

# LANGUAGE

## & Its **Rational** Mechanism

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# The Whole Is More than the Sum of Its Parts

Language is an integrated complex WHOLE;  
it's a social system of signs with

- *Physical* (sound structures, sound production & perception)
- *Psychological* (meaning)
- *Social* (communication), and
- *Historical* (living, evolving, changing in *Time*)

**properties.**

# **Word-Meanings are the smallest units of Language, because they have all the properties of the WHOLE:**

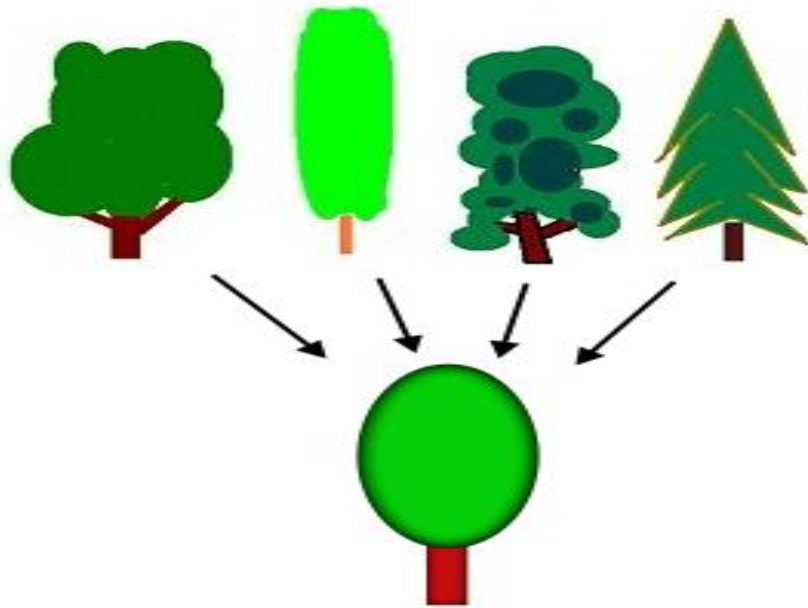
- a. Psychological:** word without meaning is empty sound
- b. Physical:** ideas come into existence through words
- c. Historical:** they live, grow, change, develop, evolve and die in Time (the 4<sup>th</sup> dimension of all existence)
- d. Social:** the double function of the Sign – (1) communicate (2) meaning

*‘The conception of word-meaning as a unit of both generalising thought and social interchange is of incalculable value for the study of thought and language.’*

Vygotsky: Language and Thought (1934)

# Every Word Is a **Generalization**

In contrast to animal 'languages' every word of human language is already a ***generalization*** in the collective mind of the society:



A word is a generic name of a category of things; it is **not** the name of any concrete thing.

# Generalization – a ‘Single Experience’

By nature, animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember.

Animals other than man live by appearances and memories, and have but little of ***connected*** experience; ...from memory, [connected] experience is produced in men; for **several memories of the same thing produce finally the capacity for a *single* experience.**

Aristotle: Metaphysics, Book I

# Language ≠ Senses

**Language reflects reality differently from the way our physical senses reflect it:**

‘There is a dialectic leap not only between total absence of consciousness and sensation (in inanimate matter) but also between sensation and thought.’

Vygotsky

# Understanding (consciousness generally) is possible only through generalization:

True human communication presupposes a generalising attitude... The higher forms of human intercourse are possible only because man's thought reflects *conceptualised* actuality.

Vygotsky: 1934

# Word-Meanings – Generalizations in the *Collective* Mind of Society

Denotative meanings are those ‘single experiences’ distilled by the **collective mind** of society; they are the generalizations of multiple experiences.

Word-meanings are the ‘common denominators’ – the ‘currency’ of thought exchange in every society.



# Societies shrink their 'worlds' into *categories*

... The world of experience must be greatly simplified and generalised before it can be translated into symbols.

Only in this way does communication become possible, for the individual's experience resides only in his own consciousness and is, strictly speaking, not communicable.

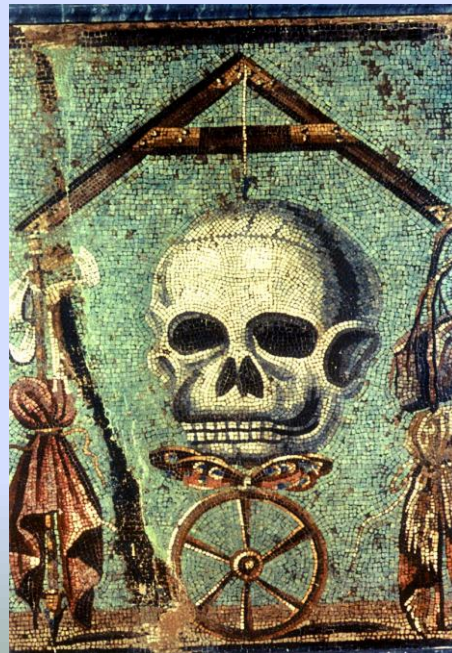
To become communicable, it must be included in a certain category which, by tacit convention, human society regards as a unit.

