Syntax

- **Syntax is the study of how words are combined with others to form sentences and in what**

  order.

1 **Syntactic relations**

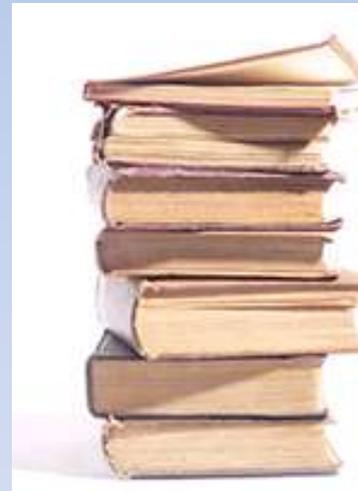2 **Basic patterns of word combinations**

3 **Immediate constituent analysis**

4 **Deep and surface structures**

5 **Syntactic rules**

1. Syntactic relations

Positional relation and relation of substitutability

1.1 Positional relation:

Sequential arrangement of words or word order in a language.

The dog bites the man.   The man bites the dog.

1.2 Relation of substitutability

He (Tom, Mary) cries (shouts, smiles).

2. Basic patterns of word combinations

The subject-predicate pattern:
The relationship between the subject and the predicate.

The Indian students are working in the lab.

The verb-object pattern:
The relationship between the action of the verb and the object to the verb.

To write a research paper.

Linguists use different function labels to describe subjects and objects to suit different needs :

Agent   Theme   Beneficiary Goal   Instrument   Experiencer

(1) The key   opened the door.

      Instrument   **Theme**

(2) The dog   died .

      Theme

(3) David sent the parcel to the aged relative .

      Agent   **Theme**   **Goal**

Three kinds of subjects :

grammatical, logical and psychological.

A grammatical subject:

A noun which can establish correspondence with the verb and which can be checked by a tag-question test.

<u>John</u> likes linguistics the most, (doesn't he?)

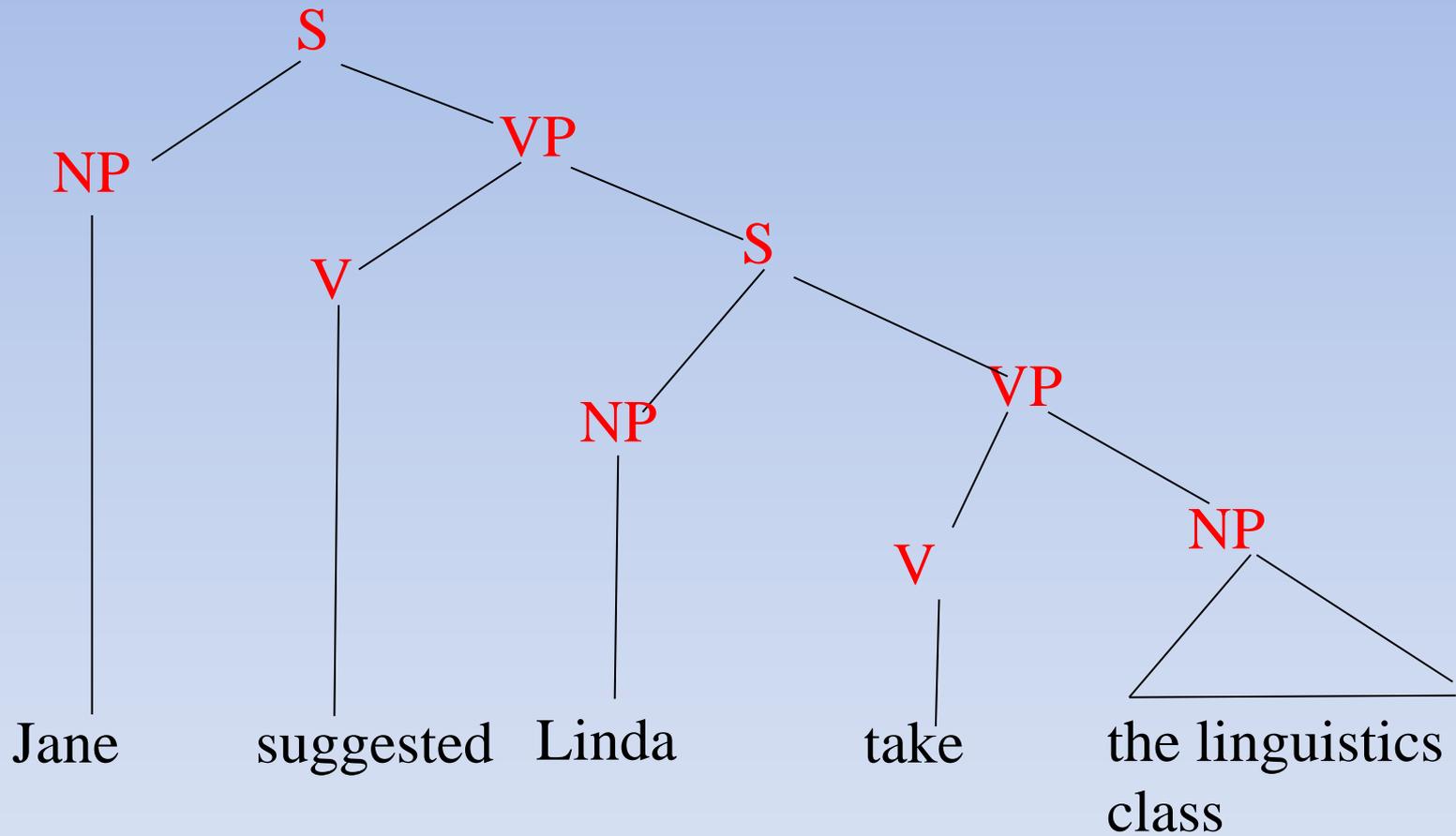## A logical subject:

