TRANSFORMATIONAL AND GENERATIVE GRAMMAR (TGG)

ANALYTICAL APPROACH

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This practical course is a follow-up to the first course on the historical approach to Transformational and Generative Grammar (TGG). The course mainly aims to enable students to analyze any sentence within the framework of the Standard Theory (ST) and the Extended Standard Theory (EST) on the one hand and within Principles and Parameters on the other hand.
OVERALL EXPECTATIONS

• BY THE END OF THIS COURSE, STUDENTS ARE EXPECTED TO:
  • Know how to conduct an analysis in the framework of the standard theory and within that of principles and parameters;
  • Understand the fundamental difference between analyses conducted within the framework of the standard theory and those within principles and parameters.
SPECIFIC EXPECTATIONS

• BY THE END OF THIS COURSE, STUDENTS WILL:
  • Account for the phenomena analyzed in the framework of the standard theory;
  • Account for the phenomena analyzed in the framework of principles and parameters;
LEARNING GOALS

• BY THE END OF THIS COURSE, STUDENTS SHOULD BE ABLE TO:

• Conduct a study or analyze a variety of linguistic phenomena grounded especially in the framework of the standard theory and principles and parameters;
COURSE OUTLINE

• UNIT # 1: STANDARD THEORY AND EXTENDED STANDARD THEORY
• UNIT # 2: PRINCIPLES AND PARAMETERS
SELECTED BIBLIOGRAPHY


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• FUCHS, CATHERINE & PIERRE LE GOFFIC (2003) LES LINGUISTIQUES CONTEMPORAINES. REPÈRES THÉORIQUES. PARIS, HACHETTE.

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INTRODUCTORY WORDS ...

• The study of Generative Syntax within the framework of this course can be divided into two major parts. While the first part lays an emphasis on the historical approach to Syntax, the second part rather gives predominance to the analytical approach to it. The historical approach traces back the history of syntax by featuring the four major steps of that history which are the Standard Theory (ST), the Extended Standard Theory (EST), Government and Binding Theory (G&B) and finally the Minimalist Program (MP). The analytical approach which will be the focal point of this course singles out two of the major steps identified earlier in the history of syntax (ST/EST and G&B), and equips students with their basic principles so as to enable them to analyze any well-formed sentence of English, and to some extent of other natural languages.
UNIT # 1: STANDARD THEORY AND EXTENDED STANDARD THEORY
UNIT # 1: STANDARD THEORY AND EXTENDED STANDARD THEORY

• Analysis of the Sentence
• Analysis of NP
• Analysis of VP
ILLUSTRATION OF THE STRUCTURE OF THE MODEL OF THE STANDARD THEORY

BASE COMPONENT
Phrase Structure Rules
Lexical Insertion Rules

DEEP STRUCTURE

TRANSFORMATIONAL COMPONENT
Transformational Rules

SURFACE STRUCTURES

SEMANTIC COMPONENT
Semantic Interpretation Rules

SEMANTIC REPRESENTATIONS

SEMANTIC REPRESENTATIONS
PHRASE STRUCTURE RULES

- \( \Sigma : \# \text{Sentence} \# \)
- 1. \( S \rightarrow NP + VP \)
- 2. \( VP \rightarrow V + NP \)
- 3. \( NP \rightarrow NP_{\text{sing}} \) \( \lor \) \( NP_{\text{pl}} \)
- 4. \( NP_{\text{sing}} \rightarrow T + N + \emptyset \)
- 5. \( NP_{\text{pl}} \rightarrow T + N + s \)
- 6. \( T \rightarrow \text{The} \)
- 7. \( N \rightarrow \text{man, ball, etc.} \)
- 8. \( V \rightarrow \text{Aux} + V \) (or VG)
- 9. \( V \rightarrow \text{hit, take, walk, read, etc.} \)
- 10. \( \text{Aux} \rightarrow C \) (M) \( \text{(have + en)} \) \( \text{(be + ing)} \) \( \text{(be + en)} \)
- 11. \( M \rightarrow \text{will, can, may, shall, must} \)
TRANSFORMATIONAL RULES
(SINGULARY OR SIMPLE TRANSFORMATIONS)

