

# The Syntax of **Semantics**:

the basics of building complex structures of **meaning**

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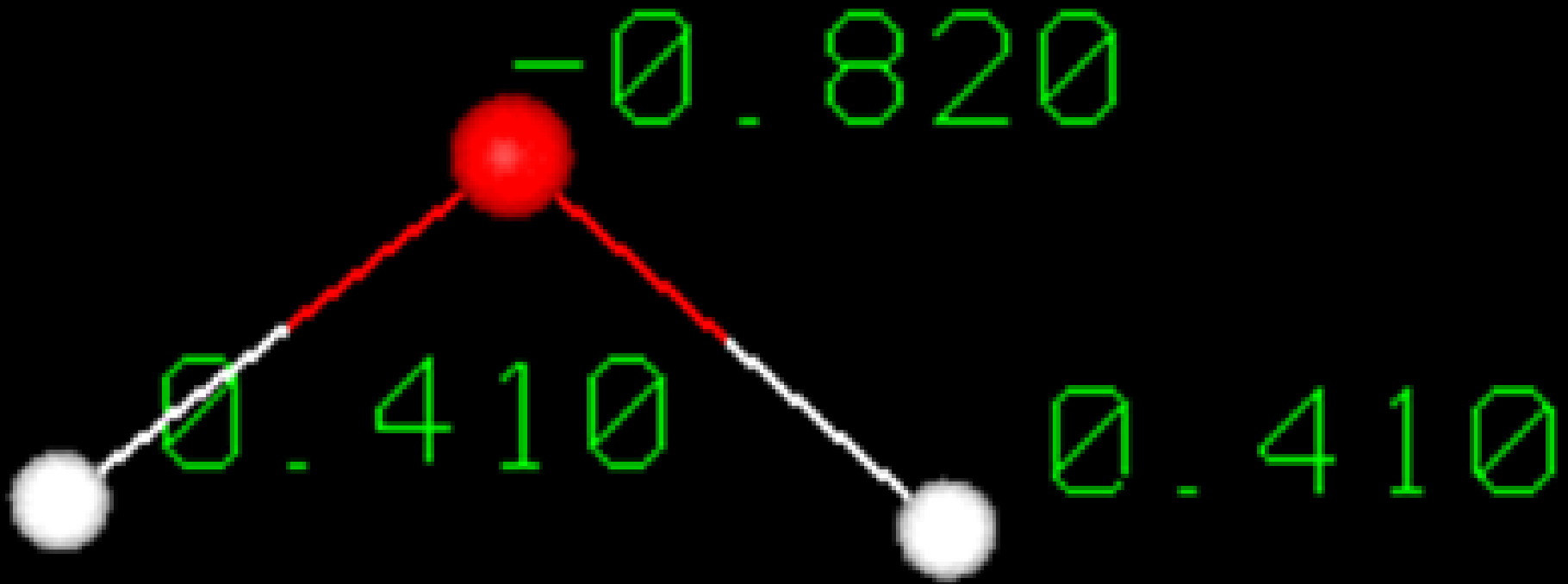
# Water. Why Is It Liquid?

Water is a Complex Whole. To understand its properties, we must identify its smallest *functional* unit, and study its properties:



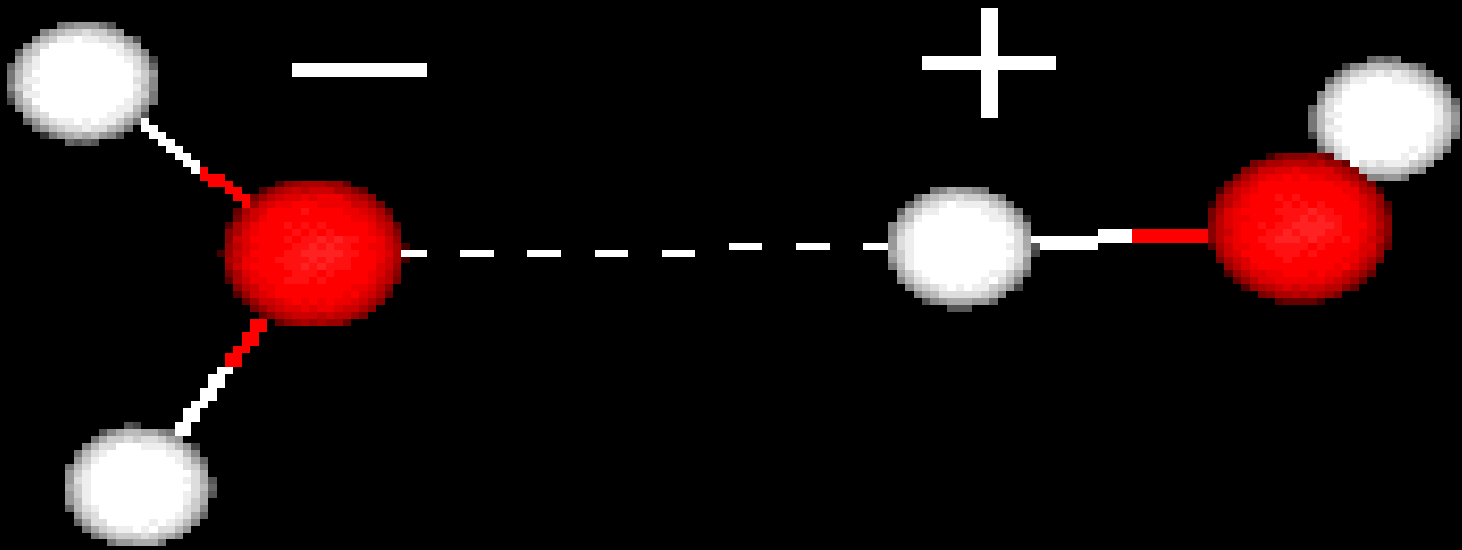
# Two properties make water unique:

