

Syntactic Theory

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Phrase markers

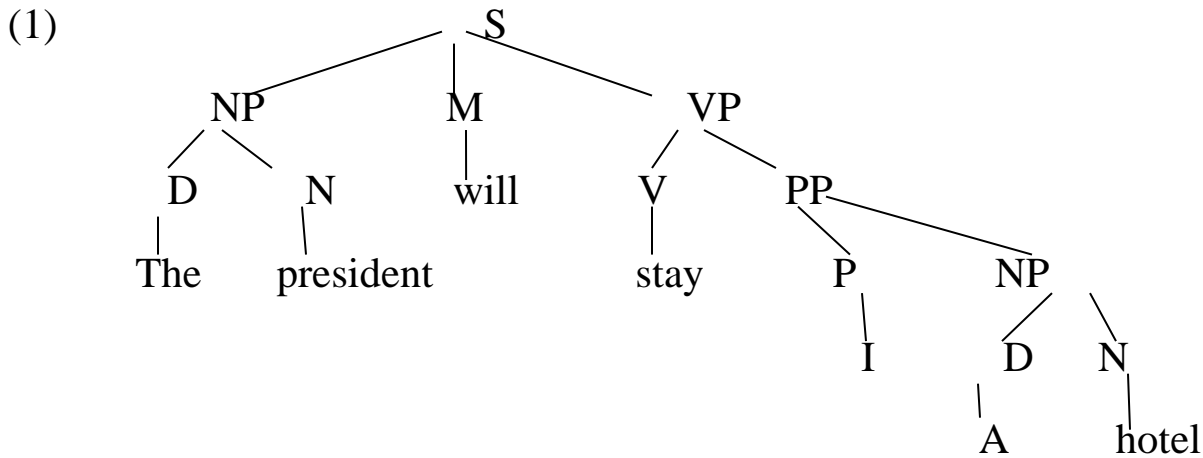
1. Overview

Sentences are not just unstructured sequences of sounds : rather , they have a hierarchical **constituent structure** in which sounds are grouped together into words , words into phrases , and phrases into Sentences . Each constituent (word for phrase) in a sentence belongs to a specific **syntactic category** . The **categorical constituent** structure of sentence can be represented in the form of a **Phrase – marker** , in which the different nodes are labeled according to the category of the constituent they represent .But What are Phrase-markers ?What kind of rules that might we devise to generate (i.e. tell us how to form)phrase-markers ?

2. The nature of phrase markers

Essentially, a P-marker is a graft comprising a set of points (or nodes to use the appropriate technical terminology), connected by *branches* (represents by solid Lines).The nodes at the (bottom) end of each complete three structures are called *terminal nodes*: other nodes are *non-terminal* .Each nod carries a label . Non – terminal nodes carry category labels (e.g. N, NP, V, VP, ADV, ADVP, etc.);terminal nodes (unless they are empty) are labeled with an appropriate lexical item (=word). Any given pair of nodes contained in the same P-maker will be related by one of two different types of relation ,namely either 1. By *dominance*, or 2. By *precedence* .

To say that one node X *dominates* another node Y is simply to say that X occurs higher up the tree than Y, and is connected to Y by an unbroken set of solid lines (branches). By way of illustration, consider the S-structure (1) below :



Given the definition above , we can say for example ,the S node in (1)dominates all the other nodes in the tree ;and the VP node dominates the node labeled V, the terminal node labeled stay , the node labeled PP, the node labeled P, the terminal node labeled in , and so on ;but VP dose not dominate M or will or S or president, etc.

One node is said to *immediately dominate* another if it is the next heights node up in the tree, and it is connected to the other by a single branch (solid line). Thus ,the S node in (1 immediately dominates only the NP, M and VP nodes immediately beneath it.

We can say that one node *precedes* another if it occurs to the left of other node on the printed page. So for example in (1) above , the M node proceeds the VP, V, PP, P, NP, D and N node to its right , as well as the words stay , in, a , and hotel . To say that one node *immediately proceeds* another is the say it occurs *immediately* to the left of the other node . so for example the M node in (1) immediately proceeds the VP and V nodes , and the word stay; but it does not immediately proceeds (though it dose precedes) the PP node or the word in , etc.

We can make use of dominance and immediate dominance to define two important traditional terms – namely *constituent*, and *immediate constituent*. These we can define the following way:

(a) a set of nodes from a constituent (of some sentence structure) if

they are exhaustively dominated by a common node (i.e. if they all branch out of a single node , and if there are no other nodes branching out the same single node).

(b) X is a constituent of Y iff X is dominated by Y.

(c) X is an immediate constituent of Y iff X is immediately dominated by Y

(Note iff = "if and only if" X and Y here stand for nodes .)

If we apply these definitions to a tree structure such as (1) above , we see , for example, that the P NP sequence [in a hotel] is a constituent in (1) , since P and NP are exhaustively dominated by the PP node immediately above them (since this PP node branches only into P and NP not into any other nodes). But by contrast , the V P sequence stay in dose not form a constituent in (1) , since although they are both dominated by VP , they are not exhaustively dominated by VP, also dominates the NP [the hotel] .

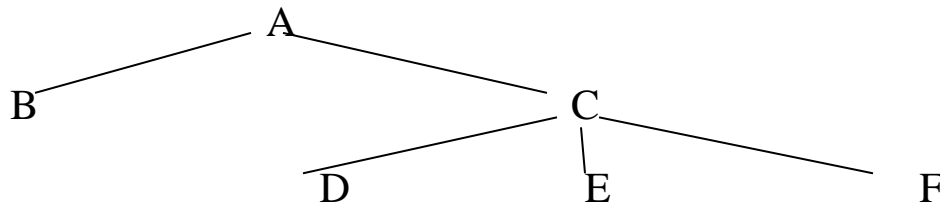
Likewise, given the definitions (b) and (c) , it follows that all nodes in (1) are *constituents* of the overall sentence (s),but That only the NP,M and VP nodes immediately dominant by S are *immediate constituents* of the sentence . Likewise, the PP [in a hotel] is a constituent (through not an immediate constituent) of S, but is both a constituent and an immediate constituent of VP.

3. C- command

We can make use of the *dominance* relation discussed in the previous section to define more complex structural relations between constituents which turn out to play an important part in a number of areas of syntax and semantics .One such complex structural relation is that of c-command (constituents command).That we might define as follows:

X c-command Y iff (=if and only if) the first branching node dominating X dominates Y ,and X does not dominate Y, nor Y dominates X (a branching node is a node which branches into two or more immediate constituents).