The doer of the agent or action involved.

The dog was kicked by <u>the boy</u>.

3. Immediate constituent analysis

Immediate constituent (IC) analysis:

Describing a sentence up into its immediate constituents by using binary cuttings until obtaining its ultimate constituents .
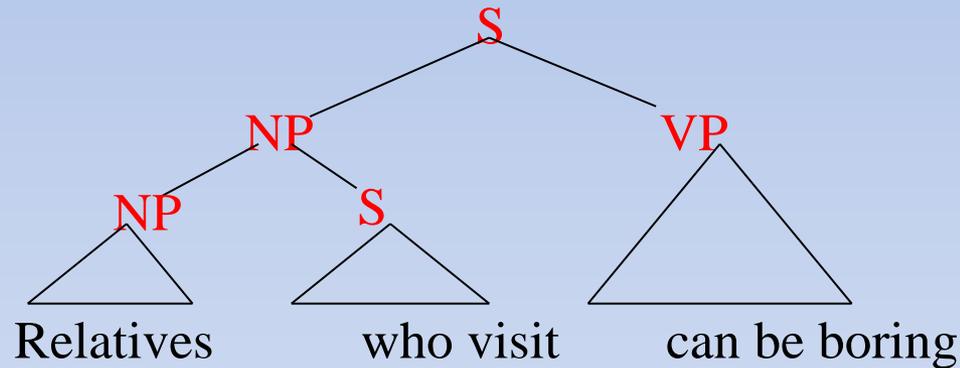
A top-down approach