One: Water is a **polar** molecule: Oxygen attracts electrons more strongly than Hydrogen. This gives water an asymmetrical distribution of charge:

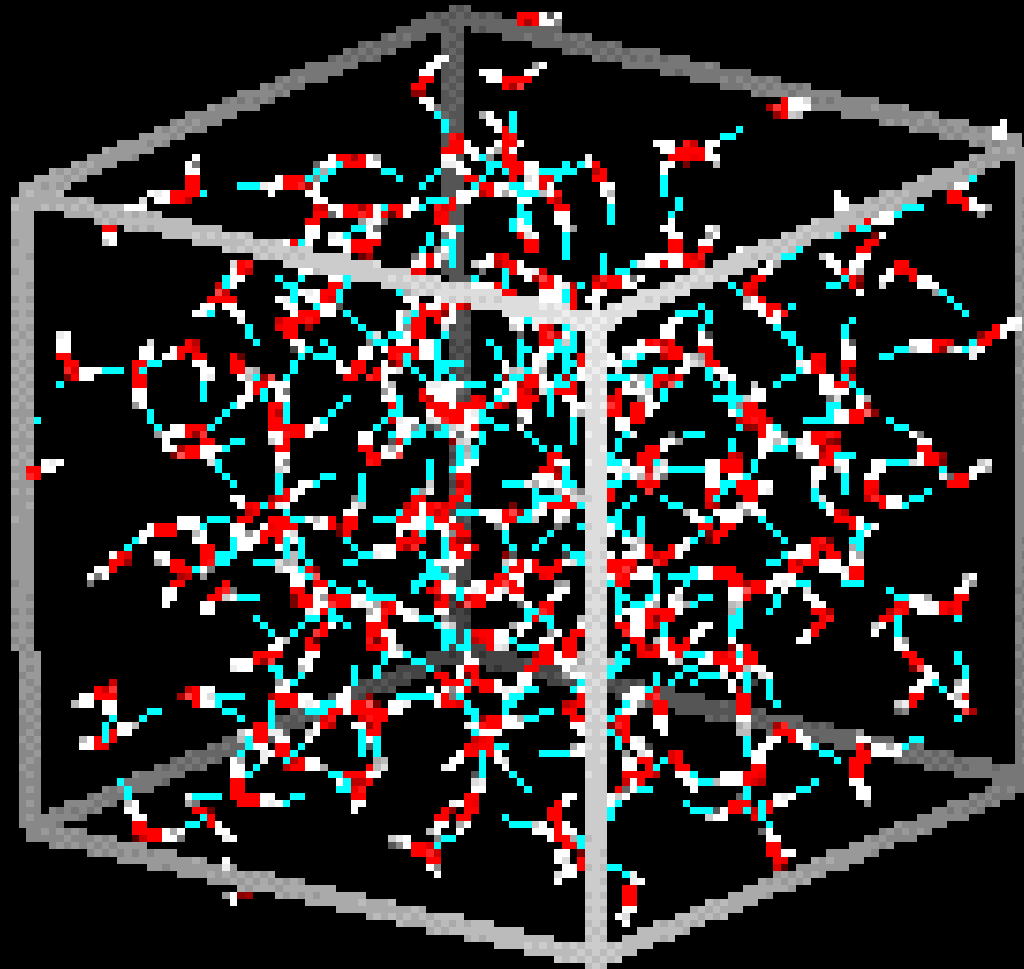


# The 2<sup>nd</sup> unique property of water:

Because water molecules are polar, they become highly *cohesive* (the more positive 'tails' attract the more negative 'heads'):