Vygotsky: 1934

# The Whole Is More than the Sum of Its Parts

Society gives us the TOOL for spinning complex 'webs of significance' – a set of conventional word-meanings and rules for connecting them into unique sentence (thought) patterns.

Like artists who create mosaic images by connecting colored tiles in particular ways, we create sentence-mosaics, each with its own meaning:



# Every Word of Language Is a Generalization;

## Language Is *Verbal* Thought

... The qualitative distinction between sensation and thought is the presence in the latter of a generalised reflection of reality, which is also the essence of word meaning: and consequently that ***meaning is an act of thought*** in the full sense of the term.

Vygotsky: 1934

If meaning is an *act of thought*,

**WHAT IS *THINKING*?**

# Thinking: *Connecting* Ideas

**Every thought creates a *connection***, fulfills a function, solves a problem. The flow of thought is not accompanied by a simultaneous unfolding of speech. The two processes are not identical, and there is no rigid correspondence between the units of thought and speech.

**Thought is not merely expressed in words; it comes into existence through them.** Every thought tends to **connect** something with something else, to establish a *relationship* between things (Vygotsky: 1934)



# How do we connect ideas?

*'Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; ... To me, there appear to be only three principles of connexion among ideas; namely, **Resemblance**, **Contiguity** in time or place, and **Cause or Effect**.'*

David Hume (1711-1776)



# Universal principles of human thought - abstracting meaning through associations by

- **Resemblance** – ‘what looks like a duck, walks like a duck, and quacks like a duck must be a duck’; ‘This apple is red’ or ‘a green leaf,’ etc.
- **Contiguity** in time/space – personal belongings of a friend remind us of that friend; ‘We live in POM,’ etc.  
and
- **Cause/Effect** –sight of injury makes us think of pain; ‘I think, therefore I am,’ etc.

# ***Thinking – Understanding – Knowledge***

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

**To understand = to see how things relate to each other**  
in terms of resemblance, contiguity in space/time, and  
cause/effect.

Example: assembling an engine



# Process of Cognition

As breathing is both inhalation & exhalation, learning/thinking is both ***synthesis*** & ***analysis*** of ideas:

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

Vygotsky: 1934

# Two Lenses of Mind's Eye: WA & Zoom



The Earth seen from Apollo 17  
<http://en.wikipedia.org/wiki/Holism>



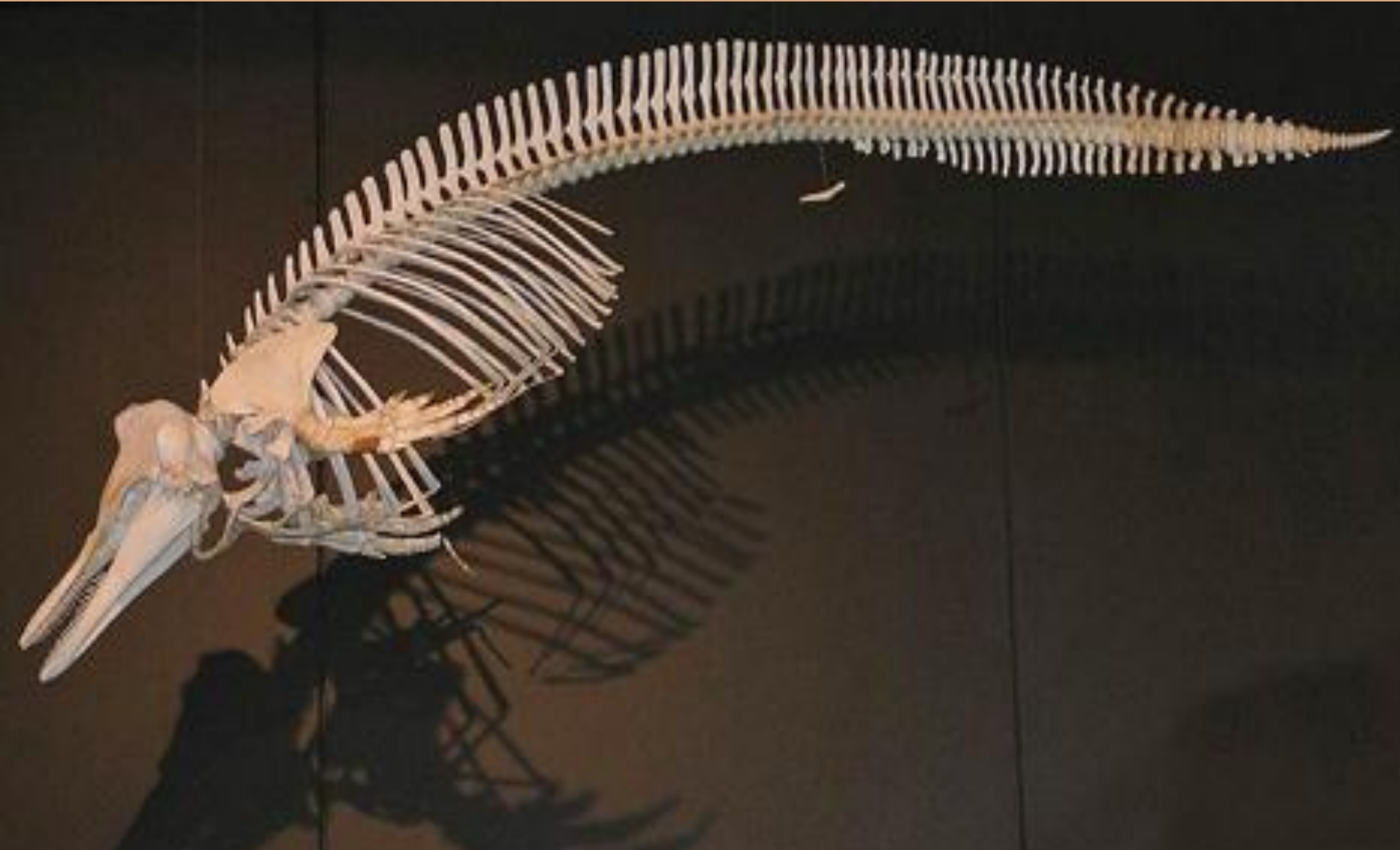
Parched earth resulting from a drought  
<http://dampwater.tripod.com/id4.html>



Dialectics (***synthesis*** - the WA lens) views things in their essential interconnectedness, development, motion and change.



Metaphysics (**analysis**) focuses on *parts* of the whole,  
and examines the ‘fixed’ details in isolation:



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

# Synthesis & Analysis – ‘Connection’ Principles of Verbal **Thought** **Generalization** Human Language

Generalization:

# **THE RATIONAL MECHANISM OF LANGUAGE**

*If languages had a mechanism which were entirely rational,  
that mechanism could be studied in its own right.*

Saussure

**Universal principles of Human Logic limit the arbitrary nature of Language** – each grammar sets its own *paradigms* of forms (i.e., verb tenses and conjugations, declensions of the noun, word order, etc.).

‘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)

***‘Language reflects preexisting, and hence non-language-specific,  
human learning and processing mechanisms’***

Christianse @ Chater: 2007

## **Language reflects our lives in the 4 dimensions of all existence (Space & Time):**

- Declensions of the noun
- Verb conjugations
- Tenses, aspects (contiguity in time, resemblance)
- Voice
- Modality

**Linguistic structures embody GENERALIZATIONS  
of our minds.**



# **‘Universal Invariables’ of Thought/Speech**

**The relations between word-meanings are shaped by the universal principles of human understanding (generalization).**

**The two universal principles of sentence structure:**

- 1. Synthesis** – the ‘nexus’ of the sentence (S/V/C)
- 2. Analysis** – recursion (expansion through embedding details/descriptions of the main sentence constituents)

# Synthesis & Analysis of Verbal Thought

Our collective *generalizing* mind created Language, the social means of thought, in its own image – generalizing:

- Every word of Language is a generalization in the collective mind of society
- Every sentence (thought) is a generalization by individual minds

Synthesis & Analysis of word-meanings creates the 'tissues' of linguistic structure.

# *Synthesis* and *Analysis*

To understand linguistic structures, we must see these connections, the logical *relationships* between words and groups of words within the nexus of the sentence:

S                      V                      C<sub>(DO)</sub>  
Doctors // treat // patients

S    V    C<sub>(DO)</sub>  
**Young** doctors // **carefully** treat // **sick** patients

S                                      V                                      C<sub>(DO)</sub>                      S<sub>2</sub>      V<sub>2</sub>      C<sub>2(DO)</sub>  
**Young** doctors // **carefully** treat // **sick** patients, **because they want them to get better.**



Why?

# Generalizing Analysis – G-nalysis

- Two steps:
- (1) Identify nexal patterns S/V/C
  - (2) Identify relationships between the nexal patterns, words and phrases within the whole structure

In diagrams, quadrangles represent independent nexal patterns, and triangles – dependent clauses.