- 12. Passive Transformation (Optional)
- 13. $T^b_{sep}$ (Obligatory)
- 14. $T^p_{sep}$ (Optional)
- 15. Number Transformation (Obligatory)
- 16. $T_{not}$ (Negation) (Optional)
- 17. $T_A$ (Affirmative Transformation) (Optional)
- 18. $T_q$ (Interrogative Transformation) (Optional)
- 19. $T_w$ (Interrogative Transformation – Subject-Verb Inversion Interrogations or Wh-phrase interrogations)
  (Optional and Conditional on $T_q$)
- 20. Auxiliary Transformation (Obligatory)
- 21. Word Boundary Transformation (Obligatory)
- 21. Do Transformation (Obligatory)
TRANSFORMATIONAL RULES
(GENERALIZED OR TWO STRING TRANSFORMATIONS)

- 12. Passive Transformation (Optional)
- 13. $T_{p}^{b}_{sep}$ (Obligatory) \[\text{Verb + particle (with Pronoun NP or a Det+N NP)}\]
- 14. $T_{p}^{p}_{sep}$ (Optional)
- 15. Number Transformation (Obligatory)
- 16. $T_{not}$ (Negation) (Optional)
- 17. $T_{A}$ (Affirmative Transformation) (Optional)
- 18. $T_{q}$ (Interrogative Transformation) (Optional)
- 19. $T_{w}$ (Interrogative Transformation – Subject-Verb Inversion Interrogations or Wh-phrase interrogations)
  (Optional and Conditional on $T_{q}$)
- 20. Auxiliary Transformation (Obligatory)
- 21. Word Boundary Transformation (Obligatory)
- 21. Do Transformation (Obligatory)
ANALYSIS OF THE SENTENCE
(APPLICATION OF PHRASE STRUCTURE RULES)

• (1) A young woman stole the car. (Active Sentence)
• (1') The car was stolen by a young woman. (Passive Sentence)

What are the transformations undergone by the active sentence (1) to yield the passive sentence (1')?

To illustrate how the Standard Theory (ST) works, let's us consider how sentence (1) would be derived.

1. APPLICATION OF PHRASE STRUCTURE RULES:

   (2) 
   \[ S \rightarrow NP + VP \]
   \[ NP \rightarrow (Det) + (Adj) + N \]
   \[ VP \rightarrow V + (NP) \]

   Remember that VP could also rewrite as Aux + VG (Verbal Group). In that case

   \[ VG \rightarrow V + NP \]

   Hence, \[ S \rightarrow NP + Aux + VG \].
ANALYSIS OF THE SENTENCE

• Phrase structure rule (2) could be applied to give the following tree diagram (3):

(3)                      S
                         /\   |
                        NP  Aux  VP
                         /    /|
                        Det Adj N  V  NP
                         /    /|
                        Det  N  N
2. APPLICATION OF LEXICAL INSERTION RULES

Rules of lexical insertion, which take account of the context in which a word occurs, apply to insert the lexical items into the tree diagram in the appropriate places, to give (3) as the deep structure for the sentence.

\[
\begin{array}{c}
\text{S} \\
\text{NP} \quad \text{Aux} \quad \text{VP} \\
\quad \text{past} \\
\quad \text{Det} \quad \text{Adj} \quad \text{N} \quad \text{V} \quad \text{Det} \quad \text{NP} \\
\quad \quad \text{A} \quad \text{young} \quad \text{woman} \quad \text{steal} \quad \text{NP} \quad \text{N} \\
\quad \quad \quad \text{the} \quad \text{car} \\
\end{array}
\]

\{ \text{THIS IS THE DEEP STRUCTURE OF SENTENCE.} \}
ANALYSIS OF THE SENTENCE

• The **DEEP STRUCTURE** serves as the input to the **TRANSFORMATIONAL COMPONENT** and to the **SEMANTIC COMPONENT**. The Deep Structure on the previous slide shows that sentence (1’) was originally an **ACTIVE SENTENCE(1)** which has undergone the **PASSIVE TRANSFORMATION**. In other words, it went from active to passive. The transformational component contains transformational rules such as **PASSIVE FORMATION, AFFIX-HOPPING** and **SUBJECT-VERB AGREEMENT**. The passive formation gives the intermediate representation shown in(5).
ANALYSIS OF THE SENTENCE
(APPLICATION OF TRANSFORMATIONAL RULES)
(PASSIVE FORMATION)