**Covalent bonds are stronger than Hydrogen bonds; therefore, in liquid water, hydrogen bonds are continuously forming and breaking up (= partially ordered water structure):**

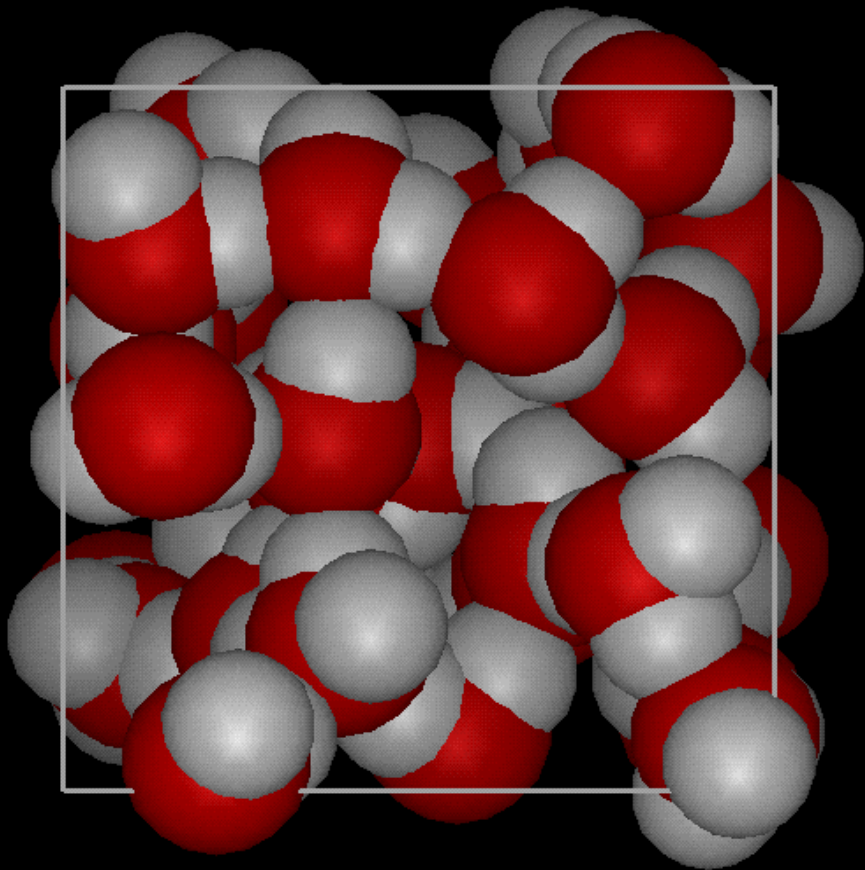


In water, each molecule is hydrogen bonded to  $\sim 3.4$  others;

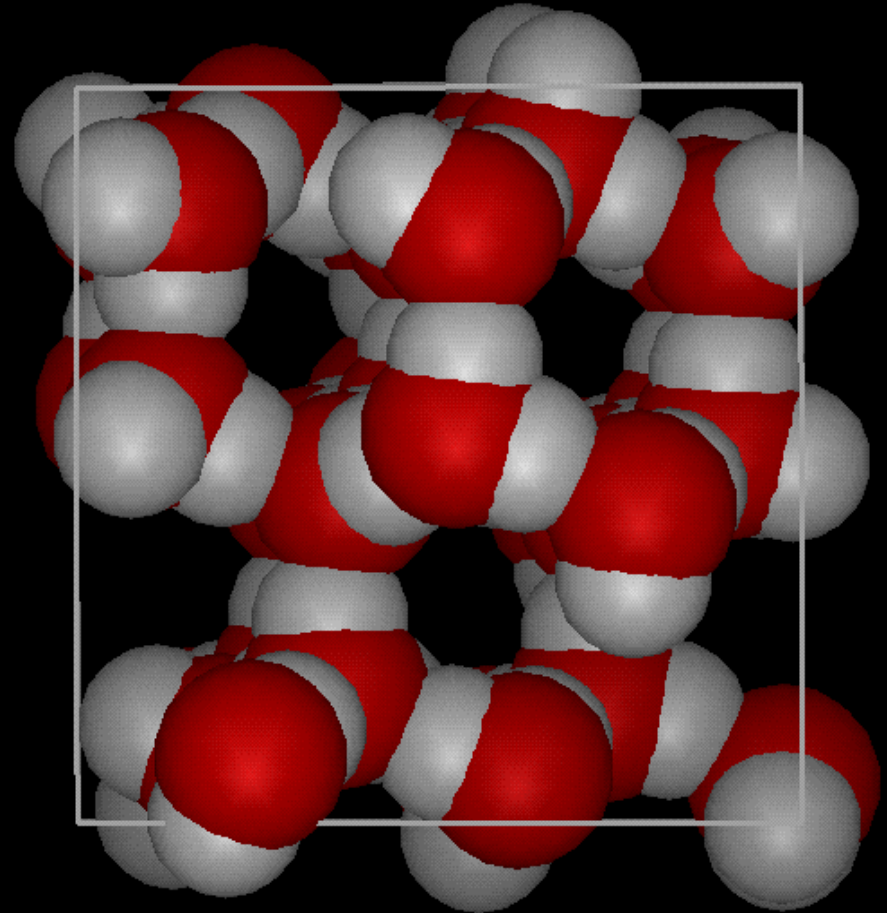
In ice, each molecule is hydrogen bonded to 4 others

