

Sutra 3: *Word-Meaning* – the Smallest Unit of Language

3.1 To understand a complex whole, we must examine its smallest unit.

Biochemistry, the study of the chemistry of living organisms, focuses on the functioning of their smallest unit – cell. Chemistry, the study of chemical compounds, focuses on the properties of their smallest units – molecules. To understand the complex whole of Language, we must identify and examine its smallest unit which has all of its properties intact.

3.2 Word-meaning is the smallest unit of Language, because it has all of its properties intact. A word-meaning cannot be further subdivided without losing some of the basic functions and features of Language, which are:

(a) Psychological: Every word is a Sign of *meaning* – generalization:

“A word without meaning is an empty sound: meaning ... is a criterion of *word*”
(Vygotsky: 1934).

Meaning does not coincide with logical meaning (*'nonsense'* has meaning). Meaning is an *idea*, a generalization. The idea a word carries disappears, if the word is fractured into its elements (morphemes, syllables, or individual sounds): the meaning of *armchair* is neither that of *arm* nor of *chair*; *airport* is neither *air* nor *port*, etc. This is even more obvious, if we divide the word into its sounds and syllables – bus (b-u-s) / ba-na-na / po-ta-to, etc.

(b) Physical – While the *meaning* of a word is the product of thinking, it comes into being only through the physical ‘flesh’ of the *word*:

Word meaning is a phenomenon of thought only in so far as thought is embodied in speech, and of speech only in so far as speech is connected with thought ... It is a phenomenon of *verbal thought*, or *meaningful speech* – a union of word and thought (Vygotsky: 1934).
... understanding between minds is impossible without some mediating expression ... In the absence of a **system of signs**, linguistic or other, only the most primitive and limited type of communication is possible. Communication by means of expressive movements, observed mainly among animals, is not so much communication as spread of affect¹ (Ibid.).

(c) Social: Signs have a double function – generalization (*meaning*) and communication. Word-meanings carry out the intellectual and social functions of speech. They are the social ‘currency of thought exchange,’ the ‘flesh’ of our thoughts, the *Signs* of *conventional meanings* shared by society:

¹ **affect:** n. (in psychology) feeling or emotion.

***But I forget what I to say so wanted –
And fleshless thought dissolves in other shadows ...***

Osip Mandelstam: The Swallow (1920)

Word meaning is a 'unit of both generalising thought and social interchange'; there is a **correlation between our social and cognitive development**, i.e., between our **social interaction** and our **thinking ability**.

(d) Historical: Word-meanings live in Time, because people live and think in Time; they develop & evolve, along with our collective consciousness. Language reflects our understanding of reality; it mirrors our thoughts about the physical world and the society we live in:

...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).

A branch of linguistics, etymology, traces the origin and history of words. It is interesting to see how the meanings of familiar words have changed over time – here is an example from the Online Etymology dictionary²:

Silly: O.E. *gesælig* "happy" (related to *sæl* "happiness"), from W.Gmc. **sæligas* (cf. O.N. *sæll* "happy," Goth. *sels* "good, kindhearted," O.S. *salig*, M.Du. *salich*, O.H.G. *salig*, Ger. *selig* "blessed, happy, blissful"), from PIE base **sel-* "happy" (cf. Gk. *hilaros* "gay, cheerful," L. *solari* "to comfort," *salvus* "whole, safe"). The word's considerable sense development moved from "blessed" to "pious," to "innocent" (c.1200), to "harmless," to "pitiable" (late 13c.), to "weak" (c.1300), to "feeble in mind, lacking in reason, foolish" (1570s). Further tendency toward "stunned, dazed as by a blow" (1886) in knocked silly, etc.

Language change has accelerated in the past few years, due to increased cross-cultural contacts and the spread of new technologies (the Internet, cell phones, social networking sites, etc.) that have changed our society and the way we communicate.

Word meanings have all the properties of Language; they are at the same time

1. Thought and Speech,
2. Product and Tool of society for generating complex meanings
3. Together with the minds that create them, they are constantly changing in time and in use.

