Syntactic Analysis

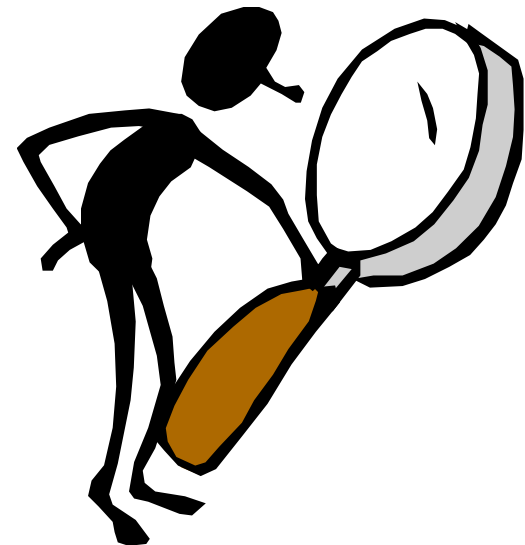| By:
Dr. Shadia Y. Banjar | http://SBANJAR.kau.edu.sa/
http://wwwdrshadiabanjar.blogspot.com |

Syntactic analysis may be defined as:

1- determining the relevant components of a sentence

2- describing these parts grammatically.

•The component parts of a sentence are called **constituents.**

'**SYNTACTIC ANALYSIS**' involves two related tasks:

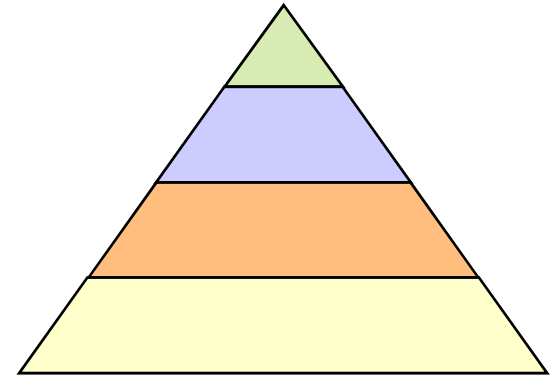(a) breaking down the sentence into its **constituents**

(b) labeling each constituent, stating what type (**form**)of constituent it is, and what **grammatical function** it has.

•Every sentence can be analyzed at **four distinct levels**:

1. the sentence– level,
2. the clause–level,
3. the phrase–level and
4. the word–level.

• This is called **the rank scale**.

• **SENTENCE ↔ CLAUSE ↔ PHRASE ↔ WORD ↔ MORPHEME**

•We can represent the categorical constituent structure of the sentence in terms of labeled brackets /tree diagram.

Representing Sentence Structure

I. <u>Bracketing:</u>

• **Analyzing the following sentence:**

"The snake killed the rat and swallowed it"

(1a<u>) First level:</u> Sentence level

[The snake killed the rat and swallowed it]

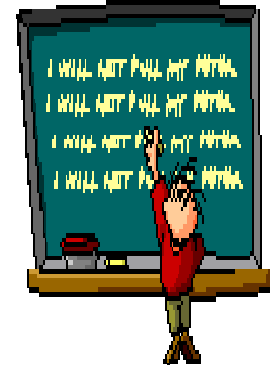**(1b) <u>Second level</u>**: Clause level

[[The snake killed the rat] and [swallowed it]]

(1c) <u>Third level:</u> Phrase level

[[[The snake] [killed [the rat]]] and [[swallowed [it]]]]

(1d)<u>Forth level:</u> Word level

[[[[The] [snake]] [[killed] [[the][rat]]]] [and] [[[swallowed]
   [[it]]]]]

- **Labeled Bracketing**

(1a)

[**s1**The snake killed the rat and swallowed it]

(1b)

[**s1** [**s2** The snake killed the rat] and [**s3** (it)swallowed it]]

(1c)

[**s1** [**s2** [**NP** The snake] [**VP** killed [**NP** the rat]]] and [[**s3**

[**NP**(it)] [**VP** swallowed [**NP** it]]]]

(1d)

[**s1** [**s2** [**NP**[**Det** The] [**N** snake]] [**VP**[**V** killed] [**NP**[**Det**

the][**N** rat]]]] [**coord** and] [**s3** [**NP** [**Det** (it)] [**VP** [**V**

swallowed] [**NP** [**Det** it]]]]]

