

Constraints on Phrase Structure

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Kinds of
Movement

An empirical issue
with Roll-Up:
VP-movement

Root based
structure building

Category Based
Structure Labelling

Direct
Linearization
opposed to Head
Movement

Specifiers and
Complements as
Interpretations of
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Back to
VP-movement

Conclusion

A-bar Movement

(1) Who did Anson say that Lilly scratched _?

- ▶ Interpretive effects: understandable as variable binding
- ▶ Features Driving Movement: wh, focus, topic, ...etc

A Movement

(2) Every cat seems to its owner to be worthy of the prize.

- ▶ Interpretive effects: descriptively understood (new binding domains etc), but no obvious logical interpretation
- ▶ Features Driving Movement: EPP? phi-agreement? case? labelling?

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- (3) Sgròb an cat ⟨sgròb⟩ Iain
Scratched the cat Iain
'The cat scratched Iain.'

Scottish Gaelic

- ▶ Interpretive effects: not descriptively understood, no obvious logical interpretation
- ▶ Features Driving Movement: EPP? Affixality?

Two issues to be kept separate:

- ▶ position of a head with respect to other elements (e.g. specifiers) in the structure (syntactic height);
- ▶ position of a head with respect to other elements in the word in which the head is placed (morphology, esp. Mirror Principle effects)

Head Movement—Interpretation

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Interpretive effects: (McCloskey 1996, Roberts 2012)

- (4) *Which one of them does anybody like?
- (5) Which one of them doesn't anybody like?
- (6) Which one of them does anybody not like?

Very few other phenomena like this (cf. Benedicto on existential readings; Lechner on split scope)

Head Movement—Affixality

Dissociation between height of raised element and affixality.

(7) I always ate marshmallows before dinner.

(8) Háyátto hón 0-déí- hę́- mɔɔ- t!ɔɔ
probably NEG 3s-sleep- die- NEG- MOD
'Probably he won't fall asleep'

Kiowa

Adger et al 2009 show that Kiowa verbs are low in the structure but bear rich suffixation.

Well known theoretical issues (extension condition; counter-cyclic; ban on excorporation, etc Chomsky 2001 et seq.)

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Word-Order Movement: Roll-up

Roll-up operations are a common way to derive the reverse order of a head initial scopal structure:

- (9) tamruat khon nan
police CL that
'That policeman' Thai (Piriyawiboon 2010)
- (10) a. that CL police →
b. that [police CL ⟨police⟩] →
c. [police CL ⟨police⟩] that ⟨police CL⟩

Word-Order Movement: Roll-up

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- ▶ Interpretive effects: apparently none—no clear evidence for the traces
- ▶ Features Driving Movement: Holmberg/Julien c-selection parameterization; Kayne's *W*-features.

Word-Order Movement: Roll-up

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Arguments for this kind of reversal roll-up are theory internal, as the word order reversal can be done via base-generation not movement by adjusting certain theoretical assumptions (e.g. as in Abels and Neeleman's approach to U20, or via Brody's or my approach to syntactic representations).

Word-Order Movement: Roll-up

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But there do seem to be cases of non-reversal roll-up derivations: one subsection of an extended projection is separated off and raised to a specifier within that extended projection:

(11) and scratch Anson, Lilly will ⟨scratch Anson⟩

Also evidence from VOS languages suggests that the VP has raised (e.g. Pearson's analysis of Malagasy)

Head Government Redux

But this classical approach needs an extra stipulation to account for apparent government effects in such cases:

- (12) a. and scratch Anson, Lilly *(did)
b. *and scratched Anson, Lilly
- (13) liknot et ha-praxim, hi *(kanta)
buy.INF ACC the-flowers, she bought
'As for buying the flowers, she bought' Hebrew
(Landau 2006)

Strong evidence from reconstruction, island sensitivity that there is movement, but why does the trace have to be 'governed'?

Recap and Prospect

- ▶ Head movement and Roll-up movement are ‘word order’ movements, with few if any semantic effects, while A movement and A-bar movement have straightforward effects on scope, binding, and other aspects of interpretation.
- ▶ Roll-up movement of the A-bar sort doesn’t seem to behave in the same way as other kinds of A-bar movement: it requires government by an auxiliary or other element.
- ▶ Construct a theory of phrase structure which has the following as consequences: there are no ‘word order’ movements, so all movement has semantic effects. As a side effect of this, we derive the government requirement on VP movement.

Unary Merge

System developed in Adger 2013, *A Syntax of Substance*

- (14) Let W be a workspace and let X, Y be syntactic objects where $X, Y \in W$ **and X and Y are distinct ($X \neq Y$)**. Then, $\text{External-Merge}_W(X, Y) = \{X, Y\}$.
- (15) Remove the distinctness condition on Merge (Guimaraes; Kayne)
- (16)
- Merge x with $x = \{x, x\} = \{x\}$
 - Merge $\{x\}$ with $\{x\} = \{\{x\}, \{x\}\} = \{\{x\}\}$
 - Merge y with $y = \{y, y\} = \{y\}$
 - Merge $\{\{x\}\}$ with $\{y\} = \{\{\{x\}\}, \{y\}\}$
 - ...

