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The Rational Language Mechanism: Limitations of Arbitrariness

Olga Temple

If languages had a mechanism, which were entirely rational, that mechanism could be studied in its own right[1].

Ferdinand de Saussure

1. Theoretical Context

The enigma of the Language Mechanism that speakers use to create meanings *ad infinitum* has puzzled thinkers for thousands of years. In his *Confessions,* St. Augustine (ca. 400 A.D.) described it as the "essence of human language" that creates meaning by "individual words naming objects", and by sentences being "combinations of such names" (Wittgenstein: *Philosophical Investigations,* § 1).

Bhartrhari, on the other hand, the remarkable Indian scholar of the seventh century A.D., regarded the sentence as a single unit of meaning, as an undivided utterance, conveying its meaning "in a flash", just as a picture (Robins: 1995).

In his Course in General Linguistics (1910-1911), Ferdinand de Saussure, widely regarded as the "Father" of modern linguistics, attempted to describe the Language Mechanism in detail.

Saussure's Language Mechanism

"It is the combination of the idea with a vocal sign which suffices to constitute the whole language,"[2] claimed de Saussure. Therefore, he approached Language as a complex, interconnected system that works to create meaning because of the

> (a) Difference (opposition) between linguistic forms, created by different sequences of linguistic units (he referred to these differences/ oppositions as "syntagmatic interdependencies") and
> (b) Interplay between the syntagmatic and the associative relations between linguistic signs in the creation of Sign Value[3].

Ferdinand de Saussure saw the "language mechanism" in the simultaneous functioning of syntagmatic and associative relations between Linguistic Signs. "Groups of both kinds are in large measure established by

the language", he told his students. "This set of habitual relations is what constitutes linguistic structure and determines how the language functions. ... Syntagmatic groups formed in this way are linked by interdependence, each contributing to all. Linear ordering in space helps to create associative connexions, and these in turn play an essential part in syntagmatic analysis" (Saussure: 2006, pp. 126–128). Contrast, he stressed, or *opposition*, between existing forms (inflexions, etc.) plays an important role in creating the intended meaning.

The existence of flexions (conjugations, declensions) and other linguistic paradigms forced Saussure to caveat the fundamental principle of synchronic linguistics, that "The Sign Is Arbitrary". Even though ultimately "the link between signal and signification is arbitrary" within a language system, "the sign may be motivated to a certain extent" he conceded (Ibid., p. 67):

> Relative motivation implies (i) the analysis of the term in question and, hence, a syntagmatic relation, and (ii) appeal to one or more other terms, and hence an associative relation. ...
> ...The entire linguistic system is founded upon the irrational principle that the sign is arbitrary. Applied without restriction, this principle would lead to utter chaos. But the mind succeeds in introducing a principle of order and regularity into certain areas of the mass of signs. That is the role of relative motivation. If languages had a mechanism which were entirely rational, that mechanism could be studied in its own right. ...
> There exists no language in which nothing at all is motivated. ... Between the two extremes – minimum of organization and minimum of arbitrariness – all possible varieties are found (Ibid).

Saussure believed, however, that many aspects of Language were beyond the scope of linguistics:

> ... However we approach the question, no one object of linguistic study emerges of its own accord. Whichever way we turn, the same dilemma confronts us. Either we tackle each problem on one front only, and risk failing to take into account the dualities ...; or else we seem committed to trying to study language in several ways simultaneously, in which case the object of study becomes a muddle of disparate, unconnected things. By proceeding thus, one opens the door to various sciences – psychology, anthropology, prescriptive grammar, philology, and so on – which are to be distinguished from linguistics. These sciences could lay claim to language as falling into their domain; but their methods are not the ones that are needed (Saussure: 1910).