Example



Let's try and work out what the node D c-commands in this structure . The first branching node above D is C : so by the definition given above any other dominated by C will be c-commanded by D . now since C dominates E,F and G (but not A or B) , it follows that D c- commands E,F and G(but not or B) .

4. Generating Phrase-markers

A grammar of a language is a model of the grammatical competence of the fluent native speaker of the language . Acquiring a language involves acquiring a finite system of rules which generate (i.e. specify how to form , interpret and pronounce)the infinite set of well-formed sentence structures I the language . Accordingly , the task of the linguist describing a particular grammar is to devise a finite system of rules of sentence formation , interpretation , and pronunciation that will generate the infinite set of well-formed sentence structures in the language .

The focus here is on the question of what form *syntactic* rules might take. These rules must comprise a finite system with an infinite capacity , in order to account for the infinite competence (i.e. synthetic knowledge) of the native speaker. This competence is reflected in intuitions about synthetic well-formedness (grammaticality) on the one hand, and syntactic structure on the other. Accordingly we might suppose that the syntactic rules in a grammar have two tasks to fulfill : namely they must

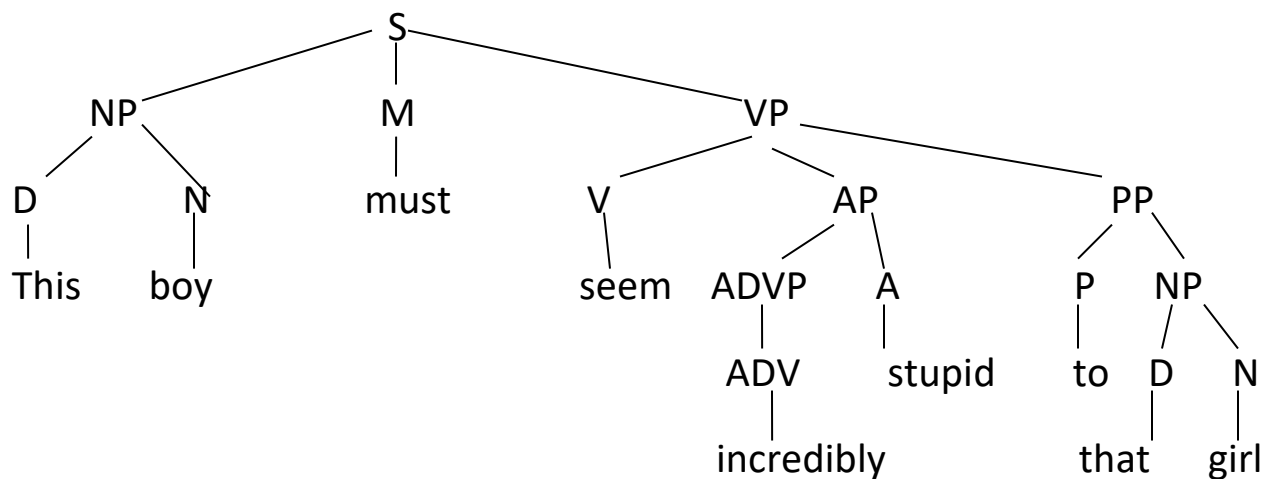
- 1.specify which sequences of words form grammatical sentences in a language .
2. specify the internal syntactic structure of such sequences.

The syntactic structure (S-structure) of a sentence can be represented in the form of a labelled diagram or Phrase – marker. Hence we might reformulate the goal of the syntactic component of a grammar as benign that of **generating** (= specifying how to form) all the grammatical sentence structures in a language .That is , we want to devise a set of rules which specify how grammatical sentences are built up out of phrases , and how phrases are built up out of words .

If we further assume that sentence structures can be adequately represented by Phrase-markers, then the problem in effect reduces to devising a set of rules which will generate Phrase – markers of the kind that are used to represent natural languages sentence structures .

But what kind of foods could we devise which would generate Phrase-markers ? let's consider how we might generate a tree diagram such as (2) below :

(2)



[Abbreviations : S = Clause/ Sentence , M=modal , D= Determiner ,
 ADVP = Adverbial Phrase , ADV = Adverb, P=Preposition
 PP= Prepositional Phrase ,N= Noun , NP=Noun Phrase , V=Verb, VP= Verb
 Phrase , A=Adjective , APP=Adjective Phrase]

The suggestion we shall put forward here is that structures such as example (2) above could be generated by a set of Phrase Structure Rules (=PS rules) – so called because they specify how sentences are structured out of phrases and phrases out of words . The following is a set of Phrases Structure Rules:

(3)

(i) S ---- NP M VP

(iv) ~~ADVP~~ ---- ADV

(ii) VP---- V AP PP

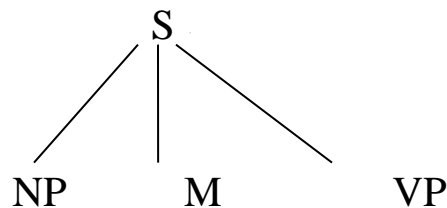
(v) PP ---- P NP

(iii) AP ---- ADVP A

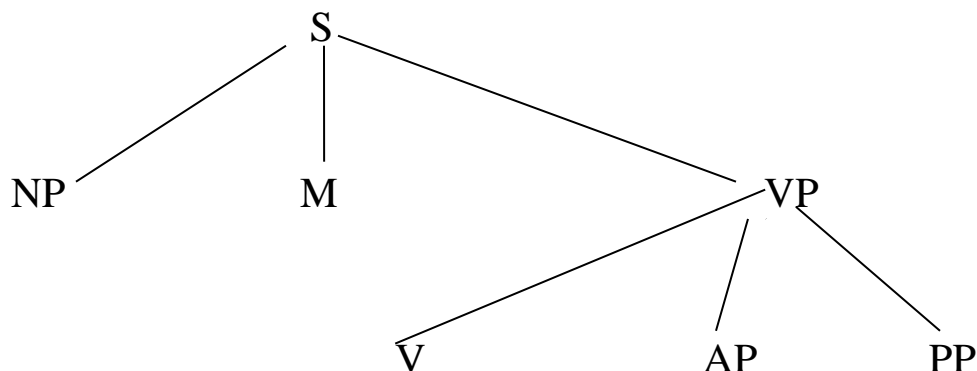
(vi) NP ----- D N

Rule (3) (i) can be regarded as specifying " You can form a clause by taking a Noun Phrase immediately following by a Model immediately followed by a Verb Phrase" More formally , we can say that rule (3) will generate the partial tree- structure bellow :

(4)

