

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) [See below 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.

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:

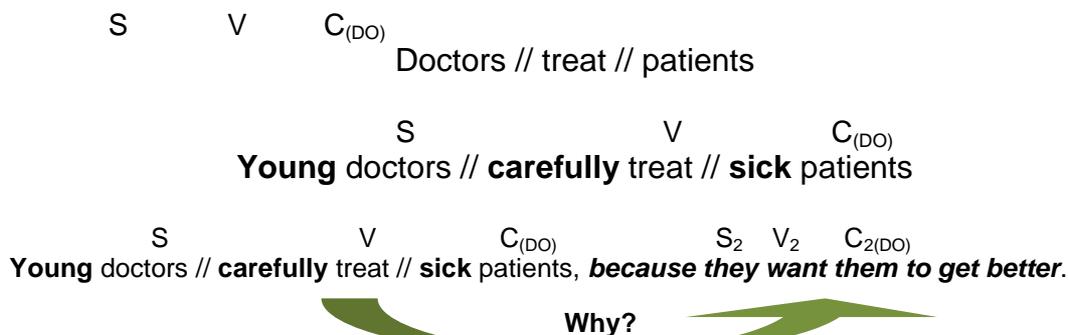
- **Synthesis** creates the mosaic of the compound generalization (sentence), connecting word-meanings into the ‘Subject, Verb, and Object’ pattern of the proposition; their nexus represents the linear (syntagmatic) relationship between them, and
 - **Analysis** zooms in on *parts* of that mosaic (sentence)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

Sisia	ese	tau	ta	e-ita-ia.
dog	subject	man	one	it-see-him
SUBJECT		OBJECT		VERB
‘The dog saw a man.’				

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.
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.
- ❖ 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), 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 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.

The Basics

(1) What are Parts of Speech?

Syntax, or the arrangement of words in the sentence, is determined primarily by word *functions*, otherwise called *Parts of Speech*. So Parts of Speech are really the *functions* of words, phrases, or whole clauses within the larger context of the sentence. We can use words (or groups of words) in different ways:

	<i>Function</i>	<i>Questions they answer</i>
Nouns	name things	(<i>What? Who?</i>)
Pronouns	stand instead of nouns	(<i>What? Who?</i>)
Adjectives	describe (modify) nouns	(<i>Which? What kind?</i>) [resemblance]
Verbs	name actions or states of being; apart from <i>naming</i> actions, they carry in them the meaning of time:	

A **verb** is that which, in addition to its proper meaning, **carries with it the notion of time** ... It is a sign of **something said of something else** (Aristotle).

Adverbs modify/ describe verbs (*How? Where? When? Why?* etc.)

Conjunctions join similar grammatical items (words, phrases, clauses, etc.)

Prepositions show relative 'positions' of things in space and time [contiguity]

Interjections expressions of feelings and attitudes interjected, or 'thrown into' the midst of a clause (they are our 'raisins in the cake')

Word-meanings in all languages have ways of doing these eight 'jobs' and, depending on **what they do** in the sentence, they will function as one or another part of speech:

Parts of Speech are the functions of words in the sentence.

Some words may have only one function (for example, *and* as a conjunction). Others may be used in different ways (for example, *fancy*, which is a noun in the phrase '*flights of fancy*', a verb in '*Fancy that!*' and an adjective in '*a fancy hat*'). Some other examples:

A characteristic feature (noun)

To feature in a film, etc. (verb)

A feature film (adjective)
Ann came in early (adverb)
She is an early bird! (adjective)

The divide between the rich and the poor is growing wider (nouns)
The poor people get poorer, whereas the rich elite get richer (adjectives)

Figure of speech (noun)
It is difficult to figure out his meaning (verb)
Figure skating (adjective)

The killer bicycles away (verb)
Barack Obama gave a 'get-down-to-business' speech (adjective)

Most of these are examples of single words doing different 'jobs.' However, *groups of words* can also 'team up' and work together as one unit, fulfilling one function (Re: the 'Barack Obama' speech example, where 4 words are used as one *adjective*, to describe the *kind* of speech he gave). Groups of words working together as one part of speech are called **phrases** or **clauses**.¹ What are they? We already know that both are groups of words. The difference between them is structural: phrases do not have their own subject-predicate patterns, whereas clauses do.