As Saussure saw "no discernible unity" in the Gordian knot of Language, he concluded that the only one way out of the "circle of contradictions" was

to cut off those pesky tangles altogether, and focus solely on Language structure. Only one approach to the contradictions and dualities of Language could, in his view, loosen their intractable knot: focus on linguistic *structure* which he saw as the only thing that is "independently definable", concrete, "something our minds can satisfactorily grasp":

> The linguist must take the study of linguistic structure as his primary concern and relate all other manifestations of language to it. ... A science which studies linguistic structure is not only able to dispense with other elements of language, but is possible only if those other elements are kept separate (Saussure: 1983).

Despite his brilliant insight into the essence of language being the indivisible union of form and idea, Ferdinand de Saussure split his Linguistic Sign into the Signifier and the Signified and examined them separately, thus letting the "logical side of the language, involving invariables unaffected by time, race, culture or geography"[4] slip away.

This focus on linguistic structures resulted in the development of descriptive linguistics which dominated linguistic research in the past hundred years. By the turn of the century, two major schools of linguistic thought had become dominant – generative and functional:

> On the one extreme, most formal, generative linguists since the 1960s have sought to answer such questions as "What is the system of knowledge of language?" or "How does this system of knowledge arise in the mind/brain?" The object of study is language as an innate capacity of the individual. The assumption is that the language capacity is computational and syntactic, and by hypothesis optimally structured and ultimately binary in nature. It is a self-contained modular mechanism that does not reflect external factors such as cultural or social systems. ... On this view, the grammar of a particular language ... is an 'epiphenomenon' of an intrinsic capacity and is of little interest beyond providing empirical evidence for hypotheses about general capacities (Brinton/Traugott: 2005).

At the opposite extreme, the *functional-typological* approach attempted to answer questions about how language fulfills its pragmatic function/ purpose (i.e., transfer of meaning):

> As well as seeing language as a cognitive capacity, this approach privileges language as a device for communication ... Crucially the assumption is that there is a causal relationship between meaning and linguistic structure, and furthermore that external factors may shape language structure. Language is a human activity, not an epiphenomenon of a static capacity ... The prime object of study is language use and how it relates to the grammars of particular languages, and how grammars may vary cross-linguistically.

> Universals of language are considered to be tendencies, not absolutes, and are usually of a general cognitive nature, not autonomous and not specific to language (Ibid.).

Paradoxically, the focus of both generative and functional linguists has stayed squarely on the *forms* of language, despite all the semantic/ pragmatic overtones. Chomsky's neo-structuralism (Transformational Grammar in all its permutations) still mulled over *structures* (whether deep or surface) and relationships between them (Trace theory, Government and Binding, etc.), winding up with the "bare-bones" Minimalist Program and its rather inconsequential juxtaposition of Principles and Parameters. The functional approach, on the other hand, despite its emphasis on language use and meaning, got mired in chewing on regurgitated dead utterances, with focus, yet again, on their forms. Nevertheless, we have recently witnessed "the emergence of several possibilities for a meeting of minds, as some generative linguists begin to try to account for cognition-based structures" (Ibid.).

Remarkably, this change of perspective comes from the traditional domain of cognitive science/ psychology whose methods Saussure considered to be "not the ones that are needed" in linguistics.

Morten H. Christiansen of Cornell University and Nick Chater of University College London (both psychologists) deny the existence of a 'language-specific biological endowment'[5] which encodes the universal (however arbitrary) principles of language structure in Universal Grammar, and argue that "the original motivation for UG – the mesh between learners and languages – arises because language has been shaped to fit the human brain, rather than vice versa" (Christiansen/ Chater: 2007). They view language as "a kind of beneficial parasite – technically, a *nonobligate symbiant* – that confers some advantages ...to its human hosts, without whom it cannot survive" (Ibid.). This complex and interdependent organism of Language, they claim, "evolves under selectional pressures from human learning and processing mechanisms".[6] :

> 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).

Christiansen and Chater argue 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"

(Ibid.). They thus finally put the spotlight on the cognitive and processing constraints of the human brain, the *"shaper"* of Language. This insight is not brand-new; equally remarkable ideas had been voiced in the past by philosophers and psychologists (which is why, perhaps, their ideas did not attract the attention they deserved from linguists).