(note the 'empty spaces' in ice, accounting for larger volume):

**water**



**ice**

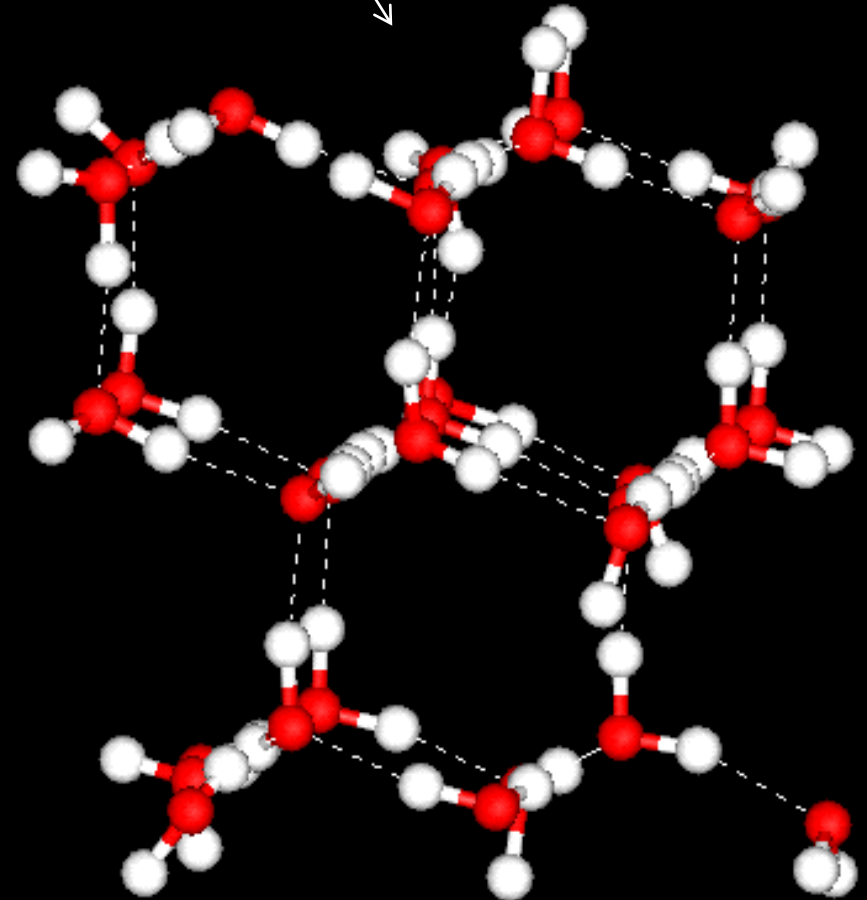
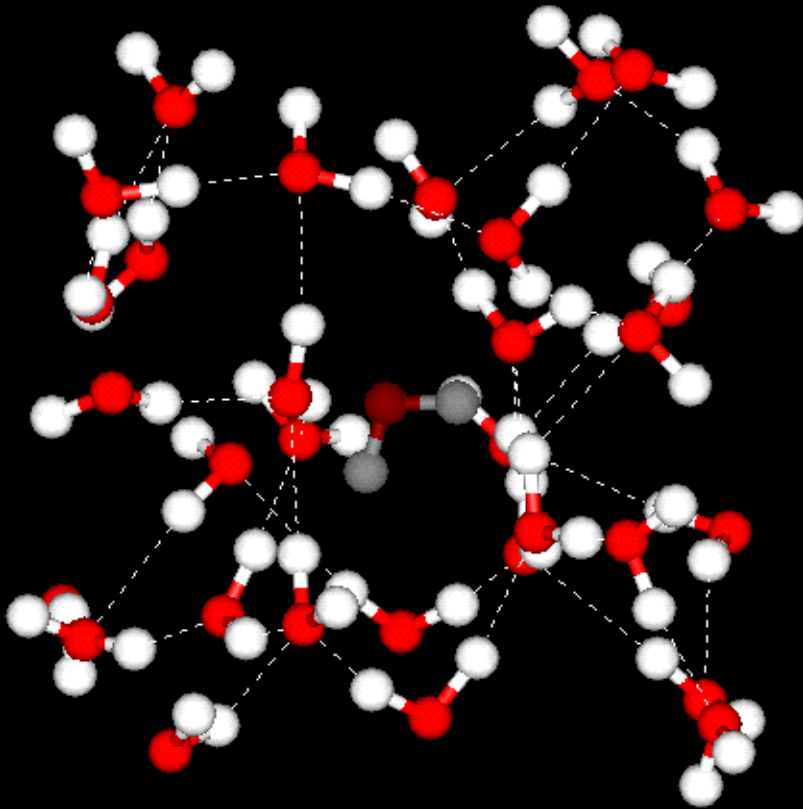