(2) What is a Sentence?

A sentence is not just any group of words, such as 'beyond high mountains and deep blue seas,' for example; it's a **group of words that says something about something**. For example, '*I breathe*' is a sentence, because it says something about me.

A sentence, then, has 2 parts: **what we speak about** (its **Subject**) and **what we say about the Subject** (the **Predicate**, or the verb together with all the words that go with it). In the examples below, the Subjects are in bold, and the Predicates are underlined:

Every word of language is a generalisation.
Every sentence (*thought*) is a generalisation.

(3) Basic Sentence Pattern (S/V/C). In English, most declarative sentences follow the S/V/C pattern: the **Subject** + its modifiers (**what we speak about**) fill the first slot / the **Finite Verb** and its modifiers fill the second slot / and **Compliment** (optional) takes the third slot (S/V/C).

¹ Re: notes below

Linguists usually refer to the third sentence component as Object (S/V/O). We will call it Compliment, because objects are not the only things that can fill that third slot:

1. **Zero Compliment:** I breathe. I think.
2. **Predicate Adjective (PA):** Life is interesting. Work is hard.
3. **Predicate Noun (PN):** Life is hope. Knowledge is Power.
4. **Direct/ Indirect Object (DO/IO):** Peter fries fish for his friend.

Together, the Verb and the Compliment make up the Predicate, or what we say about the Subject. The 'heart' of the predicate is the **finite verb**,² which may be separated from its Subject by modifiers (other words, phrases, or even clauses). It is important that the Subject-Verb Agreement is maintained despite the intervening words: without the Subject-Verb Agreement the sentence becomes ungrammatical (as in 'Mary, a girl in my class, am clever'). Another example:

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

Reminder:

Subject is what we speak about and **Predicate** is what we say about the subject (V/C).

The **subject** of the sentence is the thing we talk about with all its modifiers, e.g.:

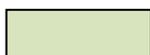
The definition of experience is knowledge acquired too late.

The **predicate** is made up of the finite verb (expressing action performed or received by its subject), together with all the words that go with that verb:

The definition of experience is knowledge acquired too late.

(4) Four types of sentence structure:

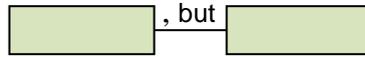
⇒ **Simple:** one S/V/C pattern: *All great truths begin as blasphemies.*



² **Finite Verb** is a verb *defined* by its Subject (it has the Subject's number and person, because it about its Subject: I am, You are, He is, We are, They are, etc.)

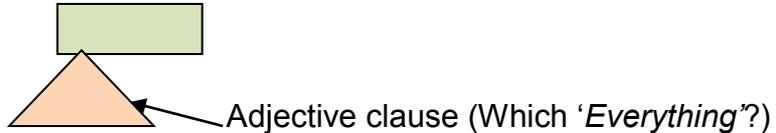
⇒ **Compound:** two or more S/V/C patterns (simple sentences), joined by a conjunction:

You can twist perceptions, but reality won't budge.



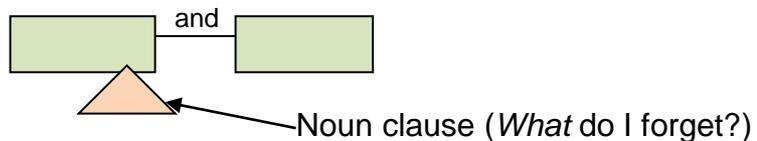
⇒ **Complex:** one main clause plus one or more dependent clause(s):

Everything you can imagine is real.



⇒ **Compound-complex:** at least two main clauses and one or more subordinate clauses:

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



(5) What is the Difference between Phrases and Subordinate Clauses?