Vygotsky's Analysis into Units claims, therefore, that word-meaning is the smallest unit of live Language.

² Online Etymology Dictionary: <http://www.etymonline.com/index.php?l=s&p=23>

3.3 To understand human language, we must study the development, functioning, and structures of its minimal units – word-meanings.

Vygotsky's '*Analysis into units*' gives us a clear view of language, because it uses both the wide-angle (synthesis) and close-up /zoom (analysis) lenses in its examination of verbal thought. We will examine the development of word-meanings in the collective mind of a speech community, as well as in the speakers' individual minds, particularly in the course of cognitive maturation.

3.4 Traditionally, the bond between word and meaning was viewed as a fixed *associative* bond between a sequence of sounds and an object.

Sounds call to mind their meaning, as a friend's shirt, car, etc. remind us of that friend. Semantics up until now has maintained that the "association between word and meaning may grow stronger or weaker, be enriched by linkage with other objects of a similar kind, spread over a wider field, or become more limited, i.e., it may undergo quantitative and external changes, but it cannot change its psychological nature. To do that, it would have to cease being an association" (Vygotsky: 1934).

From that point of view (discussed in detail in Sutra 4.6), "any development in word meanings is inexplicable and impossible – an implication which has handicapped linguistics as well as psychology. Once having committed itself to the association theory, semantics persisted in treating word meaning as an association between a word's sound and its content. All words, from the most concrete to the most abstract, appeared to be formed in the same manner in regard to meaning, and to contain nothing peculiar to speech as such; a word made us think of its meaning just as any object might remind us of another. It is hardly surprising that semantics did not even pose the larger question of the *development* of word meanings. Development was reduced to changes in the associative connections between single words and single objects: A word might denote at first one object and then become associated with another, just as an overcoat, having changed owners, might remind us first of one person and later of another" (Ibid.).

3.5 Word-meanings develop and change in time, along with the minds that create 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).

If we 'scratch below the surface' of the most abstract of concepts, we will find that they stem from very simple *concrete* ideas; countless examples can be found in the online etymology dictionary <http://www.etymonline.com>, i.e.:

Except: late 14c., from L. *exceptus*, pp. of *excipere* "take out," from *ex-* "out" (see *ex-*) + *capere* "to take" (see *capable*). Related: *Excepted*; *excepting*. Adjectival function led to use as a preposition, conjunction.

Eliminate: 1560s, from L. *eliminatus*, pp. of *eliminare* "thrust out of doors, expel," from *ex limine* "off the threshold," from *ex* "off, out" + *limine*, abl. of *limen* "threshold."

He: O.E. *he* (see paradigm of O.E. third pers. pronoun below), from P.Gmc. **hiz*, from P.Gmc. base **khi-*, from PIE **ki-*, the "this, here" (as opposed to "that, there") root (cf. Hittite *ki* "this," Gk. *ekeinos* "that person," O.C.S. *si*, Lith. *šis* "this"), and thus the source of the third person pronouns in O.E. The feminine, *hio*, was replaced in early M.E. by forms from other stems (see *she*), while the *h-* wore off O.E. neut. *hit* to make modern *it*. The Proto-Germanic root is also the source of the first element in Ger. *heute* "today," lit. "the day" (cf. O.E. *heodæg*).

CASE	SINGULAR			PLURAL (all genders)
	masc.	neut.	fem.	
nominative	he	hit	heo, hio	hie, hi
accusative	hine	hit	hie, hi	hie, hi
genitive	his	his	hire	hira, heora
dative	him	him	hire	him, heom

Abstract: (adj.); late 14c., from L. *abstractus* "drawn away," pp. of *abstrahere*, from *ab(s)-* "away" (see *ab-*) + *trahere* "draw" (see *tract*). Meaning "withdrawn or separated from material objects or practical matters" is from 1550s; specifically in reference to the fine arts, it dates from 1915; *abstract expressionism* from 1952. The general noun sense of "a smaller quantity containing the virtue or power of a greater" [Johnson] is recorded from 1560s; meaning "summary of a document" is from 1520s. The verb is first recorded 1540s.