# ***NOW*** we understand 'watery behavior'!

**Water**

**vs.**

**Ice**



# GENERALIZATION:

To understand the behavior of any complex whole, we must study the properties of its *smallest functional unit*, for it is the properties of those units that determine the functioning of the WHOLE.



# Human Language: a Complex Whole



# Dialectical Analysis

Since 2007, I have been advocating the use of Dialectical Analysis in the study of Language.

**Critics** have argued that

- “When investigating a complex whole, it is necessary to divide it into sub-problems which require different kinds of expertise”;
- “No single person can research the entire range of the whole’s complexity”;

The only way to go, it seems, is to increase the zoom power of analysis.

# However, Dialectical **Analysis**

- ❖ does not preclude or minimize the importance of specialized analysis; on the contrary,
- ❖ It **deepens** it through the synergy of both **SYNTHESIS & ANALYSIS**:
  - It identifies the ***smallest functional units*** of Language (**analysis**) and
  - Studies their ***properties***, to understand the '**HOWs & WHYs**' of their interaction (synthesis) w/in the Whole.

**DA** views  $\lambda$  from a new ***perspective***, and...

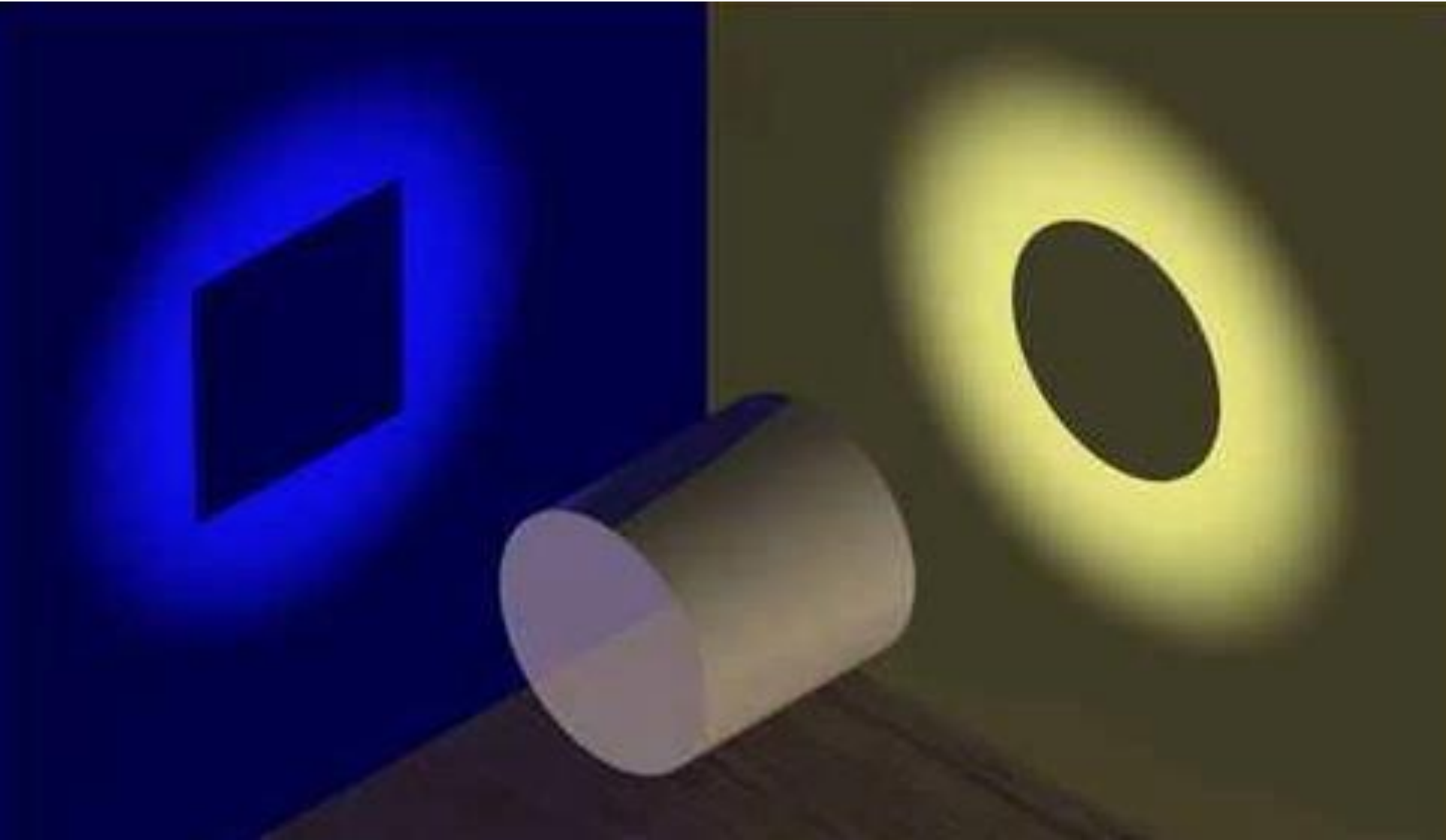


**Perspective is everything..**





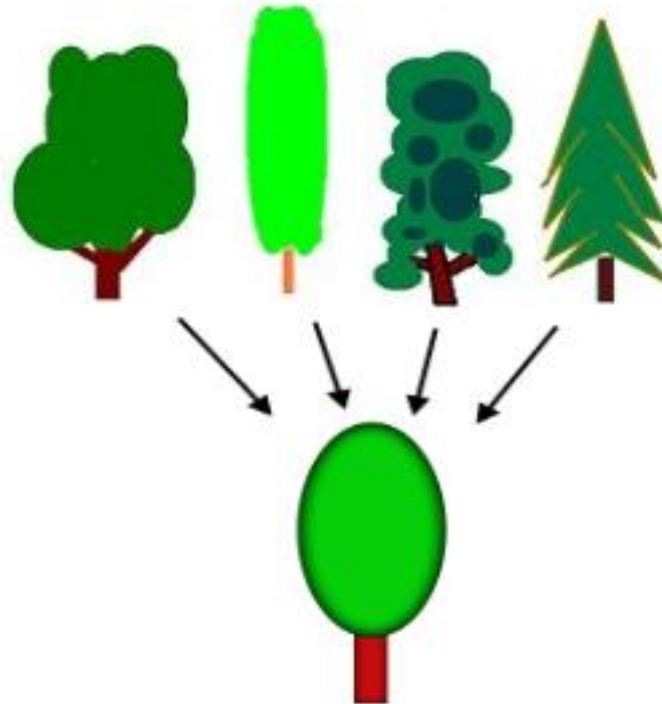
# The IMPORTANCE of *PERSPECTIVE*:



**DA: word-meaning** – the smallest unit of  $\lambda$ ,

because it has all of its properties intact:

1. **Psychological**: every word is a **generalization** in the collective mind of the society; thus, an **ACT** of THOUGHT:



# Properties of **word-meanings** (& Language)

2. **Physical**: a word without meaning is empty sound – there is no word without meaning:

‘Meaning comes into existence only through words, it is the *criterion* of word.’

(Vygotsky: 1934).

3. **Social**: word-meanings are products & currency of social interaction; they are the generalizations of the collective mind, the social signs of meaning:

The double function of every Sign is (a) to communicate (b) meaning.

# Properties of *word-meanings* (& Language)

4. **Historical**: all minds *think & live* in Time:

(a) Societies change with the world they live in, so the generalizations of their collective minds also change over time:

In the historical evolution of language, the very structure of meaning and its psychological nature also change. From primitive generalizations, verbal thought rises to the most abstract concepts. **It is not merely the content of a word that changes, but the way in which reality is generalized and reflected in a word.**

Vygotsky: 1934

(b) Individuals use word-meanings to build sentence-mosaics according to prevailing social habits, and each word acquires its true meaning only in the context of the mosaic it is part of (i.e., the yellow tiles below: parts of the stars? The moon? The house?)







“In use,  
words & their  
meanings are relatively  
independent of each  
other.”

Vygotsky: 1934

Words acquire their  
true meaning only in  
the **nexus** of the  
proposition, and in  
the context of use: ↗



# How do we build sentence-mosaics (*thoughts*)?

**David Hume (1711-1776):**

In all times, and in all places, people associate ideas by *resemblance*, *contiguity* in time/space, and *cause/effect*.