II. Tree Diagram

- A **Tree Diagram** provides a visual presentation of the categorical constituent structure of the sentence.
- It shows us how a sentence is structured out of its constituent phrases, and how each of the phrases is structured out of its component words, and also it provides a visual presentation of the phrase structure of the sentence.
- it marks the **hierarchical** grouping of words into phrases, and phrases into sentences.
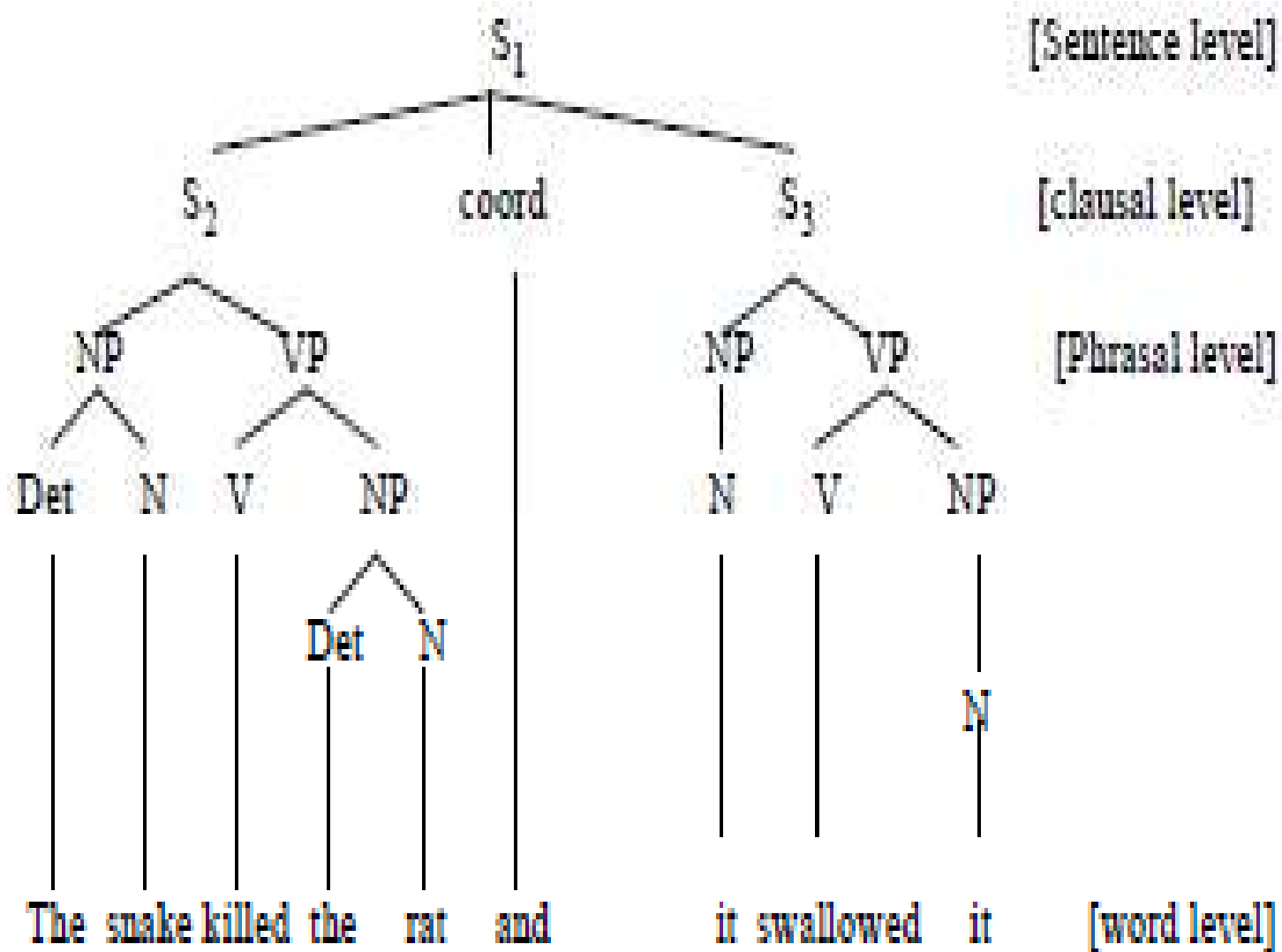
The tree consists of :

•**a root S** (at the **TOP** of the tree)

•**nodes** indicating categories (**NP, VP, Det, N, V**)

•and **terminal nodes** or leaves (the **words** at the bottom)

Trees thus tell us two things:

•The **linear order** of the words in a sentence;

•The **hierarchical or constituent structure** of a sentence .