Example:

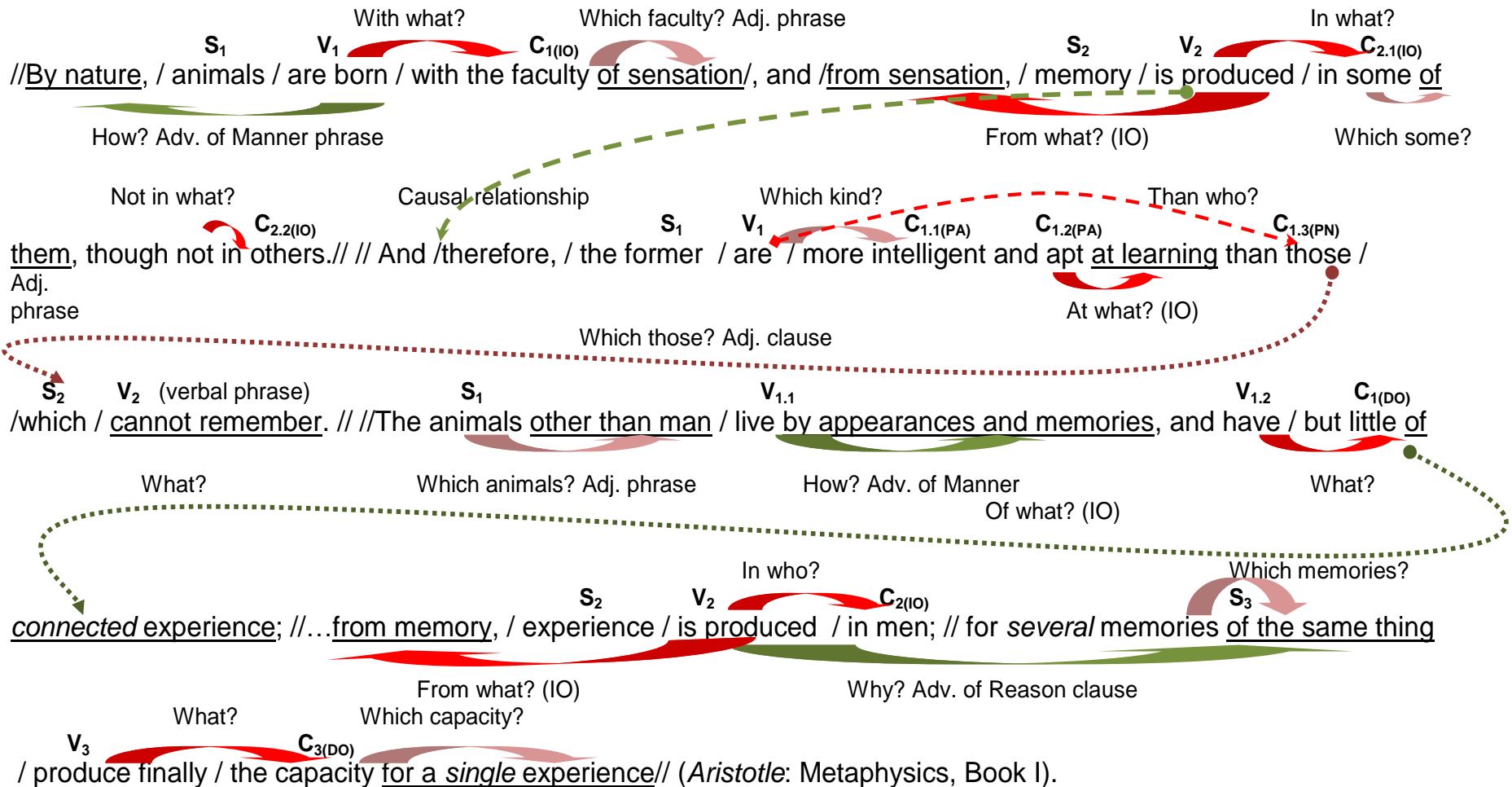
S<sub>1</sub>    V<sub>1</sub>    What?    C<sub>1</sub>(PN)    How much the same?    S<sub>2</sub>    V<sub>2</sub>    C<sub>2</sub>(DO) + (IO)    Of what?

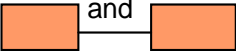



Mankind /are / so much the same / in all times and places / that history / informs / us of nothing new or strange.