2. Past Insights Overlooked

Lev Vygotsky (1896–1934), a brilliant Russian psychologist whose professional perspective had undoubtedly broadened his understanding of the relationship between Language and Thought, proposed a qualitatively new approach to linguistic investigation: *Analysis into Units.*

In his famous work, *Thinking and Speaking* (1934; also translated as *Thought and Language),* Vygotsky developed a theory of language development which (along with Piaget's theory of cognitive development) laid the foundations of modern understanding of cognition. He criticized the then existing theories of the relationship between thinking and speaking, for splitting the two apart:

> We can trace the idea of identity of thought and speech from the speculation of psychological linguistics that thought is "speech minus sound" to the theories of modern American psychologists and reflexologists who consider thought a reflex inhibited in its motor part. In all these theories the question of the relationship between thought and speech loses meaning. If they are one and the same thing, no relationship between them can arise.
> ... At first glance, the adherents of the opposite view seem to be in a better position. In regarding speech as the outward manifestation... of thought, and in trying ... to free thought from all sensory components, including words, they ... attempt to solve the problem of the relationship between the two functions.
> ... Having made thought and speech independent and "pure," and having studied each apart from the other, they are forced to see the relationship between them merely as a mechanical, external connection between two distinct processes. The analysis of verbal thinking into two separate, basically different elements precludes any study of the intrinsic relations between language and thought (Vygotsky: 1934).

By contrast, Vygotsky argued that *word-meaning* (the indivisible meaningful union of Speech and Thought) is the smallest unit of Language, because it maintains all the properties of the Complex Whole (it has both form and meaning, and is part of the social means of thought, Language). He called this method *analysis into units*, as opposed to *analysis into elements* which had been used by previous investigators and which still, unfortunately,

dominates linguistic research. The distinction between *units* and *elements* is central to Vygotsky's theory. By drawing an analogy with chemical compounds (specifically, water or H2O), he pointed out that the properties of compound wholes are distinct from the properties of their parts (water extinguishes fire, while hydrogen burns and oxygen sustains fire). Similarly, a word of language cannot be broken into sounds and meaning – a word without meaning is empty sound, and meaning comes into existence only through words. Language, Vygotsky asserted, is a social means of thought, a system of word-meanings, each of which is a composite whole, a "living union of sound and meaning". Studying speech sounds separately from meaning "has done much harm to the study of both the phonetic and the semantic aspects of language", he claimed.

> The most thorough study of speech sounds merely as sounds, apart from their connection with thought, has little bearing on their function as human speech since it does not bring out the physical and psychological properties peculiar to speech but only the properties common to all sounds existing in nature. In the same way, meaning divorced from speech sounds can only be studied as a pure act of thought, changing and developing independently of its material vehicle. This separation of sound and meaning is largely responsible for the barrenness of classical phonetics and semantics (Ibid.).

Vygotsky's choice of *word-meaning* as the smallest unit of language cuts through the Gordian Knot of language "dualities" that so puzzled Ferdinand de Saussure, and breathes life into the "fractured" Linguistic Sign, restoring its organic wholeness. *Analysis into Units* fundamentally changes the concept of "word" – instead of looking at it purely as a sequence of speech sounds combining into morphemes (physical forms), the focus shifts to its essence and purpose – meaning:

> .... A word does not refer to a single object but to a group or to a class of objects.
> Each word is therefore already a generalisation. Generalisation is a verbal act of thought and reflects reality in quite another way than sensation and perception reflect it. Such a qualitative difference is implied in the proposition that there is a dialectic leap not only between total absence of consciousness (in inanimate matter) and sensation but also between sensation and thought.
> There is every reason to suppose that 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 (Ibid.).

'A word without meaning is an empty sound: meaning, therefore, is a

criterion of word,' wrote Vygotsky. On the other hand, while *meaning* is the product of thinking, it cannot exist without 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 (Ibid.).

