

Sutra 5: Generalization – the Rational Mechanism of Language

A few ‘reminders’ before we look at the ‘heart and soul’ of Language – Generalization:

(a) Syntax is the way we put together our sentence mosaics; it is the rules we use to create our mosaics of word-meanings. A single tile has no other meaning beyond its physical properties (color, shape, size and texture); a single word has no other meaning beyond its conventional ‘dictionary’ meaning and sound. The meaning of a mosaic image is made up of all the tiles put together in a particular way; indeed – how do some of the tiles below become fish, or fins, eyes, tails, and bellies of the fish? The way they are placed in relation to all the other tiles in the pattern makes them what they are in the mosaic.



Every sentence is a mosaic – a whole, whose meaning is more than sum of its words. Every sentence is a generalization in the individual mind of its creator (speaker/writer and listener/reader).

(b) We don't speak in single words; our word mosaics (sentences) always say something *about* something, connecting ideas into a meaningful pattern of the sentence mosaic:

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

(c) The sentence mosaic in any human language is a union of *what we talk about (the Subject)* and *what we say about the Subject* (the Verb with all the words that go with it, called the Predicate):

- What we speak about is the Subject of the sentence
- What we say about the Subject is the Predicate (i.e., the verb with all the words that go with it)

However, three *basic parts* of the sentence mosaic are usually distinguished, with the Predicate further divided into the Verb and its (optional) Direct Object. No sentence mosaic is possible without the verb to 'glue' it together:

A verb is that which, in addition to its proper meaning, carries with it the notion of time. No part of it has any independent meaning; it is a sign of something said of something else (Aristotle: On Interpretation, Part 3).

(d) Words can perform 8 functions in the sentence, called Parts of Speech. These functions are: naming things (noun), replacing nouns (pronoun), describing nouns (adjective), naming actions (verb), describing actions (adverb), showing the positions of things in space and time (preposition), joining two or more similar grammatical items together (conjunction), and expressing emotion (interjection) [Re: Appendix I for more detail].

The verb function is crucial in holding the sentence mosaic together. The Verb is the 'connector,' the 'lightning rod' that brings the composite meaning of the sentence mosaic alive by connecting its Subject with what is said about it. In many languages, this connection takes the physical form of the so-called 'subject-verb agreement' (i.e., when the verb's physical form changes to fit the form of the Subject in Number and Person).

(e) To know (understand) something is to see how it relates to everything else in terms of resemblance, contiguity in space/time, and cause/effect (Re: Sutra 1.5).

With this in mind, let us now try to understand linguistic structures through discovering how they reflect the logic of human thought.

5.1 *Synthesis & Analysis* are the opposite parts of the process of human understanding & its physical expression – generalization (Re: Sutra 1.14). They are integral parts of thinking, just as inhalation & exhalation are the integral parts of breathing.

5.2 Generalization is the universal mechanism of verbal thought.
Verbal Thought *Is* Language.

 **Generalization Is the Rational Mechanism of Language.**

Synthesis & Analysis form the ‘mechanism’ of all generalization/ understanding. In order to form a concept, we need to see how things relate to each other (in terms of similarities/contrast between them, relation in time and space, 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)

5.3 This Rational Mechanism of Language/ Generalization consists of *synthesis* of words into sentence mosaics and *analysis* of the constituent parts of those mosaics. This mechanism of human thought is embodied in all grammars:

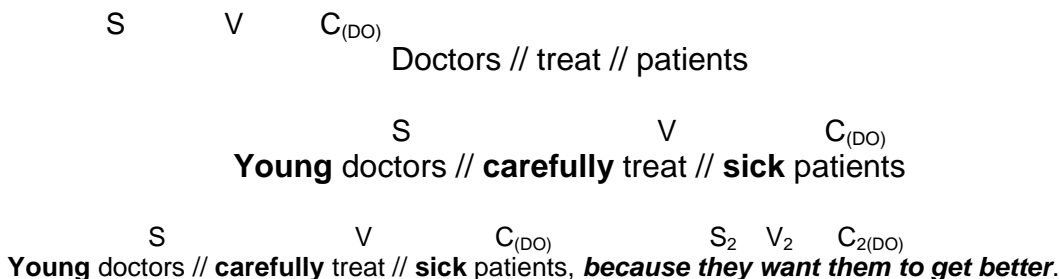
- **Synthesis** creates the mosaic of the compound generalization (sentence), connecting word-meanings into the ‘Subject, Verb, and Object’ pattern of the proposition; their nexus represents the linear (syntagmatic) relationship between them, and
- **Analysis** zooms in on *parts* of that mosaic (sentence) and describes them by Resemblance, Contiguity, and/or Cause/ Effect.



