



# **Digital Evolution of Life and Language (Linguistic Anthropology)**

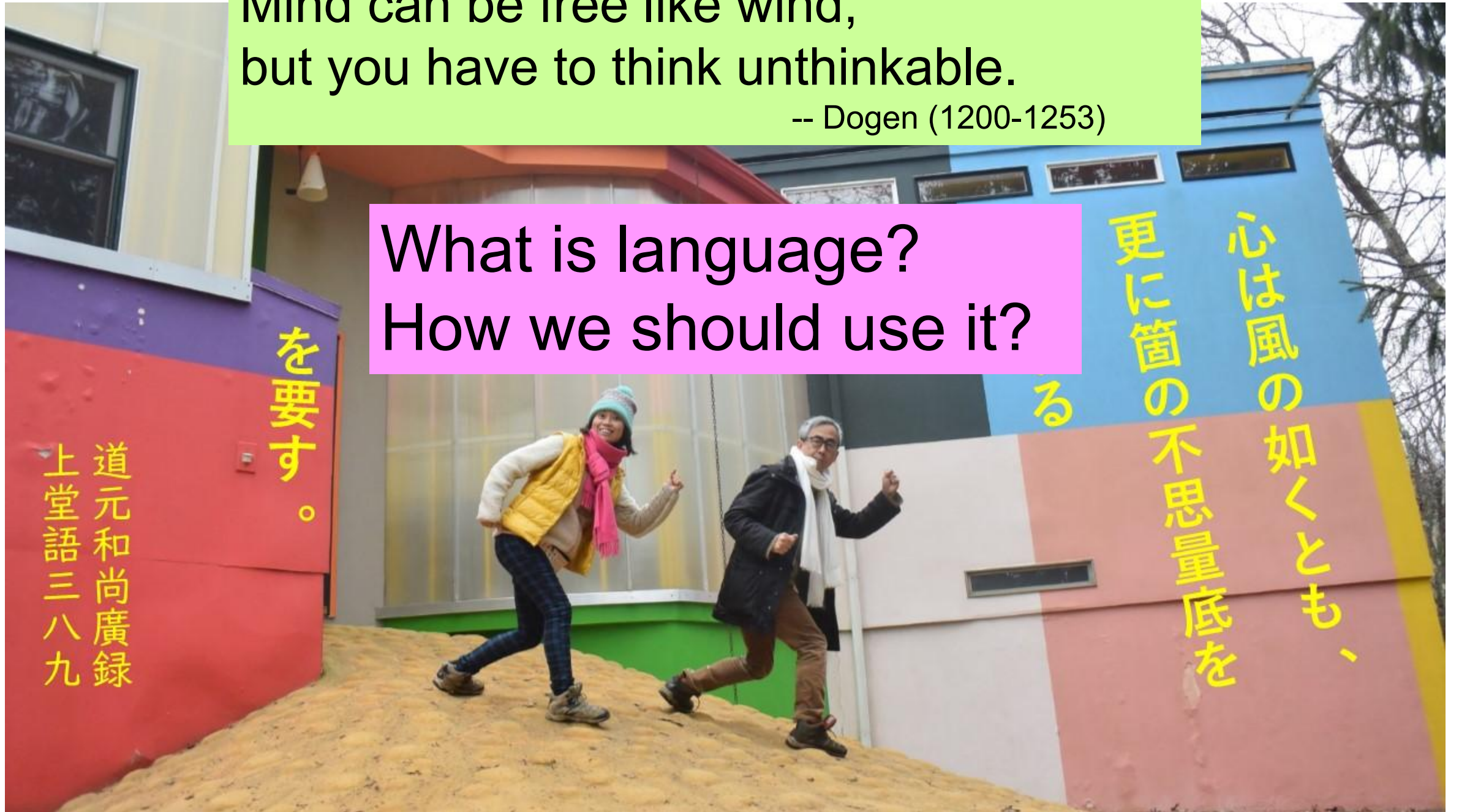
**For Students of  
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Mind can be free like wind,  
but you have to think unthinkable.

