CAS LX 422 / GRS LX 722 Intermediate Syntax

5

θ-roles, feature checking
(3.5-5.6)

Thematic relations

The thematic relation that the argument has to the verb—the role it plays in the event—will prove useful in describing the behaviors of different classes of verb.

One thematic relation is agent of an action, like *Bill* in:

1) Bill kicked the ball.

Common thematic relations

Agent: initiator or doer in the event

Theme/Patient: affected by the event, or undergoes the action

1) Sue kicked the ball.

Experiencer: feel or perceive the event

2) Pat likes pizza.

Proposition: a statement, can be true/false.

3) Bill said that he likes pizza.

Common thematic relations

Goal:

1) Chris ran to Copley Square.
2) Pat gave the book to Tracy. (Recipient)

Source:

3) Mary took a pencil from the pile.

Instrument:

4) Ed ate the burrito with a plastic spork.

Benefactive:

5) Pat cooked dinner for Chris.

Location:

6) Betsy sits under the tree on Wednesdays.

Thematic relations

Armed with these terms, we can describe the semantic connection between the verb and its arguments.

- Ray gave a grape to Bill.

  Ray: Agent, Source, …

  A grape: Theme

  Bill: Goal, Recipient, …

Required vs. optional

Things with certain thematic relations don't seem to be *needed* by a given verb, but can be there. E.g., location.

Pat screamed (in the library).

Others, like theme/patient, goal, or agent, often do seem to be required. ("Required" means even if left out, there is something assumed)

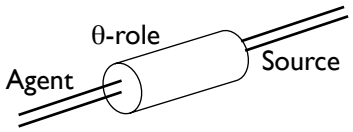
Chris gave a book to Pat.

θ-roles

An argument can participate in several thematic relations with the verb (e.g., Agent, Goal).

In the syntax, we assign a special connection to the verb called a "θ-role", which is a *collection* of thematic relations.

For the purposes of syntax, the θ-role (the collection of relations) is much more central than the actual relations in the collection.



θ-roles

We will often need to make reference to a particular θ-role, and we will often do this by referring to the most prominent relation in the collection.

For example, in *Bill hit the ball*, we say that *Bill* has the "Agent θ-role", meaning it has a θ-role containing the Agent relation, perhaps among others.

Unique θ Generalization

- Each θ-role must be assigned to a constituent, but a constituent cannot be assigned more than one θ-role.

  Historically, the "θ-criterion."

Verbs have a certain number of θ-roles to assign (e.g., *say* has two), and each of those must be assigned to a distinct argument.

Selection

Verbs, as part of their meaning (that is, whatever is recorded in the lexicon), are often "selective" about what kinds of arguments, θ-roles they have.

What verbs are said to do here is *select for* certain things.

There are quite a number of things that verbs "care about."

C(ategory)-selection ("subcategorization")

Verbs that take objects differ in what they allow the syntactic category those objects to be. Suppose *the ball* is category D (DP) and *that Bill left early* is category C (CP):

Sue saw/hit the ball.

Sue saw/*hit that Bill left early.

Feelings

The verb *feel* seems to have an Experiencer and a Theme/Source. But the Theme/Source can be any of several different syntactic categories. So: θ-role does not determine syntactic category; nor does syntactic category determine θ-role.

Pat felt a tremor.

Pat felt uncomfortable.

Pat felt that Chris had not performed well.

Kickings

The verb *kick* seems to require a nominal (category D) argument.

Verbs differ, so we need this to be recorded in the lexicon.

Kick is a verb. It has a [V] feature.

It "needs" a noun. Noun (phrases) have an [D] feature. But we need to distinguish between being and needing.

Interpretability

The difference between "being" and "needing" will be referred to as a difference in *interpretability*.

Being a verb, *kick* has an *interpretable* [V] feature.

Needing a noun, *kick* has an *uninterpretable* [D] feature.

The name gives a hint as to why the N is required. The uninterpretable [D] feature is dangerous. It must be gotten rid of. Otherwise, there will be something we can't interpret.

Feature checking

For our model, we will say that if a syntactic object has an uninterpretable feature, it must Merge with a syntactic object that has a matching feature— and once it's done, the requirement is met. The uninterpretable feature is checked.