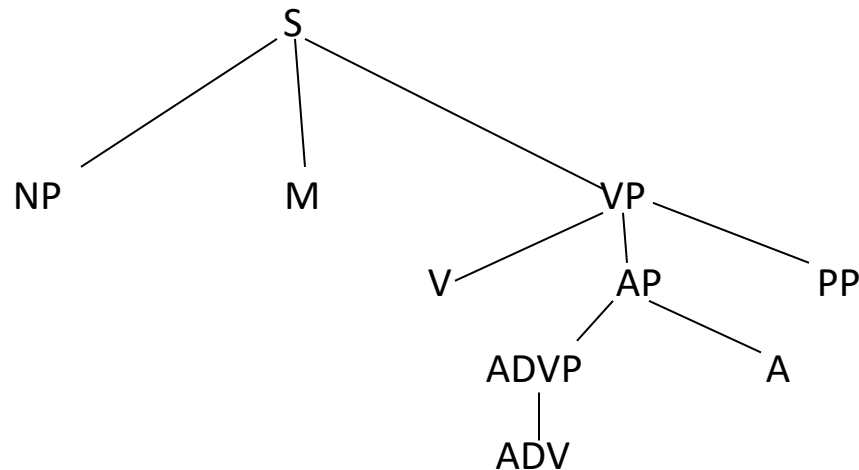


Rule (3) (ii) specifies that we can form a Verb Phrase by taking a Verb immediately followed by an Adjectival Phrase immediately followed by a Prepositional Phrase, if we apply this whole to expand the VP in (4) we *derive* the structure (5) below:



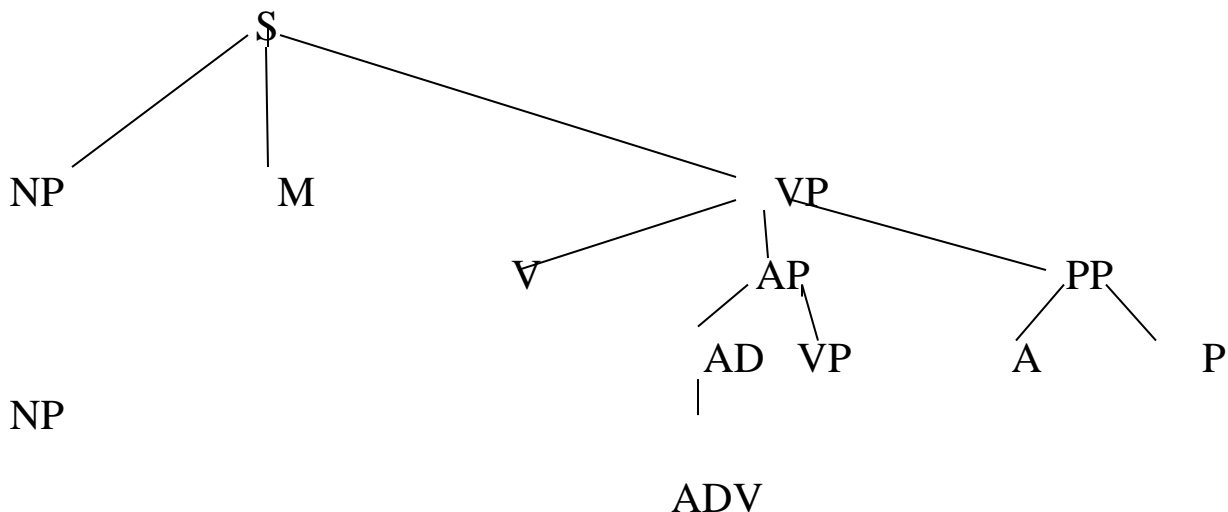
Rule (3) (iii) specifies that we can form an adjectival Phrase by taking an Adjectival immediately followed by an Adjectival, while rule (3) (iv) tells us that an Adverbial Phrase can consist of an Adverb alone : applying these rules to the structure (5) we expand (5) into :

(6)



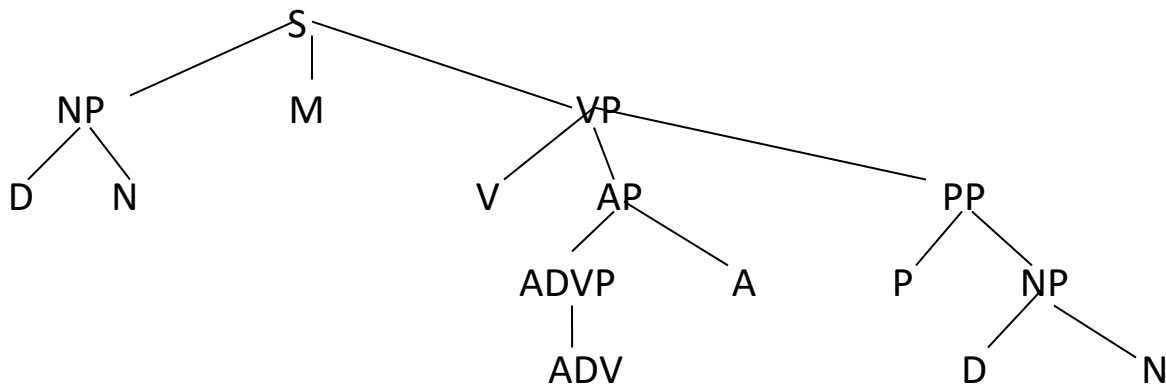
Rule (3) (v) specifies that we can form a Prepositional Phrase out of a preposition immediately followed by a Noun Phrase, applying rule (3) (v) to the structure (6) we will give us :

(7)



Rule (3) (vi) says that we can form a Noun Phrase by taking a Determiner immediately followed by a Noun, Phrase in (7) we derive the structure :

(8)