-- Dogen (1200-1253)

What is language?  
How we should use it?



# Life and Language are Digital

Discrete & Reactive Signal	RNA (AUGC)	Syllables (Phoneme)
Linear Message	mRNA	Sentences
Long-lasting Recording Signal	DNA (genome)	A Character Set (classics)
Low Noise Environment	Nuclei	Ventricle System, Libraries
Error Avoidance	degeneracy	Sound Symbolism
Reproducing Complexity	<b>Offsprings</b>	<b>Meaning of Concept</b>

**LIFE**

**Language**

# From Prokaryote to Mammals

Before	Period	Birth	Physical	Phenomena	Logical
Prokaryote	2BA	Eukaryote	Nuclei, Symbiosis	Nuclear Membrane	Post Transcriptional Modulation, Symbiotic Networks
Protozoa	530 MA	Vertebrate	Multicellular, CNS+VS	Vision, Audition	Sign Reflex
Marsupial	66M A	Mammal	Womb	Large Brain	Vocal Communication

Environmental stresses triggered **physical evolution**.

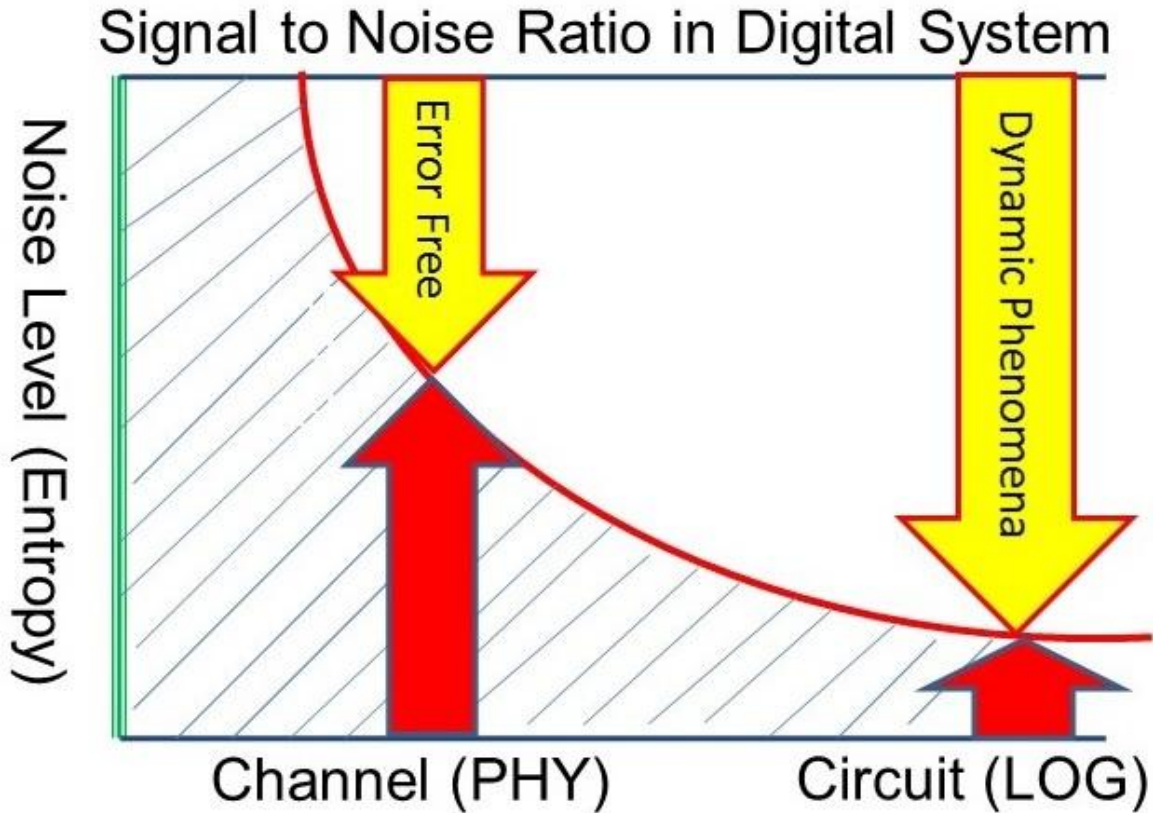
Then, **logical evolution** followed when low noise environment was recovered.