IC analysis can help
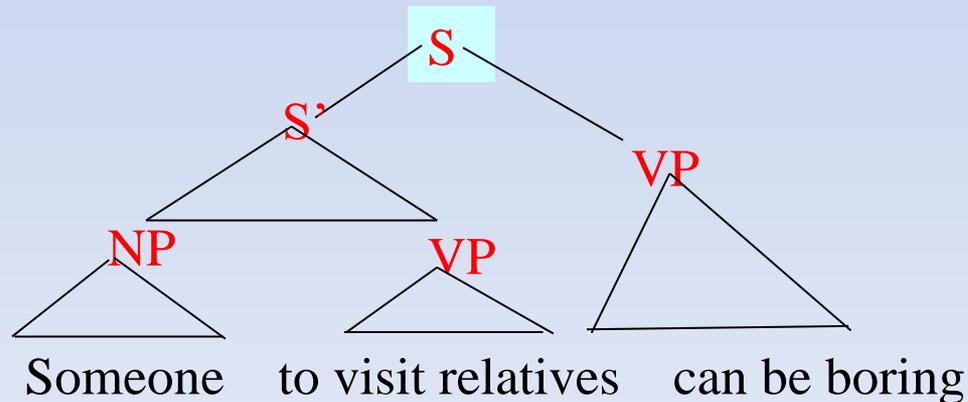
to account for ambiguity of certain constructions.

Visiting relatives can be boring.

(1)

```
                    S
          NP                    VP
    NP          S
 Relatives   who visit     can be boring
```

(2)

```
                    S
          S'                    VP
    NP          VP
 Someone   to visit relatives   can be boring
```

IC analysis' difficulty:　　ambiguous sentences

(a) The shooting of the hunters was terrible.

(b) Flying planes can be dangerous.

(c) Visiting relative is torturous.

(d) John or Bill loves his wife.

(e) The police killed the robber with gun.

4. Deep and surface structures

Every sentence has two levels of structure. One ,which is obvious on the surface , is called surface structure, and the other, which contains all the units and relationships that are necessary for interpreting the meaning of the sentence, is called deep structure.

Chomsky

The love of God

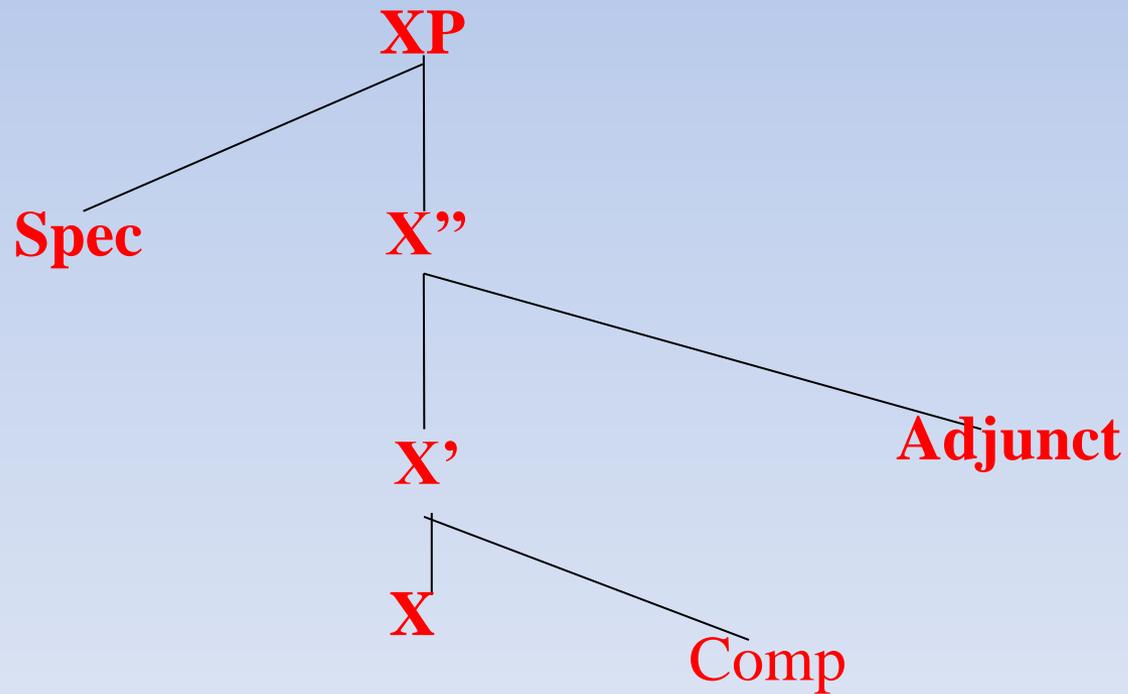God loves someone   Someone loves God

5. Syntactic rules

The rules which determine what morphemes and words are combined into larger grammatical units and how they are put together in a sentence are the syntactic rules of the language.