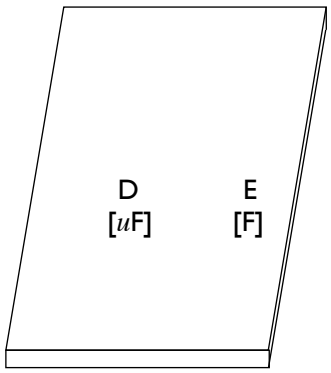
Feature checking

Full Interpretation: The structure to which the semantic interface rules apply contains no uninterpretable features.

Checking Requirement: Uninterpretable features must be checked (and once checked, they are deleted)

Checking (under sisterhood): An uninterpretable feature F on a syntactic object Y is checked when Y is sister to another syntactic object Z which bears a matching feature F.

Feature checking



To distinguish interpretable features from uninterpretable features, we will write uninterpretable features with a *u* in front of them.

- D has uninterpretable feature F
- E has interpretable feature F.

If we Merge them, the uninterpretable feature can be checked (under sisterhood).

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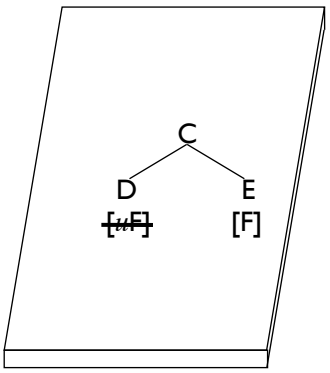

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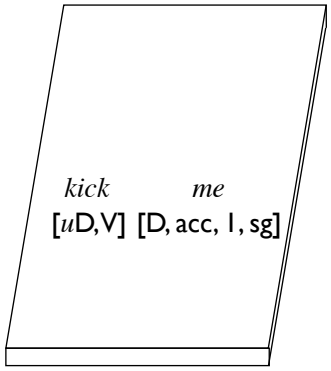
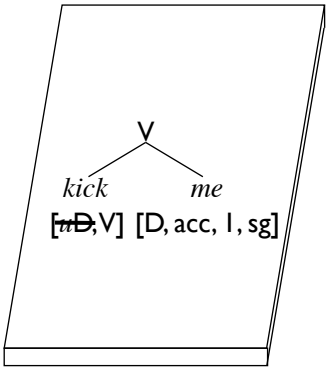


Or, for a more concrete example

Kick is a verb (has an interpretable V feature) and c-selects a noun (has an uninterpretable D feature).

me is a noun (a pronoun in fact, has an interpretable D feature, and others like accusative case, first person, singular)

Feature checking



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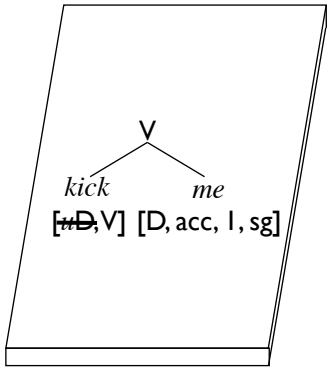


The head is the "needy" one. The one that had the uninterpretable feature that was checked by Merge.

The combination has the features of the verb *kick* and so its distribution will be like a verb's distribution would be.

1) Pat wants to kick me.
2) Pat wants to drive.
3) I like to draw elephants.
4) *Pat wants to elephants.
5) *I like to draw kick me.

Chris glanced at Pat

Pat [ ] Chris [ ]

at[ ] glanced [ ]

Syntactic operations

Merge is a syntactic operation. It takes two syntactic objects and creates a new one out of them.

The new syntactic object created by Merge inherits the features of one of the components (the head projects its features).

Merge cannot "look inside" a syntactic object. Syntactic objects are only combined at the root.

> **The Extension Condition**: A syntactic derivation can only be continued by applying operations to the root projection of a tree.

Feature checking

Syntactic objects have features.

> Lexical items (syntactic objects) are bundles of features.