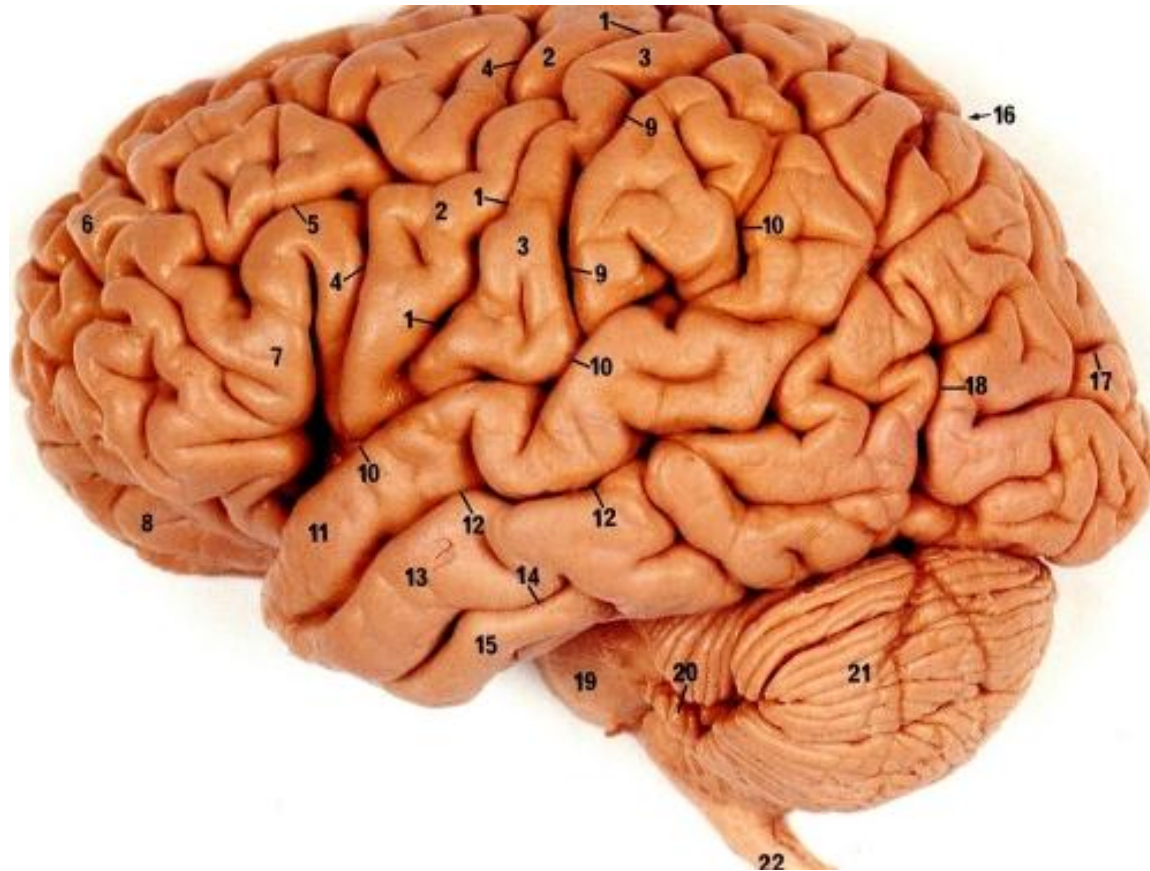
When & where?

Who?

# G-analysis



1.  and   
Compound
2.  Complex sentence  
Which those? Adj. clause
3.  Compound-Complex  
Why? Adv. of Reason clause



Meaning - an **Act of Thought** in the full sense of the term...

... **Who** is the **Actor**?

# Wide-Angle View of Language:

**Every word is already a *generalization* and, therefore, an *act of thought*.**

**An *act* logically presupposes an actor – a MIND.**

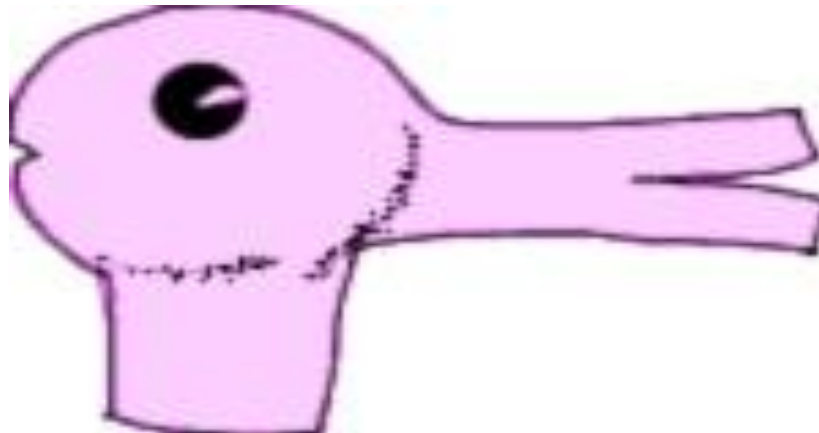
The '***act*** of thought' implies **active *generalizing*** by living minds (both collective and individual).