Transformational-generative (TG) grammar provides a model for the description of such syntactic rules.

5.1 X-bar theory

5.1.1 X-bar theory and lexical categories

XP

Spec   X"

X'   Adjunct

X

Comp

Generative Grammar

- A **Generative Grammar** is a set of formal rules that can generate an infinite set of sentences that constitute the language as a whole.
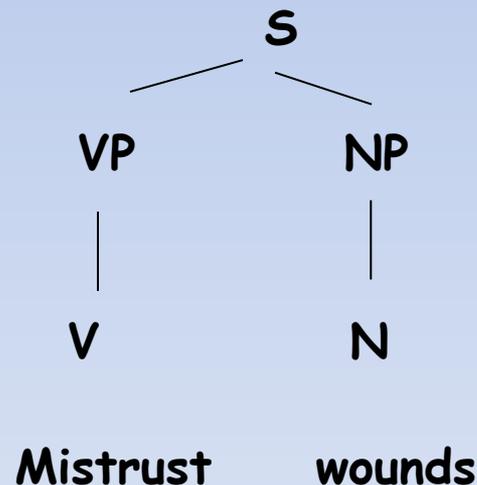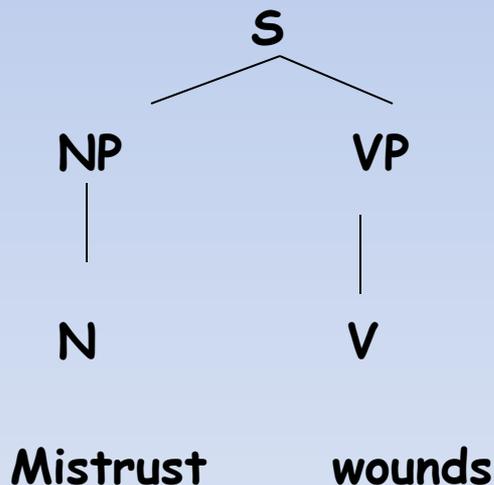
  Chomsky insisted that a grammar –

- Must systematically describe all of the sentences in a language that a native speaker would regard as grammatical.
- Must sort out all of the possible "good" sentences from all of the possible "bad" ones.
- Must use a finite set of rules.
- Must provide a way to account for our perceived ambiguity of certain sentences.

Phrase Structure Grammar

- It builds up phrases out of words and put the phrases together into sentences.
- The kind of structural description assigned by a phrase-structure grammar is, in fact, an immediate constituent analysis of the sentence.
- It assigns to each sentence that it generates a structural description.
- It makes use of phrase structure rules.

Phrase Structure Grammar (contd.)

- It enables us to express patterns of grammaticality.
- It provides a structural description to characterize the notion of grammaticality.
- It provides a way to capture our intuitions about the constituent structure of sentences
- It also provides a way to explain, or account for, our perceived ambiguity of certain sentences e.g. "mistrust wounds"

```
              S                           S
           /     \                     /     \
         NP       VP                 VP       NP
         |        |                  |        |
         N        V                  V        N

      Mistrust  wounds            Mistrust  wounds
```

An example of a Phrase Structure Grammar

- It generates and thereby defines as grammatical such sentences as " *The man will hit the ball*"

   An example of a PSG (associated with constituent analysis) :

```
(1) S      →  NP + VP
(2) VP     →  Verb + NP
(3) NP     →  Det + N
(4) Verb   →  Aux + V
(5) Det    →  the, a, . . .
(6) N      →  man, ball, . . .
(7) Aux    →  will, can, . . .
(8) V      →  hit, see, . . .
```

