

Papers in this Volume

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Steven Vindua, University of Papua New Guinea

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Regis Stella, University of Papua New Guinea

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Wrong Usage in English: The case of ignorant and sighted
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The Rational Language Mechanism: Key to Understanding Syntax

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Abstract

This paper aims to explain how, through the dialectical approach to Language, we can capture its living energy – its Rational Mechanism of Generalisation. I argue that since human thought generates all human languages, the rational language mechanism should be as much a focus of linguistic research as are the diverse linguistic forms and structures. Grammar installs Logic in human minds; to really understand Grammar, we must see its Logic.

This discovery of the Rational Language Mechanism helps us understand the structures it shapes. A new type of syntactic analysis – generalizing analysis (or g-nalysis, for short) is presented, with English examples.

Key words: word-meaning, dialectics, generalization, grammar, logic, resemblance, contiguity, cause/effect, synthesis and analysis.

Introduction

Descriptive Linguistics has developed methodology and techniques to describe the forms and structures of written and even unwritten languages. The physical forms, however, are but a part of what human language really is. Just as we cannot know people and understand their behaviour by looking at their physical appearance, so we cannot fully understand language and its 'behaviour' by focusing on its forms and structures – its life, its creative energy will inevitably elude us. More often than not, the traditional descriptive approach to syntax hinders our understanding of how Language really works – we get lost in the details and become unable to see the forest for the trees! Viewing Language dialectically, we can glimpse it 'live,' with its living energy throbbing in all its structures. Saussure's Language Mechanism, the rather schematic interplay of 'syntagmatic and associative relations' between linguistic signs, will suddenly come alive, 'fleshed out' and set into motion by Thought.

Structuralism vs. Dialectical Approach to Language

Language is a Gordian knot of dualities and contradictions that has fascinated us for as long as we have walked the Earth. Ferdinand de Saussure (1857-1913), who was one of the first minds to approach Language *scientifically* as a complex whole, commented on the implications of its multifaceted nature:

There is no way out of the circle. ... 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 mentioned above, 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 (Saussure: 1983).

Saussure believed he could loosen this intractable knot of contradictions and dualities by focusing on linguistic structure – 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 (Ibid.).

Since the Gordian knot of Language had, in Saussure's view, no 'discernible unity,' his way out of the 'circle of contradictions' was to chop off some of its pesky tangles altogether, and to focus solely on linguistic structures:

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 (Ibid.).

Structuralism, however, has led us down the old descriptive path; it has resulted in a mass of disjointed observations, malleable into 'all kinds of mirage' Saussure warned his students about:

There is no sphere in which more fantastic and absurd ideas have arisen than in the study of languages. Language is an object which gives rise to all kinds of mirage. Most interesting of all, from a psychological point of view, are the errors language produces. Everyone, left to his own devices, forms an idea about what goes on in language which is very far from the truth (Saussure: 1993).

Through detailed structural analysis of speech production /perception, the descriptive approach has produced hi-fi images of the physical sounds and structures of language. But just as a person's behaviour cannot be gleaned from his/her photograph, so Language cannot be understood through the study of its physical forms in isolation from its psychological, social, and historical aspects.

Dialectical reasoning views things in all their interconnectedness, complexity, development and change. It recognizes that the properties of complex wholes are different from the properties of their parts, and that quantity gradually changes the quality. The dialectical approach is perfectly suited for the study of living structures (complex wholes), because it uses both analysis and synthesis to capture their multifaceted, interrelated, and constantly changing nature.

Vygotsky's Analysis into Units

Lev Vygotsky (1896–1934), the brilliant Soviet psychologist, paved the way for dialectical linguistics with a new type of analysis of Language, which he called *analysis into units*.