God: O.E. *god* "supreme being, deity," from P.Gmc. **guthan* (cf. Du. *god*, Ger. *Gott*, O.N. *guð*, Goth. *gub*), from PIE **ghut-* "that which is invoked"³ (cf. Skt. *huta-* "invoked," an epithet of Indra), from root **gheu(e)-* "to call, invoke." But some trace it to PIE **ghu-to-* "poured," from root **gheu-* "to pour, pour a libation" (source of Gk. *khein* "to pour," *khoane* "funnel" and *khymos* "juice;" also in the phrase *khute gaia* "poured earth," referring to a burial mound). ... Not related to *good*. Originally neut. in Gmc., the gender shifted to masc. after the coming of Christianity. O.E. *god* was probably closer in sense to L. *numen*. A better word to translate *deus* might have been P.Gmc. **ansuz*, but this was only used of the highest deities in the Gmc. religion, and not of

³ –verb (used with object), -voked, -vok-ing. 1. to call for with earnest desire; make supplication or pray for: to invoke God's mercy. 2. to call on (a deity, Muse, etc.), as in prayer or supplication. 3. to declare to be binding or in effect: to invoke the law; to invoke a veto. 4. to appeal to, as for confirmation. 5. to petition or call on for help or aid. 6. to call forth or upon (a spirit) by incantation. 7. to cause, call forth, or bring about.

<http://dictionary.reference.com/browse/invoke>

foreign gods, and it was never used of the Christian God. It survives in English mainly in the personal names beginning in **Os-**.

Word-meanings are ‘fluid’, because they are the product of the process of generalization in the minds of the speakers. So, ‘it is not merely the content of a word that changes’ over time, but the way in which the speech community makes sense of the world they live in, and that process never ends.

This is how all grammars developed over time; concrete ‘content’ words, such as *have, be, do*, etc., acquired more abstract, grammatical meanings in the collective mind of the society and thus became part of habitual use (the ‘rules’ of grammar, or the conventional ways of using words in a language).

3.6 Grammaticalization is the process of ‘reanalysis’ in social consciousness, as a result of which concrete ‘content’ words acquire more abstract grammatical meanings and begin to serve as ‘function’ words (such as articles, auxiliary or modal verbs, suffixes, prefixes, prepositions, etc.). For example,

Tok Pisin adjective-forming suffix **-pla** (originally, **fellow**), as in *gutpla, tripla*, etc.
Tok Pisin transitive verb ending ‘**-im**’ stems from ‘**him**’: *lukim, rausim, harim*, etc.

The progenitor of the English modal verb **can** originally meant ‘to know’: O.E. 1st & 3rd pers. sing. pres. indic. of *cunnan* "know, have power to, be able," (also "to have carnal knowledge"), from P.Gmc. **kunnan* "to be mentally able, to have learned" (cf. O.N. *kenna* "to know, make known," O.Fris. *kanna* "to recognize, admit," Ger. *kennen* "to know," Goth. *kannjan* "to make known"), from PIE base **gno-* (know). Absorbing the third sense of "to know," that of "to know how to do something" (in addition to "to know as a fact" and "to be acquainted with" something or someone). An O.E. preterite-present verb, its original p.p., *couth*, survived only in its negation (*uncouth*), but cf. *could*. The present participle has spun off as *cunning*.

<http://www.etymonline.com/index.php?term=can>

3.7 Word-meanings also develop and evolve in each speaker’s individual mind:

(a) We are born without language. Initially, in babies (as in animals) thought is *nonverbal* and speech – *non-intellectual*: ‘a ‘prelinguistic period in thought and a pre-intellectual period in speech undoubtedly exist also in the development of the child’ (Vygotsky: 1934). As a result of social interaction, children ‘discover’ that things have *names*, and begin to ask what they are called. They begin to connect sound patterns with the physical objects they perceive. Their speech becomes increasingly rational and thought – verbal, until the **speech structures they have acquired become the basic structures of their thinking**. Verbal thought, therefore, is *not* innate: a *connection* between word and thought originates and grows in the human mind in the course of social interaction – in many ways, *shaped* by society:

There is no specific interdependence between the genetic roots of thought and of word: **the inner relationship is not a prerequisite for, but rather a product of, the historical development of human consciousness** (Ibid.).