Evolution of Life (B=billion, M=million years ago)

# Noises switch on Physical evolution, then Silence completes Logical complex one.

Stresses by  
Meteorite  
Impacts

- Nuclei
- Ventricle
- Womb



Organelles Symbiosis  
Post-Transcriptional  
Modulation  
Multi-cellular Network  
Vision, Audition  
Sign Reflex  
Large Brain  
Curiosity & Learning  
Vocal Communication

T1 □□□□□ T2

# 1<sup>st</sup> Stage: Phoneme & Grammar

Toba Volcanic Winter (74KA)

- **Signal(Phy): Phoneme Sharing**(Clicks Imprinted after birth   
Laryngeal Descent  Vowel Accented Syllables)  
**An Infinite Number of Unique Word Signs**

# 2<sup>nd</sup> Stage: A Character Set & Concept

Dynasty was born from conflicts of local feudal lords

- **A Character Set (long lasting syllables)** enabled sharing of linguistic information beyond time and space, and serial development beyond generations. □ **Civilization**

# 3<sup>rd</sup> Stage: Search & Error Correction

## Total War of WW-II ignited Information Warfare

- Bits are interactive syllables. Using internet search engines, historically accumulated linguistic information become accessible.
- Contemporary humans acquired Collective Human Intelligence in the Extended Brain Memory.