Derivation of a given sentence

- Interpret each rule **X** → **Y** as "rewrite **X** as **Y**."
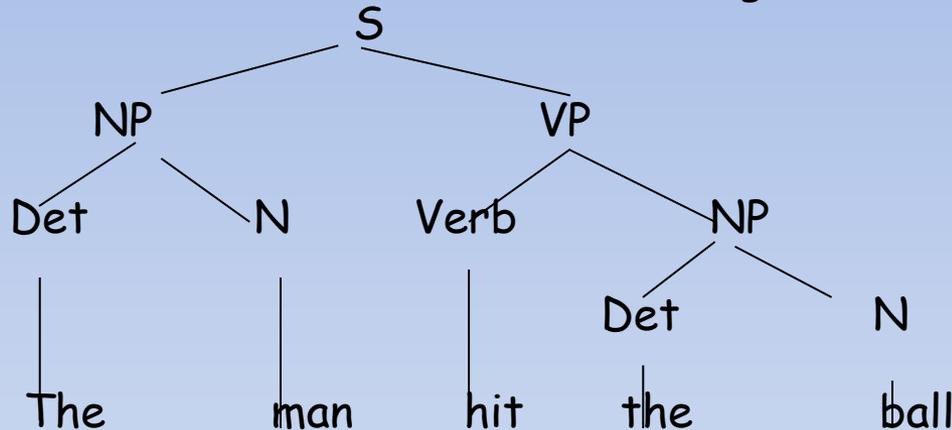- Derive the sentence "the man hit the ball" using the given grammar :
  →

(1) S	→ NP + VP
(2) VP	→ Verb + NP
(3) NP	→ Det + N
(4) Verb	→ Aux + V
(5) Det	→ *the, a, . . .*
(6) N	→ *man, ball, . . .*
(7) Aux	→ *will, can, . . .*
(8) V	→ *hit, see, . . .*

(i)	S	
(ii)	NP + VP	by rule (1)
(iii)	NP + Verb + NP	by rule (2)
(iv)	Det + N + Verb + NP	by rule (3)
(v)	Det + N + Verb + Det + N	by rule (3)
(vi)	Det + N + Aux + V + Det + N	by rule (4)
(vii)	*the* + N + Aux + V + Det + N	by rule (5)
(viii)	*the* + N + Aux + V + *the* + N	by rule (5)
(ix)	*the* + *man* + Aux + V + *the* + N	by rule (6)
(x)	*the* + *man* + Aux + V + *the* + *ball*	by rule (6)
(xi)	*the* + *man* + *will* + V + *the* + *ball*	by rule (7)
(xii)	*the* + *man* + *will* + *hit* + *the* + *ball*	by rule (8)

- The   of each line
  used in constructing that line from

Representation using a Tree Diagram

- The derivation of the last sentence using a Tree diagram :

```
                              S
                  /                      \
                NP                        VP
             /      \                  /      \
          Det        N            Verb         NP
           |         |             |         /     \
           |         |             |       Det       N
           |         |             |        |        |
          The       man           hit      the      ball
```

- Such a tree does not tell in what order the rules have been applied.
- Given a derivation of the sentence, its tree diagram can be constructed but not vice versa.
- A tree diagram retains just what is essential in the derivation for determining the constituent analysis.
- The sequence of words can be traced back to a single point of origin **S**

Elements of human language

Linear arrangement of words in a sentence…

$$W1 + W2 + W3 + W4 + W5$$

With very few exceptions (Japanese, Chinese and some more could be one), most human languages arrange their words in order to produce sentences in linear order.

This helps the natives to produce or pronounce these elements/atoms of language easily.

It also defuses the Encoding/Decoding power into it as it becomes the part of the communication.

This is the only possible way to make one string of words different from others with regard to the meaning(s).

