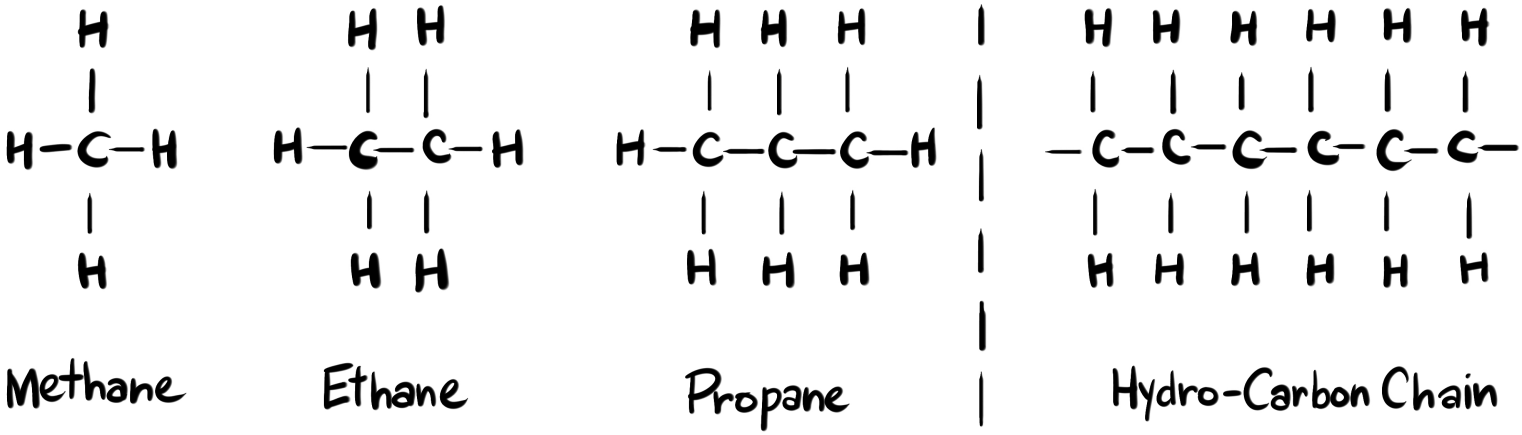
Secondary Protein Structure
Local folding of the polypeptide chain into helices or sheets

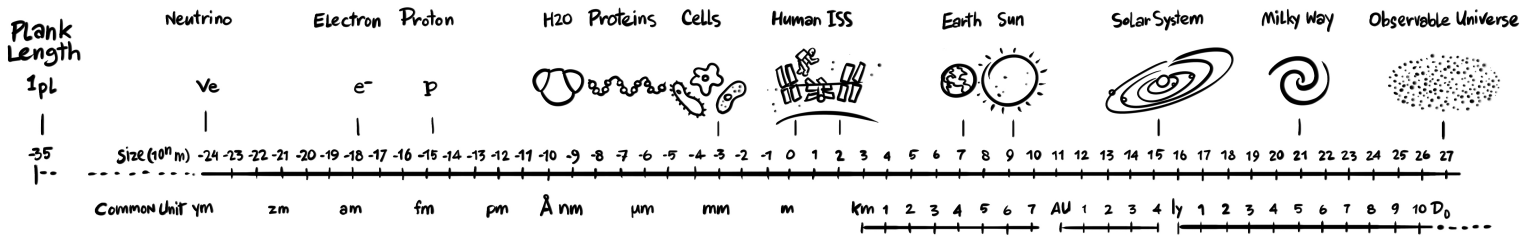
Tertiary Protein Structure
three-dimensional folding pattern of a protein due to side chain interactions

Quaternary Protein Structure
protein consisting of more than one amino acid chain


Alkali Metal
Alkaline earth metal
Lanthanide
Actinide
M Transition Metal
Other Metals
Metalloids
Non Metals
Halogen
Noble Gas
1
2
3 4 5 6 7 8 9 10 11 12
13 14 15 16 17
18
H He
Li Be B C N O F Ne
Na Mg Al Si P S Cl Ar
K Ca Sc Ti V Cr Mn Fe Co Ni Cu Zn Ga Ge As Se Br Kr
Rb Sr Y Zr Nb Mo Te Ru Rh Pd Ag Cd In Sn Sb Te I Xe
Cs Ba Hf Ta W Re Os Ir Pt Au Hg Ti Pb Bi Po At Rn
Fr Ra Rf Db Sg Sh Hs Mt Ds Rg Cn Uut Fl Uup Lv Uus Uuo
La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu
Ac Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lr




Methane
Ethane
Propane
Hydro-Carbon Chain


Plank Length
1pL
-35
Neutrino
Electron
Proton
H20
Proteins
Cells
Human ISS
Earth
Sun
Solar System
Milky Way
Observable Universe
Ve
e⁻
p
Size (10ⁿ m)
-24 -23 -22 -21 -20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Common Unit
ym zm am fm pm Å nm µm mm m km 1 2 3 4 5 6 7 AU 1 2 3 4 ly 1 2 3 4 5 6 7 8 9 10 D0

A quick review of numbers and how we represent them.