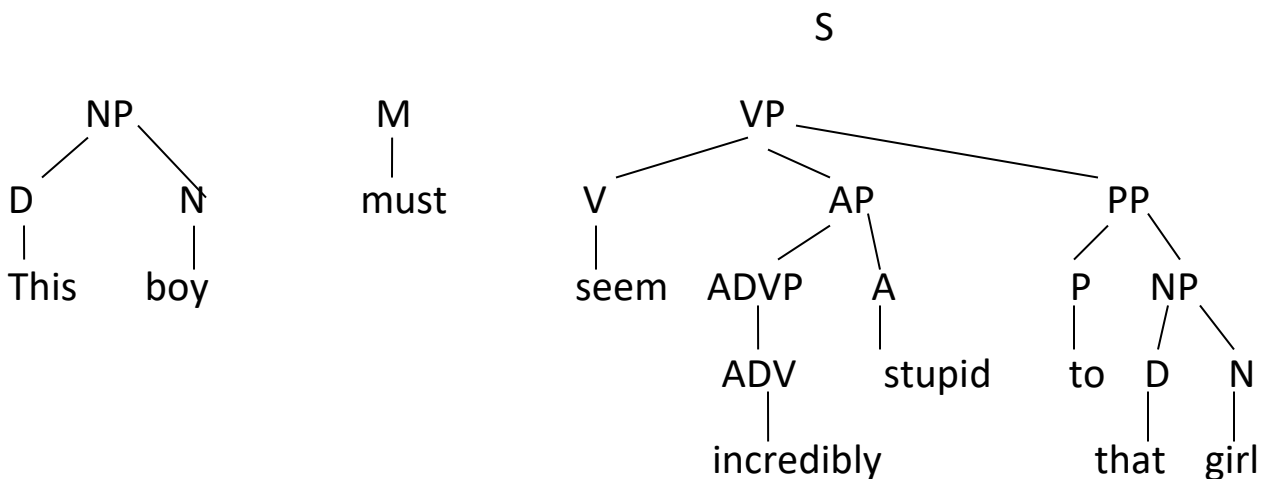


And finally let us also postulated the following principle : (9) **LEXICALISATION PRINCIPLE**

Any lexicon item (=word) listed in the dictionary as belonging to a given what – category can be inserted under any corresponding (terminal) category node in any P- maker .

All that principle (9) says that any word listed as a Noun in the Lexicon can be inserted under any N node , any word listed as a Verb under any V node , and so on . Given a lexicalization principle such as (9) , we can insert this under the first D in (8) , boy under the first N, must under M, seem under V, incredibly under ADV , stupid under A , to under P, that under the second D, and girl under the second N, thereby deriving from (8) the S-structure (10) below :

(10)



Noun Phrases

Radford(1988) postulated a *two-level* Theory of Categories: that is to say, he assumed that there are two *levels* of categories in natural language, namely

(i) *word-level categories, e.g.*

N = Noun; V = Verb; A = Adjective; P = Preposition;

ADV = Adverb; M = Modal; D = Determiner, etc.

(ii) *phrase-level categories, e.g.*

NP = Noun Phrase; VP = Verb Phrase; AP = Adjectival Phrase; PP = Prepositional Phrase; ADVP = Adverbial Phrase, etc.

In this seminar, we are going to argue that our existing Theory of Categories should be extended to include a third type of category intermediate between word-level and phrase-level categories. That is to say, we are going to argue in favour of positing that there are nominal constituents larger than the Noun but smaller than a full Noun Phrase, verbal constituents larger than the Verb but smaller than a full Verb Phrase, adjectival constituents larger than the Adjective but smaller than a full Adjectival Phrase ... and so on.

Here , we have five kind of constructions of Noun Phrases.

1- Noun + PP (Complement) = small Noun Phrase

e.g. Division of labor $N \rightarrow N + PP$

Phrase ‘division of labor’ is a noun phrase because it has a noun head ‘division’ and its modifier ‘of labor’. The form of modifier is PP, stands for ‘post-modifier’ because it appears after the noun head. This noun phrase can be

categorized into small NP (N’) since it does not have a determiner to expand .’N’ into N.

Based on the schema $N' \rightarrow N + PP$, PP expands N into N' so that the function of PP 'of labor' is obligatory (complement). Complement is the sister of N and the daughter of N'. It can be observed the head noun 'division' that can be paraphrased into transitive verb. From NP, 'division of labor' becomes 'to divide labor'. Constituent 'divide' is transitive verb, so that it must be followed by the object. The object is 'labor'. Because PP 'of labor' has close relation with the head noun 'division', so that it is called obligatory post modifier (complement). From the explanation above, it can be inferred that the construction of noun phrase is $N' \rightarrow N + PP$ (complement)

2-Determiner + Noun + PP = Complement

e.g. a box of chocolate cream

A box of chocolate creams' belongs to full NP (N'') because it has specifier (A as determiner). Full NP cannot be expanded by the other determiner, if it is added, the construction will be ill-formed. Constituent 'box' stands as head of NP, 'a' stands as determiner (often called pre-modifier due to it occurs before the noun head), and PP of NP stands as post-modifier because it occurs after the noun head.

The function of PP 'of chocolate creams' in the NP is complement

The schema above shows that complement is the sister of N and the daughter of N'. Hence, it expands N box into N' box of chocolate (N + PP). Complement can be expressed by using verb transitive (v_t) in one clause and the head noun 'box' can be paraphrased into transitive verb. See the illustration below

- to box chocolate creams

It is well-formed and the head noun 'box' can be moved into transitive verb. The evidence to check that the function is complement is made full sentence. From to box chocolate creams become they box chocolate creams. It shows that complement is obligatory because obligatory constituent must be complements. So, it is true that complement can be proven by paraphrasing V_t where the phrase above. From the explanation above, the construction of NP is $N'' \rightarrow D + N' + PP$ (complement).

3-Determiner + Noun + Noun + PP (Adjunct)

e.g. A lady's bedchamber in Bulgaria

A lady's bedchamber in Bulgaria' is noun phrase which has pre-modifier and post-modifier. Constituent 'a lady's' stands as pre-modifier and constituent 'in Bulgaria' stands as post-modifier. The form of 'in Bulgaria' is PP. This NP belongs to full NP, because it has 'a' as determiner, so it can be expanded by the other determiner.

The status of PP 'in Bulgaria' in the NP is optional. It can be seen from the schema $N' \rightarrow N' + PP$. Adjunct is the daughter and sister of N. To prove that the function is adjunct is by looking the PP. The PP in the NP shows PP place or location, where PP indicates place called PP adjunct or optional. The other reason to show that the PP (adjunct) is by paraphrasing the head noun 'bedchamber' into transitive verb. It is clear that the head noun in the NP cannot be changed into V_t . So, the relation between the head noun 'bedchamber' and PP 'in Bulgaria' is loosely or longer relation. The head noun in this NP has two statuses as small NP (N') and noun (N). Based on description above, it can be inferred that the

construction of NP is $N'' \rightarrow D + N' + PP$ (adjunct)

4- Determiner + Adjective + Noun + PP (complement) + PP (adjunct)

e.g. a terrible burst of firing in the street beneath

A terrible burst of firing in the street beneath' is a noun phrase which has specifier ('a' as determiner). It belongs to full NP (N) because it is not possible to put the other determiner (D). Constituent "terrible' is the adjective stands as pre-modifier due to the existence of it (terrible') before the head noun. Constituent 'burst' stands as the head of 'this noun phrase. The prepositional phrase **of firing in the street beneath** stands as post-modifier because it occurs after the head noun. There are two PPs in this NP, such as '**of firing**' and '**in the street beneath**'.