Synthesis and **Analysis** are the ‘opposite’ parts of *generalisation*, just as both inhalation and exhalation are parts of breathing.

Recursion, or insertion of phrases inside others, so typical of all human languages, is nothing but analysis in action – the lens of our mind’s eye, zooming in on the details of the sentence mosaic! An example of recursion is extending the sentence ‘*Nothing intelligent would ever get done*’ to ‘*If people did not sometimes do silly things*, *nothing intelligent would ever get done*’ (here, the adverbial clause states a condition for the hypothetical action in the main clause).

Other examples of ‘expanding’ nexal patterns by stuffing ‘specifics’ into them:



To understand linguistic structures, we must understand the *relationships* between words and groups of words within the nexus of the sentence mosaic.

5.4 Logical Connections in Generalization (Relations of Synthesis & Analysis)

In order to form a concept (generalization), we must not only *connect*, but also *abstract*, single out parts of it. Different societies developed their own ways of building their word mosaics through the synthesis and analysis of word-meanings. The relations between words in a sentence may therefore be viewed as those of synthesis (syntagmatic relations) and those of analysis (associative relations).

5.4.1 Relations of Synthesis include (a) the linear pattern of sentence nexus, and (b) the relations between the verb and the nouns within the nexus:

(a) Speech communities ‘synthesize’ their mosaics of generalization (sentences) in different ways, following their habit and tradition.

The basic order of subject, verb, and direct object in their sentence ‘mosaics’ may vary between six basic types:

- Subject Verb Object (**SVO**)
 - Subject Object Verb (**SOV**)
 - Verb Subject Object (**VSO**)
 - Verb Object Subject (**VOS**)
 - Object Subject Verb (**OSV**)
 - Object Verb Subject (**OVS**)
- } these account for > 75% of all of the world’s languages
- } these are rare; they make up only 0.25% & 0.75% of all As, respectively

SOV is the most common way of synthesizing generalization mosaics in the world’s languages, with **SVO** being a close second; together, these two patterns account for more than 75% of the world’s languages. Some languages (particularly, inflectional languages like Russian, Latvian, etc.) allow for all possible patterns – SVO, OVS, SOV, OSV, VSO, and VOS. Each of these patterns adds a shade to the overall meaning.

Most Austronesian languages of the Central and Milne Bay Provinces of Papua New Guinea use the SOV pattern in their sentence mosaics, as we see in Motu:

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Sisia ese   tau   ta   e-ita-ia.
dog  subject man one it-see-him
SUBJECT  OBJECT VERB
‘The dog saw a man.’
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However, some Austronesian languages, such as Tolai, prefer the SVO patterns (Crowley: 1997, p. 141). The same sentence in Tolai has the SVO structure:

A	pap	i	gire	tikana	tutana.
the	dog	it	see	one	man
SUBJECT		VERB		OBJECT	
‘The dog saw a man.’					

(b) Relations between 2 Nouns/ Noun & the Verb (a.k.a. *Thematic Roles*): These logical relations are expressed through the so-called ‘Cases of the Noun,’ a.k.a. **Thematic Roles**. Thematic roles of nouns can be expressed through noun case endings, as is typical in many Indo-European languages, through the use of prepositions, as is typical in English, or through both (case endings & prepositions). The meanings of possible relationships between nouns and verbs (thematic roles) include:

- ❖ **Agent:** Subject performs the action (Nominative case): Paul fries fish.
- ❖ **Source:** where the action originated (Genitive): Fish comes from the sea.
- ❖ **Goal:** what the action is directed towards (Dative): Paul gave the fish to his friends
- ❖ **Receiver of Action:** Direct Object of the verb (Accusative): Paul fries fish.
- ❖ **Instrument:** what is used to carry out the action (Instrumental): Paul stuffed himself with fish.
- ❖ **Location:** where the action occurs (Locative): Paul fries fish in the frying pan.

