Assumptions (Week 7)

1 The Lexicon

Lexical entries are complex feature structures containing (at least) syntactic, semantic and phonological information about each morpheme in the language. The syntactic features are organized as in (1).

(1) $$\text{LI} = \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{TYPE} & \{\text{N, V, WH, etc.}\} \\ \text{INFL} & \begin{bmatrix} x\text{FORM} & val \end{bmatrix} \end{bmatrix} \\ \text{INFL} & \begin{bmatrix} y\text{FORM} & val \\ z\text{FORM} & \underline{\quad} \end{bmatrix} \\ \text{SEL} & \begin{bmatrix} \text{COMP} & \text{CAT}_1 \\ \text{SPEC} & \text{CAT}_2 \end{bmatrix} \end{bmatrix}$$

The CAT feature complex encodes information about the basic syntactic properties of the object: its basic 'type' (i.e., part of speech), and and the kind of agreement it imposes on other objects. The latter is encoded as an INFL subfeature; the representation in (1) indicates that LI licenses valuation of another object's xFORM feature as *val*. (Here xFORM is just a placeholder for some other feature — VFORM, CASE, whatever.) In writing these out, we omit TYPE and just write in the part of speech information, which may be a set (e.g., {N, WH}).

The INFL feature complex controls the (syntactically determined) surface shape of the lexical item. This information may be explicitly specified in a lexical entry, as with the yFORM value in (1), which has the value *val*, or it may be 'unvalued', indicated with an underline, as with the zFORM feature in (1). Unvalued features may become valued through the AGREE relation, defined below. Derivations that result in unvalued INFL features are ungrammatical.

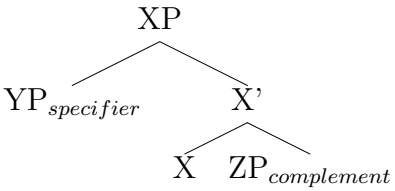
The SEL feature complex specifies the selectional requirements of a lexical item. It is further subdivided into a COMPlement feature and a SPECifier feature, each of which have categories (or possibly ordered lists of categories, though I have not shown this in (1)) as their values. The difference between specifiers and complements concerns order and position within the phrasal projection of a head. Specifically:

1. Heads first combine with complements, then with specifiers. That is, all COMP features must be discharged first.

2. Languages may specify the relative ordering of head, complement, and specifier.

In English, complements are ordered to the left of the head, and specifiers are ordered to the right of the head (and any complements), giving us structures like (2).

(2)



Note that nothing rules out the possibility that different heads impose different ordering requirements on the things they select — e.g., that a head X wants its complements on the right, and a head Y wants them on the left. If we discover that this is the case, we will need to figure out some way of encoding this in the lexical entries of the relevant heads.

2 The generative component

Our generative component contains three (or maybe two) rules: AGREE, MERGE and MOVE. MOVE is defined in terms of MERGE, so is arguably not a separate principle, but to keep things as clear as possible I will define it separately here. The details of the rules as they currently stand are as stated in (3)-(5).

(3) AGREE
If syntactic object X has an unvalued INFL feature F_1 and syntactic object Y has a matching valued CAT feature F_2, let the value of F_1 = the value of F_2.

We further assumed that AGREE is local: a syntactic object X can value the INFL features only of constituents within its maximal projection (its specifier(s) or complement(s)).

(4) MERGE
If X is a syntactic object with undischarged SEL feature α and Y is a syntactic object with CAT feature α:
i. Form Z such that Z immediately dominates X and Y.
ii. Discharge (delete) α on X.
iii. Let the features of Z = the features of X.

(5) MOVE
If X is a syntactic object with undischarged SEL feature α and Y is a syntactic object with CAT feature α and X contains Y:
i. Form Z such that Z immediately dominates X and a copy of Y.
ii. Discharge (delete) α on X.
iii. Let the features of Z = the features of X.
iv. Delete the original occurrence of Y.