The status of PP 'of firing' in the noun phrase is complement. It can be seen that it expands N into N' ($N' \rightarrow N + PP$). Hence it can be said that complement is the sister of N and the daughter of N'. To prove that PP 'of firing' is obligatory by paraphrasing the head noun 'burst'. For clear explanation, see below :

Burst of firing \rightarrow to burst fire

In illustration above can be seen that the head noun 'burst' is able to be changed into transitive verb (Vt). The result is well-formed and constituent 'fire' must adhere with the head noun. So it has close relation with the head noun and can be called as obligatory post-modifier (complement).

Meanwhile, the status of the second PP ‘in the street beneath’ in the noun phrase is adjunct. This PP modifies the noun ‘**firing**’. The adjunct is the sister and daughter of N’. It can be seen from the schema that it expands N’ into N’ ($N' \rightarrow N' + PP$). To check that the PP ‘**in the street beneath**’

is adjunct, it can be observed from the PP itself. This PP (‘in the street beneath’) shows that PP location. It can be said that PP location must be adjunct. It can be prove from paraphrasing the noun ‘firing’. It is clear that the noun ‘firing’ cannot be changed into transitive verb (Vt). So, the conclusion is that PP ‘in the street beneath’ has no close relation with the noun ‘firing’, hence it is optional post-modifier (adjunct). From the explanation above, the construction of NP is N’’ $\rightarrow D + AP + N + PP$ (complement) + PP (adjunct).

5-Determiner + Noun + conjunction + Noun + PP (adjunct)

the coffeepot and cups on the tray

The coffeepot and cups on the tray’ belongs to a noun phrase‘ because the existence of the head noun ‘coffeepot and cups’. It is called full NP (N’’) due to constituent ‘**the**’ is determiner stands as pre-modifier. Pre-modifier appears before the head noun of the noun phrase. Constituent ‘**on the tray**’ is PP stands as post-modifier because it occurs after the head noun.

The status of PP ‘**on the tray**’ in the noun phrase is optional. It can be seen from the schema that it expands N’ into N’ ($N' \rightarrow N' + PP$). The evidence that the PP ‘**on the tray**’ stands as adjunct, it can be proven by paraphrasing the head noun ‘**coffeepot and cups**’ into transitive verb

From noun phrase '**coffeepot and cups on the tray**' becomes 'to coffeepot and cup on the tray'. Based on the paraphrase above, it is clear that the head noun '**coffeepot and cups**' is not able to be changed into transitive verb. The other reason is by changing the PP into the other PPs, such as on the box. From the example, there is no close relation with the head noun. To prove more, it can be seen from the PP itself. This PP shows PP location that 'coffeepot and cups is on the tray'. When a PP indicates PP location or place, it belongs to optional or adjunct. The adjunct is the sister and daughter of N''. Therefore, it has no close relation between the head noun 'coffeepot and cups' with the PP 'on the tray'. It can be said ,that this PP is optional post-modifier (adjunct). Based on the description it can be inferred that the construction of the NP is N'' → D + N' (N and (N) + PP (adjunct)

Conclusion

We can conclude that the construction of Noun Phrases can be plural noun, pre-modifier + Noun (Head), Noun (head) +

Post-modifier, Pre-modifier + Noun (Head) + Post-modifier. The Noun Phrase

which has Prepositional Phrase stands as post-modifier, has status either complement or adjunct. It can be seen from the schema and it can be observed

by paraphrasing the head noun into transitive verb (V_t).

1- Finite and non-finite clauses

- **Finite clauses**: a clause that contains a finite verb (i.e., a verb inflected for tense/agreement).

- Tense/agreement marking in English:

- Past tense: -(e)d for all persons and numbers

- Present tense: -(e)s for 3rd person singular

- Ø for all other forms Ø indicates a ‘null morpheme.’ There is no **overt** ending to mark tense in the relevant forms.

- These are **regular** endings. English also has irregular tense and agreement forms. For example:

- He **thinks** about it/He **thought** about it.

- I **am** a student/You **are** a student.

- English does not use separate markers for tense and agreement, though some other languages do (i.e., they might have one morpheme for person agreement, one morpheme for number agreement, and one morpheme for tense).

Nonfinite Clauses

- Nonfinite clauses: a clause that lacks a finite verb (I.e., if it is a verbless clause, or if it is a clause containing a tenseless and agreementless verb).

- There are three main types of nonfinite verb-forms in English:

- Uninflected infinitive forms which comprise simply the base or stem of the verb with no added inflection (such forms are frequently used after the so-called ‘infinitive particle’ to)

- Gerund forms which comprise the base plus the -ing suffix

- Perfect/passive participle forms which generally comprise the base plus the -(e)n suffix (though there are numerous irregular participle forms in English).

Subjunctives

- A clause that contains an invariable/uninflected verb is not necessarily nonfinite.
- Some finite verbs lack the morphological characteristics of regular finite verbs.
- The distinction here is indicative vs. subjunctive (sometimes referred to as mood).
- Examples:
 - I know [that you leave for Hawaii tomorrow] (indicative)
 - I demand [that you leave for Hawaii tomorrow] (subjunctive)
- C.f. I demand [that he leave for Hawaii tomorrow]

2- Constituent structure of clauses

- So far we've used the following rule for clauses:
$$S \rightarrow NP\ M\ VP$$
- But in these sentences the clauses contain something before the NP:
 - We know for certain [that the president will approve the project]
 - We would obviously all prefer [for the matter to be resolved amicably]
 - I couldn't really say [whether it will rain]
- These particles are called complementizers, which can be abbreviated COMP or C
- Emonds (1976) proposes C as a sister to the NP subject:
$$S \rightarrow C\ NP\ M\ VP$$
- Bresnan (1970) proposes C and S form a larger constituent which she calls S':
$$S' \rightarrow C\ S$$

$$S \rightarrow NP\ M\ VP$$

- Evidence from Shared Constituent Coordination (with gapping):
 - I wonder whether [sPeter likes fish] and [sMary meat]
 - *I wonder [s' whether Peter likes fish] and [s' whether Mary meat]
- Gapping can only take place with conjoined S', not S. This presupposes the existence of S and S' as separate categories.

3- Main clauses

- Can main clauses contain overt complementizers in English?
 - *That the government may change its decision.
 - *Whether the Prime Minister will resign?
- Main clauses in English are indeed S' constituents, though languages like English are subject to a language-specific restriction that C in main clauses must be empty.