It is said that languages of the world would have been so naïve and simple if linear ordering were the only possibility for languages to arrange their elements.

The utterances could have been very short and simple and easy to understand and acquire.

Nevertheless, ideas expressed by this kind of language could have been limited.

Meaning, the function of human language could also have been very similar to that of many animal languages with regard to their forms and usages.

Thankfully, human languages have something very special as a feature and it is called 'constituent-ship' that non-human languages don't have (at least at present, as no one know s about future).

And even if any non-human language has it, this feature is not as developed as it is in human languages.

Power of Constituent

Constituent-ship means that linguistic elements must 'group together' or 'merge' (Chomsky:1995) in discourse.

This is a fact that all language users unconsciously know about their mother tongue. (innateness hypothesis).

The process of 'grouping together' or 'merging' the linguistic elements into a higher unit can be done in several ways.

And each way is uniquely grounded in some method or principle which is similar across the board.

For example:

a. [good girls] and boys]] or [good[girls and boys]

Hierarchical Structure

HS means that the linguistic elements, having merged to one another or grouped together, must further 'nest' with one another like a spider web.

HS is good because it makes human life easier and simpler.

This has been proven by psychological experiments as well as common sense that human mind can ONLY deal with a small number of things at a time.

The number of things, human mind can deal with at one time, has been suggested to 'from four to six' at the most (Payne 2006).

Take an example of a phone No. that reads as 9868608884,

Imagine that this is given to you when you did not have anything to write it down!!!!,

The question is, 'What would we do in such situation ?'

Some of the options are as follows:

a. Repeat it many times, so that we remember it for a longer time, at least till you can note it down somewhere.

This is an indication of an example of 'short-term memory to long/permanent memory' also know as 'over-learning'.

b. According to our idiosyncratic style, we would unconsciously 'group' or 'clump' the No. into two, or more parts.

When we memorize these groups in a series like this, we convert the 'groups' into 'units' to ease our storage process in memory.

Once they become 'units', we group them again and again to make higher and higher units with some unique embedded structure.

Hierarchical Structure in languages is a natural consequence of the same fact of human cognition, where elements are grouped into parts and parts into units and units into bigger units and so forth ..

Rule governed/grammaticality

As we saw that 'human language' is nothing but a matter of organizing the elements in different layers for the purpose of contextual requirement.

Every language has some or other 'conventionalized pattern or rules' that must be obeyed in terms of constructing linguistic elements into units.

Human mind seems to compartmentalize elements of language into different sets for the sake of comfortable retrieval of these elements at need.

The need is the context when we want different items/elements to group together to make communication possible.

In grouping the elements together human mind makes use of 'predictability' over randomness in terms of the possibility of occurrence of next element.

Let us see how linguistic elements work from single nucleus to a group and to the unit..

Elements of language:

W1	+	W2	+	W3	+	W4	+	W5

Groups of elements:

the	+	boy	+	kicks	+	the	+	ball

Units of language

The Det	+	boy N	+	kicks V	+	the Det	+	ball N

Higher Units of language

Subject	+	**Verb**	+	**Object**

Different organizational levels

Words in linear order= word level

⬇

G.C. for Constituents= formal level

⬇

Subj; Obj & Verb= Notional level

⬇

Subj-Nom Obj-Acc= Categorial level

⬇

Agent; patient; theme = relational level

⬇

Linguistic elements higher than words

If we want to examine the linguistic elements responsible for the production of human communication for the level that is higher than a word, we must evaluate the 'phrases' and their processes of being formed.

Like a word(i.e. sound/group of sounds), a phrase can be made of either one word or a group of words.

When it is just one word, things are easy, however, when there is more than a word, we have to examine the ways in which these words are related to one another.

It is but necessary that one of words has to act a head, and others will be its dependents.

This brings to us a very useful classification of linguistic elements as 'head and dependent'.

If we know what a 'head' is, anything which is not that will be dependents anyway..