• (5)

• NP
  - Det
  - N
    • The
    • car

• Aux
  - past
  - be
  - en

• VP
  - V
    • steal
  - PP
    - P
    - NP
      - Det
      - Adj
      - N
        • a
        • young
        • woman

• S
  - NP
  - Aux
  - VP
ANALYSIS OF THE SENTENCE
(APPLICATION OF TRANSFORMATIONAL RULES)
(AFFIX-HOPPING AND SUBJECT-VERB AGREEMENT)

• (6)

S
  / \  
Aux be + past + 3sg   VP
  / \                     / \
NP Det N                PP NP
  / \                      / \ 
  The car                by a

Steal + en  by a  young woman
Affix-hopping and subject-verb agreement apply to give (6) in the previous slide as the surface structure. The structure in (6) serves as the input to the phonological component, which realizes the auxiliary verb as \textit{was}, the main verb as \textit{stolen}, and applies any phonological rules, giving the phonetic output

\[ \textit{ðə kək wəz stəʊlən bɪ ə jʌ ə wʊmən} \].
ANALYSIS OF NP

- THE NOUN PHRASE: ITS STRUCTURE AND INNER FUNCTIONING
THE NOUN PHRASE AND THE NOUN

• (1) *The sentence* is long.
• (2) *He* came.
• (3) *Napoleon* died in 1821.
• (4) *Whisky* should be drunk neat.
• (5) *She* makes cakes.

• In (1), (2), (3), (4) and (5), *the sentence*, *he*, *napoleon*, *whisky* and *she* are nps. In (1) *sentence* is a nominal. alone, it cannot be considered as an np. it is preceded by another element.

• In (2), (3), (4) and (5) the nominals *he*, *napoleon*, *whisky* and *she* are not preceded by any element. They can stand alone as nps. This implies that the np can be realized in various ways. In other words, the np can have different variants, It has different possible realizations or manifestations.
TYPES OF NPs
(NP WITH A COMMON NOUN)

- (6) *This rule* is new.
- (7) *A book* contains words.
- (8) *The boy* runs well.

In (6) the NP *this rule* is composed of a common noun *rule* and a demonstrative *this*. In (7) the np *a book* is composed of a common noun *book* and an indefinite article *a*. In (8) the np is composed of a common noun *boy* an a definite article *the*.

All the NPs singled out above are composed of a common noun and linguistic units categorized as *DETERMINERS*. Hence the phrase structure rule:

- S $\rightarrow$ NP + VP
- NP $\rightarrow$ D + Nc (*D* stands for determiner and *Nc* for common noun)
TYPES OF NPs

(DIFFERENT REALIZATION OF THE DETERMINER)

- (9) Some men work hard.
- (10) Milk is good for you.

In (9), the determiner is *some* but in (10) the determiner is $\emptyset$ i.e it is void.
TYPES OF NPs

(NP WITH A PROPER NOUN)

- (11) **John** came yesterday.
- (12) **France** is a country.

In (11) and (12), the nps **John** and **France** do not contain determiners because they are categorized as proper nouns. Hence the phrase structure rule:

```
NP  ----> Prop
```

The previous structure rule of the np and the second one can be unified in a single rule by using braces.

```
NP  ---> Prop
    |--- D+N
```

That rule means that the np can rewrite either as prop or as d+nc.
The unified phrase structure rule for the NP is likely to conceal the category of number which may be associated with Nc, i.e., Common Nouns. For a Nc can be singular or plural. Hence the rule:

- The category of number being associated with the NP, the NP with will rewrite as:
  - \( \text{NP} \rightarrow n_o + \text{NG (Nominal Group)} \)
  - \( \text{NP} \rightarrow D + N \)
• The two major rewrite rules of NP are:

• \( \text{NP} \rightarrow N_0 + \text{NG} \)

• \( \text{NP} \rightarrow D + N \)

• but the np also rewrite as :

\[
\text{NP} \rightarrow \underbrace{\ldots}_{\text{Prop}}
\]

• where Prop stands for Proper Noun. That second type of rewrite rule is called a **SUB-CATEGORIZATION RULE**.
SUB-CATEGORIZATION OF NOUNS AND DETERMINERS

- Countable Nouns (Book)
- Uncountable Nouns (Water)
- Common Nouns (Sentence)
- Proper Nouns (Peter)

Determiner:
- Article (The)
- Demonstrative (That)
SUB-CATEGORIZATION OF THE NOUN

(THE CATEGORY OF NUMBER)

- Number is context-free. Its choice does not depend on the context. E.g.: A speaker is free to say a book or φbooks.

- That freedom of choice is reflected in the rewrite rule of the np:

  NP \( \rightarrow \) N0 + NG

  - SINGULAR

  - PLURAL

  \( N_0 \rightarrow \)
ANALYSIS OF VP

• Let’s recall the rewrite rule of S:
  
  $P \rightarrow NP + VP$

• Primarily, we rewrote $VP$ as $V + NP$. But $VP$ could rewrite differently with a view to highlighting $Aux$ which is an important constituent of $VP$. Under those circumstances:

  $VP \rightarrow Aux + VG$ (Verbal Group)
The tree diagram corresponding to that new rewrite rule of VP could be presented as follows:

- *S*
  - *NP*
    - *Aux*
    - *VG*
ANALYSIS OF VP

• *Aux* as a constituent of *VP* can also rewrite as:
  
  \[
  \text{Aux} \quad \frac{\text{Tps}}{} + (M) + (Asp)
  \]

• That rewrite rule indicates that the constituent *Tps* is obligatory while the two other constituents in parentheses, that is *M* (= Modality) and *Asp* (= Aspect) are optional.

• The constituent *Tps* can also rewrite as:

  \[\text{Tps} \quad \frac{\text{Pres}}{\text{Past}}\]
UNIT # 2: PRINCIPLES AND PARAMETERS

Government and Binding Theory
UNIT # 2: PRINCIPLES AND PARAMETERS

• X-BAR THEORY
• PHRASE STRUCTURE
• THE PROJECTION PRINCIPLE (MAXIMAL-INTERMEDIATE-MINIMAL) AND LEXICAL AND FUNCTIONAL PROJECTIONS
• SENTENCE STRUCTURE
• S as a projection of I or INFL
• S’ as a projection of C
• NP as the maximal projection of D
X-BAR THEORY

• The **IMMEDIATE CONSTITUENT ANALYSIS** was the basis of **PHRASE STRUCTURE RULES**, which also informed the **STANDARD THEORY** (ST). However, it appears that the layering of complex constituents could not reflect any general or universal principle of natural languages.

• X-bar Theory appears as an attempt to overcome that inability or weak point of classical models, and to suggest overall and comprehensive principles which could better account for general facts relevant to the principles of Universal Grammar.
PHRASE STRUCTURE

Government and Binding Theory
Let’s examine the phrases below in French:

1. *le fils de mon voisin*
2. *Veut manger une pomme*
3. *très content de son fils*
4. *Juste devant la maison*

Those four examples illustrate four types of phrases in the French language.
PRELIMINARY DESCRIPTION OF PHRASES

• Example (1) is a NOUN PHRASE: NP
• Example (2) is a VERB PHRASE: VP
• Example (3) an ADJECTIVE PHRASE: AP
• Example (4) a PREPOSITIONAL PHRASE: PP
• All of those phrases reveal the properties of X-bar Theory.
PROPERTIES OF X-BAR THEORY