As you can see, it is the relationship between the noun and the verb in the nexus that determines whether the noun is the Subject of the Verb (agent) or the receiver of the action of the verb (its Direct Object) – this distinction is important in shaping the nexus of the sentence mosaic (Re: nexal patterns above).

Inflexional languages (those that express the logical relations between two nouns / between a noun and the verb in the nexus through noun endings) typically distinguish six types of logical connections, expressed through the **cases** of the noun:

1. **Nominative** (naming the Subject, doer of the action): Men fight wars; Cats roam the streets; Cows give us milk, etc.
2. **Genitive** (this case, called *possessive* in English, shows from where the action originates, as well as part-whole relations between nouns/ possession): Men’s sports; Mother’s bag; fish from the sea; fruits of our labour, children of the city, days of the week, etc.

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3. **Dative** (nouns in this case are the receivers of the product of the action of the verb/ indirect object; they also show movement towards that noun): from A to B; from the rich to the poor; we prayed for them; etc.
4. **Accusative** (receiver of the action; direct object): Dogs love bones; Students hate exams; Children ate the cakes; etc.
5. **Instrumental** (nouns in this case show that they are used as tools/ or that they accompany something else): to hit with the hammer; to go with friends; proceed with caution; etc.
6. **Locative** (showing the location of where the action takes place): to sit in class; to live in the city; to be in the game; to float on air; etc.

Thus, linear /syntagmatic relations between words and ‘pieces of words’ (such as endings or prefixes) shape the nexus of the sentence (SVO) and show their ‘thematic roles’ in the sentence, how nouns relate to each other (in terms of contiguity in space or time/ part-whole relationships/ causality) or to the verb.

5.4.2 Relations of Analysis are the associative relations between any one of the three major sentence constituents (Subject, Verb, or Compliment) and concepts that describe or name them. Three word functions express these associations:

- **Adjective** word function connects ideas by resemblance,
- **Adverb** function expresses contiguity in space/time or cause/ effect, and
- **Noun** function names concepts, based on all three principal associations (resemblance, contiguity, and cause/effect).

The **functions** of words in the sentence – whether they **name** the main sentence constituents or **modify** them – determine the relationships between them. These functions (Parts of Speech) are the same in all languages, since they reflect the universal mechanism of human thought, generalization. In live communication, word-meanings form ‘chunks’ of composite meanings – the mosaics of phrases and clauses.

Associating ideas by resemblance, contiguity in space/time, and cause/effect allows for an open-ended structural expansion of the main nexus pattern (S/V/C) through the sequential replication of nexal patterns /embedding of more and more details into any one of the three ‘slots’ of the preceding nexal pattern – **recursion**; i.e.,

- ❖ I know that you know that he knows that she knows that we know – and so forth, ad infinitum.

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- ❖ I met a young man from the city who met what he thought was a kitty; he gave it a pat and said, 'Nice little cat'... They buried his clothes out of pity.

Recursion shows how our minds make the resemblance, contiguity in space/time, and cause/effect connections between word-meanings in sentence mosaics. To understand syntactic structures, it helps to use the logic of our thinking to see how the way we think is embodied in the sentence mosaics. This is the essence of generalizing syntactic analysis (G-nalysis).

G-nalysis identifies the logical connections between words/ groups of words through asking logical questions, i.e., What? Which? What kind? How? When? Where? Why? With what purpose? On what condition? With what consequence? etc.