Salient features of Head

a. The grammatical category of head determines the GC of the entire phrase. For example:

1.
   a. very bright [N **sunflowers**]
   b. [v **overflowed**] quite quickly
   c. very [Adj bright]
   d. quite [Adv **quickly**]
   e. [p **inside**] the house

b. The head must have the same 'distribution' as that of the phrase.

What does it mean to say 'distributional properties' of a lexical category?

For example, Noun is a lexical category and it can be the head of a phrase, so what are the distributional properties of a NOUN?

Distributional properties of a Noun

1. Noun, as a head word, should be able to occur at the subject and object (s) places.

2. It must be modifiable by some modifiers (i.e. descriptive VS genitive)

3. It should be able to go through the process of pluralization.

4. An article must be able to make it definite/indefinite

5. It must be quantifiable

6. It should be able to take numeral modifiers as well.

Examples:

We could take any noun in English to exemplify these distributions of Noun, however, we will take a derived nominal, so that we talk some other complex issues later.

1. a. Swimming is good for you.

1.b. I like swimming.

2. a. I like reverse swimming.

2.b. This swimming is dangerous.

?3. Swimming(s) are easy in the swimming-pool.

4. The swimming in a flowing river is funny.

5. Every swimming is different.

6. I could not follow even one step of his swimming lesson.

C. It is not possible to omit/delete the 'head' from the phrase.

There are some rare situations where the head might be omitted, but it is either due to the economy of the speech in some context,

Or may be that the head has just been mentioned and then omitted. For example:

In answering the question 'Are you angry?', one can just say, 'very' but this is not the usual answer in English.

D. The 'head' obligatorily has to select its 'dependent(s)'.

This means that there may be some contexts where even the dependents to a head cannot be omitted or deleted. For example:

a. The soldiers *released* the hostage.
b. The soldiers *killed* the enemies.
c. She lives *beside* the wood.
d. She went *into* the building.

These examples show that the heads in bold have to select their respective dependents, and without these dependents the sentences would be ungrammatical.

The influence of the head on their dependents

1. *The heads select their dependent from a particular class.*

Thus, in English a head noun can be modified by an adjective but not by an adverb. For example

a. ***Bright sunflowers*** is ok, but ***brightly sunflowers*** is not ok.

b. In Kamera (Austronesian) language an adverb *'lalu',* 'too' can modify a verb but not a noun.

```
a.   lalu      mbana-na        na    lodu
     too       hot-3sg         the   sun
     'The sun is too hot'.
b.   * lalu   lodu
       too    sun
```

2. Another influence that the 'head' of any phrase has on its dependents that it might require the dependents to **agree** with various grammatical features of the head.

One such grammatical feature is ***grammatical gender*** of the noun in NPs.

We know that not all languages make the distinction of the grammatical gender for every noun.

But in those where this distinction is made, the dependents to a head noun often display 'gender agreement' with the head.

Let us see the examples from French, Hindi and Punjabi

:

a. un   livre   vert   b. une   pomme   verte
   one-M   book-3MS   green-M   one-F   apple-3FS   green-F
   'One green book'.   'One green apple'.

a. sɑr-e   ləmb-e   əccʰ-e   lərk-e   b. ləmbi-yã   cʰəngi-yã   kuri-yã
   all-Pl tall-M-Pl good-M-Pl boy-M-Pl   tall-F-Pl   beautiful-F-Pl girl-F-Pl
   'All tall good boys'. (Hindi)   'Beautiful tall girls'.

3. In many languages, a head would want its dependents to occur in a particular grammatical case.

For example, in Japanese, in Hindi

a.	kodomo-ga	hon-o	yon-da
	child-Nom	book-Acc	read-pst

'The child read the book'.

Let us examine the Hindi data:

a.	bəcᵸe-ne	mɑ-ko	dekᵸ-ɑ
	child-Erg	mother-Acc	see-3MS-pst

'The child saw (her) mother'.