Both are groups of words that function as one part of speech (a noun, an adjective, or an adverb). In order to understand and diagram sentence structure correctly, we must be able to *recognize* clauses and differentiate them from *phrases*, which are not shown in our schematic clause diagrams.

The difference between them is *structural*: clauses have their own S/V/C pattern; phrases do not:

It is a mark of an educated mind *to be able to entertain a thought without accepting it*

(Aristotle)

N.B.: The phrase '*without accepting it*' is an adverb modifying the infinitive verb 'to entertain' within the framework of the larger phrase '*to be able to entertain a thought without accepting it*' which names that thing that the 'mark' is. Neither of these phrases has an S/V/C pattern.

IS₁/I *IS₂/I* *N_{2,1}/I* *IC_{2,1}/I* *N_{2,2}/I* *IC_{2,2}/I* *N₁/I* *IC₁/I*
A man, *who has made a mistake and doesn't see it*, is making another mistake.

(Confucius, 'Success and Failure')

Here the clause who has made a mistake and doesn't see it is an Adjective describing the noun 'man' in the main clause.

(6) The Difference between the Main and Subordinate Clauses:

Subordinate clauses may function in three ways within the sentence mosaic:

⇒ **Noun clauses** name something/somebody in the main clause, i.e.:

The most incomprehensible thing about the world is that it is comprehensible (Einstein)

⇒ **Adjective clauses** modify (describe) nouns in the main clause, for example:

The person who knows how to laugh at himself will never cease to be amused.

⇒ **Adverb clauses** describe actions in the main clause, i.e.,

'We *don't see* things as they are. We see things as we are.' (Anais Nin)

Main clauses have no such function; they are generalizations, correlating what they speak about with what they say about it (the Subject with its Verb and all the words that go with it):

⇒ 'I hear and I forget. I see and I remember. I do and I understand.' (Confucius)

(7) What is the Finite Verb? The finite verb is a verb that has a Subject which defines its form (*number* and *person*). Subject-Verb Agreement (conjugation, 'tie' between them) is what makes a sentence. Examples of some common verb **conjugations** (= the 'tying together' of the Subject and its Verb):

Number Person	Singular	Plural	Singular	Plural	Sing.	Plural
1 st	I am	We are	I do	We do	I have	We have
2 nd	You are	You are	You do	You do	You have	You have
3 rd	He/she/it is	They are	He/she/it does	They do	He has	They have

Table 1 Verb conjugation

(8) What is the Infinitive Verb? Infinitive verbs have no Subjects (or *doers*; they are just names of actions, as listed in dictionaries). Since they only name

actions or states of being, they function as nouns, *names* of actions /states of being. They are usually preceded by the particle ‘to’ when used in sentences, except after modal verbs (can, must, may, might, could, should, would, etc.). Example (infinitives are in italics):

A diplomat is someone who can **tell** you **to go** to hell and **make** you happy **to be** on your way.

(9) What are Modal Verbs? Modal verbs do not express **concrete** actions; their meanings are **abstract** – they express our **attitudes** (what we think or feel about a situation), i.e., ‘*They should not have gone*’ or ‘*They might get angry.*’

Our attitudes and opinions may concern:

Ability to do something – **can / be able / manage**

He can be very persuasive.
We were able to breathe under water.
He manages* to resist the temptation every time.

Advisability of something – **should/ ought to**

We should go now, it’s getting late.
He ought to know better than take silly risks.

Obligation /necessity – **must/ have to / need to**

We must follow the law here.
They have to follow the rules.
I need* to see the doctor / Need we go there? / He need not wait.

***Need** can be used as an ordinary verb, meaning ‘must have’: *I need a new car*, etc.

Possibility/ likelihood – **could / can / might / may**

He could be there.
He may not come.
They might not come.

Permission – **can / may**

You may sit down now.
You can go now.

Requests – can / could / will / would

Can you sit down, please?
Could you do it for me?
Will you keep quiet, please?
Would you please leave now?