The new focus on word-meaning enabled Vygotsky to make a remarkable conclusion with regard to its 'fluid' psychological nature:

> Our experimental investigations ... not only proved that concrete study of the development of verbal thought is made possible by the use of word meaning as the analytical unit but they also led to a further thesis, which we consider the major result of our study and which issues directly from the further thesis that word meanings develop. This insight must replace the postulate of the immutability of word meanings (Vygotsky: 1934).

Vygotsky's assertion smashed the fossilized tenets of associationism and made Language come alive in the dialectical, dynamic unity of strings of word-meanings in the context of use. It replaced the notion of the "fixed" socially conditioned associative bond between word form and meaning with the never until then so clearly stated idea that word meanings are fluid, and subject to a multitude of psychological, linguistic and non-linguistic interdependences and influences. The implications of Vygotsky's analysis for our understanding of language and thought, their "mechanism", origins and evolution are still unfolding. Its impact on the study of human cognitive development, communication and, in particular, on the current theory of "grammaticalization" is yet to be fully felt, I believe, for his insights have not yet resonated sufficiently in linguistic research. In the paragraph below, for example, he shed brilliant light on the nature of the grammaticalization process (and thus, on language origins and change); however, broken by the polarizing lens of twentieth century structuralism, its brilliance has gone largely unnoticed:

> ... 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 ... Linguistics did not

> realize that 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 (Ibid., Ch. 7).

Never at rest, our collective mind spins "webs of significance" out of our shared experience and perception. Conceptualization is a process – from "primitive generalizations", verbal thought can rise to the most abstract concepts. In this process, "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's professional insight into the nature of the conceptualization process helped him, I believe, to discover the 'fluidity' of meaning and explain *why* and *how* "reanalysis" occurs in the collective psyche, driving the processes of grammatical change (grammaticalization).

Born into the "webs of significance" around us, we internalize them with our mother tongue and become spinners and weavers, like everybody else around us, making sense of things in our individual heads, based on our subjective experience, perception, cognitive and physical ability, motivation in every concrete situation. The society provides us with symbols in common use and with techniques for spinning larger pieces of significance out of them, but we all see the patterns through our own two eyes. To use another analogy, we view the "pools" of fluid word-meanings from our uniquely individual perspectives, and this accounts for the inherent ambiguity of Language.

Most significantly, however, at least for our purpose of discovering that universal "thinking mechanism" society installs in our minds through language, Vygotsky describes the processes involved in thinking:

> ... Every thought creates a connection, fulfils 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. Every thought moves, grows and develops, fulfils a function, solves a problem (Ibid.).

The notion that we think by connecting ideas is nothing new; in school, we learn that every sentence of language connects *what we speak about* (the Subject) with *what we say about it* (the Predicate, or the verb with all the words that go with it). However, how the human mind creates meaning, *how* it connects ideas has largely gone below the radar of linguistic enquiry.

Since every word (and sentence) of Language is a generalization and, therefore, an act of thought, linguistics must examine the mechanism of verbal thought in order to discover how the rich diversity of the world's languages has been shaped by the universal principles of human logic.

David Hume's Enquiry Concerning Human Understanding

David Hume (1711–1776) was, by his own admission, perhaps the first philosopher to enquire into the mechanism of human understanding. His ideas about how humans think appear first in his *Treatise of Human Nature* (1740), followed by *Philosophical Essays Concerning Human Understanding* (1748); many later editions appeared as An *Enquiry Concerning Human Understanding*.

Having observed a remarkable similarity in the way people connect ideas when communicating – in all times and places, and in all languages – he sought to determine the nature of these connections, and concluded that they follow a universal pattern:

> Among different languages ... it is found, that the words, expressive of ideas, the most compounded, do yet nearly correspond to each other: a certain proof that the simple ideas, comprehended in the compound ones, were bound together by some universal principle, which had an equal influence on all mankind.
> 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; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.
> That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original [1]; the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others [2]; and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it [3] ... The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire:
>
> [1] Resemblance.
> [2] Contiguity.
> [3] Cause and effect (Hume: 1748).