Vygotsky represented thought and speech in animals and human infants as two **separate circles**:



Speech and Thought spring from different roots – they do not overlap at birth

In babies, these two functions of the brain do not overlap; like all mammals, human babies are governed by instincts and feelings. During the first stage of our cognitive development, we ‘soak up’ the sounds and words of language from the people around us through our physical senses of hearing and sight. Gradually, we begin to ‘connect’ the sounds of certain words we hear to concrete objects in the world around us; when that connection ‘clicks,’ we begin to *use* those sounds to **refer** to concrete objects around us.

Babies’ first words are not yet abstract thought; rather, they are expressions of wishes /feelings. It is the **whole behaviour** of the child that communicates meaning (just like a dog’s barking, squealing, etc. can communicate aggression, fear, pain or joy, etc.):

In mastering external speech, the child starts from one word, then connects two or three words; a little later, he advances from simple sentences to more complicated ones, and finally to coherent speech made up of series of such sentences; in other words, he proceeds **from a part to the whole**. In regard to meaning, on the other hand, the **first word of the child is a whole sentence**. Semantically, **the child starts from the whole**, from a meaningful complex, and only later begins to master the separate semantic units, the meanings of words, and to divide his formerly undifferentiated thought into those units. The external and the semantic aspects of speech develop in opposite directions – one from the particular to the whole, from word to sentence, and the other from the whole to the particular, from sentence to word. **A child’s thought, precisely because it is born as a dim, amorphous whole, must find expression in a single word**. As his thought becomes more differentiated, the child is less apt to express it in single words but constructs a composite whole. Conversely, progress in speech to the differentiated whole of a sentence helps the child’s thoughts to progress from a homogeneous whole to well-defined parts (Vygotsky: 1934).

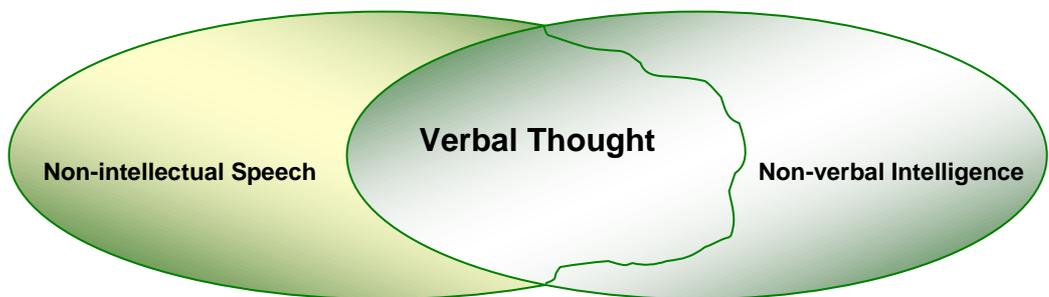
The dynamics of thought development follows the dialectics of *synthesis* and *analysis*. Abstract thought (i.e., human understanding/ conceptualization) is **both**:

... the advanced **concept** presupposes more than unification. To form such a concept, it is also necessary to abstract, to single out elements, and to view the abstracted elements apart from the totality of the concrete experience in which they are embedded. In genuine concept formation, it is equally important to unite and to separate: synthesis and analysis presuppose each other, as inhalation presupposes exhalation (Vygotsky: 1934, pp. 135-136).

(b) Grammar precedes logic in the child's mind. We know that the child has spoken his/her first words when the child 'connects' a particular sound sequence to a concrete object and begins to use those sounds to **refer** to that object. For the child, words are *names* of concrete objects:

... signification independent of naming, and meaning independent of reference, appear later ... Only when this development is completed does the child become fully able to formulate his own thought and to understand the speech of others. Until then, his usage of words coincides with that of adults in its objective reference but not in its meaning (Ibid.).