In the above diagram:

- the **node** S1 (the whole sentence)
- S1 has three **branches,**
- It expanded as two **nodes** labeled S2 and S3 **coordinated** by *and*. S2 is expanded in two **branches** as NP - VP.
- S3 is expanded as NP – VP.
- VP is expanded in two **branches** as V- NP.
- NP is expanded in two **branches** as Det- N.
- Det, N, and V are **terminal nodes** attached to words (i.e. **lexical items**)
- Whereas NP, VP, S are **non-terminal nodes.**

Trees and Phrase Structure Rules

What trees are really doing is representing the **phrase structure rules** that make up an important part of syntax. On the top of the tree there is an S (for sentence node that dominates two sister nodes, an NP and a VP). This is just the way of drawing a basic phrase structure rule that says that a sentence consists of a Noun Phrase followed by a Verb Phrase, a rule which can be drawn as a tree or equally written this way:

•S-> NP VP (read this as S consists of NP followed by VP)

•Two more rules are needed to finish characterizing the tree:

•NP -> Det N

•VP -> V NP

With these three rules we've characterized this tree of the mentioned example.

Representing Constituency in Phrase-markers (Tree Diagrams)

Mother, sister, daughter:

A ("mother" of B and C)

B

C

("daughter" of A and "sister" of C)

("daughter" of A and "sister" of B)
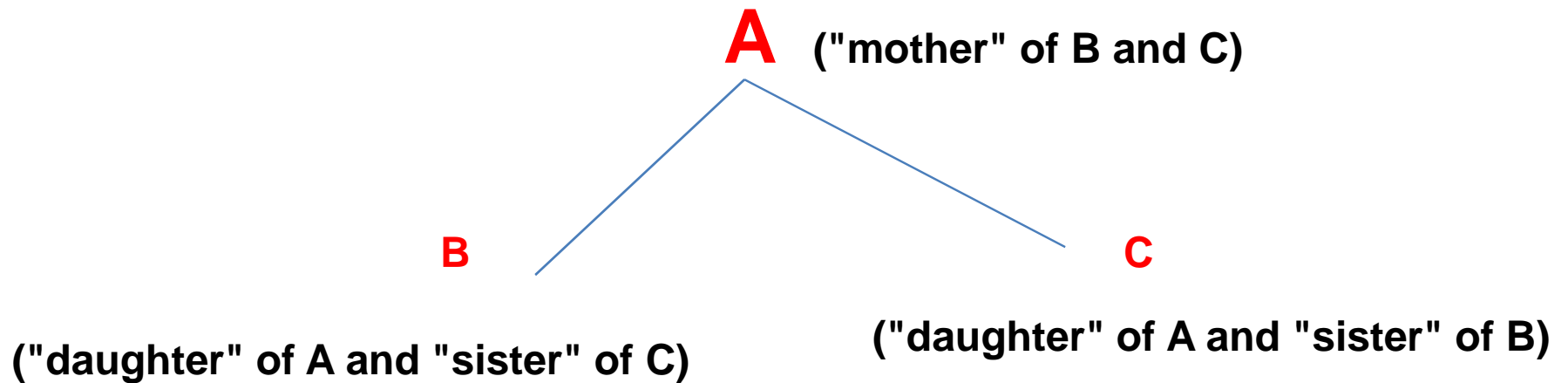
The most general example of the MOTHER-DAUGHTER-SISTER configuration:
Sentence, subject, predicate:

S
NP
(Subject)
VP
(Predicate)
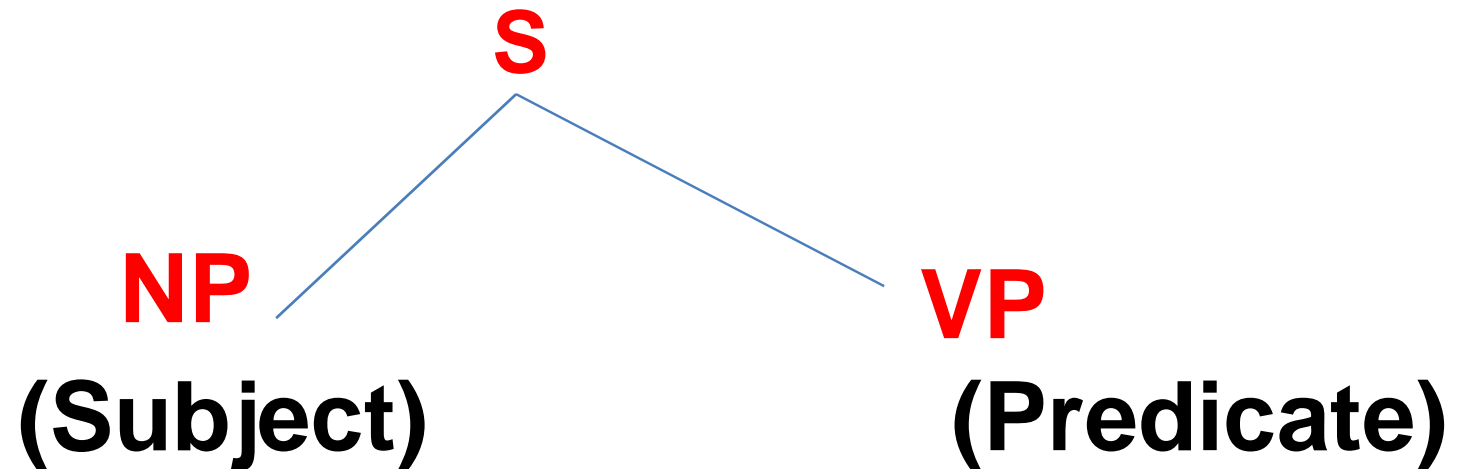
FORM (category).
'S' (for Sentence), **'NP'** (Noun Phrase), and **'VP'** (Verb Phrase) are *formal* labels. They refer to the syntactic *category* of the constituents of the sentence.
FUNCTION.
'Subject' and **'predicate'** are *functional* labels. In the above diagram they tell us how the NP and the VP are *functioning* in the structure of the sentence. Not all Noun Phrases function as subjects. Noun Phrases (NPs) have several different functions.

Some examples of the relation between Subject and Predicate in sentence structure:

S
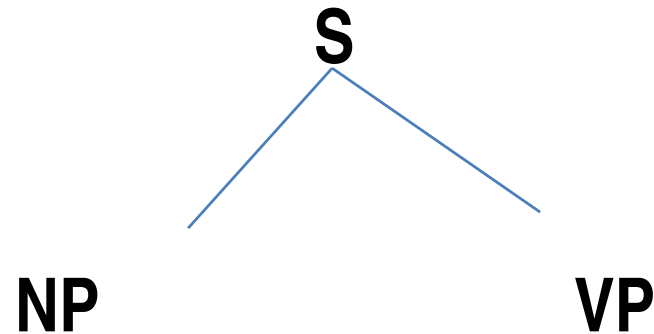
NP   VP

They   disappeared.
This steak   is much too raw for me.
His ideas on plumbing   were beginning to bore her.
The books I bought the other day   have been eaten by the dog.

5 rules:

S → NP VP

NP → Det N

NP → N

VP → V NP

VP → V

Rules to Remember: Adjective Phrases (AP)

AP → (AdvP) + A

function: 1. sC
         2. oC

e.g. 1. The dog is (quite disgustingly) fat
     2. John made Kate angry

OR

Function: pre-modifier within NP

e.g. The fat brown dog chased a girl

Rules to remember: Adverb Phrase (AdvP)

AdvP → (deg) + Adv

function: A

e.g. Ken snores (very) loudly

Rules to remember: Noun Phrase (NP)

NP → (pre-modifiers) + HEAD (+ post-modifiers)

pre-modifiers → DET   e.g. a game
              AP   e.g. a new game
              N   e.g. a new computer game

post-modifers → PP   e.g. the cat with three legs
           Rel clause (S)   e.g. the cat which is lying on the mat
           Non-finite clause (S) e.g. the letter for you to type is on your desk
                                    the cat lying on the doorstep is asleep

Rules to remember: Prepositional Phrase (PP)

PP → P (+ NP)

function: 1. A
             2. iO
             3. sC
             4. oC
             5. pO

   e.g.   1. Sally looked up
             Sally looked up the chimney
          2. Sue gave a jumper to Oxfam
          3. George is in the garden
          4. Carol put the car in the garage
          5. The children glanced at the pictures

OR

function: post-modifier within NP

e.g. The dog chased the cat with three legs