Types of complementizer

- Different complementizers introduce different types of clauses (finite, nonfinite, WH/interrogative).
- That introduces finite, non-interrogative clauses:
 - I am anxious [that you should arrive on time]
 - *I am anxious [that you to arrive on time]
- For introduces non-interrogative infinitive clauses:
 - I am anxious [for you to arrive on time]
 - *I am anxious [for you should arrive on time]
- Whether introduces interrogative complement clauses that can be either finite or nonfinite:
 - I don't know [whether I should agree]

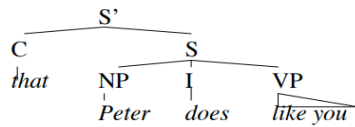
- I don't know [whether to agree]
- If introduces interrogative clauses that are always finite:
- I don't know [if I should agree]
- I don't know [if to agree]
- We can generalize these subcategorization restriction with our handy dandy system of feature matrices:
- That [-WH, +FINITE]
- For [-WH, -FINITE]
- Whether [+WH, +/- FINITE]
- If [+WH, + FINITE]

4- Internal Structure of S

- I am anxious that [Peter should finish by Friday]
- I am anxious for [Peter to finish by Friday]
- The bracketed S of the first sentences consists of [NP M VP], our familiar expansion of S. The second is expanded as [NP to VP].
- We will argue that M (modal) and to are members of the category INFL=inflection and simply I)
- Thus, the basic structure of ordinary clauses is:
- $S' \rightarrow C S$
- $S \rightarrow NP I VP$

Characteristics of INFL

- We mentioned that INFL contains Tense/AGR features which need to agree with the subject NP, so we can say that an NP which is a sister of finite INFL is assigned Nominative Case.



- NOM case assignment allows us to account for:

- I really think [that he/*him does like you]
- I really think [that he/*him likes you]
- C.f.: I want [him/*he to go to the store]

5- Clauses with Empty Subjects

- The president isn't sure [whether he should approve the project]
- The president isn't sure [whether to approve the project]
- Is the subject NP optional or empty?
- Empty subject NPs are known as PRO.
- But why PRO and not \emptyset ?
- PRO is syntactically active.
- Agreement:
 - The president is not sure [whether PRO to be a candidate/*candidates]
- Reflexives:
 - The president is not sure [whether PRO to vote for himself]

Empty Categories

- So far we've seen C, I, and NP be empty in the appropriate context. What about other categories?
 - She may come to the party, and in fact she probably will [VPe]
 - They say she is very rich, but I don't think that she is [APe]
 - She was very ill, though nobody knew [S' e]
- Generalization – $X_n \rightarrow e$ (any category can be left empty)

Unusual Clauses

- There are two clause types that do not have the status of S'
 - Exceptional Clauses
 - Small clauses

6- Exceptional Clauses

- These occur as complements to a small subset of verbs, especially 'cognitive' verbs (verbs of saying or thinking)
 - I believe [the president to be right]
 - I've never known [the Prime Minister to lie]
 - They reported [the patient to be in great pain]
 - I consider [my students to be conscientious]
- Usually of the form [NP to VP]. (I.e., they are nonfinite)
- They cannot be introduced by an overt COMP, even the nonfinite COMP for – *I believe [for the president to be right]
 - *They reported [for the patient to be in great pain]
- The subject of ECs behaves more like the object of the preceding verb than the subject of the following verb:
 - I believe [him to be right]
 - I've never known [her to lie]

- I consider [them to be conscientious]
- Like the object of a regular verb, they can be passivized:
 - He is believed [_ to be right]
 - She has never been known [_ to lie]
- They can be a reflexive whose antecedent is in the main clause:
 - The president believe [himself to be right]
 - I’ve never known [myself to lie]
- If we assume ECs are S constituents, then we could say that passivization can apply across S, but not S’:
 - We never intended [that to happen]
 - That was never intended [_ to happen]
 - We never intended [for that to happen]
 - *That was never intended [for _ to happen]
- Then why not analyze the subject NP as the object of the main clause?
 - Certain things only appear as the subjects of clauses: Subject Idiom Chunks and Expletives

Subject Idiom Chunks

- The chips are down
- The cat is out of the bag
- The shit hit the fan
- The fur will fly – The italicized portion has no independent meaning, and only takes on meaning in the context of the entire idiom. They can only be used in their idiomatic sense as subjects.

Pleonastics/Expletives

- It is raining
- It is a long way to Denmark

- It is time to leave
- There must have been some mistake
- There is a unicorn in the garden
- These pronouns are semantically empty and cannot have their reference questioned (*What is raining?)

SICs/Pleonastics in ECs

- I believe [the chips to be down]
- I've never known [the fur to fly so quickly]
- They reported [the cat to be out of the bag]
- I consider [the shit to have hit the fan]
- I've never known [it to snow in summer]
- I believe [there to be no alternative]

Subjects of ECs

- The fact that the italicized constituents in the previous slide can only function as subjects provides strong empirical support to claim that they are subjects of the lower clause, rather than objects of the main clause.

S' or S?

- We persuaded Mary [PRO to resign]
- It seems likely that the bracketed constituent is S' , not S.
- PRO cannot occur as the subject of an exceptional clause:
 - *The president believes [PRO to be right]
 - *I consider [PRO to be conscientious]
- PRO can only occur as the subject of infinitival S'
 - I wonder [whether PRO to stay at home]

- PRO can function as the subject of an infinitival S' complement, but not as the subject of an S complement:

- Peter persuaded Mary [S' e PRO to resign]

- Peter believes [SMary to be innocent]

- It seems there's a clear distinction between [believe NP to VP] structures and [persuade NP to VP]:

- Peter persuaded Mary firmly/himself [S' e PRO to resign]

- *Peter believed [SMary firmly/himself to be innocent]

- It seems that adjuncts and emphatic reflexives must be within the same S as the V they modify.

- (The theory behind reflexives is much more complex, however. This is a vast simplification.)