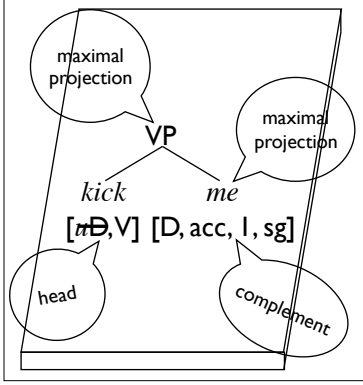
Some features are **interpretable**, others are **uninterpretable**.

By the time the derivation is finished, there must be no uninterpretable features left (*Full Interpretation*).

Uninterpretable features are eliminated by **checking** them against matching features. This happens as a result of Merge: Features of sisters can check against one another.

- Merge doesn't just happen. It *has* to happen.

Heads and complements



- When Merge combines two syntactic objects, one projects its features, one does not.

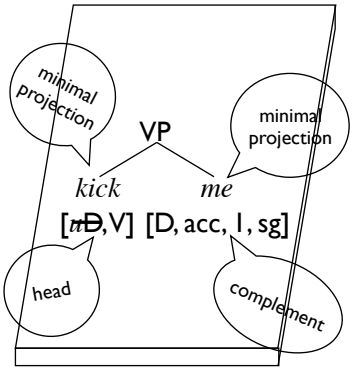
  When a lexical item projects its features to the combined syntactic object, it is generally called the **head**, and the thing it combined with is generally called the **complement**.

  A syntactic object that projects no further is called a **maximal projection**.

  Where X is the category, this is alternatively called X^{max} or XP.

- The complement is necessarily a maximal projection.

Heads and complements



A syntactic object that has not projected at all (that is, a lexical item) is sometimes called a **minimal projection**.

Where X is the category, this is alternatively called X^{min} or X.

- The head is a minimal projection.
  - In traditional terminology, the complement of a verb is generally called the **object** (or "**direct object**").
  - So, often, is the complement of a preposition ("object of the preposition").

Linear order

Merge takes two syntactic objects and combines them into a new syntactic object.

Merge does not specify *linear order* (which of the two combined objects comes first in pronunciation).

In the English VP, heads always precede complements. But languages differ on this.

The head parameter

Languages generally have something like a *basic word order*, an order in which words come in in "neutral" sentences.

English: SVO

- Akira ate an apple.

Japanese: SOV

- John wa ringo o tabeta.
  John top apple acc ate
  'John ate an apple.'

- In our terms, this amounts to a (generally language-wide choice) as to whether heads are pronounced before complements or vice-versa.

  English: **head-initial** Japanese: **head-final**

Second Merge

Merge occurs when there is a selectional feature that needs to be satisfied.

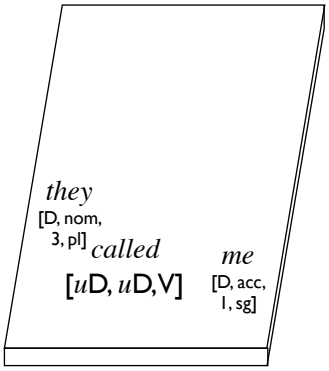
If there is more than one such feature, Merge must happen more than once.

As always, the node that projects is the one whose selectional feature was satisfied by the Merge.

The sister of the head (that projects) after the first Merge involving that head is called the **complement** (as above).

The nonprojecting sister of a syntactic object that has already projected once from a head is called the **specifier**.

Heads and complements



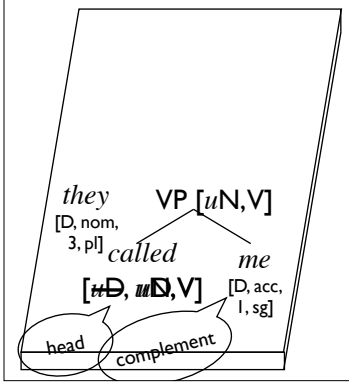
A transitive verb like *called* needs two arguments (the caller and the callee).

We encode this knowledge by hypothesizing two selectional features for D.

- The first selectional feature will be checked by the callee.
- The second selectional feature will be checked by the caller.

So, *called* is Merged with *me*.

Heads and complements



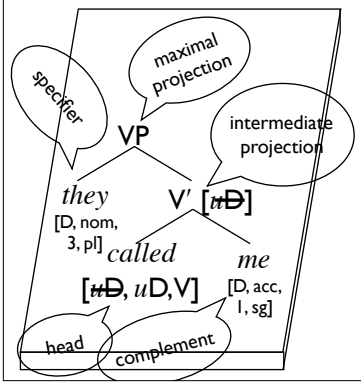
So, *called* is Merged with *me*.