These are the **universal principles of human understanding**.



David Hume: Enquiry Concerning Human Understanding  
(1748)



What do these make you think of? Why?



# The Universal Principles of **Thought** in Words

Associations by resemblance, contiguity in space/time, & cause/effect in human minds give birth to **MEANING** (generalization).

This is that

## **Rational Language Mechanism**

which Ferdinand de Saussure wished had existed, so 'it could be studied in its own right'!

# **Associations** in Social Minds Give Birth to **Word-Meanings**

Born of associations, word-meanings are highly

*associative* (= water molecules are *cohesive*);

they tend to form **CHUNKS** of **MEANING** in

individual minds which spin their

**WEBS OF SIGNIFICANCE**

often forgetting that others can see them only

through their own Mind's Eye.

# Associations of GENERALIZATION

The associations of **GENERALIZATION**  
constitute that

“logical side of the language, involving invariables  
unaffected by time, race, culture or geography”

(Saussure: 1910)

that descriptive linguistics has so far overlooked.

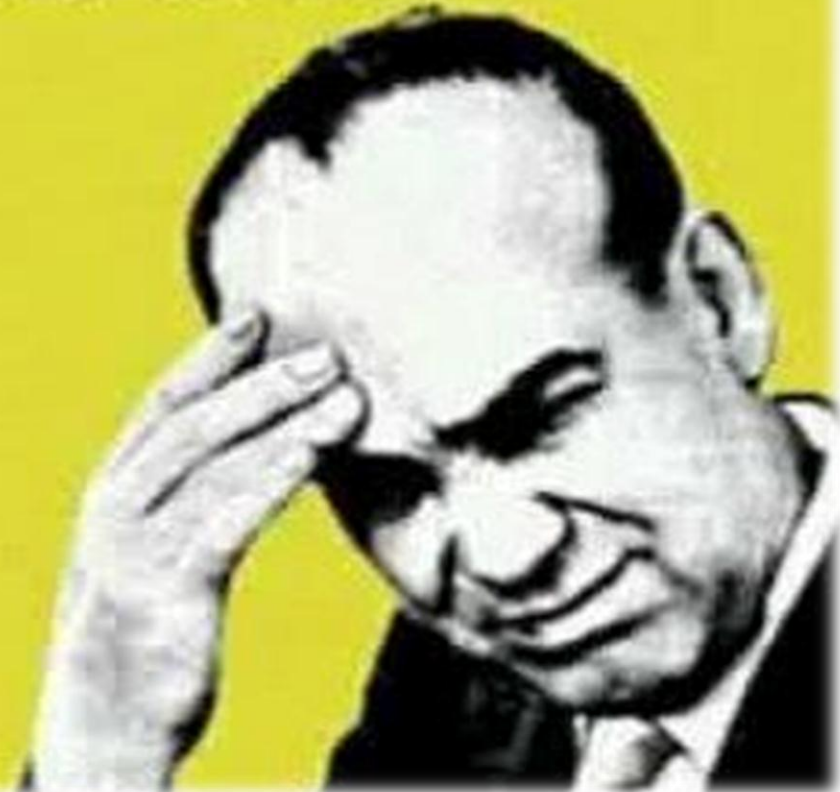


**Without these 'sinews' of generalization, we cannot 'make sense' of things:**

**Everytime I see a math word problem it looks like this:  
If I have 10 ice cubes and you have 11 apples.  
How many pancakes will fit on the roof?**

**Answer:**

**Purple because aliens  
don't wear hats.**



**arrg!  eCards**



# The Process of Human Understanding:

Synthesis & **Analysis** of word-meanings into progressively larger *chunks of meaning*, each with its own compound meaning, fitting into a larger pattern.



# QUESTION:

If the principles of human understanding

are *universal*,

**WHY** have different societies developed

such diverse ways of generalizing about

the 4-D world we all live in?

# ANSWER:

*What's in a name?*

*That which we call a rose by any other name would  
smell as sweet.*

Shakespeare

The Social **Mind Is the Measure** of  
traditional ways of doing things:  
the **social** nature of Language!

‘It seems that many apparently arbitrary aspects of language can be explained by relatively **natural cognitive constraints** – and hence that language may be rather less arbitrary than at first supposed’

Christiansen/Chater: 2007

# Cognitive Constraints = Linguistic Universals

Language should be viewed as shaped by the brain; the brain has not adapted to encode arbitrary universal principles of language. The **pre-linguistic learning and processing biases ... will be reflected in language** — because language has evolved to be learned and processed by people whose brains embody these constraints.