Living, thinking, communicating minds create thoughts (composite meaning) through the synthesis & analysis of word-meanings.

***‘Man is the measure of all things’***

Protagoras

**MIND is the measure of all things –  
MIND Is the ‘*Generalizer*’**



Witgenstein's 'duckrabbit'



# *Mind Is the **Actor** ➡ **Language Change***

**Word-meanings are ‘fluid’** – being the products of living minds, they germinate, live, grow, change, develop and die in them:

...in the historical evolution of language the very structure of meaning and its psychological nature also change.

**From primitive generalisations, 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 generalised and reflected in a word.**

Vygotsky: 1934

**Examples:** grammaticalization [‘function words’ – auxiliary & modal verbs, prepositions, etc. –*im* & *-pla* in Tok Pisin, etc.]

Collectively, our *living* minds 'make sense' of things through associations by resemblance, contiguity & cause/effect

This accounts for much of **language change**:

- ❖ ***Lexical innovation & semantic shift*** (metaphor, metonymy, analogy, reanalysis)
- ❖ ***Grammaticalization*** which has shaped the living structures of all human languages (creoles are best examples)

**Examples:** abstract nouns (ambiguity: PIE root of \*ant-bhi "from both sides," from \*ant- "front, forehead"), Tok Pisin –im, -pla, etc.

# Grammaticalization (Tok Pisin Examples)

## **Tense & aspect:**

1. I nogat bus nogut lo tromoi nogut pikinini
2. Pusim i go pinis long wol
3. Olsem tasol yu wokim bet blo yu, yu inap silip lon em
4. Wanpela pinga i no inap kisim ston
5. Olsem yu salim yu yet, bai graun i baim yu

## **Modals & Moods:**

1. Binatang tu ken belhat.
2. Sapos mi bin save, em olgeta taim i las.
3. Taim ai i lukim, maus [i] mas pas.
4. Yu ken traim long haitim s[i]muk tasol em bai kam aut yet

## **Voice & Relative Conjunctions/ Pronouns:**

1. Wanem doti mangi [i] laikim: pam i pas (lok)
2. Olgeta man i no wankain long dispela graun, olsem na pinga tu i no wankain [olsem na ol pinga i no waikain]

# Grammaticalization (Tok Pisin Examples)

## **Interrogative/Relative pronouns**

Pikinini husait no save harem tok blo mama blo em, rot bai lukautim em.

Taim kakaruk i wait[pela], em i wait[pela].

Wanem (h)ap ol [i] taitim /pasim kau, lo (h)ap em bai kai-kai [em bai kaikai long hap].

Wanem samtin ren i bungim, dispela samtin em wet / [em bai wetim] /[em save wasim].

## **Existence/ Possession:**

Save i nogat wari.

Nius i nogat lek, tasol em save raun.

I no olgeta dei em Krismas [Olgeta dei i no Krismes].

‘Save lo yu yet’ em i no tok nogut.