The Treatise of Human Nature, published earlier, explains how this simple universal mechanism of connecting ideas generates the infinity of human thoughts and opinions:

> As all simple ideas may be separated by the imagination, and may be united again in what form it pleases, nothing would be more unaccountable than the operations of that faculty, were it not guided by some universal principles, which render it, in some measure, uniform with itself in all times and places. Were ideas entirely loose and unconnected, chance alone would join them; and it is impossible the same simple ideas should fall regularly into complex ones ... without ... some associating quality, by which one idea naturally introduces another. This uniting principle among ideas... is the cause why... languages so nearly correspond to each other; nature in a manner pointing out to every one those simple ideas, which are most proper to be united in a complex one. The qualities, from which this association arises, and by which the mind is after this manner conveyed from one idea to another, are three, viz. Resemblance, Contiguity in time or place, and Cause/ Effect (Hume: 1740).

David Hume's principles of human understanding fit in perfectly with Vygotsky's Analysis into Units; moreover, they explain how concepts (word-meanings) had emerged and evolved in the course of time, rising from primitive generalizations to the heights of abstraction in the collective mind of every speech community:

> A word does not refer to a single object but to a group or to a class of objects. Each word is therefore already a generalisation. Generalisation is a verbal act of thought and reflects reality in quite another way than sensation and perception reflect it (Vygotsky: 1934).

It is a pity that the *nature* of these connections, embodied in all grammars (as it is in logic) has not attracted due attention before and even after Hume... Is it because we tend to overlook that which is obvious?

3. Generalization - the Beating Heart of Language

We share feelings and sensations with other intelligent creatures who, like us, express them through "body language" and vocalization. Animal "languages", like human laughter, crying, or any other non-linguistic vocalization, communicate feelings and sensations, not abstract ideas. Can a laugh or a moan express an abstract meaning, such as "A = B" or "2x2=4"? *Homo* became *sapiens*, when our brains developed the ability to generalize – to create *ideas* about the world the way we see it. Meaning, and *consciousness* generally are possible only through the act of thought / *generalization:*

> Closer study of the development of understanding and communication in childhood ... has led to the conclusion that real communication requires meaning – i.e., generalization – as much as signs. According to Edward

> Sapir's penetrating description, 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.
>
> Thus, 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).

As a matter of fact, this applies equally to adults: the concept must be formed in our mind before we can understand a word's meaning. In order to form a concept, we need to see how things relate to each other (similarities between them, all the causal and part-whole relationships, etc.). 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: 1986, p. 135).

Synthesis & Analysis in Generalization/ Conceptualization

"Making sense" of something (conceptualization) is a complex process of both connecting and contrasting ideas, of *synthesis* and *analysis*. Synthesis and Analysis are the universal principles of human thought, underlying all generalization; they form the basis of our understanding:

(1) **Synthesis:** connects word-meanings into the nexus of a proposition (complex generalization) and
(2) **Analysis:** describes /specifies parts of the nexus (proposition), associating ideas by Resemblance, Contiguity, and/or Cause/ Effect.

Synthesis and analysis are integral parts of *generalization*: we categorize the world by *grouping similar things together* (association by resemblance and contiguity in space/time), because of similarities between them (association by Cause/Effect). In other words, if it looks like a duck, walks like a duck, and quacks like a duck, then it is a duck! Our ability to draw parallels between similar things, and to categorize them, based on that similarity, is what Generalization, human Thought /Language are all about. These universal principles of human understanding are, in fact, what Saussure referred to as those *"invariables unaffected by time, race, culture*

or geography" (Saussure: 1910). They are the principles of human reasoning that thinkers in other parts of the world had been aware of even before Hume or Saussure. For example, al Farabi, the outstanding Arabic philosopher of the tenth century A.D., believed that

> The subject matters (*mawdû'ât*) of logic are the things for which [logic] provides the rules, namely, intelligibles, in so far as they are signified by expressions, and expressions in so far as they signify intelligibles.
> ...
> [Logic] shares something with grammar in that it provides rules for expressions, yet it differs in that grammar only provides rules specific to the expressions of a given community, whereas the science of logic provides common rules that are general for the expressions of every community (al Farabi: 1931; 17.5-7, 18.4-7).