By *unit*, Vygotsky meant that object of analysis which, unlike the smallest parts, or elements, **retains the basic properties of the complex whole**, and which cannot be further divided without losing those basic properties:

“Not the chemical composition of water but its molecules and their behaviour is the key to the understanding of the properties of water. The true unit of biological analysis is the living cell, possessing the basic properties of the living organism. What is the unit of verbal thought that meets these requirements? We believe that it can be found in the internal aspect of the word, in word meaning. ... The nature of meaning as such is not clear. Yet it is in *word meaning* that thought and speech unite into verbal thought. In *meaning*, then, the answers to our questions about the relationship between thought and speech can be found” (Vygotsky: 1934).

Vygotsky's choice of word-meaning as the smallest unit of language cut through the Gordian Knot of dualities of language that had puzzled Saussure; it breathed life into the 'fractured' Linguistic Sign (Signifier + Signified), restoring the organic wholeness of word's duality:

... 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.)

Word-meanings are the concepts (generalizations) in our collective mind; societies use these symbolic forms by convention. Since conceptualization (generalization) is what we call 'thinking,' all conventional concepts (or word meanings) are the products of our collective (social) thought:

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.).

Word-meaning, therefore, is a fusion of thought and speech: a word without meaning is empty sound; thus, *meaning* is the *essence of word*. Since word meaning is both thought and speech, living in society and changing with time and in use, it is indeed the smallest unit of Language: it retains the psycho-physical, historical and social properties of the complex WHOLE. It is clear, then, that in order to better understand Language (verbal thought), we must examine how these units of language (word-meanings) are formed, how they function, and how they develop and evolve. Only this *dialectical* approach can give us an idea of how language really works. What is thinking? *How do we think?* Answers to these questions will help us understand the behaviour of word-meanings in use, and explain language change and development over time.

Conceptualization: David Hume on Principles of Human Understanding

David Hume (1711–1776), the Scottish philosopher, examined the nature of human thought in his *Enquiry Concerning Human Understanding* (1748). He claimed that humans (in all times and places) make sense of things by making **connections** between ideas; the kind of connections we make results in what we think about how things *relate* to each other:

"It is evident that there is a principle of connexion between the different thoughts or ideas of the mind, and that in their appearance to the memory or imagination, they introduce each other with a certain degree of method and regularity. In our more serious thinking or discourse, this is so observable that any particular thought, which breaks in upon the regular tract or chain of ideas, is immediately remarked and rejected. And even in our ...dreams, we shall find ... that ...there was still a connexion upheld among the different ideas, which succeeded each other. Were the loosest and freest conversation to be transcribed, there would immediately be observed something which connected it in all its transitions. ...

Among different languages, even where we cannot suspect the least connexion or communication, 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

[4] ... Contrast or Contrariety is also a connexion among Ideas: but it may perhaps, be considered as a mixture of Causation and Resemblance. Where two objects are contrary, the one destroys the other; that is the cause of its annihilation, and the idea of the

annihilation of an object, implies the idea of its former existence."

(David Hume: An Enquiry Concerning Human Understanding, Section III – Of the Association of Ideas. Retrieved on February 24, 2008 from <http://18th.eserver.org/hume-enquiry.html>)

Indeed – in order to form a concept, to see similarities between things, all the part-whole and causal relationships, we must be able not only to connect, but also to *abstract*, to *single out* characteristic elements, and view them separately from the "totality of the concrete experience in which they are embedded" (Vygotsky: 1986, p. 135).

Getting to understand something is a complex process of both *connecting* and *contrasting* ideas:

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).

Synthesis & Analysis in Generalization/ Conceptualization

Synthesis and Analysis are the universal principles of human thought; they underlie the basis of our understanding:

- (1) *Synthesis* – connecting word-meanings into the nexus of the proposition to form complex meanings /complex generalizations / the language-specific sentence patterns (such as SVO, SOV, etc.) and
- (2) *Analysis* – analyzing, modifying, or specifying any one of the three main sentence constituents by associating ideas based on Resemblance, Contiguity, and Cause/ Effect. Analysis results in what is commonly referred to as recursion in human language (i.e., embedding of phrases / nexal patterns that function as adjectives, adverbs or nouns within the larger framework of the sentence.

