HPSG II: the plot thickens

1 Passive: a lexical rule that rearranges ARG-ST!

(1) Passive Lexical Rule

\[
\begin{align*}
&< [1] tv - lxm \quad \text{ARG-ST} \quad \langle [\text{INDEX } i] \rangle \oplus a > \Rightarrow \\
&\quad \begin{cases}
&\quad \text{part - lxm} \\
&\quad \text{SYN} \quad \langle \text{HEAD} [\text{FORM pass}] \rangle \\
&\quad \text{ARG - ST} \quad a \oplus \langle \text{FORM by} \rangle \\
&\quad \text{INDEX} \end{cases}
\end{align*}
\]

[The role of the index is to preserve the theta-role of the first member of ARG-ST in the input as the theta-role of the object of by in the output. The index is the value for INDEX.]

(2) Lexical Entry for be in passive sentences

\[
\begin{align*}
&< \text{be, ARG-ST} > \\
&\quad \begin{cases}
&\quad \text{SYN} \quad \langle \text{HEAD} [\text{FORM pass}] \rangle \\
&\quad \text{VAL} \quad \langle \text{SPR } 1 \rangle \\
&\quad \text{SEM} \quad \langle \text{INDEX s} \rangle \\
&\quad \text{RESTR} \end{cases}
\end{align*}
\]

Notice how the subject of the embedded clause serves as the subject of be.

The notation SPR (1) internal to the second member of ARG-ST entails that the SPR list is non-empty. Thus, be is selecting a non-saturated VP -- in effect, a V'. [Notice that COMPS is empty, i.e. it's not a V']

That is, the HeadSpecifier rule just does not apply to the embedded VP. Onward to Raising!

The reference to "FORM pass" is replaced by "PRED +" in the next chapter, to allow be with other complements.

Review:

(3) The Valence Principle (p. 106)

Unless the rule says otherwise, the mother's values for the VAL features (SPR and COMPS) are identical to those of the head daughter [i.e. SPR and COMPS are "head features" by default]

(4) HEAD SPECIFIER RULE (p. 106)

\[
\begin{align*}
&\quad \langle \text{phrase} \rangle \quad \langle \text{VAL} [\text{SPR } 1 ] \rangle \quad \langle \text{H} \rangle \\
&\quad \langle \text{phrase} \rangle \quad \langle \text{VAL} [\text{COMPS } 2 ] \rangle
\end{align*}
\]

(5) HEAD COMPLEMENT RULE (p.106)

[No mention of SPR, thanks to the Valence Principle.]

\[
\begin{align*}
&\quad \langle \text{phrase} \rangle \quad \langle \text{VAL} [\text{COMPS } 1 \ldots n ] \rangle \\
&\quad \langle \text{word} \rangle \quad \langle \text{H} \rangle \quad \langle \text{VAL} [\text{COMPS } 1 \ldots n ] \rangle
\end{align*}
\]

Notice that because the Passive rule manipulates ARG-ST, we predict that Binding Theory in passive sentences will look at the "new ranking" rather than the old -- see the problem on p.247.


2 CP-complementation

A new type comp joins noun as subtypes of a type nominal (subtype of agr-pos). Nominal licenses the feature CASE.

Note that C adds no semantics to the S to which it attaches.

(6) Complementizer lexemes

Complementizer lexemes

\[
\begin{align*}
\text{SYN} & : \text{HEAD} \quad \text{comp} \\
\text{VAL} & : \text{AGR} \quad \text{3sing.} \\
\text{comp-}lxm & : \text{ARG-}ST \quad \text{S} \\
\text{SEM} & : \text{INDEX} \quad \text{s} \\
\end{align*}
\]

(7) Extrapolation [a word-to-word rule]

Extraposition [a word-to-word rule]

\[
\begin{align*}
\text{word} & : \text{X. SYN} \quad \text{VAL} \quad \text{SPR} \quad \text{CP} \\
\text{word} & : \text{Y. SYN} \quad \text{VAL} \quad \text{SPR} \quad \text{NP} \quad \text{FORM} \quad \text{a} \quad \text{COMPS a} \quad \text{=} \quad \text{2} \\
\end{align*}
\]

3 Raising-to-Subject verbs

Infinitival to treated as an auxiliary verb:

(8) Lexical entry for to [p. 362]

\[
\begin{align*}
\text{SYN} & : \text{HEAD} \quad \text{FORM base} \\
\text{VAL} & : \text{SPR} \quad \text{INF +} \\
\text{a} & : \text{AUX +} \\
\end{align*}
\]

(9) subject-raising-verb-lx, (srv-lxm)

\[
\begin{align*}
\text{ARG-}ST & : \text{X. SYN} \quad \text{VAL} \quad \text{SPR} \quad \text{1} \\
\text{COMPS} & : \text{INDEX s} \\
\text{SEM} & : \text{INDEX s} \\
\text{SEM} & : \text{INDEX s} \\
\text{SEM} & : \text{RESTR} \quad \text{ARG} \quad \text{s} \\
\end{align*}
\]

(10) Lexical entry for continue

\[
\begin{align*}
\text{srv-}lxm & : \text{ARG-}ST \quad \text{X. SYN} \quad \text{VP} \quad \text{INF+1} \\
\text{SEM} & : \text{INDEX s} \quad \text{RESTR} \quad \text{RELN} \quad \text{continue} \quad \text{SIT s} \\
\end{align*}
\]
By (9), the first member of ARG-ST is unified with the SPR value of the second member of ARG-ST.

Continue has only one semantic argument, even though there are two members of ARG-ST.

Because continue takes a second argument that has a non-null value for SPR, it is taking an unsaturated VP, not an S -- hence there is no overt embedded subject.

"Note that the first argument of try and the subject of the VP are not identified; only their indices are." [p. 373] Coindexing vs. unification is motivated by the evidence that movement-based theories use to argue for control vs. movement -- e.g. transmission of quirky case with raising verbs, but not with control verbs in Icelandic.

But the key difference is the fact that here a theta role is assigned to the SPR of try (cf. the assimilation of control to movement by Wehrli, Bowers, Hornstein, etc.)

Likewise, ECM vs. object control is a question of whether the second argument is or is not assigned a theta-role (in RESTR), with (once again) a subsidiary difference in unification vs. coindexing. [pages 377ff].

4 Subject control verbs

(11) subject-control-verb-lxm (scv-lxm)

(12) try

(13) object-raising-verb-lx, (orv-lxm)

(14) Lexical entry for expect [p. 378]

6 Object control verbs
7 Binding meets Raising in Balinese: Wechsler 1998

[http://uts.cc.utexas.edu/~wechsler/Balinese-bind.pdf]

Balinese: Agentive Voice - top argument is subject. Type acc-verb.
Objective Voice - any non-top argument is subject. Type erg-verb.

(15) **object-control-verb-lxm (ocv-lxm)**

\[
\begin{align*}
\text{ARG-ST} & \begin{cases}
\text{NP, NP, COMPS } \text{(comps)} \\
\text{INDEX } s_i
\end{cases} \\
\text{SEM} & \text{RESTR } \{\text{ARG } s_i\}
\end{align*}
\]

(16) **persuade**

\[
\begin{align*}
\text{ocv-lxm} & \\
\text{ARG-ST} & \begin{cases}
\text{NP, NP, VP } \text{(inf)} \\
\text{INDEX } s
\end{cases} \\
\text{RELN } & \text{persuade} \\
\text{SEM} & \text{RESTR } \{\text{PERSUADER } i, \text{PERSUADEE } j\}
\end{align*}
\]

- **Binding Theory** makes reference to the ARG-ST list -- not to SPR and COMPS or to tree-structure (UG?). So it is indifferent to AV/OV.

(18)  

a. Ida nyingakin ragan idane.  
3sg AV.see self

b. Ragan idane cingakin ida.  
self OV.see 3SG

- **Raising-to-subject** involves unification of 1st argument of upstairs ARG-ST with downstairs SPR. Thus, if downstairs verb is OV, it is a downstairs non-top argument that "raises".

(19) **Raising-to-subject + downstairs AV/OV**

a. you seem much [AV.hide her-mistake] \[(15b)\]

b. her-mistake seem much [OV.hide you] \[(14b)\]

- **Raising-to-object** involves unification of second member of ARG-ST with SPR of third member. Upstairs AV/OV alternation yields predictable results

(20) **Raising-to-object + upstairs AV/OV**

a. I AV.know Nyoman Santosa go.home. \[(16b)\]

b. Nyoman Santosa OV.know I go.home \[(16a)\]

- Though space limitations left the examples out, presumably downstairs AV/OV behaves as predicted:

(21) **Raising-to-object + upstairs AV/OV and downstairs OV**

a. I AV.know you AV.hide her-mistake.

b. I AV.know her-mistake OV.hide you.

c. you OV.know I AV.hide her-mistake.

d. her-mistake OV.know I OV.hide you.
**Binding:**

- Key point: Raising is reflected in the ARG-ST of the higher verb, even though AV/OV is not reflected in the ARG-ST of the lower verb.