Generalization, in other words, is the matrix of universal grammar of human thought which finds expression through the diverse grammars of the world's languages shaped by it.

4. Language *Live*

A certain awareness of the need to view language dialectically, in all its interconnectedness, complexity, change and development had been voiced also in the West, both before and after Ferdinand de Saussure.

Wilhelm von Humboldt, recognized as "one of the profoundest and most original thinkers on general linguistic questions in the nineteenth century", stressed the "creative linguistic ability inherent in every speaker's brain or mind. A language is to be identified with the living capability by which speakers produce and understand utterances, not with the observed products of the acts of speaking and writing; in his words, language is a creative ability (*energeia, Tätigkeit, Erzeugung*), not a mere product (*ergon, Werk, Erzeugtes*). Still less should a language be identified with the dead products of the grammarian's analysis. ...no matter how much one analyses and describes a language, something of its essential nature remains unsaid (R.H. Robins: 1998, p.193).

Ludwig Wittgenstein (1889–1951) also stressed the creative power of language. 'To imagine a language means to imagine a form of life,' he wrote in §19 of his *Philosophical Investigations*; yet, he pondered, "Every sign by itself seems dead. What gives it life? In use it is alive" (Ibid.). Word-meanings come alive *in use*... What does that mean? Wittgenstein's "language games" provide numerous examples of functions and uses of words in communication. By connecting word-meanings into the nexus of a proposition, we construct complex/ composite meanings. A head without a

body is a head in name only; in the same way, a word outside of the *concreteness* of the context of live communication is just a name, a lifeless sign. "Only in the nexus of a proposition do words acquire their true meaning" seems a likely interpretation of what Wittgenstein meant by meaning as use. *Analysis into Units* recognizes that the properties of complex (compound) wholes are different from the properties of their parts. For example, the properties of the ignition chamber, the radiator or a gasket are different from the properties of the engine that is made up of these and other parts. Through the "synthesis" of the Subject (what we speak about) and the Predicate (the Verb and all the words that go with it), we create a composite meaning /generalization, different from the socially assigned word-meanings that make up the sentence. This is why the Indian scholar Yāska (c. 5th century B.C.) believed that meaning "inheres in the sentence, and that word meanings are derived based on sentential usage",[7] as did Bharthrari a millennium later, who believed the sentence to be a single unit of meaning perceived "in a flash", like a picture. This is also why, Vygotsky argued, "word" and "sense" are relatively independent of each other (Vygotsky: 1934), to the extent that the same thing can be said in so many different words, while the same utterances can convey different meanings, i.e., "We need more honest politicians" or "Prostitutes appeal to Pope"!

This is how language lives – in use, when our generalizing minds 'make sense' of things in the context of concrete communication/ situation. The synthesis and analysis of generalization provide an all-purpose universal matrix for conceptualization (consciousness).

5. Grammar Precedes Logic

Through learning the *smallest units* of socialized thought (word-meanings) and the conventional ways of *connecting* them to form *complex ideas,* we learn to *think* (generalize). Grammar, in Vygotsky's words, precedes Logic:

> Thought development is determined by language, i.e., by the linguistic tools of thought and by the sociocultural experience of the child. ... 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 (Vygotsky: 1934).

The noises we make as babies – all "gugu"s and "gaga"s, crying, even our first words, have nothing to do with thinking. Our first words are not really words, but rather expressions of feelings that we communicate not by the words, but by our whole behaviour (like pointing, reaching out to something or pushing it away, etc.). First learning to speak, babies start with single

words (holophrastic speech), then begin to connect two or three words together into simple sentences, and gradually learn to make complex ones. Thus, in their speech development, babies proceed *from a part to the whole* (sentence). With meaning, it is the other way around: a baby's first word is a whole sentence: i.e., the word *mama*, for example, could mean anything from *Mama, give me* or *Mama, come here*, or *Mama, hold me,* etc.