These principles of human understanding constitute generalization: we categorize the world, grouping / categorizing similar things (association by contiguity in space/time), because (association by Cause/Effect) of their similarity (association by Resemblance). In other words, if it looks like a duck, walks like a duck, and quacks like a duck, then it is a duck!

Dialectical Linguistics

Dialectical linguistics captures Language live, because it views it as a complex whole: the nexus of word and thought that comes alive in use. It focuses on issues which have traditionally remained on the fringes of linguistic investigation, i.e.

- ⇒ how we learn to think 'Human' (i.e., generalize) through the words and structures of language – the generalizations created and used by the society;
- ⇒ how language enables us to create complex meanings through the synthesis and analysis of its smallest units, word-meanings;
- ⇒ how word-meanings develop in our individual minds, as we go through the various stages of cognitive development /personal experiences; and
- ⇒ how word-meanings evolve in the collective mind of the society, creating grammatical structures as a result:

... 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.).

The central focus of dialectical linguistics is the mechanism of meaning creation. In 'live' communication, word-meanings, being already generalizations (i.e., socially assigned conventional meanings), form language-specific sentence patterns. Each sentence is a chunk of complex meaning – a synthesis of all the word meanings that make it up.

The fundamental principle of Analysis into Units is that the properties of complex wholes (compounds) cannot be deduced from the properties of their constituent parts (for example, the properties of water H₂O are different from the properties of both of its elements, hydrogen and oxygen). It follows that, since sentences are complex wholes, their meanings are different from the meanings of the words that make them up, and each of the constituent words acquires its actual meaning only in the nexus of the whole. Wittgenstein was not the only one to comment on this 'indeterminacy of meaning' in live communication ('meaning as use'); Brown and Yule, both linguists, write that "the perception and interpretation of each text is essentially subjective" (Brown & Yule: 1998).

Language provides us with the social 'currency' of word-meanings which we use to create unique complex meanings. Our knowledge of the units of the language we speak (the conventional word-meanings) and of the social rules for combining them into larger chunks of complex meanings enables us to create and communicate an infinity of meanings – 'live'!

The conventional meanings of words, those units of Language (word-meanings) we have been talking about, are not fixed – they CHANGE in Time! Languages live through the synthesis and analysis of generalization in our individual and collective minds. Word-meanings are *not* the conventional meanings listed in dictionaries – those are but their colorful snapshots, filed and classified in alphabetical order. *Word* and *sense* of a word-meaning are, in fact, relatively independent of each other in live communication – how many meanings can we put into a single word 'Hello'? Our individual minds 'make sense' of the words we hear, depending on a multitude of factors (personal experience, level of cognitive development, circumstances of use, etc.).

The fact that word meanings change in use, shaped by our generalizing minds, accounts for the inherent ambiguity of Language and explains its evolution. As concrete word-meanings (those 'primitive generalizations') undergo reanalysis in the collective mind of the society, they rise to a higher level of abstraction (acquiring more abstract, grammatical, meanings). This is how all the diverse grammars of the world's languages have been shaped by the collective minds of their speakers – generalizing. Since the natural way we, humans, think (generalize) has shaped all grammars, it is logical to assume that grammatical structures will reflect the mechanism of human thought (generalization, the synthesis and analysis of ideas):

1. Generalization is the mechanism of human (verbal) thought.
2. Verbal thought is Language.
3. Therefore, *generalization is also the mechanism of Language.*

Generalization is the *Rational* Language Mechanism which has shaped all the diverse grammars of the world's languages; it is the *key* that can unlock the complexities of syntax.

The Rational Language Mechanism

Through learning the words (minimal units) of language (which, in themselves, are already *generalizations* or acts of thought by our *collective* mind), and the ways we can connect them to make *complex ideas*, we learn to *think (generalize)*.

We put word meanings (generalizations in themselves) together, creating complex meanings (complex generalizations) that function as units of complex meaning. This idea is not new – Bhartrhari (7 A.D.), the remarkable Indian scholar, also regarded the sentence as a single undivided utterance, conveying its meaning 'in a flash,' just as a picture (Robins: 1995).