Since the verb in the Japanese sentence is 'transitive' and thus will have two arguments; therefore two dependent NPs. These two NPs in Japanese must occur with Nominative and Accusative Case suffixes.

As we saw in case of Japanese, we see similar thing in the above example of Hindi,

The transitive verb of the clause which acts as the head for the sentential unification, and thus has taken two arguments; each of which bears the required grammatical cases i.e. Nominative (ergative) and accusative.

36

- Now let us evaluate the position of 'head' and 'dependents' available in a two-way system for the typology of languages in the world.

- It has been discovered cross linguistically that there is a very strong tendency of placing the head and dependent in almost fixed position.

- These two types are known as; **head-initial** VS **head-final.**

- A head-initial language would place its heads before the complements/dependents, while a head-final would do the reverse.

- Let us examine each of these systems:

Head-initial and Head-final languages :

- As we said the head in these languages would precede its complement/dependents. For example

- English:

- [₍VP₎ *likes* chips]

- [₍pp₎ *into* the water]

- [₍AP₎ *fond* of chips]

- [₍NP₎ *manufacturer* of tires]

- It is interesting to examine these sentences in English.

- The heads, *into* and *like* precede their complement NPs.

- And, the adjective head *fond*, and noun head *manufacturer* also precede their complement PP.

- Thus, English qualifies well for Head-Initial type.

- Welsh (Celtic language with VSO order) is a good example of head-initial language.

- Let us examine how P as a head precedes the NP and the verb as a head precedes its complement NP (the direct object) in the following sentence.

- Welsh:

a. [PP **dros**   y   ffordd]
        over   the   road

b. ddaru   ceri   [VP **yfed**   paned o   de]
    did   Ceri   drink   cupful of tea
    'Ceri drank a cup of tea'.

c. [GenP **paned** of tea]
        cupful of tea

Tinrin (an Austronesian language SVO) also qualifies as the head-initial language.

The examples below will prove the fact where we will see the verb (head) occurs before the complement clause and the head noun also precedes its complement PP:

Tinrin:

a. u   [VP trɑmwɑ̂   mwɑ̂   ke   mɑijɑ   wɑke]
    I   know   that   you   much   work
    'I know that you work hard'.

b. [NP kò   rugi   beebòrrò   nrà   mwiê]
        news   about drowning   poss   woman
    'The news of the woman's drowning'.

- 'Head-final' languages would be the languages in which the head follows the complements/ dependents.

- Different kinds of structure of phrases in Japanese, Turkish and Hindi would exemplify the concept of 'Head-final':

- Japanese:

a. tɑro-gɑ   [VP tɑnɑ-ni   hon-o   oitɑ]
   Tora-Nom   shelf-Loc book-Acc   put
   'Tora put the book on the shelf'.

b. [PP tomodati-to]
    friend -with

c. [NP sono   esuto   e   no   zisin]
        that   test   to   poss   confidence
    'Confidence in that test'

In the above Japanese example (a), the verb is the head and the verb occurs at the end of the sentence,
and other two dependents (complements) **shelf** and **table** precede the head word i.e. the verb.
Similarly in (b), the head is the postposition and it occurs after the complement NP.
Finally, the head noun follows its complements in example (c).
Turkish

a. [AP koca-sɪn-a   sɑdik]
    husband-3S-Dat   loyal
    'loyal to her husband'

As we see in the above Turkish example, the complements of this adjective occur before the head word 'sɑdik' which occurs as the final word in the phrase.

Hindi:

a. ram-ne   [$_{VP}$ roti   kʰa-yi]
   Ram-3MS-Erg   bread   eat-perf-F
   'Ram ate the bread'.

b. [$_{PP}$ kɪtab   tebul-ke   upər]
   book   table-Loc
   'Book on the table'

The above Hindi examples prove that Hindi is a Head-final language.

The example (a) has the verb as the head and both the complement NPs occur before the verb.

In example (b), the PP which functions as the head of the phrase comes after its complement NPs.