The two significant differences between MERGE and MOVE is that the latter states explicitly that the selected object Y is part of the structure that is already built (this is the 'contained within X' clause), that what gets merged to X is a copy of Y, and that the original gets deleted. It may very well be that none of these things need to be stipulated at the end of the day — that MOVE really can be viewed

as a special case of MERGE where the selected object comes from structure that is already built ('internal merge') rather than from the lexicon ('external merge'), and that the deletion requirement follows from general principles governing the mapping from syntax to phonology. For the moment, though, we can treat them as two separate (though related) principles, just to keep things as clear and explicit as possible.

Note that MOVE continues to be stated in terms of selection, though in class last week we considered the possibility that selection is not enough to force movement. See the discussion about CASE below.

3 Case

All nominals enter the derivation with unvalued CASE inflectional features that must be valued in the course of a derivation, via AGREE. For example, the lexical entry for *dog* looks like (6).

(6)
$$\begin{bmatrix} \textit{dog} & \\ \text{CAT} & \text{N} \\ \text{INFL} & \begin{bmatrix} \text{CASE} & \_ \end{bmatrix} \end{bmatrix}$$

We currently have posited two 'triggers' for case assignment: finite T and transitive V. The former assigns NOMINATIVE case and the latter assigns ACCUSATIVE case, as indicated below.

(7)
$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} & \text{T, } \textit{past/pres} \\ \text{INFL} & \text{NOM} \end{bmatrix} \\ \text{INFL} & \begin{bmatrix} \phi & \_ \end{bmatrix} \\ \text{SEL} & \begin{bmatrix} \text{COMP} & \text{V} \\ \text{SPEC} & \text{N} \end{bmatrix} \end{bmatrix}$$

(8)
$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} & \text{V} \\ \text{INFL} & \text{ACC} \end{bmatrix} \\ \text{INFL} & \begin{bmatrix} \text{VFORM} & \_ \end{bmatrix} \\ \text{SEL} & \begin{bmatrix} \text{COMP} & \ldots \end{bmatrix} \end{bmatrix}$$

NPs that are directly merged as objects of transitive verbs will have their case feature valued under AGREE with V. NPs that are merged in non-case positions, e.g. as the specifier of little v (see below), will have to undergo movement to a position in which their CASE feature can be valued. The specifier of a finite T is one such place; our new hypothesis about the various forms of 'subject raising', then, is that it happens not to satisfy the selectional requirements of T (though this is a beneficial by-prodouct of movement), but to value the unvalued CASE feature of a noun (phrase).

Note that on our view, it is the hypothesis that AGREE is local rules out examples like (9a-b).

(9) a. *It seems [$_{\text{TP}}$ Kim to be happy].
b. *It is likely [$_{\text{TP}}$ Nancy to be Speaker of the House].

If AGREE could work over a long distance, then it would be possible for the matrix finite T head to value the CASE features on the embedded subjects. Insertion of *it* would satisfy T's SEL requirements, predicting (9a-b) to be OK. If, however, AGREE is local, then the only way to value the CASE features on the embedded subjects is to move them to the specifier of the finite T.

4 TP

Sentences are projections of the category T(ense). English contains at least three members of the T category (and probably more): *past, present* and *nonfinite*. The former do not correspond to free morphemes, but do trigger appropriate agreement on lower verbs; the latter corresponds to the morpheme *to*. T selects for a complement of category V and a specifier of category N; the latter corresponds to the subject of the sentence. T also is the locus of subject agreement: it has unvalued ϕ-features (person, gender, number) which are valued under agreement with its specifier (the subject). T heads in general select for a complement of category V and a specifier of category N, as shown in (10).

(10)
$$\begin{bmatrix} \text{CAT} & \text{T} \\ \text{INFL} & [\phi \quad \_] \\ \text{SEL} & \begin{bmatrix} \text{COMP} & \text{V} \\ \text{SPEC} & \text{N} \end{bmatrix} \end{bmatrix}$$

We have not settled on a particular view about how tense information ends up on the highest verb. One coherent option is that this is done under agreement: that e.g. PAST has the feature structure in (11), which allows it to trigger agreement on a lower verb (which we must assume has an unvalued TENSE feature in its INFL array, or that TENSE is really a special type of VFORM feature).