> 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. ... 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* (Vygotsky: 1934).

Generalization, this socially acquired ability of human minds to construct composite meanings through the nexus and recursion of linguistic structures is the living energy, the *dynamo* of language/ verbal thought.

6. Generalization - the Rational Mechanism of Language

When communicating with others, we use the social 'currency of thought exchange'/ word-meanings to synthesize composite meanings. These "composites" are like the mosaic images we create from colored tiles. Each sentence, each proposition, is a "pool" of meaning, a composite image which



transmits its meaning in a flash – like any of these ancient mosaics:
* Images retrieved 15/07/09 from www.flickr.com

Grammarians and descriptive linguists, like art critics looking at how the tiles make up a particular image, analyze the different ways we put word-meanings together to create the complex meaning. The better the artist knows what colour tiles to use and how to put them together, the clearer the

image he creates will be. The better we know the word-meanings of language and how to put them together, the more effectively we will be able to communicate our thoughts (complex meanings/ generalizations).

The universal principles of human understanding (association of ideas by Resemblance, Contiguity in space/time, and Cause/Effect) constitute the Rational Mechanism of Language, which drives grammaticalization and thus has shaped all grammars. Grammaticalization is the consequence of word-meaning development /reanalysis in the collective mind of the speakers, so aptly described by Vygotsky: "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).

In recent and current scholarly discourse, there is a growing consensus that analogy, metaphor and metonymy indeed form the matrix of the diverse and ever-emerging grammars of all natural languages (Heine, Claudi, and Hünnemeyer: 1991). Metaphor, however, is just another name for association by Resemblance; metonymy – for Contiguity in Time/Space and Part-Whole relationships; and causality – for associations by Cause/Effect! (One of Shakespeare's gems comes to mind, "What's in a name? That which we call a rose would smell as sweet by any other name".)

If all grammars are shaped by a universal Rational Mechanism, then they must share a lot in common, despite all their diversity. The search for these 'universal invariables' of Language spans the history of humankind: Speculative Grammar of the Middle Ages, the Solitaires of Renaissance, the Generative/ Transformational Grammar of the 20th century, and many other schools of thought attempted to define them. The dialectical view of Language reveals it live, its fluid forms and meanings in constant change and evolution. The only common denominator between all human languages is generalization. The synthesis and analysis of generalization are the essence of the process of human understanding embodied in the nexus and recursion of propositions, whichever form they may take. The dialectical approach has revealed the indeterminacy of both meanings and forms of world's languages.

Universal Invariables of Infinite Forms

Synthesis and analysis of generalization (Language-Thought) are universal invariables of its infinite forms, because all languages are means of abstract thought, and "in genuine concept formation, it is equally important to unite and to separate: *Synthesis* and *Analysis* presuppose each other, as inhalation presupposes exhalation" (Vygotsky: 1986, p. 135).

(1) **Synthesis** into the nexus of the proposition is, therefore, a feature of all human languages, whatever their word order – SVO,[8] SOV, VSO, VOS, or the more rare, predominantly OVS /OSV patterns (these make up only 0.75% and 0.25% of the world's languages, respectively, according to Christiansen & Chater: 2007), as is also

(2) **Analysis** of the basic constituents in the form of recursion, or embedding of modifiers/nexal patterns within others (Daniel Everett's claim that the Pirahä language lacks recursion may have more to do with the indeterminacy of linguistic forms rather than with Pirahä's inability to describe/ specify/ analyse sentence constituents – but that is a topic for another conversation).

In the course of their evolution, all natural languages have developed grammars, i.e., conventional rules for the use of word-meanings. All grammars assign the same basic functions that words can perform in the sentence (parts of speech). This is yet another proof that that the way the human brain thinks (the Rational Language Mechanism) sets limits to the arbitrariness of the Linguistic Sign. The emergence of grammatical meanings/ functions, shaped by the generalizing minds of the speakers, is clearly evident in the development of creole languages.

