Recap: 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 $F$.

The idea

- Sentences are generated *derivationally*, by means of a series of syntactic operations.
  - A sentence that can be generated by such a procedure is grammatical. One that cannot is not grammatical.
- Syntactic operations operate on syntactic objects.
- Lexical items are syntactic objects.
- A *derivation* starts off by selecting a number of syntactic objects from the lexicon, and proceeds by performing syntactic operations on them.

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.

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 N.
  - 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 vehivavay.
  saw the student the woman
  'The woman saw the student.'

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 are 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 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 \( \theta \)-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 Taco Bell with Pat
  - I ate lunch on Tuesday with Pat at Taco Bell
  - I ate lunch with Pat on Tuesday at Taco Bell
  - I ate lunch on Tuesday with Pat at Taco Bell

- But consider glance at Chris.
  - I glanced at Chris on Tuesday
  - *I glanced on Tuesday at Chris

- Ok: Why?