We 'synthesize' complex meanings in our minds, using the linguistic 'currency of exchange' in common use and language-specific rules of their combination (syntax). These larger chunks of meaning (sentences, etc.) are infinite in their form and meaning.

Synthesis and Analysis of word-meanings underlie all human thought and, therefore, the structures of all the world's languages. Let us see now if the key of the Generalization fits the secret locks of syntax!

Generalization in Syntactic Analysis (G-nalysis)

G-nalysis uses the mechanism of meaning creation, Generalisation, to identify the ways we **connect** (synthesize) and **expand** (analyze) simple ideas into larger chunks of meaning – word-meanings, *phrases* and *clauses* (groups of word-meanings), and *sentences*. Instead of growing 'trees' as part of the constituent analysis or using 're-write rules' trying to identify Noun and Verb Phrases, G-nalysis looks at the logical relationships between word meanings within the main sentence (most, though not all, English declarative sentences have the Subject/ Verb/ Compliment pattern, or S/V/C). G-nalysis also uses the term NEXUS, or 'nexal pattern' to refer to the main sentence constituents; this term was borrowed from Dr. Ed Vavra's KISS Grammar, which uses a similar, though not identical, approach (Re:<http://home.pct.edu/%7Eevavra/index.htm>). These logical relationships are the *grammatical meaning* (function) of word-meanings/ groups of word meanings whose function is either

- ⇒ To **name** (synthesize) a concept/ idea (Noun function), or
- ⇒ To **describe/ specify** (analyse) it – Adjective function, if it describes a noun, Adverb, if it describes an action.

Because this method of sentence analysis (g-nalysis) uses universal human Logic, the way the human brain thinks naturally (associating ideas by Resemblance, Contiguity, or Cause/ Effect), it is really easy to understand and to use. We generalize / form concepts / create meaning through the dialectical process of **Synthesis** and **Analysis**:

1. **Synthesis** creates/ names a complex meaning, i.e., 'Every word of Language is a generalization'; it forms the nucleus of the sentence, its 'skeleton' (S/V/C pattern);

2. **Analysis** gives additional detail to the main sentence constituents (S/V/C); it allows for potentially infinite expansion of S/V/C patterns through *recursion*. Any one (or all three) of the major sentence constituents (S, V, and C) may be either described through association with other ideas by Resemblance, Contiguity, and Cause/Effect, or *named* using all three types of association, as is the case in any generalization.

Recursion makes the Language/ Thought mechanism open-ended, allowing for infinite expansion of the original sentence meaning through embedding other complex chunks of meaning (such as phrases or dependent S/V/Cs that name or describe one of the items in the main nexal pattern) into the main sentence slots.

After a quick revision of parts of speech, and types of sentence structure (simple, compound, complex, and complex-compound sentences), students are introduced to the 'g-nalytic' concepts of *Nexus*, *Phrase* and *Clause*:

Concept # 1: Nexus (S/FiniteV/C). Clauses are groups of words that have a Subject (what we speak about) and a **Finite Verb** (what we say about the Subject). The Finite Verb 'obeys' its Subject in number and person: this **Subject-Verb Agreement** is essential to sentence unity. Most declarative English sentences have the S/V/C pattern. The Compliment may be made up of:

- ⇒ Zero Compliment: *Peter smokes.*
- ⇒ Predicate Adjective (PA): *Peter is silly.*
- ⇒ Predicate Noun (PN): *Peter is a doctor.*
- ⇒ Direct/Indirect Object (DO/IO): *Peter fries fish for his friend.*

An example:

S / V / C (PN)
Ignorance / is / the mother of devotion. (Robert Burton)

Concept # 2: Phrases are groups of words that function as one part of speech (Noun, Adjective, or Adverb) within the main nexal pattern but have no Finite Verb in them (→ Nexus):