One of the selectional features is checked off, the remaining features project to the new object.

A selectional feature still remains.

Merge applies again, Merging the new object with *they*.

Specifiers, XP, X-bar



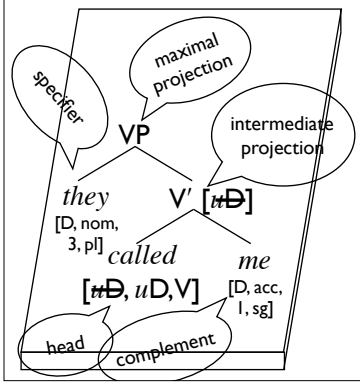
The second selectional feature has been eliminated.

The sister to this second Merge is the **specifier**.

A node that does not project further is a **maximal projection**.

A node that has been projected and projects further is neither maximal nor minimal and is usually called an **intermediate projection**.

Specifiers, etc.



In English, specifiers are on the left of the head, unlike complements.

As with the head-complement order, languages (arguably) also differ in the linear order of their specifiers.

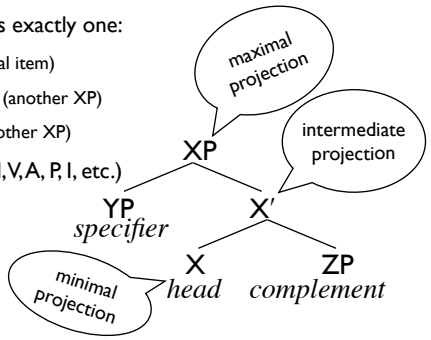
- However, Spec-initial order is overwhelmingly more common…

VOS order (Malagasy)
Nahita ny mpianatra ny vehivavy.
saw the student the woman
'The woman saw the student.'

X′-theory

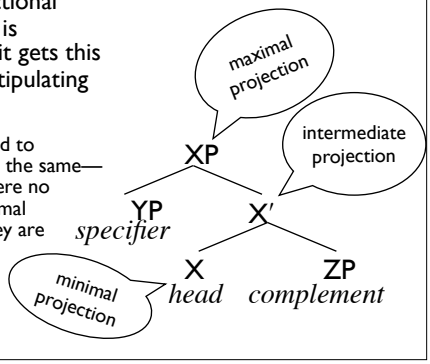
In the '70s and '80s, these ideas went by the name "X′-theory":

- Every XP has exactly one:
  - head (a lexical item)
  - complement (another XP)
  - specifier (another XP)
- for any X (N,V,A, P, I, etc.)



Merge v. X′-theory

- The system of selectional features and Merge is preferable because it gets this structure without stipulating the template.
  - The structure assigned to sentences is generally the same—except that for us, there no intermediate or maximal projections unless they are needed.



Node labeling conventions

When we Merge two objects, the features of one of them projects to become the features of the new object.

The label for new node comes in two pieces:

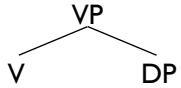
The category (projected from the head)

The projection "level":

- P = maximal projection
- ° or nothing = minimal projection
- ′ = intermediate projection

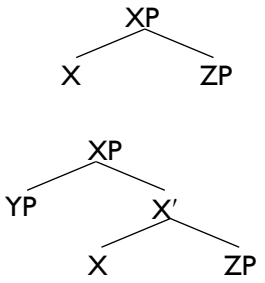
An XP is any node that does not project its features up.

An X° (or X) node comes from the lexicon.

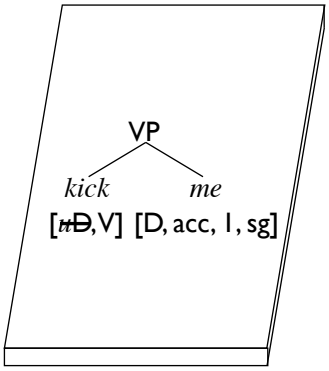


Maximal v. Minimal v. Intermediate

- Notice that whenever you Merge two things, the result is going to be a maximal projection. An "XP".
- But if in the next step if projects when you Merge it with something, that same node is now an intermediate projection.