(c) Verbal thought: In children, thought and speech begin to intersect in the course of language acquisition. In adults, the overlap, where thought and speech coincide, represents **verbal thought**.



This diagram shows that a lot of our intelligence is non-verbal, just as much of our speech is non-intellectual:

Schematically, we may imagine thought and speech as two intersecting circles. In their overlapping parts, thought and speech coincide to produce what is called verbal thought. Verbal thought, however, does not by any means include all forms of thought or all forms of speech. There is a vast area of thought that has no direct relation to speech. The thinking manifested in the use of tools⁴ belongs in this area, as does practical intellect in general (Vygotsky: 1934).

Humans and animals share feelings /sensations, which we all can express in non-intellectual speech (we all laugh and cry in the same way – no language barriers there!). Our 'fellow men and women' give us our humanity through language: it teaches us, first, to connect concrete things to sounds of words, and then to **think** / connect ideas (i.e., *generalize* through the *synthesis* and *analysis* of ideas).

⁴ Use of tools / practical intellect includes mechanical skills, such as driving a car, operating a machine, etc.

The vocabulary of the child grows with the grasping of new concepts; if a concept is too abstract for the child's mind to grasp, that word will not 'enter' the child's consciousness. The same, of course, holds true for people of any age: if the concept is not formed in the brain, the word will not 'make sense' to us.

3.8 Piaget's Stages of Cognitive Development⁵

Jean Piaget (1896-1980), a Swiss psychologist, corroborated Vygotsky's findings. He showed that the difference between child and adult thinking is **qualitative**, not just **quantitative**: a child is not a miniature adult and his mind is not the mind of an adult on a small scale.

The human brain continues to develop after birth, and matures only by adolescence. During these formative years, according to Piaget, it goes through four major stages of cognitive development:

1. **The Sensorimotor Stage** occurs between birth and age 2. Babies are born with no thinking structures (the so-called schemas) and develop them through 'soaking up' language and exploring their environment through their senses. At his stage, humans are incapable of coherent logical thought, even though most babies begin to speak their first words long before they are 2.
2. **The Pre-Operational Stage** (approx. 2 to 7 years of age). Children rapidly develop language skills and, concurrently, the underlying thinking structures. They develop personal traits and characters, but are yet incapable of mature reasoning. For example, the concept of conservation is above the average toddler (conservation implies the understanding that actual amounts of any substance may remain constant, even if the shape or form of it may change). When water is poured from a tall, narrow glass to a short, wide bowl, the preoperational child will think that there is now less water. They are also incapable of de-centering (the ability to see things from another's perspective). When pre-operational children are asked to sit at a table but draw the view from the other end of the table from the perspective of someone looking at them, they cannot do it. Both conservation and de-centering are basic requirements for logical thinking.
3. **The Concrete Operational Stage**: ages about 7 to adolescence. Children begin to grasp conservation and de-centering. They can now reason logically, but only on a concrete, not hypothetical or abstract level. When a Concrete Operational child is shown a blue block and asked "Is the block green or not green?" he or she will probably answer "Neither, it's blue!" – that 'blue is not green' is too abstract. They solve problems logically, but not systematically / consistently. As opposed to Preoperational children, children in the concrete operations stage are able to take another's point of view and take into account more than one perspective simultaneously. Although they can understand

⁵ Cognitive development ~ the development of intelligence, conscious thought, and problem-solving ability that begins in infancy.

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concrete problems, they cannot yet consider all of the logically possible outcomes.

4. **The Formal Operations Stage:** adolescence or above. The mind is now capable of sophisticated logical thought. It can think abstractly, hypothetically and can solve problems using the logic of combinations. Piaget considered this the ultimate stage of development, and stated that although the children would still have to revise their knowledge base, their way of thinking was as powerful as it would get.