S V / C (PN)
Ignorance / is / the mother of devotion [Which/ whose mother? –
Adj. phrase]

Concept # 3: Dependent Clauses are groups of words that function as one part of speech (Noun, Adjective, of Adverb) and therefore cannot stand on their own, but have the structure of a sentence (i.e., they have at least one finite verb and, therefore, a nexal pattern of their own):

I think, therefore I am (Des Cartes)

[I think – with what consequence? Adv. Clause of consequence]

Concept # 3 versus Concept # 4: Phrases vs. Subordinate Clauses: Both are groups of words that function as one part of speech (a noun, an adjective, or an adverb) within the larger framework of the sentence; the difference between them is *structural*: clauses have the SVC pattern, and phrases do not:

'It is a mark of an educated mind to be able to entertain a thought without accepting it.' (Aristotle)

['without accepting it' is an adverb of manner describing the action 'to entertain' (part of the delayed Subject, 'to be able to entertain a thought'); of an educated mind is an adjective phrase; it describes the PN 'mark'.]

'A man *who has committed a mistake and doesn't see it*, is committing another mistake. (Confucius, 'Success and Failure')

[Here the Adj. Clause in italics has the subject *who* of two predicates joined by conj. 'and'; this clause modifies the noun 'man' in the main nexal pattern.]

The Purpose of G-nalysis

The purpose of G-nalysis is to get to understand the logical relationships between the larger chunks of meaning within one sentence through first identifying the complex generalizations (i.e., the S/V/C or nexal patterns) within the sentence, and then determining which one(s) in the utterance are independent and which ones are dependent (i.e., they can't stand on their own because they act as Nouns, Adjectives, or Adverbs within a larger S/V/C pattern). Thus, the two steps of G-nalysis are:

Step One: identifying all S/V/C patterns in the sentence; for example, in the sentence

'All who were there saw what had happened,'

there are three nexal patterns (the 3rd one is embedded in the Complement slot of the 1st nexal pattern):

S/V/C # 1: *All saw [what happened]*

S/V/C # 2: *Who were there*

S/V/C # 3: *what happened*

Step Two aims to determine the *logical relationships* between all the S/V/C patterns (the 'chunks of meaning they represent') in the sentence. This is done through asking logical questions, designed to figure out the kind of

association that bonds them together [Analysis (resemblance, contiguity, cause/effect) or Synthesis (generalization based on all three of them)]:

Noun function (naming generalization): What?

Adjective function (resemblance): What kind of? Which?

Adverb function (Contiguity or Cause/ Effect associations): How? Where? When? Why? On what condition? With what consequence?, etc.

Thus, the structure of the complex meaning is made up of three SVCs:

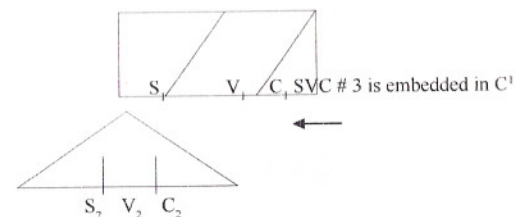
Main S/V/C: All saw what happened.

Dependent SVCs:

Who were there = Adjective clause (describes 'All')

what had happened = Noun clause (names what all saw)

The relationship between the main nexus (quadrangle) and the dependent SVCs (triangles) can be diagrammed thus:



Practical G-nalysis – Key Symbols:

□ ← main nexus

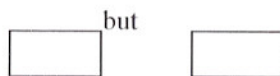
△ ← subordinate clause (noun, adjective, or adverb)

S V C_{zero}

- (1) //All great truths / begin as blasphemies/ /.

S₁ V₁ C_{1(DO)} S₂ V₂ C_{zero}

- (2) //You / can twist / perceptions//, but // reality / won't budge//.

*Which something?**Until when?*V₃ S₁ V₁ C_{1(PN)} S₂ V₂ C_{2,zero} S₃

- (3) //Experience / is / something // you / don't get / until just after /you / need / it//.