- The phrases identified above are:
- organized around **LEXICAL HEADS** which are respectively: *FILS, MANGER, CONTENT and DEVANT*;
- The phrase is named after the **NAME OF THE LEXICAL HEAD**: NOUN PHRASE (NP), VERB PHRASE (VP), ADJECTIVE PHRASE (AP), PREPOSITIONAL PHRASE (PP);
- All the phrases have the same structure: the head is preceded by a **SPECIFIER** (Respectively *LE, VEUT, TRES, JUSTE*) and followed by a **COMPLEMENT** (respectively *DE MON VOISIN, UNE POMME, DE SON FILS, LA MAISON*).
- Hence, the basic representation of phrase structure SpecX which reads ‘’**Specifier of X’’’ and XP ‘’**phrase of the type X’’’ is **XP = SpecX + X + Complement.**
THE PROJECTION PRINCIPLE

Government and Binding Theory
LEXICAL PROJECTIONS

Government and Binding Theory
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

• The preliminary description is not enough because on the one hand, it does not represent the structure of phrases, and on the other hand, it does not reflect the fundamental idea of X-bar Theory which is that phrases have a layered structure. One simple way to account for that phenomenon consists in:

  • - defining any XP phrase as the MAXIMAL PROJECTION OF THE HEAD X;
  • - perceiving the basic structure of a phrase as a hierarchy of relations that can be formulated as follows:

(1) a. XP = {X’,Ø}
  b. X’ = {X°,Ø}
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

- \(\emptyset\) is the specifier of \(X\), \(\emptyset\) is the complement of \(X\), \(X'\) the intermediate projection of \(X\) and \(X^\circ\) the minimal projection of \(X\), that is, the lexical head. \(\emptyset\) and \(X^\circ\) can also be maximal projections, to that effect, they may be void.

- The structure of a constituent or phrase symbolized by XP can also be represented in the form of phrase structure rules. Under those circumstances, the variable X can be replaced by one of the lexical or non-lexical categories which are N, V, A, P, I or INFL, and C.
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

• (1) a. XP $\rightarrow$ SpecX + X'
  b. X' $\rightarrow$ X + complement

• (2) a. NP $\rightarrow$ D + N'
  b. N' $\rightarrow$ N + N'(PP)

• (3) a. VP $\rightarrow$ AUX + V'
  b. V' $\rightarrow$ V (NP)(PP)
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

(4) a. AP → ADV + A’
  b. A’ → A (PP)

(5) a. PP → ADV + P’
  b. P’ → P + NP
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

• But that type of representation is not satisfactory for two reasons:

• REASON # 1:

• It supposes that the syntactic representations are the result of the application of phrase structure rules; whereas the basic idea of the theory of Principles and Parameters is based on a principle, that is the projection principle, which means that a constituent such as XP is the maximal projection of a head. That principle contends that lexical information (namely sub-categorization, Theta-role assignment) is preserved in the rewrite rules.
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION

• REASON # 2:

Expressing the hierarchical relationship relevant to maximal projections results in a generalization that rewrite rules are unable to grasp. In the structure of maximal projections, there are invariant and constant elements. There are also variable parameters regarding the order between the intermediate projection $X'$ (invisible on the surface structure) and the specifier of $X$ on the one hand, and between $X$ and its complement on the other hand. This can be formulated as follows:

• $X'$ precedes/follows $\emptyset$
• $X^\circ$ precedes/follows $\emptyset$
That formulation helps distinguish what is relevant to the principles of Universal Grammar from what is relevant to the specific parameters of a given language. Thus, in French or English, ø precedes X’ and ə follows X° as presented below.
MAXIMAL, INTERMEDIATE AND MINIMAL PROJECTION
ENDOCENTRIC AND EXOCENTRIC CONSTRUCTIONS

• Can X-bar theory help account for the structure of a sentence? Answering that question would amount to considering the sentence as the maximal projection of a category. But what is that category a sentence can be the maximal projection of? Second of all, in the tradition of linguistic analysis, a sentence is generally considered as an EXOCENTRIC CONSTRUCTION and not an ENDOCENTRIC CONSTRUCTION, that is, it is not organized around a kernel or a head, but it is rather the result of different types of phrasal categories which are rather maximal projections of heads, that is endocentric constructions.
In Lucien Tesnière’s Structural Syntax, the sentence is believed to be constructed around a central element, its kernel which is represented by the VERB. Thus, the verb governs its INTERNAL ARGUMENTS (Direct and Indirect Objects) and EXTERNAL ARGUMENT (Subject) to which it assigns case. Therefore, the sentence can also be viewed as an ENDOCENTRIC CONSTITUENT, that is, the maximal projection of a head. But the head of that maximal projection cannot be a lexical category like N (noun), V (verb), etc., it is rather FUNCTIONAL. In other words, it is a FUNCTIONAL PROJECTION.
THE SENTENCE AS THE MAXIMAL PROJECTION OF /