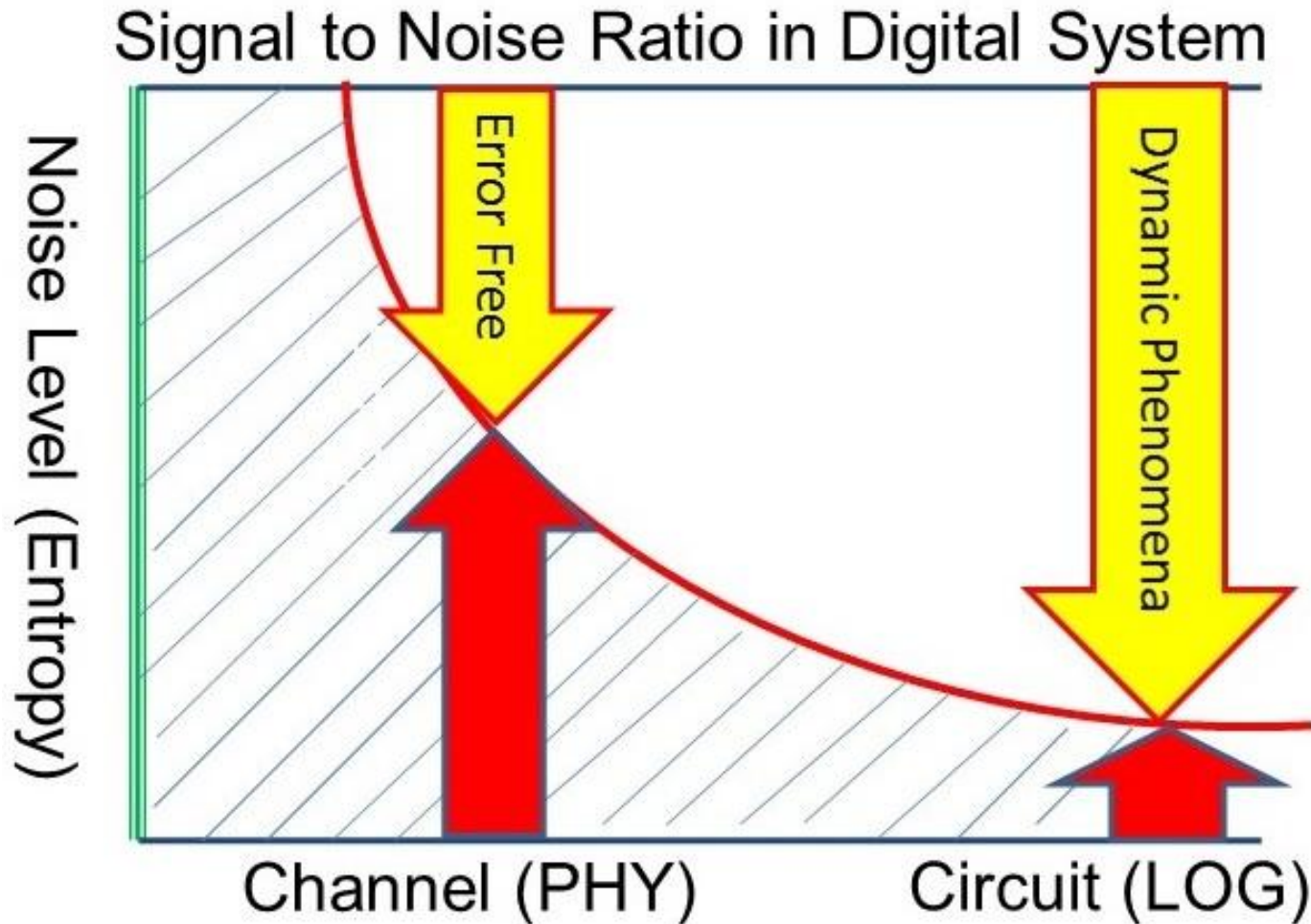
# Sign Reflex Restrictions

- Language is processed by Sign Reflex circuit in the brain.
- SR is (1) involuntary, (2) memory based, (3) reflexive system.
- Once you are contaminated by errors, you would judge right thing wrong, wrong information right.
- Solutions to SR restrictions should be **slow and repetitive reading in very low noise environment.**