# Word-meanings are 'fluid'

**They grow and develop also in individual minds**  
(stages of cognitive development):

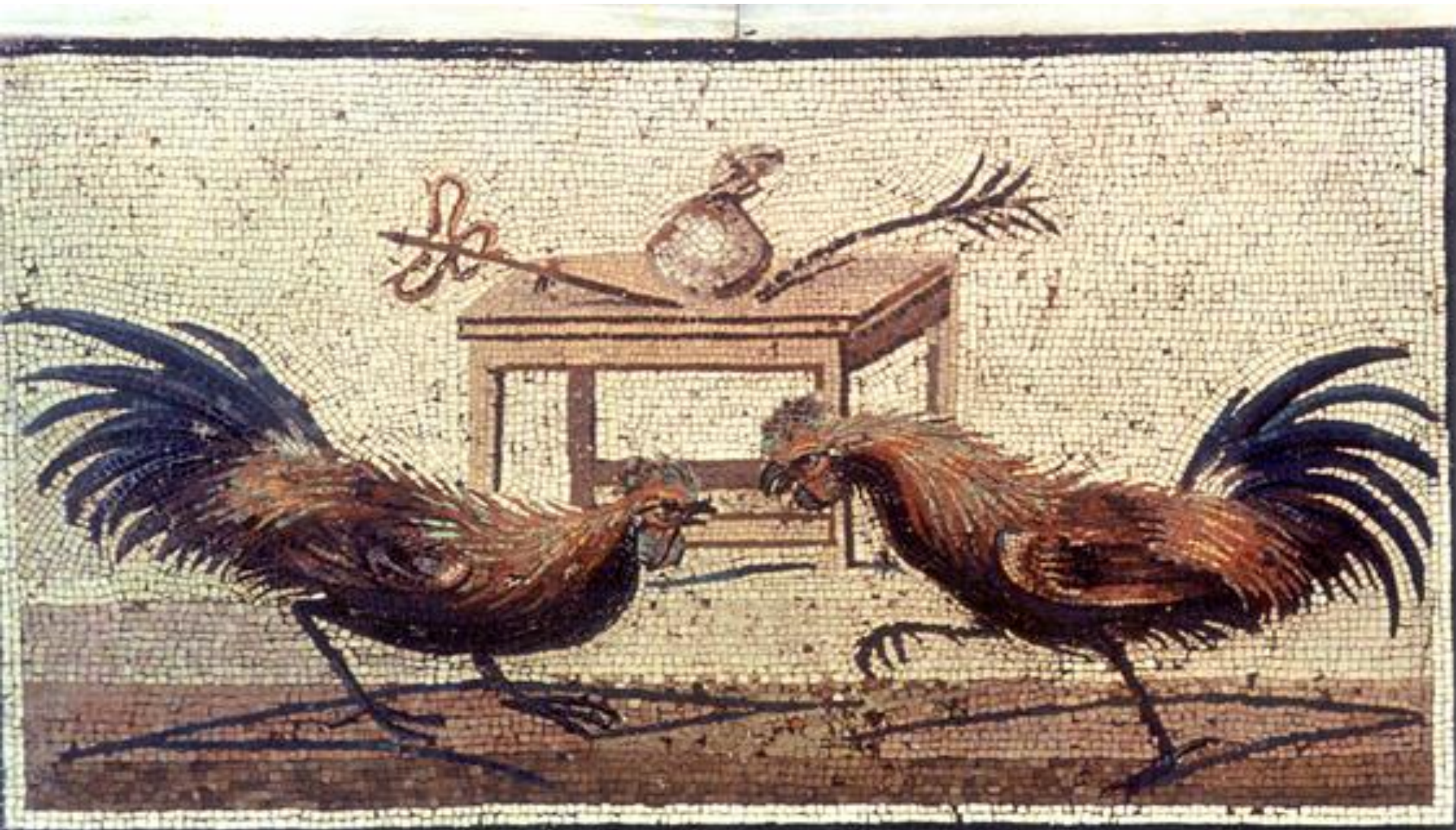
The higher forms of human intercourse are possible only because man's thought reflects conceptualised actuality. That is why certain thoughts cannot be communicated to children even if they are familiar with the necessary words. The adequately generalised concept that alone ensures full understanding may still be lacking (Vygotsky: 1934).

**Grammar *precedes* logic!**



# Meaning as Use

Word-meanings, the social 'currency of thought exchange,' are the tiles we put together to create our sentence mosaics /composite meanings. Each tile in a mosaic acquires its 'meaning' only in the context of the whole pattern:



***‘The conception of word-meaning as a unit of both generalising thought and social interchange is of incalculable value for the study of thought and language.’***

Vygotsky: Language and Thought (1934)

We ‘make sense’ of things in our own *living* minds (individual & collective); this is why:

- **Word-meanings *in use* cannot be the *fixed* ‘concrete objects’ listed in the dictionary.**
- **In use, words are relatively independent of their meanings.**
- **Meaning: the product of minds, thinking ‘*live*’!**

# Each Mind's Eye Sees What It *Can/Wants* to See

The ***vision*** of each “***Mind's Eye***” is a function of the sum total of individual experience, level of cognitive development, enculturation & education, as well as of the concrete circumstances of communication, i.e., one's

- **Psychological state** (when we ‘see ‘red’; when we ‘can fly’; or when ‘beauty is in the eyes of the beholder’)
- **Physical state**: fatigue/ illness (when we cannot keep our “mind's eye” open, or when ‘beauty is in the eyes of the beer-holder’); also, the
- **Circumstances of Exchange** : time of day/night, etc.
- **Social/cultural context** of communication, etc.



Hence, ambiguity –  
the ultimate ‘indeterminacy’ of meaning:

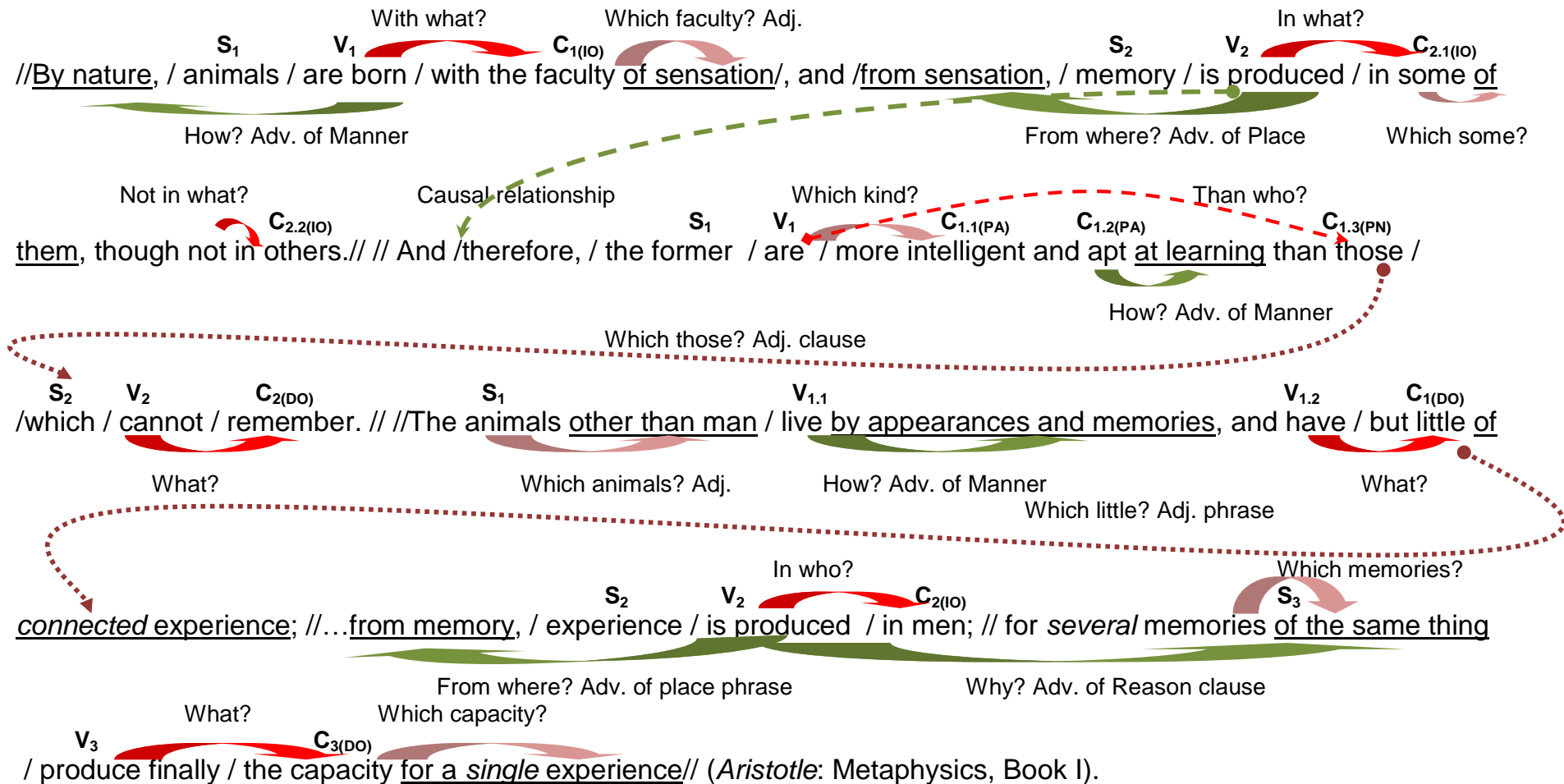
## Virtual Humor

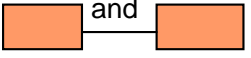
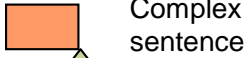
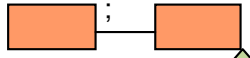
by Kevin Duffy



Santa's sexual harassment trial  
takes a dramatic change for the worse

# G-nalysis: *Flexible* Interpretation



1.  Compound
2.  Complex sentence  
Which those? Adj. clause
3.  Compound-Complex  
Why? Adv. of Reason clause

# Language – the Mirror of Our Minds

**Language reflects the subjective perceptions of reality by our minds (collective and individual).**

**Ideas have no physical substance – they are the ‘webs of significance’ our minds spin.**

**All human perception has meaning; we perceive meaningless things as meaningful:**

*There is nothing that is either good or bad, but thinking makes it*

*so...*

Shakespeare

**The truth of our ideas is measured by the physical world.**

# Social code of word-meanings – What makes it ‘tick’?

Our collective *generalizing mind* continually creates language in its own image: *generalizing*; every word, every statement is a generalization; therefore, generalization is the beating *heart* of Language: it is its “*rational*” mechanism, it *is* what ‘makes it tick’!

# Conclusion

Language embodies not only ***what*** we think, but also ***how*** we do it - associating ideas by resemblance, contiguity & cause/effect.

**The Synthesis & Analysis of  
Generalization**

***Is***

**the *Rational* Language Mechanism.**



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