

Automodular Grammar

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Lecture 2

1. Function-Argument Structure:

(1) Some functors in English

- a. F_a : intransitive predicates, e.g., *sneeze*, *cat*, *cute*.
- b. F_{aa} : relations, e.g., *steal*, *fiancée*, *fond*.
- c. F_p : one-place operators, e.g., *seem*, *longshot*, *likely*.
- d. F_{pa} : transitive operators, e.g., *believe*, *idea*, *positive*.

2. Syntax

(2) Syntax:

- a. $S \rightarrow NP, VP$
- b. $V' \rightarrow V, (XP, (YP))$
- c. $PP \rightarrow P, NP$
- d. $NP \rightarrow DetP, N'$
- e. $N' \rightarrow N, (XP, (YP))$
- e. $S' \rightarrow Comp, S$
- f. $AP \rightarrow (ADVP), A'$
- g. $A' \rightarrow A, (XP, (YP))$

3. The Interface

3.1 Lexical Items

- (3) *sneeze*:
syntax: V in [VP__]
F/A: F_a
- (4) *take*:
syntax: V in [VP__ NP]
F/A: F_{aa}

3.2 Lexical Correspondence

(5) Intermodular Lexical Correspondence Principle:

If the value of a lexical item occurs n times in dimension D_j , then the dimensionally appropriate values of that lexical item must be present n times in every other dimension of analysis.

3.3 Categorical Correspondence

In general (6) a. and b. hold. Furthermore, if a language has a syntactic category VP, then (6) c. is also generally valid. If a language has no VP, then obviously, c. does not hold.

(6)	Syntax		F/A
a.	S	\Leftrightarrow	Prop
b.	NP	\Leftrightarrow	Arg
c.	VP	\Leftrightarrow	F_a

3.4 Geometrical correspondence

The second sort of default correspondence that is obvious when one compares syntactic and combinatoric semantic representations has to do with the relative structural positions of the corresponding elements in the two dimensions that have been considered to this point. The general principle is that hierarchical relations among elements in one dimension should be reflected in the hierarchical relations among the corresponding elements in the other dimensions.

(7) Geometrical correspondence conditions

Let A and B be nodes in dimension D_1 and A' and B' be corresponding nodes in dimension D_2 .

Then:

a. Conservation of Dominance:

If A dominates B , A' should dominate B'

b. Conservation of C-command:

If A c-commands B , A' should c-command B'

4. Mismatches

4.1 Lexical correspondence mismatches

There are lexical items that are not represented in all dimensions. English has quite a few including functionally empty *be*, pleonastic *it*, and the *do* of *do*-support.

- (8) *be*
 syntax: V in [__ XP]
 F/A: I(F_a) = F_a
- (9) *it* (pleonastic)
 syntax: NP
 F/A: nil
 morphophonology: /It/
- (10) *do* (auxiliary):
 syntax: V[TNS] in [_{VP} __, VP[INFIN]]
 F/A: nil

4.2 Categorical mismatches

- (11) Jack is [a Berliner] NP, but F_a

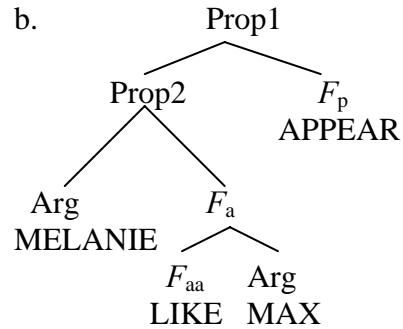
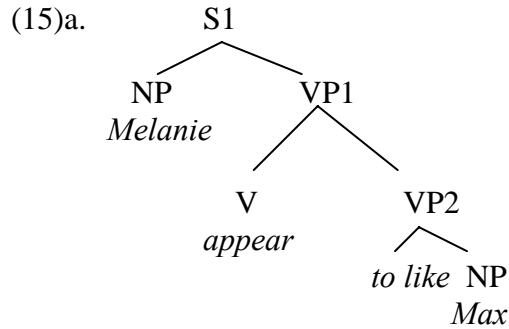
4.3 Geometrical mismatches

4.3.1 “Raising” to Subject

As with categorical correspondence, geometrical correspondence are just defaults. There are many varieties of deviation from it that lead to complications in individual components that are not autonomous, but not here. As a first example, consider those predicators that function as intransitive operators (that is to say, propositional modifiers of the F/A category F_p) and occur with syntactic complements other than subordinate clauses, including VPs and adjective phrases. These include verbs like *seem*, *appear*, and *happen*, adjectives like *likely*, *certain*, and *sure*, nominals like *a certainty* and *a good bet*. The verbs *seem* and *appear* occur with either a VP complement: *appears to be absent*, an adjective complement: *looks awfully sick*, or (chiefly in British English) a nominal: *seems a nice enough bloke*. None of the adjectives or nominals can take an adjective phrase or a nominal as a complement, but most do occur with VPs:

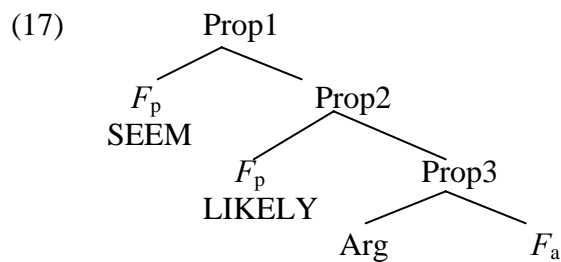
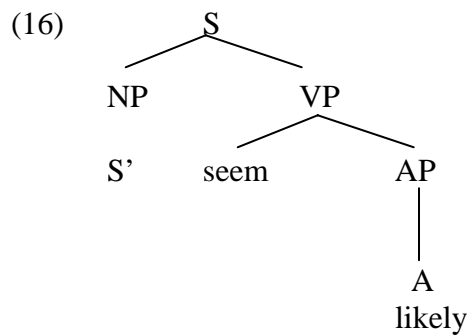
- (12) *seem*, *appear*, *look*:
 syntax: V in [__ VP[to]] or [__ AP] (%or [__ NP])
 F/A: F_p
- (13) *likely*, *certain*, *sure*:
 syntax: A in [__ VP[to]] or [__]
 F/A: F_p
- (14) *certainty*, *good bet*:
 syntax: N in [__ VP[to]] or [__]
 F/A: F_p

Such lexical entries require geometrical mismatches between syntax and F/A structure. Traditionally, this is called raising. In this framework, nothing more needs to be said to get the desired results.



Nested raising predicates

What has been said so far also correctly predicts some of the behavior of nested complements, such as the fact that while **That Rachel succeeded seems* is ungrammatical, *that Rachel succeeded seems likely* is fine. Note also that the “long distance” raising or cyclic raising is an automatic consequence of what has been said so far.



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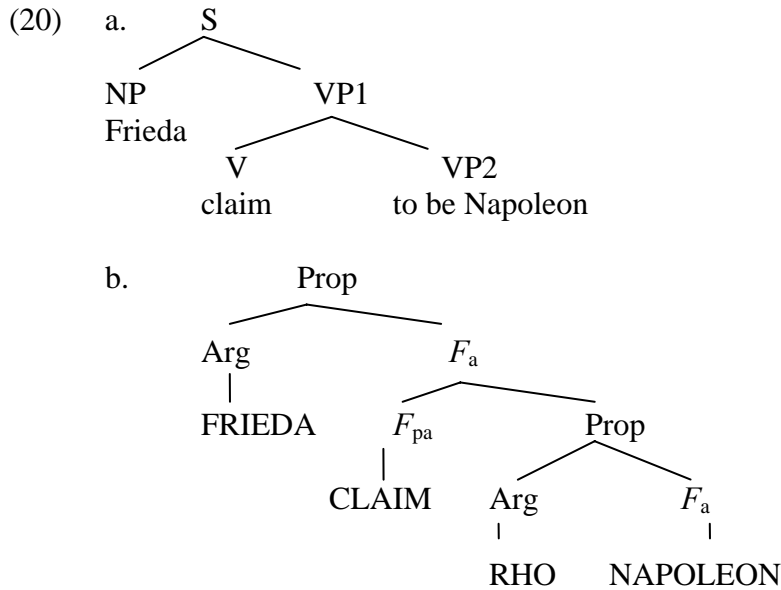
4.3.2 Control Predicates

Subject control predicates have exactly the same syntax as raising to subject predicates, but different F/A structure, of course. A verb like *claim* can take a VP complement or a clausal complement, but in either case it will be a semantic function from propositions to predicates.

- (18) claim:
 syntax: V in [__ S'] or [__ VP[to]]
 F/A: F_{pa}

When such predicates occur with infinitival complements, there is a problem: There are not enough NPs in the syntactic structure whose meaning can fill out all of the argument positions in F/A structure and therefore the F/A structure will be incomplete. We can't stick in another FRIEDA or we would violate the Lexical Correspondence Principle. What is needed is a lexical item with the meaning of an argument but no syntactic value whatsoever, the inverse of pleonastic *it*. I call this element "RHO".