(11)
$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{T} & \\ \text{TENSE} & \textit{past} \end{bmatrix} \\ \text{INFL} & [\phi \quad \_] \\ \text{SEL} & \begin{bmatrix} \text{COMP} & \text{V} \\ \text{SPEC} & \text{N} \end{bmatrix} \end{bmatrix}$$

There are other options however. For example, it could be the case that tense morphology is directly represented in T (rather than as an inflectional property of verbs), but that it gets pronounced on an adjacent verb. We do not have to decide on these

options right now.

5 Semantic roles

Semantic roles are those features of a lexical item that represent the participants in the situation or event described by the item. (The most common expressions with semantic roles are verbs, though other categories may be associated with them as well.) For example, the verb *eat* describes an eating event, which necessarily includes a thing that gets eaten and a thing that eats it; the verb *sleep* describes a sleeping event which has only a sleeper participant, and the verb *rain* describes an event that has no participants at all (you don't need any individuals to have raining; you just need the rain, but the verb takes care of naming that).

In class, we assumed that semantic roles, or θ-roles, are linked to selected arguments, and we represented this by attaching a line from different roles (θ_1, θ_2, etc., or θ_{Agent}, θ_{Theme}, etc., if you prefer) to different selected arguments.

Note that non-NP arguments may be associated with θ-roles. For example, the clausal argument of *seem, appear*, etc. should get a role, along with the (optional) *to*-PP argument (as in *It seems* <u>*to me*</u> *that ...*).

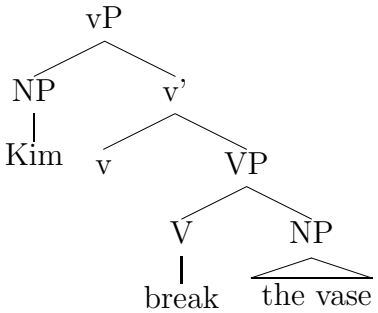
Note also that not all lexical items assign θ-roles. For example, we do not want to say that auxiliary verbs assign a semantic role to their VP complements, since auxiliaries don't really describe events. Instead, they 'manipulate' the event described by the main verb (by specifying whether it is ongoing, completed, etc.). Likewise, we don't really want to say that T(ense) assigns a semantic role, since it just specifies when in time a particular event occurs.

When providing a lexical entry for a term that does assign semantic roles — in particular, when giving lexical entries for main verbs and predicative adjectives — you should be sure to specify not just the selectional requirements of the item, but also how the selected arguments link up to θ-roles.

6 Transitivity: V and *v*

Transitive verbs actually select only for their 'internal' arguments: syntactic direct objects/semantic 'themes' or 'patients'. Their surface subjects and semantic 'agents' are introduced by a special causative head, which we are calling *little v*. For example, the structure of the smallest projection consisting of the verb *break* and all its potential arguments is as in (12).

(12)



As noted above, the NP *the vase* can have its CASE feature valued in its base position, given our assumption that transitive *break* can assign ACCUSATIVE case. The NP *Kim*, however, is not in a position to have its CASE feature valued, since (by hypothesis) little v is not a case assigner. It must therefore raise to a case position, e.g. the specifier of a finite T.

7 A constraint on movement

Finally, at the end of class last time, we considered the possibility that NPs move only to satisfy their own needs (e.g., the requirement that their CASE feature be valued), never (only) to satisfy the syntactic requirements of some other expression (e.g., the SEL requirement of some head). This rules out the possibility of moving an NP out of the specifier of a finite T, as in (13a-b): since the NP is in a position to have its CASE feature valued without movement, it does not move.

(13) a. *Kim seems (that) [$_{\text{TP}}$ ~~Kim~~ is happy].
b. *Nancy seems (that) [$_{\text{TP}}$ ~~Nancy~~ will be Speaker of the House].