The 'zoom-in lens' of analysis is made up of a group of words which act together as one adjective, adverb, or noun, inserted into one of the three 'slots' of the sentence mosaic. These 'zoom lenses,' depending on what they focus on, are called noun, adjective, or adverb phrases or clauses (Re: Appendix I for more examples). The embedding of these 'zoom-in lenses' (recursion) is typical of all human languages, because analysis is a vital part of all human understanding.

If a 'zoom lens' has its own nexus structure (Subject & Verb conjugated), it is a dependent clause. The sentence 'I think, therefore I am' has two nexus patterns, associated by cause/effect.

With what consequence?

5.5 Generalizing syntactic analysis (G-nalysis) uses the universal principles of human understanding (generalization) to make sense of language structures. G-nalysis allows for flexibility of interpretation; it accommodates the idiosyncrasy of all human perception, which accounts for the inherent ambiguity of language.

G-nalysis seeks to discover the relationships between words and groups of words in the sentence by asking 'natural' questions. To make these relationships more vivid, it depicts them in sentence diagrams, where quadrangles represent independent nexus patterns, while triangles stand for dependent nexus patterns (Adjective, Adverb, or Noun clauses)

G-nalysis uses the *mechanism of meaning creation, Generalisation*, to identify the ways we *connect* and *expand* simple ideas into larger chunks of meaning – word-meanings, *phrases* and *clauses* (groups of word-meanings),

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and **sentences**. Because this method of sentence analysis (g-nalysis) uses the way the human brain thinks naturally, it is really easy to understand, and use.

Recursion makes the Language/ Thought mechanism open-ended, allowing for infinite expansion of the ‘skeletal’ sentence meaning through embedding the ‘zoom-in lenses’ of phrases and clauses into the main sentence slots, i.e.:

This is the farmer sowing the corn
That kept the cock that crowed in the morn
That waked the priest all shaven and shorn
That married the man all tattered and torn
That kissed the maiden all forlorn
That milked the cow with the crooked horn
That tossed the dog
That chased the cat
That killed the rat
That ate the malt
That lay in the house that Jack built.

5.6 The Two Steps of G-nalysis:

- The first step in G-nalysis focuses on identifying all S/V/C patterns present in the sentence.
- The second step aims to determine the **logical relationships** between all the S/V/C patterns in the sentence. This is done through asking relevant questions (Re: 5.2.2)

Before engaging in practical sentence g-nalysis (Re: Appendix II), please ‘chew’ carefully on David Hume’s description of the ‘universal principle of connection’:

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] But that this

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enumeration is complete, and that there are no other principles of association except these, may be difficult to prove to the satisfaction of the reader, or even to a man's own satisfaction. All we can do, in such cases, is to run over several instances, and examine carefully the principle which binds the different thoughts to each other, never stopping till we render the principle as general as possible. [4] 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] For instance, 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.

Analysis is the 'opposite' of Synthesis. Together, these opposites make one whole



GENERALISATION.

Summary of Sutra 5:

1. **Syntax** – arrangement of words in the sentence
 - a. The **Sentence** – saying something *about* something
 - b. The **Subject** – what we speak about
 - c. The **Predicate** – what we say about the Subject
 - d. **Parts of Speech** – functions of words and groups of words in the sentence
 - e. **Phrases** – groups of words that function together as 1 part of speech; no nexus structure
 - f. **Clauses** – groups of words with nexus structure that function as one part of speech (Noun, Adjective, or Adverb)
2. **Synthesis & Analysis** together are **generalisation**; since the words and sentences of language are generalisations, languages structures embody **Synthesis & Analysis**
3. **Relations of Synthesis**: syntagmatic; (a) nexus; (b) ‘thematic roles’ of nouns in the nexus in relation to the verb /each other
4. **Relations of Analysis**: associative; associations by resemblance, contiguity & cause/ effect; associative relations allow for recursion.
5. **Recursion** – the potentially unlimited extension of language structures by embedding phrases and sentences into other sentences; it shows how **generalisation** can generate an infinity of ideas through the **synthesis & analysis** of word-meanings
6. **Generalising Sentence Analysis (G-nalysis)** aims to identify S/V/C patterns and determine how they relate to each other (how they function, or what they do in the main sentence).