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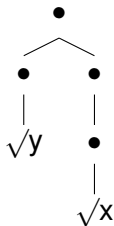
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Unary Merge



Extended Projections

Functional Complementation is special (Adger 2003, Starke 2002, Williams 2003):

- ▶ there exists an 'fseq' - a sequence of functional projections - such that the output of [Merge] must respect fseq. (Starke 2001, p155).
- ▶ There are no functional categories qua lexical items
- ▶ Extended Projections (cf Starke's fseq, or Adger 2003's Hierarchy of Projections) serve to constrain the labelling of structure built by Merge from roots

Roots and Labels

- (17)
- a. RLex = $\{\sqrt{1}, \dots, \sqrt{n}\}$, the set of LIs (roots)
 - b. CLex = $\{l_1, \dots, l_n\}$, the set of category labels (N, V, D, C, T, ...)
- (18)
- a. Transition Labeling: All systems have some means of specifying the embedding relation between one functional category and another.
 - b. Root Labeling: All systems, equally, need a way of specifying the category of a root, whether by stipulation as a lexical property, or via labeling in the syntactic system by some category bearing element.

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$$(19) \quad \Lambda = \{ \langle N, Cl \rangle, \langle Cl, Num \rangle, \langle Num, D \rangle, \dots \}$$

We have, then, the following kind of derivation:

- (20)
- Merge $\sqrt{\text{cat}}$ with $\sqrt{\text{cat}} = \{ \sqrt{\text{cat}}, \sqrt{\text{cat}} \} = \{ \sqrt{\text{cat}} \}$
 - Label($\{ \sqrt{\text{cat}} \}$) = N by Root Labeling
 - Merge $\{ \sqrt{\text{cat}} \}$ with $\{ \sqrt{\text{cat}} \} = \{ \{ \sqrt{\text{cat}} \}, \{ \sqrt{\text{cat}} \} \} = \{ \{ \sqrt{\text{cat}} \} \}$
 - Label($\{ \{ \sqrt{\text{cat}} \} \}$) = Cl by Transition Labelling
 - Merge $\{ \{ \sqrt{\text{cat}} \} \}$ with $\{ \{ \sqrt{\text{cat}} \} \} = \{ \{ \{ \sqrt{\text{cat}} \} \}, \{ \{ \sqrt{\text{cat}} \} \} \} = \{ \{ \{ \sqrt{\text{cat}} \} \} \}$
 - Label($\{ \{ \{ \sqrt{\text{cat}} \} \} \}$) = Num by Transition Labelling

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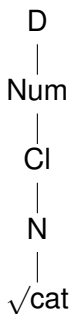
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Unary Structures



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Conclusion

$$(21) \quad \Lambda = \{\dots, \langle V, v^* \rangle, \langle D, v^* \rangle, \dots\}$$

$\langle D, v^* \rangle$ maps from labels in one EP to another, while
 $\langle V, v^* \rangle$ follows the extended projection of V.

- (22)
- Self Merge $\sqrt{\text{jump}} = \{\sqrt{\text{jump}}\}$
 - Label($\{\sqrt{\text{jump}}\}$) = V
 - Self Merge $\sqrt{\text{Lilly}} = \{\sqrt{\text{Lilly}}\}$
 - Label($\{\sqrt{\text{Lilly}}\}$) = D
 - Merge $\{\sqrt{\text{jump}}\}$ and $\{\sqrt{\text{Lilly}}\} = \{\{\sqrt{\text{jump}}\}, \{\sqrt{\text{Lilly}}\}\}$
 - Label($\{\{\sqrt{\text{jump}}\}, \{\sqrt{\text{Lilly}}\}\}$) = v^* since you can map from both D and V to v^*

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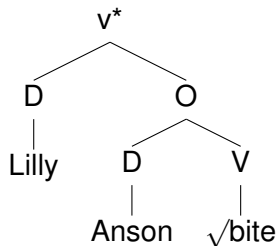
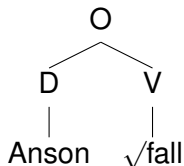
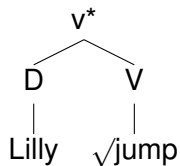
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Binary Structures

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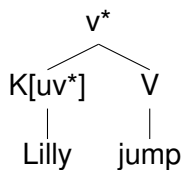
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The Pesetsky-Torrego gambit:

(23)



$\langle K[uv^*], v^* \rangle$ generalises to $\langle uv^*, v^* \rangle$, so Transition Labelling would always always be within an Extended Projection (with specs involving uninterpretable features).

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Mirroring and Spanning

- ▶ Two aspects of Head Movement: position of the head and internal structure of the head.
- ▶ Follow idea from Brody's Mirror Theory: Root plus extended projection is directly linearized to a single point in the structure (the hierarchical dimension is collapsed to the linear dimension)
- ▶ add to this the idea that the root provides the phonological base for morphologization of the categories, allowing portmanteau/suppletion.

