CAS LX 522
Syntax I

5

θ-roles, feature checking
(3.5-5.6)

This is a proposition

- Let's try to ground this a bit more now, to make it clearer what problems we're *solving* here.

- A primary—and perhaps the most important—type of sentence is that which represents a proposition.

- A proposition is the kind of thing that can be true or false (basically).

Truth and Verbs

1) Michael swam.

- *Michael* : refers to an individual; it is a name, a label. It is complete.

- *Swam* : describes an action that can be undertaken by someone, or a property that someone can have. Someone. *Swam* can't be true—it needs an individual, then it can be true (or false).

Predicates and arguments

- Suppose the construction of a proposition to be the end result of a (common kind of) sentence construction.

1) Michael swam

- *Swam* needs an individual to be true or false. Fortunately, *Michael* is an individual. So, combining *swam* (predicate) and *Michael* (argument) gives us a proposition, that can be true or false.

Verbs and participants

- Intransitive (1-place): *Sleep*
  1) Bill slept.
  2) *Bill slept the book.
- Transitive (2-place): *Hit*
  3) *Bill hit.
  4) Bill hit the pillow.

- Ditransitive (3-place): *Put*
  5) *Bill put.
  6) *Bill put the book.
  7) Bill put the book on the table.
- Weather (0-place): *Rain*
  8) It rained.

Verbs and arguments

- The "participants" in an event denoted by the verb are the arguments of that verb.

- Some verbs require one argument, some require two arguments, some require three arguments, some require none.

- Intuitively, the number of arguments is the number of things that a verb needs in order to make a proposition (something that can be either true or false).

Predicates

- We will call verbs the predicates. They define properties of and/or relations between the arguments.

  1) Bill hit the ball

  ▸ There was a hitting, Bill did the hitting, the ball was affected by the hitting.

- Different arguments have different roles in the event. (e.g., The hitter, the hittee)

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 <u>the ball</u>.

- Experiencer: feel or perceive the event

  3) <u>Pat</u> likes pizza.

- Proposition: a statement, can be true/false.

  3) Bill said <u>that he likes pizza</u>.

Common thematic relations

- Goal:

  1) Chris ran <u>to Copley Square</u>.

  2) Pat gave the book <u>to Tracy</u>. (Recipient)

- Source:

  3) Mary took a pencil <u>from the pile</u>.

- Instrument:

  4) Ed ate the burrito <u>with a plastic spork</u>.

- Benefactive:

  5) Pat cooked dinner <u>for Chris</u>.

- Location:

  6) Betsy sits <u>under the tree</u> 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.

  1) 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)

  2) 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.
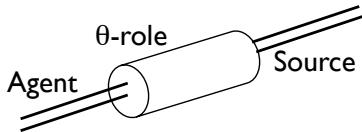
θ-roles

- 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 N (NP) and *that Bill left early* is category C (CP):

1) Sue saw/hit the ball.

2) 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.

1) Pat felt a tremor.

2) Pat felt uncomfortable.

3) Pat felt that Chris had not performed well.

Kickings

- The verb *kick* seems to require a nominal (category N) 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. Nouns have an [N] 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* [N] feature.
  - The name gives a hint as to why the N is required. The uninterpretable [N] feature is dangerous. It must be gotten rid of. Otherwise, there will be something we can't interpret.
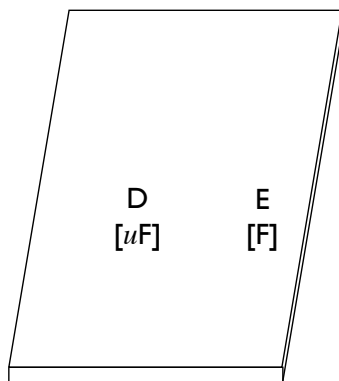
Feature checking

- 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.
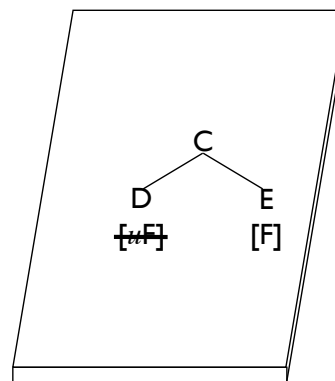
Feature checking

- 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.

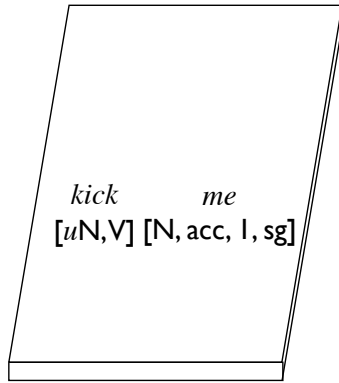# Feature checking

D   E
[*u*F]   [F]

- 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).

Feature checking

```
        C
       / \
      D    E
    [uF]   [F]
```
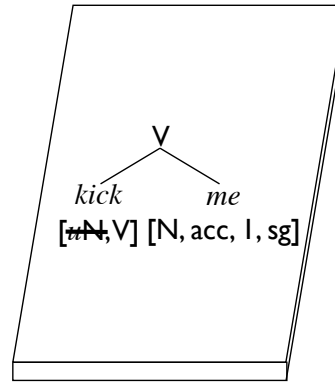
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Feature checking

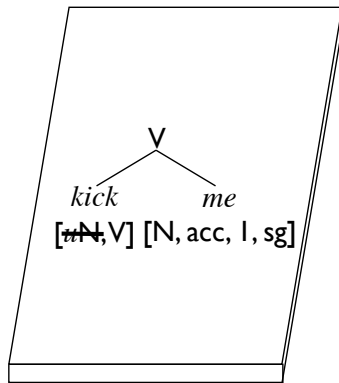*kick*   *me*
[uN, V]   [N, acc, 1, sg]

- Or, for a more concrete example
- *Kick* is a verb (has an interpretable V feature) and c-selects a noun (has an uninterpretable N feature).
- *me* is a noun (a pronoun in fact, has an interpretable N feature, and others like accusative case, first person, singular)

Feature checking

V
kick   *me*
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Feature checking

V
kick   *me*
[~~uN~~, V]   [N, acc, 1, sg]

- 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 [   ]