- Thus, for example, a raised subject with *seem* will be able to bind an *upstairs* experiencer -- even as it may be bindable by a downstairs agent when the lower verb is OV.

(22) **Binding and Raising-to-Subject**
   a. *upstairs*: he seemed to-self to be ugly [(19)]
   b. *downstairs*: self seem very OV.boast he [(22)]

- Likewise for Raising-to-Object

(23) a. *upstairs*: I AV.think myself/*me already dead. [(23a)]
    b. *downstairs*: I AV.think himself already OV.see he [(26a)]
    c. *upstairs*: myself OV.think I already dead [(23b)]
    d. *downstairs*: himself OV.think I already OV.see he [(26b)]

- The problem for GB: Suppose OV is binding-neutral because it involves, say, A-bar movement. Then downstairs OV + upstairs binding must involve improper movement. We can't let downstairs OV position be optionally A, or else we'd mess up the binding properties of the downstairs clause.

- The HPSG alternative is straightforward, since the theory allows for more than one mapping from ARG-ST onto SPR/COMPs and can do raising via SPR features.

8 Long-Distance Dependencies

- An element present on the ARG-ST list may be missing from COMPs so long as it is present on a new list called GAP (a.k.a. SLASH):
The second edition:

(28) **The GAP Principle**
A local subtree $\Phi$ satisfies the GAP Principle with respect to a headed rule $\rho$ iff $\Phi$ satisfies $L_{\text{GAP}}$.

$$\Phi \text{ satisfies } L_{\text{GAP}} \text{ A}_0 \oplus \ldots \oplus \text{ A}_n()$$

$$\begin{bmatrix} \text{GAP} [\text{A}_1] \ldots \text{H} \text{ GAP} [\text{A}_1] \text{ STOP - GAP} [\text{A}_0] \ldots \text{ GAP} [\text{A}_n] \end{bmatrix}$$

(29) **Head-Filler Rule**

$$\begin{bmatrix} \text{verb} \text{ FORM fin} \end{bmatrix}$$

$$\begin{bmatrix} \text{VAL} \text{ SPR} \{ \} \\ \text{COMPS} \{ \} \\ \text{STOP - GAP} \{ \} \\ \text{GAP} \{ \} \end{bmatrix}$$

$$\text{[phrase]} \rightarrow \text{H HEAD GAP} \{ \}$$

"This rule says that a phrase can consist of a head with a gap preceded by an expression that meets whatever requirements the head places on that gap."

The independent existence of "stop-gap" allows elements other than the filler to stop the propagation of "GAP". An example: "Tough"-adjectives like **easy**:

(30) **easy**

$$\begin{bmatrix} \text{adj - lsm} \\ \text{SYN} [\text{STOP - GAP} \{ \} ] \\ \text{easy,} \\ \text{ARG - ST} \left[ \text{NP}_e \right] \\ \text{VP} \\ \text{INF} + \right]$$

$$\begin{bmatrix} \text{GAP} \{ \} \text{NP}_e \ldots \right]$$

(31) **Initial symbol**

$$\begin{bmatrix} \text{HEAD} \text{ FORM fin} \\ \text{VAL} \text{ SPR} \{ \} \\ \text{COMPS} \{ \} \\ \text{GAP} \{ \} \end{bmatrix}$$

- **Standard result:** CSC
(32) Subject Extraction Lexical Rule [!] [p. 442]

\[
\begin{align*}
\text{word} & \quad X, \quad \text{ARG-ST} \quad \text{A} \\
\text{ARG-ST} & \quad \text{SYN} \quad \text{HEAD} \quad \text{VERB} \quad \text{FORM} \quad \text{fin} \\
\text{VAL} & \quad \text{SPR} \quad \text{Z} \\
\Rightarrow & \quad Y, \quad \text{SYN} \quad \text{VAL} \quad \text{SPR} \quad \{\} \\
\text{GAP} & \quad \{1\} \\
\text{ARG-ST} & \quad \text{A} \{1\} \ldots
\end{align*}
\]