Features and checking



When we combine two things with Merge and check an uninterpretable feature, we cross it out.

For simplicity, we can simply write the features under the head, and cross them out there.

This is as opposed to copying all but the checked feature and into a feature specification of the VP node.

This is just about how we write it down, it is the same system either way.

Adjuncts

- *Pat put the book.
- Pat put the book on the shelf.
- Pat put the book on the shelf dramatically.
- Pat put the book on the shelf dramatically on Tuesday.
- Pat put the book on the shelf dramatically on Tuesday before several witnesses.

- Some things are required. Some things are not.

  Arguments get θ-roles and are **required**.

  Adjuncts are modificational and are **optional**.

Adjuncts and distribution

- Adjuncts are relatively "transparent"— having an adjunct does not seem to change the distributional characteristics.
  - Pat wants to eat lunch (quickly).
  - Pat wants to dine.
  - *I like to draw eat lunch (quickly).
  - I like to draw (happy) elephants.
  - *Pat wants to (happy) elephants.

Idea: A verb (phrase) with an adjunct is still a verb (phrase), just as if it didn't have an adjunct.

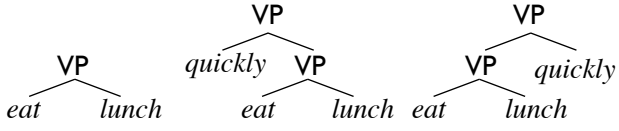
Adjoin

The operations Merge and Adjoin are two different ways to combine two objects from the workbench.

Merge takes two objects and creates a new object (with the label/features inherited from one of them).

Adjoin attaches one object to the top of another one.

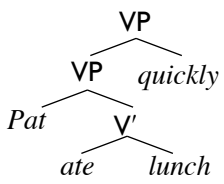
The linear order of adjuncts does not appear to be set parametrically, so they can either before or after the object they attach to.



The luxury of adjunction

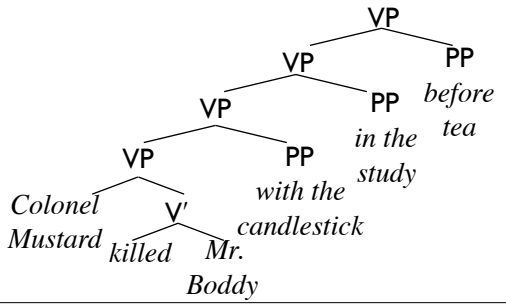
We will also assume that Adjoin only applies to maximal projections.

- That is: If a syntactic object still has a selectional feature, Adjoin cannot attach something to it. Merge must happen first. Once all of the things that *need* to happen are taken care of, *then* you have the luxury of adjunction.



The luxury of adjunction

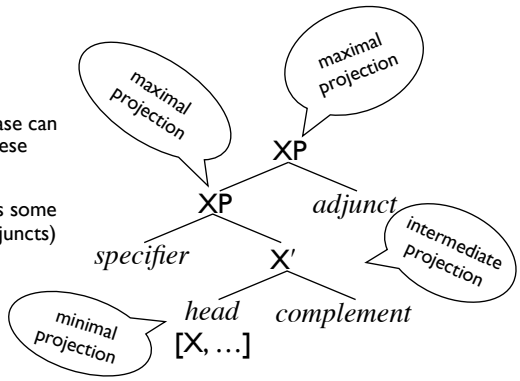
Any number of adjuncts can be added, generally in any order. Adjuncts come in many different categories— "adjunct" is not a category, but rather a structural description.



A phrase

- So, a full phrase can have all of these pieces

(plus perhaps some additional adjuncts)



Complements vs. adjuncts

PPs seem to be freely reorderable— when adjuncts.

- I ate lunch on Tuesday at Subway with Pat
- I ate lunch on Tuesday with Pat at Subway
- I ate lunch with Pat on Tuesday at Subway
- I ate lunch on Tuesday with Pat at Subway

But consider *glance at Chris*.

- I glanced at Chris on Tuesday
- *I glanced on Tuesday at Chris

Ok: Why?