As we have already seen, the connection between Thought and Language (Logic and Grammar) has often been commented upon in the field of philosophy and logic. Cohen and Nagel make the crucial distinction in the subject matter of Grammar and Logic, in a way echoing al Farabi's observation of the relativity of expression (word forms) and the universality of the principles of connection between them:

> While the direct subject matter of logic cannot be restricted to words, or even to the meaning of words as distinguished from the meaning or implication of propositions, logic is closely connected with general grammar, and it is not always easy to draw a sharp line between the grammatical and the logical writings of philosophers like Aristotle, Duns Scotus, and C.S. Peirce (Cohen & Nagel: 1972).

The distinction between the meanings of words and those of propositions is crucial for understanding the universal Rational Language Mechanism – Generalization. We communicate our thoughts in sentences, and it is only in the nexus of the proposition that words "come alive" in use, and acquire their real meaning. Therefore, understanding of the universal principles of generalization holds the key to the mysteries of syntax of any human language.

7. Conclusions & Implications

The dialectical view of language captures it "live", in all its shimmering and multifaceted glory, embodying human thoughts in diverse and constantly changing forms. It puts the metaphysical focus on grammatical structures, which has been prevalent in linguistics for over 200 years, into perspective, viewing it in the context of generalization (thought construction), for language lives only in the generalization of a proposition /composite meaning[9].

Logic is the science of coherent consequential reasoning which we use in order to explain the world – to discover scientific truths (the way things are – not the way we may perceive them). It is time we use the logic of our thinking to understand how it shapes the structures of Language.

Some of the practical implications of the dialectical approach to Language have already become clear in my teaching practice: the three-dimensional view of the complex dualities of Language *live* have generated keen interest amongst my students at the University of Papua New Guinea, which has translated into motivation and, therefore, academic success.

The use of the dialectical approach in the teaching of language structure (syntax) is particularly effective in multilingual societies, such as PNG, because it uses the universal principles of human understanding (the students' natural way of thinking) to analyse language structures.

I also believe that the more comprehensive dialectical approach to Language will play a part in helping people realize our common humanity, and serve to heal the cultural divisions and ethnic tensions, still festering in many societies.

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Footnote

[1]Ferdinand de Saussure. 2006. *Course in General Linguistics* (1910-1911): The Language Mechanism [182], p.131.

[2]Saussure: 4 November 1910. Retrieved 29 September 2008 from http://www.marxists.org/reference/subject/philosophy/works/fr/saussure.htm

[3]In a linguistic state ... everything depends on relations. .... The relations and differences between linguistic items fall into two quite distinct kinds, each giving rise to a separate order of values. The opposition between these two orders brings out the specific character of each. They correspond to two different forms of mental activity, both indispensable to the workings of a language. Words as used in discourse, strung together one after another, enter into relations based on the linear character of languages ... Combinations based on sequentiality may be called *syntagmas*.

... Outside the context of discourse, words having something in common are associated together in the

memory. In this way they form groups, the members of which may be related in various ways. This kind of connexion between words is of quite a different order. It is not based on linear sequence. It is a connexion in the brain. Such connexions are part of that accumulated store which is the form the language takes in an individual's brain. We shall call these *associative relations*.
Syntagmatic relations hold *in praesentia*. They hold between two or more terms co-present in a sequence. Associative relations, on the contrary, hold *in absentia*. They hold between terms constituting a mnemonic group. Saussure: 2006, pp. 121–122.
[i4]Saussure: 1910.
[i5]Such as Chomsky's Language Acquisition Device (LAD).
[6]This view was also stated by Terrence W. Deacon in The Symbolic Species: the Co-evolution of Language and the Brain (1997).
[7]http://en.wikipedia.org/wiki/History_of_linguistics.
[8]Subject, Verb, Object (SVO).
[9]We have already seen that only in the nexus of a proposition do words acquire their true meaning.