- (19) RHO:
 syntax: nil
 F/A: Arg (coreferent with the nearest c-commanding Arg)



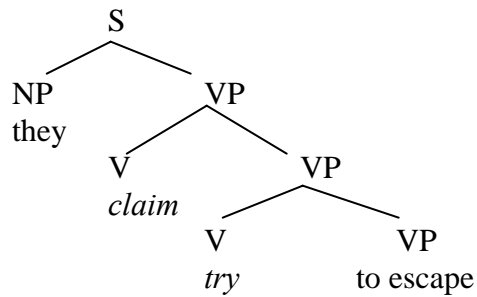
4.3.3 Contrasting properties of raising and control predicates

<u>Raising</u>	<u>Control</u>
<i>There seems to be a leak.</i>	<i>*There claims to be a leak.</i>
<i>The doctor seems to have examined the patient</i> = <i>The patient seems to have been examined by the doctor.</i>	<i>The doctor claims to have examined the patient</i> ≠ <i>The patient claims to have been examined by the doctor.</i>
Ambig: <i>Three prisoners seem to have escaped</i>	Unamb: <i>Three prisoners claim to have escaped</i>

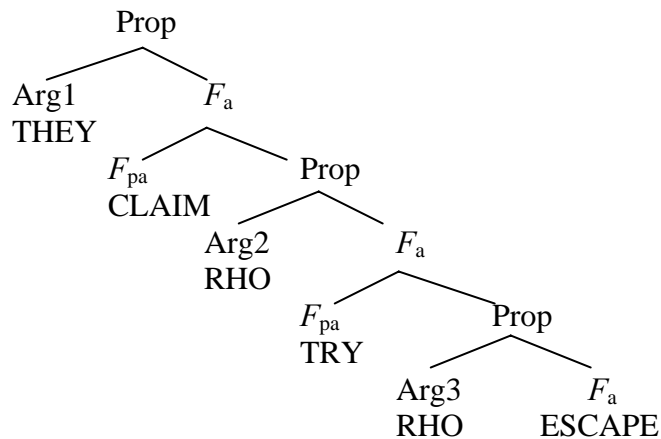
Nested control predicates

Consider examples with nested subject control verbs like *They claimed to have tried to escape*. The syntactic and F/A structures of this example are (28a) and (28b) with some details suppressed for clarity: The reference of the lower RHO will be the same as that of the higher RHO which will be the same as the reference of “they”.

(21) a.



b.



Nested control and raising (and vice versa)

(22)a. Kim claimed to happen to have been there.
 b. [KIM (CLAIM [HAPPEN [RHO (BE.THERE)])]]

(23)a. Kim happened to claim to have been there.
 b. [[HAPPEN KIM (CLAIM [RHO (BE.THERE)])]]

4.3.4 Raising to object

A number of verbs that otherwise occur with clausal complements and/or VP complements can also occur with both an NP and a VP as in *Nobody believes those politicians to be trustworthy*. Such predicates are necessarily verbs in English, including

those listed in (24), because nouns and adjectives are never subcategorized for an NP object. The items in (24) were treated as triggering the raising of the complement subject to their own object position (Postal 1974) or as assigning case in an exceptional way across a clause boundary (Chomsky 1981).

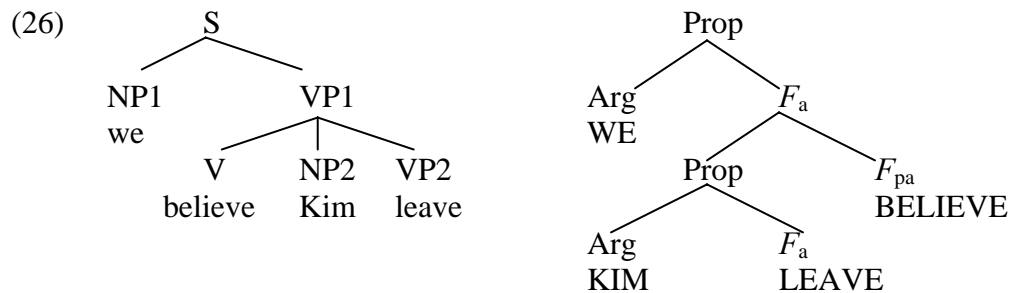
(24) *believe, expect, find, suppose, think, presume, assume, consider, understand*

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The syntax of sentences like *Sheila found echidna to be delicious* would seem to be identical to the syntax of *Sheila told Sidney to be efficient*. Sentences are understood in much the same way as sentences with clausal complements when the verb is one of those in (24). The NP object is not a semantic argument of the matrix verb but rather is understood only as the semantic subject of the proposition that corresponds to VP2. In other words, the lexical specifications of such verbs in syntax and F/A structure will be of the form (25).

(25) *believe/expect/find ...:*
 syntax: V in [__ NP, VP[to]]
 F/A: F_{pa}

We believe Kim to have left.



Pop quiz:

What is the lexical representation of verbs of object control?

How does the following contrast between raising and control predicates follow from this?

*Bernanke believed/*persuaded the shit to have hit the fan.*