Christiansen/ Chater: 2007

# Cognitive Constraints = Linguistic Universals

All languages are verbal thought (thought in words):

Every word is a generalization: it refers to a general category based on many concrete experiences, connected in memory because of some resemblance between them. We recognize concrete things as resembling a concept (a word-meaning of our language which we learn in the course of social interaction) and so, because (=cause/effect association) of that resemblance (=association by resemblance), we put them in that general category (=association by contiguity in space/time).

For example, what does this image bring to mind? Why?



# Linguistic Universals

In all languages, a 'sentence' is 'saying/asking something about something' (even when most of what we say is implied and not spoken):

Every thought tends to connect something with something else, to establish a relationship between things. Every thought moves, grows and develops, fulfills a function, solves a problem.

Lev Vygotsky: 1934.



# Linguistic Universals (contd.)

Every sentence-mosaic is a nexus of 3 constituents, whether physically present or implied:

- **Subject**, or ‘what the sentence is about’ – this general definition eliminates the so-called ‘problem of subjecthood’ and the possibility that ‘there may well be languages where it [Subject] is not appropriate’ (Comrie: 1989, p. 106).
- **Verb**, or what we say about the Subject:
  - A verb is that which, in addition to its proper meaning, carries with it the notion of time. No part of it has any independent meaning; it is a sign of something said of something else (Aristotle: *On Interpretation*, Part 3).
- **Compliment**: this ‘slot’ in the nexus may be left empty, but it can also be filled with Direct/Indirect Objects (DO/IO), Predicate Nouns (PN), or Predicate Adjectives (PA).

# Linguistic Universals (contd.)

In order to form a concept, we must be able not only to connect, but also to abstract, to single out its characteristic elements, and to view them separately from the totality of the concrete experience in which they are embedded.

(Vygotsky: 1986, p. 135).

Synthesis & Analysis of GENERALIZATION are the basic, universal principles of building sentence-mosaics – of meaning, on all levels of complexity.

**Analogy:** cohesiveness of water / associations of abstract thought

**LUs: 'Parts of Speech'** = perceived relationships btw. words /groups of words within the sentence-mosaic. They represent the workings of the human minds which associate ideas by

- resemblance (adjective function),
- contiguity in space and time (adverb function), and
- cause/effect (adverb function).

All 3 associations = generalization (noun function).

Because these functions of words (and groups of words) are determined by the perceived logical relationships between them, 'Parts of Speech' are equally '**Parts of Thought**' and are, thus, the same in all of the world's languages.

**LU**s: Word-meanings are like water molecules -  
*cohesive*

In all languages, single word-meanings, as well as *groups* of word-meanings (phrases and clauses) can function as Adjectives, Adverbs, and Nouns, i.e.,

Man is an animal suspended in the webs of significance **he himself has spun.**

Max Weber (1864-1920)

\*[Adj. phrase w/ **embedded Adj. clause**]

My main focus in this paper:  
How Are Universal “Parts of Thought”  
Expressed in Diverse Grammars?

Dialectical **Analysis** uses the

**natural way we think**

to reveal the logical relationships between  
words /groups of words

In the nexus of the sentence-meaning.

DA makes grammar **logically** comprehensible – a practical expression of the natural way we think:

→ Verbs 'connect' with things we speak about, they say something about them; verb tenses express our perceptions of contiguity between events in time (present, past, and future); aspect qualifies the kind of action (completed, continuous, etc. → associations by contiguity + resemblance);

- **Noun declensions and prepositions** express our perceptions of how things and events relate to each other in space/time and cause/effect (association by contiguity and cause/effect);
- **Adjectives and adverbs of manner** describe things/actions (association by resemblance);
- **Adverbs of place/time** explain where and when things happen (association by contiguity)
- **Adverbs of reason, consequence, concession, condition**, etc. established a perceived causal relation between events (association by cause/effect).

Each grammar is an ingenious solution to our needs of communicating our perceptions of events in our 4-D world, often expressed in the so-called ‘journalistic’ questions:

“What? What kind of what? Did what and how, to whom, when, where, and why?”



We do not regard any of the senses as Wisdom; yet surely these give the most authoritative knowledge of particulars. But they do not tell us the **'why'** of anything - e.g., why fire is hot; they only say that it is hot. ...

**Wisdom is knowledge about certain principles and causes.**

Aristotle: Metaphysics, Book I

Instead of describing the changing physical forms of language for their own sake, in isolation, disjointed from the workings of the generalizing minds that produce them in the course of social interaction over time, DA explains the **'principles & causes'** of language change.

# General Conclusion:

Discovering the ingenuity and richness of 'architectural styles' societies devised for expressing these basic relationships in building their sentence-mosaics / **complex generalizations** gives a new dimension to linguistic typology, opening up new horizons for comparative and descriptive analysis.

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