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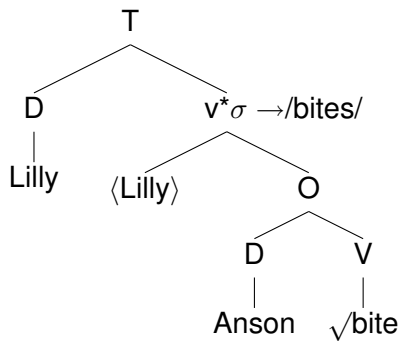
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Mirroring and Spanning



- ▶ Because linearization is direct, there is no 'raising' or 'lowering' in syntax. Improvement on standard story.
- ▶ σ diacritic specifies the parametric point of spellout just as 'strong' T or whatever does.

Interpretive Effects Revisited

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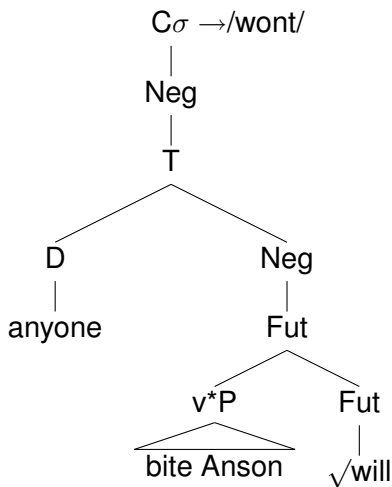
Conclusion

(24) Which of them doesn't anybody like?

(25) Cha do sgròb an cat Iain
Neg past scratch the cat Iain
'The cat didn't scratch Iain'

Neg is available in C; Need to say that when it is linearized there it takes scope there.

Interpretive Effects Revisited

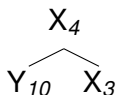


- (26) I din-nae no ken him = I don't know him (VP negative concord)

Breaking Symmetry

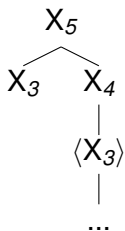
The system developed so far is symmetrical. We need to impose asymmetries on it for the purposes of the interfaces (compositional meaning and linear order):

- (27) (functional) complementation is defined via the mother and one of the daughters being in the same EP, with the mother higher or equal in the EP. Specifier is the elsewhere case. (cf. Bury 2003)



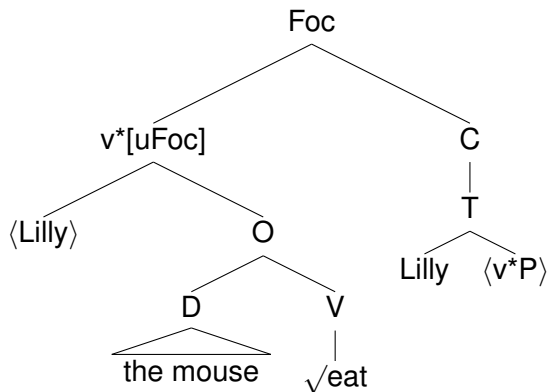
Rulling out Roll-up

If both daughters in the tree are in the same rooted EP as the mother, no syntactic relation of complementation or specifierhood can be defined:



Government requirement derived

(28) *and ate the mouse, Lilly



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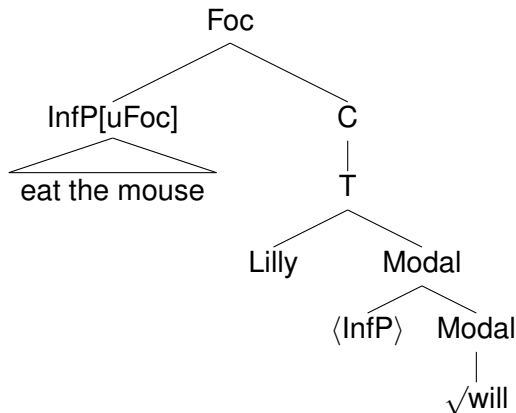
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Government requirement derived

(29) and eat the mouse, Lilly will



The InfP must be in a different EP from the auxiliary.

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Government requirement derived

- ▶ Explains why you can't just move the v^*P
- ▶ Forces there to be two EPs involved
- ▶ Explains why the moving XP doesn't bear finite inflection
- ▶ Explains why there has to be an auxiliary or dummy to head the T-C EP.

Final Conclusions

- ▶ We have developed a theory that removes two kinds of problematic operation from the system
 - ▶ head movement, which has no interpretive effect, is replaced by direct linearization of the extended projection, allowing a dissociation between morphological richness and syntactic height
 - ▶ roll-up movement, which has no interpretive effect, is impossible *tout court* in the system
- ▶ The theory derives the government requirement on VP-fronting. Possible counterexamples from Polish would have to be reanalysed as other operations.
- ▶ for other benefits from the system see Adger 2013.

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