• I or INFL stands for INFLECTION. I is a minimal projection, that is, a category of the type $X^\circ$, which corresponds to the inflection of the verb. VERBAL INFLECTIONS, AUXILIARIES, HAVE and BE as well as MODALS are placed under the position of inflection.
The hypothesis that the sentence is the maximal projection of I (IP) supposes that the EXTERNAL ARGUMENT of the verb (its subject) occupies the position of Specifier of IP, and that the Verb Phrase (VP), comprising the verb and its internal argument(s), occupies the position of complement of I. Hence the following hierarchical representation of the structure of IP:

- a. IP = NP + I'
- b. I' = I + VP
ILLUSTRATION OF TREE DIAGRAM REPRESENTATION OF IP

**FRENCH**
- NP
- IP
- I
- I’
- VP
- Max
- va
- venir

**ENGLISH**
- NP
- IP
- I
- I’
- VP
- V
- Poirot ed abandon the investigation
In the sentence in the previous slide, I or INFL is specified for past tense and dominates the -ed affix. VP is a constituent separate from the past tense. Hence we expect that VP may move independently of the tense ending. Being an affix, the past tense ending cannot be left unattached, it must be attached to the verb. We shall assume that the past tense morphology is lowered onto the verb.

In sentences where there’s non auxiliary, it is assumed that the verb moved to I position to receive the morphological mark of agreement, just like in sentence (1) on next slide.
THE SENTENCE AS THE MAXIMAL PROJECTION OF I OR INFL

• (2) Marie chanta le récitatif.

• To yield (2), the Verbal Predicate (V) has to move to I and, by incorporation, mingle with the marker of tense -a. Based on the hypothesis of functional projections, verbal agreement is thus yielded further to a head-to-head movement.
THE SENTENCE AS THE MAXIMAL PROJECTION OF *I OR INFL*

```
  NP  
   /   
 IP   I' 
    /   
  I    VP  
   /     
 V     NP  
   /     
-a    chant- le récitatif
```

Marie
Two issues need to be briefly raised here. Those issues will help us account for the difference between the external argument and the internal argument of VP or the Predicate/Verb.
THE SENTENCE AS THE MAXIMAL PROJECTION OF I OR INFLECTED

• Issue # 1: For the verb to be in relation to its INTERNAL ARGUMENT (here for *chanta* to be in relation to *le récitatif*) it should assign a thematic function, thematic role or theta-role, also called θ-role for short in the framework of the Theory of Principles and Parameters. The predicate, that is the verb, lexically determines the nature and number of its arguments, which is specified in the THEMATIC GRID or THETA GRID. The θ-criterion accounts for that constraint.

• θ-Criterion or theta-criterion
  • a) Each argument is assigned one and only one theta role.
  • b) Each theta role is assigned to one and only one argument.
• Issue # 2: To figure out the different forms of pronouns, namely the distinction between *il* and *le*, the argument of the verb should be assigned a case (e.g. NOMINATIVE for *il*, ACCUSATIVE for *le*). The assignment of case is linked to the CASE FILTER, which specifies that an argument should be assigned case. To avoid generating sentences like (1a) below, in contrast to (1b), the nominative case must be assigned by I or INFL. In French, it is a specifier-head agreement:

• (1)a. *La chanta le récitatif.

b. *Elle chanta le récitatif.*
The hypothesis that the sentence is a maximal projection of INFL or I is not sufficient to represent the structure of the sentence. It cannot help in accounting for the occurrence of subordinating words like \textit{QUE} and \textit{SI} in \textit{FRENCH} (1), nor can it help explain the anteposition of interrogative words or relative pronouns (2)-(3), like the anteposition of the verb in (2b), the examples given in the next slide.
THE SENTENCE AS THE MAXIMAL PROJECTION OF C