Vygotsky described this process in one sentence:

Psychology has scrutinized the way individual flashes of human speech gradually emerge from a baby's squeals and from the babble of very young children, and the way the process of the mastery of speech becomes essentially complete only at the time of sexual maturity, as it is only from then on that speech becomes a *tool* enabling the child to form abstract concepts and a means of abstract thinking. (Vygotsky: *Primitive Man and His Behaviour*, 1930).

Not every child reaches the formal operation stage; research shows that only about 25% of all adults use formal operations on a regular basis; these require significant training and cognitive discipline.

3.9 Language develops before Logic (Grammar precedes Logic). 'The child's babbling, crying, even his first words, are quite clearly stages of speech development that have nothing to do with the development of thinking' (Vygotsky: 1934). The child's first words are not really words, but rather expressions of feelings that are communicated not by the words, but by the child's whole behaviour at the time (like pointing, reaching out to something or pushing it away, etc.). The word *mama*, for example, could mean anything from *Mama*, give me or *Mama*, come here, or *Mama*, hold me, etc.

At a point in the pre-operational stage, the child "makes the greatest discovery of his life" – that "each thing has its name" and begins to ask "What is this?" about every new thing they come across.

Before this turning point, the child does (like some animals) recognize a small number of words which substitute ... for objects, persons, actions, states, or desires. At that age the child knows only the words supplied to him by other people. Now the situation changes: The child feels the need for words and, through his questions, actively tries to learn the signs attached to objects. He seems to have discovered the symbolic function of words. Speech ... enters the intellectual phase. The lines of speech and thought development have met (Vygotsky: 1934).

Word-meanings, for a child, are the names of concrete things. That is why children cannot understand some abstract thoughts, even if they are familiar with the necessary words – the adequately generalized concept that alone ensures full understanding may still be lacking.

Thought development is determined by language, i.e., by the linguistic tools of thought and by the socio-cultural experience of the child. Essentially, the development of inner speech ⁶ depends on outside factors; **the development of logic in the child is a direct function of his socialized speech.** The child's intellectual growth is contingent on his mastering the social means of thought, that is, language (Ibid.).

Word-meanings develop with the child's thinking ability – by the end of the pre-operational stage, they have fully learnt the structures of language, and their thinking becomes more abstract. The pre-operational and formal operational stages differ mostly by the degree of abstraction in the way we think and the 'data base' of knowledge/ experience on which we draw.

3.10 Language is *ambiguous* ⁷, because speakers 'make sense' of what they see and hear in their own heads, based on their individual perception and 'connected experience.' Here is an example of how the same sequence of sounds can be interpreted in different ways:



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

3.11 Ambiguity: Lexical vs. Structural

Words may sound the same, but have different meanings: **see/sea, bred/bread, hour/our, break/brake**, etc. These are **homophones** (= 'same sounds'):

- Bush Wins on Budget, But More **Lies** Ahead
- Child's **Stool** Great for Use in Garden (newspaper ad)
- My son has grown another **foot** in the past year.

⁶ Inner speech = verbal thought – OT

⁷ **Ambiguity** – uncertainty of meaning; having more than one meaning

(a) Lexical⁸ ambiguity occurs when same-sounding words have different meanings; look at some ambiguous notices spotted in different countries:

- The Manager has personally passed all the water served here (Hotel, Acapulco).
- Ladies are requested not to have children in the bar (cocktail lounge, Norway).

(b) Structural ambiguity occurs when a sentence can be understood in several ways because the words in it can be *grouped* differently:

- We Need More Honest Politicians (a newspaper headline)
- Special cocktails for ladies with nuts (notice in a Tokyo bar)
- Visiting relatives can be boring.
- Vegetarians don't know how good meat tastes.
- KIDS MAKE NUTRITIOUS SNACKS
- MILK DRINKERS ARE TURNING TO POWDER
- COMPLAINTS ABOUT NBA REFEREES GROWING UGLY
- 12 ON THEIR WAY TO CRUISE AMONG DEAD IN PLANE CRASH
- INCLUDE YOUR CHILDREN WHEN BAKING COOKIES

3.12 Meaning (and consciousness generally) are possible only through the act of thought (generalization)

This is why none of us can remember the first months and year(s) of our life; we all have the so-called 'childhood amnesia' simply because at that stage in our cognitive development we had not yet learnt language, whose structures later become the structures of logical thinking:

True human communication presupposes a generalising attitude... 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. ...Children often have difficulty in learning a new word – not because of its sound, but because of the concept to which the word refers. There is a word available nearly always when the concept has matured (Vygotsky: 1934).