C_{3(DO)}

Adjectival Clause (modifies 'something')



Adverbial Clause of Time (modifies 'don't get')

In what consequences?

- (4) //I / think //, //therefore / I / am.// ~ Descartes



Adverbial Clause of Consequence

S V C_(DO)

- (5) //Drawing on my fine command of language, / I / said / nothing//.*



How?

* The adverb of manner phrase precedes the Subject.*Which everything?*

- (6) S
- ₁
- S
- ₂
- V
- ₂
- V
- ₁
- C
- _{1(PN)}
-
- //Everything // you / can imagine // is / real.// ~ Picasso



Adj. Clause

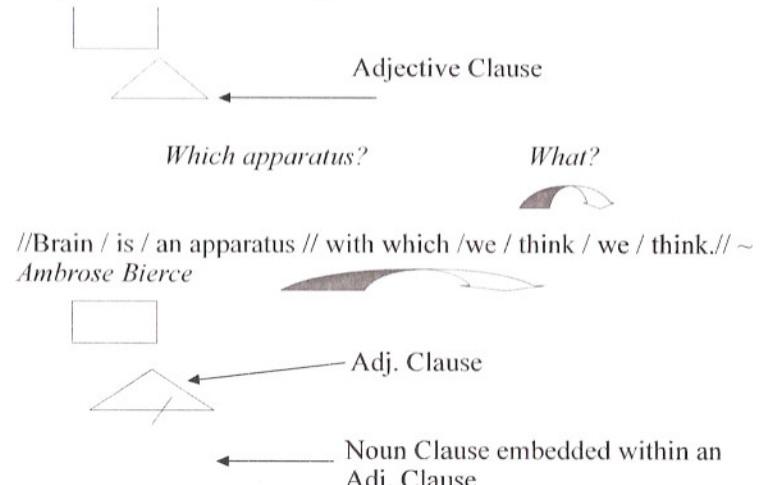
S₁ V₂*What?*S₂ V₂ C_{2(DO)}

- (7) //True knowledge / exists in knowing / that /you / know / nothing.// ~ Socrates



Noun Clause

- (8) *// Knowledge and belief / are / two separate tracks // that / run parallel to each other and never meet, except in the child.// ~*
Godfried Bomans: Buitelingen II
- Which tracks?
- 

- (9) *//Brain / is / an apparatus // with which /we / think / we / think.// ~*
Ambrose Bierce
- Which apparatus? What?
- 

G-nalysis is flexible: it allows for ambiguity, so inherent in language. The functions of words and groups of words (phrases and clauses) may be analysed differently, depending on one's perception / the kind of generalization one makes. In example (7), for instance, the phrase *in knowing* can be analysed as

- or as
- (a) Indirect Object (IO) in the compliment slot, if the question '(exists) *In what?*' is asked
 - (b) An adverb of place phrase, if the question '*Where?*' is asked instead; in this case, the complement would be analysed as zero.

G-nalysis, by identifying the logical relationships between word-meanings and groups of word-meanings that function as one part of speech (Noun, Adjective, or Adverb) also teaches students logic (generalization) – those thinking skills we use when we associate ideas by Resemblance, Contiguity, and Cause/Effect).

This flexibility of G-nalysis reflects the fluid nature of 'live' meanings we create and perceive, as we 'play our language games'; it corroborates the 'indeterminacy of meaning' (or 'meaning as use') that Ludwig Wittgenstein wrote about in his *Philosophical Investigations*. G-nalysis reflects the natural way we think / reason; it encourages the students to observe the way people speak, and to analyse the sentences they hear, read, or produce. This accounts for the reason why students have found it both enjoyable and easy to make sense of.