Semantic Differences

- Subject NP – Object NP – Complement S'

- Believe is a two-place predicate:

- Subject NP – Complement S

- The different semantic roles played by the post-verbal NPs in the two infinitive constructions accounts for the fact that while active and passive complements of believe are 'cognitively synonymous', the complement of persuade show an obvious difference:

- I believed a specialist to have examined Peter

- = I believe Peter to have been examined by a specialist

- I persuaded a specialist to examine Peter

- ≠ I persuaded Peter to be examined by a specialist

Control

- Predicates, like persuade which take an infinitival complement with a PRO subject whose reference is controlled by some NP in the matrix clause are known as Control Predicates

7- Small Clauses

- Small Clauses lack COMP and INFL
- They have the structure [SCNP XP]
 - I consider [Peter extremely intelligent]
 - Could you let [the cat into the house]
- But again, how do we know the italicized constituents are subjects?
- I consider [it time to leave]
- Why did you let [the cat out of the bag?]
- This suggests that the complements are subject + predicate structures, and therefore clauses of some sort Small Clauses
- Not-initial and alone-final NPs only occur in subject positions:
 - *Joe kissed not many girls.
 - Not many gorillas have learned to tap dance.
 - *Call Peter alone.
 - Peter alone called. Cf:
 - I consider [not many people suitable for the post]
 - I consider [Peter alone suitable for the post]

Structure of SCs

- SCs are not S' constituents and therefore lack COMP. What does this mean? – *I didn't consider [that/if/for/whether it suitable]
 - *Let [be there light]
- SCs also lack an INFL node:
 - *I consider [your attitude to/can deeply offensive]
 - *Let [thereto/can be light]

Similarities: ECs and SCs

- Subjects of small clauses share properties with subjects of exceptional clauses with respect to passivization, assigning objective case, reflexivization, and not permitting PRO:

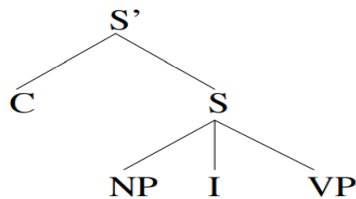
- I consider [him intelligent]
- He is considered [__ intelligent]
- I consider [myself intelligent]
- *I consider [PRO intelligent]

Distribution of SCs

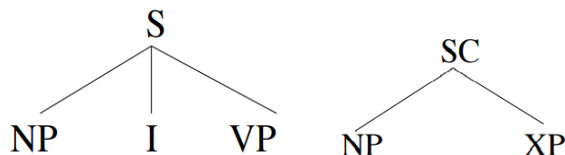
- Small clauses also can serve as complements to Ps:
 - With [the Mariners on TV], what is the point of going out?
 - I don't want you preparing food with [your hands dirty]
 - With [the cat out of the bag], there is not much point in trying to hide the truth anymore.

Summary of structures

- Ordinary clause:



- Exceptional clause:
- Small clause:



The generative model makes use of the phonological theory of the distinctive features in two ways. The first it provided a basis for incorporating transformations into the phonological component. Second it suggested a system for incorporating both syntactic and semantic features. Every item in the lexicon of a transformational generative grammar is marked for each of three kinds of features, phonological, semantic, and syntactic. The phonological features are independent of both syntactic and semantic features. But, the line between the syntactic and the semantic features is difficult to draw and presents a problem. As a solution the generativists propose to treat some feature as semantic and some as syntactic and some as both.

The structure of the lexicon

The lexical item may be represented by two sets:

1. **Phonological features (representation)** which are indicated by the distinctive feature matrix. Each sound of the word is represented by a column which indicates the presence or absence of the various universal phonological features. For example the word man, the first column represents the sound normally written as /m/ the second column represents the “low front vowel” /a/; the third represents the sound /n/. If the word contained two or more syllables we should indicate which syllable receives stress. The phonological rules are sometimes dependent on syntactic information. Thus, in a simple sentence such as the following the primary stress normally occurs on the last noun:

2 3 1

The people saw the thief.

In this sentence the numbers indicate primary, secondary, and tertiary stress. Now, suppose we replace the nominal thief with a pronoun and a contextual sentence:

(A thief ran down the street)

2 1 3

The people saw him.

The primary stress shifts to the verb. In other words the phonological rules need “know” whether a word is a noun, a verb, or a pronoun and such information are syntactic rather than phonological. In summary, the phonological representation contains a very abstract way in which all the information of the phonological component needs to specify the pronunciation of the item in a sentence.

2. Syntactic/ semantic features (representation) which are indicated by the set of items on the right of the figure. However, the set is incomplete for two reasons:

- Since what matters is the general outline of the theory then a full representation is not necessary.
- Transformational linguists have yet to devise a complete listing of all possible syntactic and semantic features.

Thus, we can assume that there are syntactic/ semantic features which are linguistic universal. For example: the syntactic category of a noun seems to be universal, as does the semantic feature of male, such features are related similar to the dictionary definition. Thus a man is male, adult, and has a plural form. Other features will be negatively indicated by the reason of their absence from the definition. Thus, a man is not a proper noun, not an abstract, and does not refer to an inanimate object. In a similar way features of verbs and adjectives are outlined. Thus; there are three kinds of syntactic information (syntactic behavior) that must be given for each lexical item:

1. Category information. Each lexical must be classified into its lexical category. Thus, boy, girl, tree will be classified as nouns (+N); love, arrive, frighten classified as (+V); interesting, nice, big will be classified as (+Adj); the, a, these as (+Det); and so on.

2. Subcategory information. Each lexical item will be classified on the basis of which other categories it can occur with. for instance:

- Intransitive verb: which can't be freely followed by a NP (arrive, sleep).
- Cognate object: which is a direct object that some intransitive verbs may take (he died a horrible death).
- Direct object: a NP that follows a transitive verb (eat, see, read).
- Double transitive: a verb that can be followed by two NPs (give, buy, owe, sell). If they allow a manner adverbial such as give and buy they will be listed +-NP+NP (Manner), if not they will be listed as +-NP+NP.

3. Selectional information: which includes information about the inherent characteristics of nouns in the lexicon by means of **inherent syntactic features** that will be elaborated in the next section.

Inherent syntactic information

Such information are inherent in the lexical item and have syntactic consequences. One of syntactic component of being [-Common] is that such a noun can't be preceded by a determiner and we ensure this by marking the lexical entry [-Common] which then can be put in a terminal string only if the segment-structure rules have specified +N in the string as [-Common]. But if something is marked [-common] by the segment structure rules; it cannot be marked either plus or minus definite, and thus no determiner will precede it. Thus; a combination of segment-structure rules and inherent syntactic structure features that we get the desired results. The lexical entry for each for each noun will be thus have to specify whether the noun is common ([+Common]) or proper ([-Common]) and whether the noun is ([-Pro]) or a pronoun ([+Pro]). If the noun is a mass noun, it will be marked ([-Pl]) to indicate that it cannot be pluralized; if it is a **pluralia tantum**, it will be marked ([+Pl]). The great majority of nouns will not be inherently marked for plurality at all, indicating that they can either be plural or singular. Likewise, nouns will not be marked either plus or minus for definite, demonstrative, or near, indicating that they can either be definite or indefinite, and so on, depending on the particular sentence in which they are used.