3.13 The Origins of Language (i.e., of Meaning/ Generalization)

We are not the only intelligent creatures on Earth (Re: Reading 3.1).

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 ...

The animals other than man live by appearances and memories, and have but little of **connected experience**; ...from memory, experience⁹ is produced in men; for **several memories of the same thing produce finally the capacity for a *single* experience** (Aristotle: Metaphysics, Book I).

⁸ *lexis* means 'words'

⁹ *Connected* experience = prerequisite for generalization

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Connected experiences gave rise to general ideas in the minds of the speakers – ideas that emerged in our collective consciousness when we created social *signs* of *meanings*.

(a) Generalization (embodied in Language) reflects reality differently from the way our physical senses reflect it:

- Our **senses react to concrete things** within our immediate environment (you can see, hear, smell, touch, and taste only what is within the range of your organs of sense perception.
- **Language reflects our ideas about the physical world.** Ideas are the **abstractions** we have ‘squeezed’ out of our concrete experiences. Ideas have no physical substance – they exist only in our minds. All our perception has meaning: **we perceive all meaningless things as meaningful, attaching meaning to it:** ‘*There is nothing either good or bad, but thinking makes it so*’ (Shakespeare).

(b) There is a qualitative difference between total absence of consciousness (in inanimate matter) and sensation, as there is between sensation and thought:

Evolution of Life on Earth		
Inanimate matter (non-living things)	Rocks, mountains, seas and rivers, the sun and the stars, metals and plastic, etc.	Complete absence of consciousness (no sensation, no intelligence)
Animate matter (all living things)	Micro-organisms, plants & insects, fish & reptiles, birds & rodents, mammals, etc.	Sensation & , in some animals, non-verbal intelligence
	Humans	sensation & abstract thought (verbal intelligence)

(c) **Understanding is possible only through generalization¹⁰** which simplifies the concrete world of experience into abstract categories/ ideas, so that these concrete experiences can be translated into symbols:

To become communicable, it [= concrete experience] must be included in a certain category which, by tacit convention, human society regards as a unit (Vygotsky: 1934).

¹⁰ Synthesis and Analysis!

(d) Ideas cannot be formed without a system of signs to represent them.

To survive in this harsh world, our ancestors had to cooperate; in order to cooperate, they had to communicate; in order to communicate, they had to have a *system of signs* (language). Thus, the role of society in the primordial emergence of human language was just as crucial at the birth of human consciousness, as it has always been, and is, in language acquisition by individuals (the social nature of human language).

(e) Two major biological factors enabled us to ‘leap into consciousness’:

- (i) The human brain had evolved the physiological capacity for faster and more effective networking – a prerequisite for generalization;
- (ii) Species SURVIVAL needs: to survive, we had to cooperate, and to cooperate effectively, we had to communicate effectively.

Thus, it is the ‘*generalizing attitude*’¹¹ of the human brain, coupled with the need to communicate with others in order to survive that gave rise to Language:

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. ... 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).



3.14 What was Language like in its infancy?

In his *Philosophical Investigations*, **Ludwig Wittgenstein (1889-1951)**, one of the most influential philosophers of the twentieth century, described the countless ‘language games’ people play, creating ‘meaning **as use**’; primeval languages spoken must have been much like the ‘game’ he described in §2 – a very *practical* language, made up of simple, *concrete* word-meanings and very few rules for putting them together:

§ 2. That philosophical *concept of meaning* has its place in a primitive idea of *the way language functions*. But one can also say that it is the idea of a language more primitive than ours.