• (1)a. Paul soutient que Jean viendra.
  b. Paul se demande si Jean viendra.
• (2)a. Qui Paul aime-t-il ?
  b. Qui crois-tu que Paul a rencontré ?
• (3)a. L’homme qui est venu est mon père.
  b. La femme que j’aime est linguiste.
The subordinating words *QUE* and *SI* are called *COMPLEMENTIZERS*. The minimal functional projection of those words called *COMPLEMENTIZERS* is noted *C*. If *C* is a minimal functional projection, it must satisfy the principles of X’-theory. It must therefore be possible to postulate a *MAXIMAL PROJECTION CP*, a *SPECIFIER OF C* and determine the nature of the *COMPLEMENT OF C*. The most widespread hypothesis is that the complement of *C* is *IP*, that is, the maximal projection of *INFLECTION*. Hence the following structure of the sentence on the next slide.
THE SENTENCE AS THE MAXIMAL PROJECTION OF C
The position of C is not necessarily occupied by a morphological element interpreted phonetically, like in (4):

(4) Max dit aimer la linguistique.
However, the position of CP cannot be occupied but by a single functional morpheme only (the complementizer). As a matter of fact, in French, Indirect interrogative constructions show that interrogative words, if they can occupy a position within CP, they can’t be combined with the complementizer which occupies the position dominated by C where they stay in their canonical position (that is within the subordinate), or they are raised to the CP position of the main clause (the matrix sentence).
THE SENTENCE AS THE MAXIMAL PROJECTION OF C

- (4) a. Tu dis que Pierre viendra quand ?
  b. * Tu dis quand que viendra Pierre ?
  c. Quand dis-tu que Paul viendra?

- When the subordinate sentence does not have a complementizer (que, si), an interrogative word (qu- word like qui, quand, où) can move within CP.

- (5) Tu demandes quand viendra Pierre.
THE SENTENCE AS THE MAXIMAL PROJECTION OF C

• Data from Quebec French (6a) and colloquial French (6b) can help figure out that complementizers and interrogative words do not occupy the same positions.

• (6)a. Qui que tu as vu ?
  b. C’est qui que tu as vu ?

• In (6), qui moves to the position of specifier of CP, which is occupied by a maximal projection (NP) whereas the complementizer que occupies the position of head of CP, that is C.
THE SENTENCE AS THE MAXIMAL PROJECTION OF $C$

- \[
\begin{array}{c}
  \text{CP} \\
  \text{NP} \\
  \text{C'} \\
  \text{C} \\
  \text{Que} \\
  \text{IP} \\
  \text{tu as vu qui}
\end{array}
\]
There is then a strong hypothesis in favour of the endocentric structure of the sentence:

The sentence is a maximal projection of the functional category INFLECTION, which is interpreted syntactically as the complement of C, whose maximal projection CP, is the highest level representation of the sentence.
The last maximal projection to be briefly examined is the structure of NP. The main argument to describe the structure of NP as the maximal projection of a head, that is the determiner (D), is morphological, and linked to the incorporation process. It is well-known in French that the determiner can be incorporated into the preposition like in (8) which contrasts with (9):

- (8) a. à + le garçon  \[\rightarrow\] au garçon
- b. de + le garçon  \[\rightarrow\] du garçon
- (9) a. à + la fille  \[\rightarrow\] à la fille
- b. de + la fille  \[\rightarrow\] de la fille
NP AS MAXIMAL PROJET OF D

The blending of à and le as well as that of de and le concern functional (and non lexical) heads respectively P and D. To account for that morphological process, the structure of NP will be represented as the maximal projection of D, NP being its complement. *Le garçon* and *au garçon* will have the tree diagram representations on the next slide.
NP as maximal project of D

NP
  ↓
DP

NP
  ↓
DP

NP
  ↓
DP

PP
  ↓
P
  ↓
D
  ↓
le

PP
  ↓
P
  ↓
D
  ↓
le
  ↓
NP
  ↓
garçon
CONCLUSION
THE END ...

THANK YOU ...