(10) What are the Auxiliary Verbs? Auxiliary means 'helping'; auxiliary verbs are verbs like DO, BE, and HAVE. Apart from their 'concrete' meanings, they also help us form:

1. **Negatives:** I do not see how we can do it.
2. **Questions:** Does he want to go?
3. **Complex verb tenses,** indicating continuing or completed aspects of the action: to *be* waiting / to *have* waited / to *have* been waiting

(11) Compounding. Compounding means joining two or more *similar* items by conjunctions 'and,' 'or,' 'but,' 'either ... or,' and 'neither ... nor.' These conjunctions are often used to join **equal grammatical constructions** – subject and subject, object and object, adjective and adjective, verb and verb, etc. Whatever grammatical construction appears before one of these words should also appear after it.

(12) Ellipsis. Ellipsis is simply the omission of understood words in a sentence (also called *omission* or *reduction*). For example,

[You] Help! [me] or [You] Put your thinking cap on [your head]!

(13) English Verb Tenses: Sentence analysis involves identifying the S/V/C patterns in sentences, and trying to figure out how all the words relate to each other / what 'jobs' they do. This means that we must be good at recognizing verbs, even when they are made up of several words (as in the complex tenses). Please review the structures and grammatical meanings of the various tenses of English verbs:

1. Simple

- a. Present Simple: regular, habitual actions; 2 forms: the base form and the '-s'-form (after 3rd person singular subjects)
- b. Past Simple: regular & irregular verbs, expressing non-specific actions in the past
- c. Future Simple: Auxilliary BE forms (will/shall) + base form of the verb; refer to any future actions.

2. **Continuous:** **BE + Present Participle** (-ing-form of the verb), i.e., I am working, You are working, He is working, etc.; I was working, We were working, etc.; I will be working, We shall be working, etc.; Continuous tenses express **continuing** actions at a point in time (Present, Past, or future)
3. **Perfect** Tenses relate two actions; the result (effect) of the first action is present (felt) at the time of the other action, i.e., I have seen this man before, We had expected this to happen, They will have arrived at 4 pm, etc.; The general 'formula' for the Perfect tenses:

HAVE + Past Participle

4. **Perfect Continuous:** a 'cross' between the Perfect and Continuous tenses: they refer to completed actions at a point in time, but emphasize their duration (the time that they took happening), i.e., 'We *have been waiting* for you,' etc.

The general 'formula' for the Perfect Continuous tenses:

HAVE + BEEN + Present Participle

(14) Passive Voice of the Verb: The **Direct Object** of the verb's action becomes the **grammatical Subject** of the Verb:

Simple:	BE + Past Participle	We will be told to leave We are told to leave We were told to leave
Continuous:	BE + being + Past Participle	We are being told to leave We were being taken for fools! We will have been taken for fools
Perfect:	HAVE + BEEN + Past Participle	We have been told to go We had been taken for fools!

The Future Continuous verbs are rarely used in the Passive; Perfect Continuous constructions, likewise, become too clumsy to be used in the Passive Voice.

The Passive is used when the doer (subject) of the action is either not known or is unimportant/ irrelevant: the focus shifts to the action *per se*. For example,

A car ***is stolen*** every minute in big cities.
Water ***is added*** to the mixture, etc.

(15) Etymology of ‘recursion’

Recursion

1. A programming method in which a routine calls itself. Recursion is an extremely powerful concept, but it can strain a computer's memory resources. Some programming languages, such as LISP and Prolog, are specifically designed to use recursive methods.

Mathematics:

1. An expression, such as a polynomial, each term of which is determined by application of a formula to preceding terms
2. A formula that generates the successive terms of a recursion



Etymology:

Late Latin *recursiō*, *recursiōn-*, a running back, from Latin *recursus*, past participle of *recurrere*, to run back

Recur

1. To happen, come up, or show up again or repeatedly.
2. To return to one's attention or memory.
3. To return in thought or discourse.
4. To have recourse: *recur to the use of force*.



Etymology:

Latin *recurrere*: re-, re- + *currere*, to re-run