Let us imagine a language ...The language is meant to serve for communication between a builder A and an assistant B. A is building with building-stones; there are blocks, pillars, slabs and beams. B has to pass the stones, and that in the order in which A needs them. For this purpose they use a language consisting of the words ‘block’, ‘pillar’, ‘slab’, ‘beam’. A calls them out; --B brings the stone which he has learnt to bring at such-and-such a call. -- Conceive this as a complete primitive language.

(Wittgenstein: *Philosophical Investigations*. Retrieved November 18, 2008 from <http://www.galilean-library.org/pi10.html>)

¹¹ i.e., ability to see **Resemblances**, and to **categorize** things, based on resemblance (**Cause/Effect**): all men (that have lived or will ever live), captured in one category/idea: MAN.

We have already seen that tracing the history of words (etymology) confirms this hypothesis, revealing concrete concepts in the most abstract of word-meanings; *ambi-* in *ambiguous*, for example, is rooted in two very concrete ideas:

ambi- : combining form meaning "both, on both sides," from L. *ambi-* "around, round about," from **PIE *ambhi-** "around" (cf. **Gk. amphi** "round about," **Skt. abhitah** "on both sides," Avestan *aibi*, **O.E. ymbe**, **Ger. um**, **Gaul. ambi-**, **O.Ir. imb-** "round about, about," **O.C.S. oba**, **Lith. abu** "both"). The PIE root is probably an ablative plural of ***ant-bhi** "from both sides," from ***ant-** "front, forehead"

Arbitrary: early 15c., "deciding by one's own discretion," from L. *arbitrarius* "depending on the will, uncertain," from *arbiter* (see **arbiter**).

Arbiter: c.1500, from L. *arbiter* "one who goes somewhere (as witness or judge)," from **ad-** "to" + **baetere** "to come, go." The spec. sense of "one chosen by two disputing parties to decide the matter" is from 1540s. The earliest form of the word attested in English is the fem. noun *arbitress* (mid-14c.) "a woman who settles disputes."

<http://www.etymonline.com/index.php?l=a&p=11>

Many scholars¹² currently agree that human language arose spontaneously out of our existential need for cooperation, and that it was originally a simple code of voice signals to represent *concrete* objects or actions. A parallel may be drawn between the evolution of speech /thought in our collective mind and a child's cognitive development.

By this analogy, our collective consciousness co-evolved with Language over millennia, from holophrastic chunks of complex meanings, represented by simple structures, to more differentiated, precise, abstract meanings, embodied in more complex linguistic structures. The '**grammaticalization**' processes (Reading 3.3) in the course of socio-historical evolution of language '*provide a possible origin of grammatical structure from a proto-language initially involving perhaps unordered and uninflected strings of content words*' (Christiansen/Chater: 2007).

3.15 Grammar preceded Logic in social cognition, as it does in individual cognitive development. Our collective consciousness 'matured' through the co-evolution of Language and the Brain. Knowledge arises from connected experience – the more experiences we can connect, the more knowledge we can abstract from them. The invention of writing 'externalized' our memory, thus expanding our knowledge dramatically. Our collective memory (and, therefore, knowledge) is enhanced 'to the extent that systems of writing and of symbols, together with the methods for using those symbols, are enhanced' (Vygotsky: 1925). Digital technology ushered in the 'Information Age' – a

¹² Terence W. Deacon, Morten H. Christiansen, Nick Chater, etc.

dialectical leap, a *qualitative* change in our ability to amass information / abstract knowledge from it (Re: Sutra 1.9). Biologically, we are not significantly different from our earliest ancestors; it is the level of abstraction in our collective mind which distinguishes modern humans from the primitive man that lived millennia ago. Languages, the ‘flesh’ of our social consciousnesses, have formed their ‘bone’ structures in the process of grammaticalization. **Each human language is a living structure of social signs – a complex whole, which is much more than just the sum of word-meanings and rules for putting them together** – Sutra 4 will try to explain how this is, and why.