The relation between nouns, verbs, and adjectives

The second type of information contained in the inherent features concerns the relation between nouns and the verbs and adjectives with which they occur.

John contemplated the idea.

John lifted the box.

*john lifted the idea.

The verbs in these sentences are transitive and followed by direct objects. But there is some relation between a verb and its direct object and the third sentence is deviant because such a relation is violated. The same type of relation holds between the subject NP and its verb in:

The idea surprised John.

The desk stood in the corner.

*The idea stood in the corner.

Similarly, there is a relation between the subject NP and the predicate adjective in:

The idea was interesting.

The desk was heavy.

*The idea was heavy.

To account for these relations we postulate that nouns have more inherent syntactic features, and that verbs and adjectives are selected in terms of the inherent features of the nouns with which they occur. This gives primacy to nouns- they must be chosen first and then the verbs and the adjectives that go with them are chosen. The important features are:

- A. Abstract [-concrete] vs. Concrete [+concrete].
- B. Animate [+animate] vs. Nonanimate [-animate].
- C. Human [+human] vs. Nonhuman [-human].
- D. Masculine [+masc] vs. Feminine [-masc].

Some people have suggested that all of these selectional features are a matter for the semantic component and do not properly belong in the syntactic component at all. Some of these features are **hierarchically ordered** with respect to others: if a noun is [+human], it must also be [+animate] and [+concrete]. Obviously the reverse is not true: a noun can be [+concrete] without being either [+animate] or [+human]. Some features are **cross-classifying** with respect to others; [+masc] can be either [+human] (boy) or [-human] (bull); [-masc] can be [+human] (girl) or [-human] (cow).

If features are hierarchically ordered, we need mention only the most specific in the lexical entry, and the other features will be predicted by a general **redundancy rule** for the entire lexicon, which will say, for example that all items marked [+human] are also marked [+animate] and [+concrete], and any feature occurring twice is cross classifying in terms of the feature immediately above it.

Selectional features:

A list of the inherent features required of the nouns with which they occur. If a verb requires a human direct object as **embarrass**, it will be represented [-[+human]], indicating that the noun following it must be [+human]; if it requires a concrete object as **lift** it will be [-[+concrete]]. If there are no restriction on its object as complement it will state nothing.

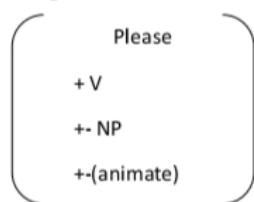
Strict- subcategorization restriction and selection restriction:

The selection of the first lexical item determines the choice of other lexical items. Suppose we first choose a verb **elapse**, then the choice of the subject noun will be constrained by one that has the feature time and we can't choose a direct object at all since the verb is intransitive. The native speaker knows these facts. The question is how to include such information in the grammar? The solution is to suggest that one category must be dominant over the other, either a noun over a verb or a verb over a noun. Other categories are going to be subdominant in terms of the dominant category. However, the majority seem to favor noun as the dominant category. In this respect, we shall follow Aspects in distinguishing two kinds of restriction on verbs:

1. Those that are related to category symbols (for example, NP, Adj).
2. Those that relate to features of are used in defining nouns (for example animate, abstract, and so on).

The first kind of restriction is called the strict **subcategorization, restriction** and the second **the selectional restriction**. When we insert verbs into a branching tree, we must be certain to follow the **strict-subcategorization restriction**, since these are part of the meaning of the verbs themselves. Thus, we can't insert the verb **see** into a tree that contains adjective node immediately dominated by VP. The first restriction also apply to subcategories of verbs including those traditionally designated as transitive, intransitive, linking and so one. **Selectional restriction apply** to verbs within these subcategories. Thus, a verb may have the feature (+- NP): that is it may be a transitive verb, but it may also be further restricted to occur only with animate direct objects.

For example:



Degrees of grammaticality

By distinguishing between the two kinds of restriction we can state that some imperfect sentences are less or more grammatical than others. Examples:

*if happy the and however shoe.

*This sentence seems Ivring.

*Stella saw the happiness.

The first of these violate the basic phrase structure rules (that is major categorical restriction) and is completely ungrammatical as we can get no meaning from it at all. The second violates the strict-subcategorical restrictions and is more grammatical than the completely meaningless strings. The third violates selectional restriction and thus even closer to full grammaticality.

Lexicon insertion

Lexical category symbols, such as N₁, N₂ and V which have lexical items substituted for them, are inserted into PS tree correctly if we ensure three things: Please + V +- NP +-(animate)

1. That the correct part of speech is inserted in the correct position; that any lexical item inserted under either of the N nodes, for instance, is a noun.

2. That the correct subcategory of the part of speech is inserted. For example, when the V is followed by a NP then it must be a transitive verb.

3. That the verb and the nouns with which it occurs fit together in another way. Nouns are inserted first, and a lexical item can be inserted under a lexical category if no information in the lexical entry conflicts with the PS tree into which the entry is being inserted. Look at the following figure:

Only a lexical entry marked +N, [+Common] [Pro] can be substituted for N₁, and only an entry marked +N, [- Common] for N₂. Once the nouns have been inserted,

we insert the verb. This must be +V, +-NP to fit the tree. Further, its selectional features must not contradict the inherent features of either N1 or N2. Suppose we substitute for dog N1. Then the verb cannot be marked [[+human]-], because the tree into which we are inserting it already has a subject noun marked [-human], and there would thus be a contradiction between the lexical item and the tree. Suppose that at the end of the PS rules we have a series of rules that rewrite each lexical category as the dummy symbol Δ . The lexical-insertion rule is an operation that substitute a lexical entry for an occurrence of Δ if the syntactic part of the lexical entry contradicts nothing in the tree.

The lexical-insertion rule can substitute a +N, [+common], [-Pro] for Δ_1 , and any +N [-Common] for Δ_3 . Now, suppose that the dog and John are chosen, the lexical insertion rule can now substitute for Δ_2 any entry that does not conflict with any of the information contained in the tree so that the item must be +V, +-NP, and must allow an animate but nonhuman subject and must allow a human and feminine object. The lexical rule operates as often as necessary to insert lexical items: when there are no longer any dummy symbols (Δ), it has nothing further to operate on, and so stops. Once lexical items have been substituted for all the dummy symbols, we have a deep structure (DS). The deep structure is a representation of the meaning of the sentence, and the starting point for transformation.

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