All numbers that are real, can be represented by:

0,1,2,3,4,5,6,7,8,9 are number symbols so we can count. But when we get to big numbers like:

one billion, which looks like this, 1,000,000,000

I'm lazy and get tired of writing zeros and keeping track of commas, or if you're european, periods

So, instead we write a billion as:

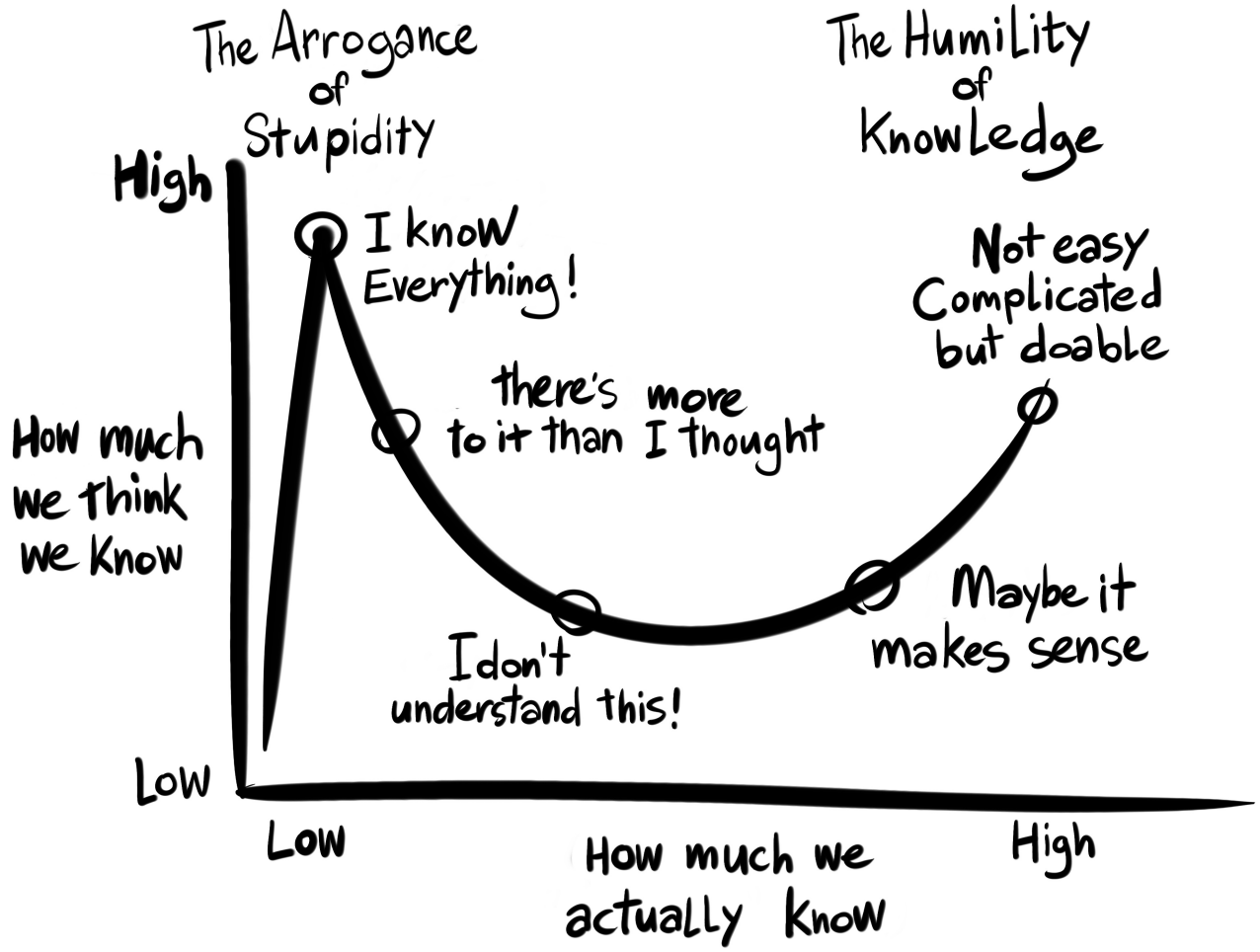
1.0×10^9 which says the number is one times ten to the ninth, or nine zeroes.

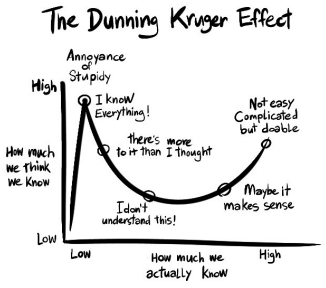
Our universe is very large and our building blocks are very small, so we need to represent our numbers this way which makes easy writing and computing.

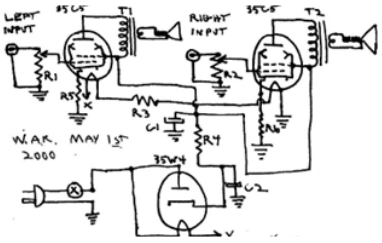
Ex. $2.0 \times 10^{-3} \times 2.0 \times 10^{7} = 4.0 \times 10^{4}$

Rem: exponents add when multiplying numbers

The Dunning Kruger Effect




The Dunning Kruger Effect
Annoyance or Stupidy
High
I know Everything!
there's more to it than I thought
Not easy Complicated but doable
How much we think we know
Idon't understand this!
Maybe it makes sense
Low
Low
How much we actually know
High


LEFT INPUT
RIGHT INPUT
T1
T2
R1
R2
R3
R4
C1
C2
35W4
W.A.R. MAY 1ST 2000