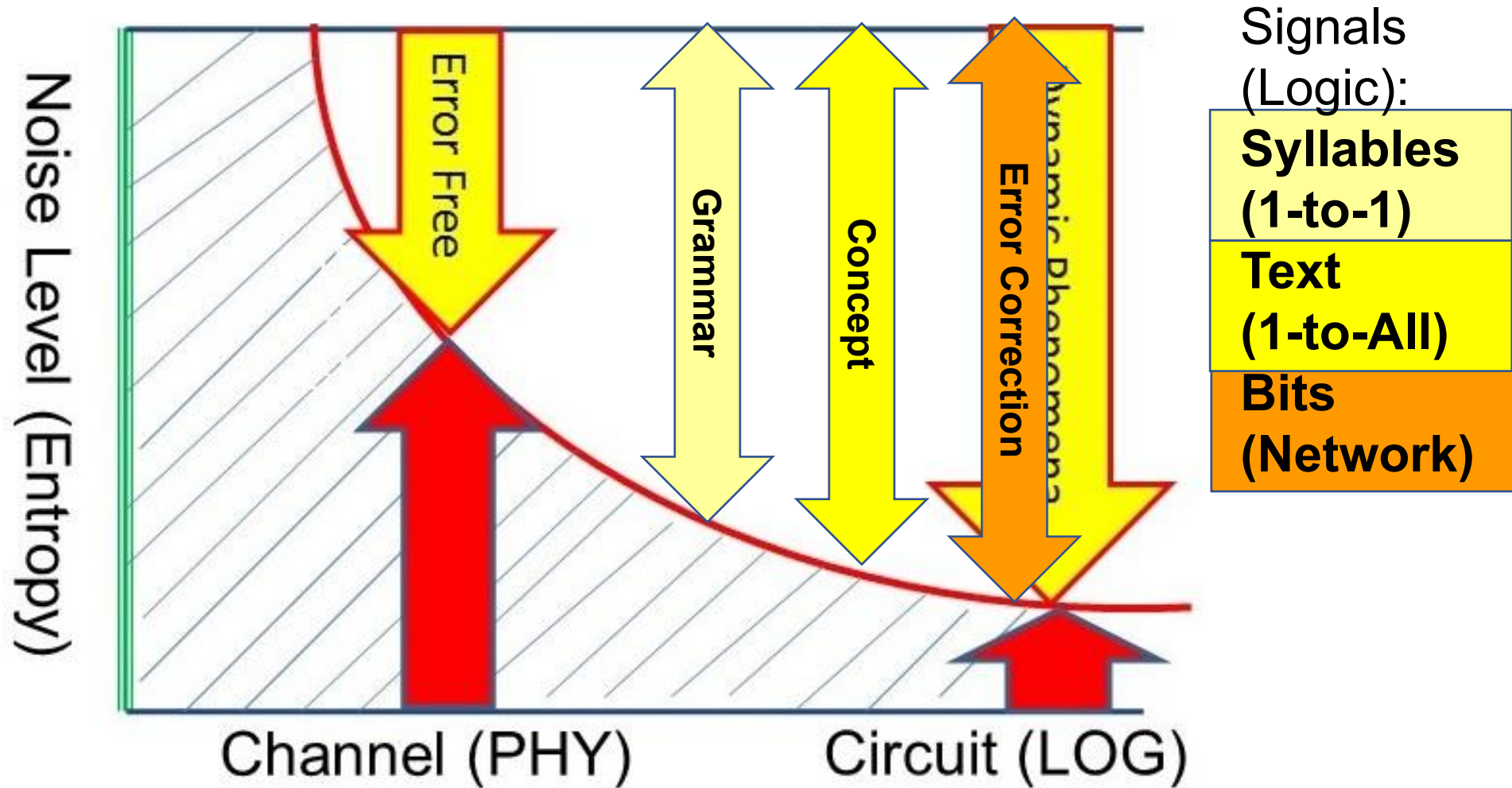
# Eusocial Restrictions

- Phoneme sharing is originated in **kinship and xenophobia of eusocial animals.**
- The Law of Community is prioritized before the truth or justice. (i.e. seniority system)
- False information is distributed to confuse outsiders.
- Solutions are simple:
  - (1) Make **distance from the center of power.**
  - (2) **Compulsory acceptance test for all incoming information.**
  - (3) Be **skeptical about information from abroad.**

# Human Linguistic Evolution is a part of the Natural Evolutions of Living Creatures.



# Low Noise Environment & Time enhance Intellectual Evolution



# From Prokaryote to *Homo Sapiens*

Before	Period	Birth of	Physical Acquisition	Physical Phenomena	Logical Evolution
Prokaryote	2BA	Eukaryote	Nuclei, Symbiosis	Nuclear Membrane	Post Transcriptional Modulation
Protozoa	530 MA	Vertebrate	Multicellular, CNS+VS	Vision, Audition	Sign Reflex
Marsupial	66MA	Mammal	Womb	Large Brain	Vocal Communication
Baboon	130 KA	Anatomically Mod. Human	Cave Dwelling	Altricialty	Eusociality (Imprinting of Kinship sign)
Analog Signs	66KA	Linguistic Human	Phoneme (Syllables)	Infinite Word Signs Vowel	<b>Grammar</b> (Monaural Audition of MT)
Oral Tradition	5KA	Civilized Human	A Character Set	Sharing beyond time & space	<b>Concept</b> (Group Logic)
Beneficiary	50A	<b><i>Homo Sapiens</i></b>	Electronic Bit	Internet Searches	<b>Forward Error Correction</b>

Evolution of Life (B=billion, M=million, K=thousand years ago)

## Conclusion

# To complete linguistic evolution

- Linguistic humans were born in natural evolutions. We are life-long **studying apes**. Study is our energy source of life. It is time to complete logical evolution at the 2<sup>nd</sup> and 3<sup>rd</sup> stage.
- We have to **rectify words**, and be responsible for them. We must correct any errors in linguistic information and in our consciousness.
- To overcome complexity of contemporary sciences, we should move to **low noise environment** and implement FEC in studying.
- Some day, **Concept and FEC will be coded in our genome.**

**Thank you for your attention.  
Now it is time for discussion.**