Dialectics & Dialectical Linguistics: Implications & Significance

Dialectics (as opposed to metaphysics) comprehends things in their totality – their essential connection, motion, and contradiction. It views development not as going around in circles, but as ascending in the ever expanding *spiral of evolution*, in which each coil reaches another level of development as a result of the 'conflict of internal contradictions':

Ancient Greeks viewed the world (including Language) as a whole, in all its interconnectedness and motion; in Socrates put it succinctly in Plato's dialogue *Cratylus*:

By the dog of Egypt! I have not a bad notion which came into my head only this moment: I believe that the primeval givers of names were undoubtedly like too many of our modern philosophers, who ... think that there is nothing stable or permanent, but only flux and motion, and that the world is always full of every sort of motion and change. The consideration of the names which I mentioned has led me into making this reflection.

Our knowledge grew in the process of analysing Nature into its individual parts – we divided the world around us into distinct classes and categories and studied them separately. The habit of examining things in isolation prevented us from seeing things in a larger context; we scrutinized *parts* of a whole, but were blind to how all of them related to each other; we got used to seeing the world as 'fixed' and unchanging. Engels gave a vivid description of the evolution of knowledge in *Socialism: Utopian & Scientific*:

When we consider and reflect upon Nature at large, or the history of mankind, or our own intellectual activity, at first we see the picture of an endless entanglement of relations and reactions, permutations and combinations, in which nothing remains what, where and as it was, but everything moves, changes, comes into being and passes away. We see, therefore, at first the picture as a whole, with its individual parts still more or less kept in the background; we observe the movements, transitions, connections, rather than the things that move, combine, and are connected. This primitive, naive but intrinsically correct conception of the world is that of ancient Greek philosophy, and was first clearly formulated by Heraclitus: everything is and is not, for everything is fluid, is constantly changing, constantly coming into being and passing away.

But this conception, correctly as it expresses the general character of the picture of appearances as a whole, does not suffice to explain the details of which this picture is made up, and so long as we do not understand these, we have not a clear idea of the whole picture. In order to understand these details, we must detach them from their natural, special causes, effects, etc. This is, primarily, the task of natural science and historical research ... A certain amount of natural and historical material must be collected before there can be any critical analysis, comparison, and arrangement in classes, orders, and species. The foundations of the exact natural sciences were, therefore, first worked out by the Greeks and later on, in the Middle Ages, by the Arabs. Real natural science dates from the second half of the 15th century, and thence onward it had advanced with constantly increasing rapidity. The analysis of Nature into its individual parts, the grouping of the different natural processes and objects in definite classes, the study of the internal anatomy of organized bodies in their manifold forms — these were the fundamental conditions of the gigantic strides in our knowledge of Nature that have been made during the last 400 years. But this method of work has also left us as legacy the habit of observing natural objects and processes in isolation, apart from their connection with the vast whole; of observing them in repose, not in motion; as constraints, not as essentially variables; in their death, not in their life (Engels: 1880).

Linguistics has followed the same spiral of evolution — from early generalizations to detailed analysis and categorization of the descriptive and structural approach.

Language, given to us by society, enables us to create and share meaning; this includes all knowledge (and knowledge of Language itself). In our cognitive development, psychologists agree, *Grammar precedes Logic* (Piaget: 1928; Vygotsky: 1934). Having grasped both grammar and Logic, we have come full circle; we will rise to a new level in the spiral of our understanding of Language, if we now use Logic in our analysis of Grammar. G-nalysis uses logic in syntactic analysis; by doing that, it improves both their grammar and their thinking skills (Logic).

As inhalation and exhalation constitute breathing, as *Synthesis* and *Analysis* constitute understanding, so Grammar and Logic constitute Language. Together, these dualities make up the living process of New Synthesis that subsumes them both:

Conclusion

I have argued that the universal principles of human understanding (verbal thought) — the synthesis and analysis of ideas based on their Resemblance, Contiguity, and Cause/ Effect — constitute the Rational Language Mechanism which has shaped all the diverse structures of world's languages through the process of grammaticalization.

Having learnt to think 'Human' through Language, we must now use the logic of human thought to understand the linguistic structures we use to create meaning. Generalizing syntactic analysis (G-nalysis) uses universal human Logic to reveal how complex meanings are synthesized by the grammars of all human languages.

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