

Movement operations after syntax

David Embick & Rolf Noyer (2001)

Joanna Zaleska

University of Leipzig, Institute of Linguistics

June 19, 2014

Outline

- 1 Background
- 2 The proposal
- 3 The clitic/affix distinction
- 4 Refinements of the model
- 5 Interactions
- 6 Conclusions

Not all movement takes place in syntax

Example I: Latin *-que* (roughly 'and')

(1) bon+T̄ puer+T̄ bon+ae+ que puell+ae
 good+NOM.PL boy+NOM.PL good+NOM.PL and girl+NOM.PL
 'good boys and girls'

Solution: PF can perform movement operations to satisfy a clitic dependency.

Example II: inflectional system of English

English main verbs don't move to T but tense morphology appears on the verb in the surface string:

(2) John kick-ed the ball to Mary.

Solution: T lowers to V in the PF.

Not all movement takes place at PF

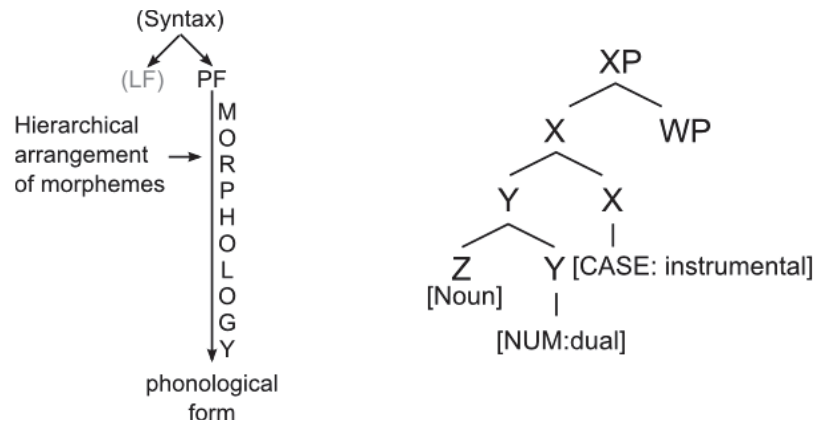
Chomsky 2001: all head movement takes place at PF.
 Embick & Noyer: only movement driven by morpho(phono)logical requirements takes place at PF.

Motivation: parsimony. It is more elegant to have a system, where...

- ...syntax moves terminals according to its own rules and is blind to morphophonological information
- ...PF takes the output of syntax and adjusts its according to its own principles

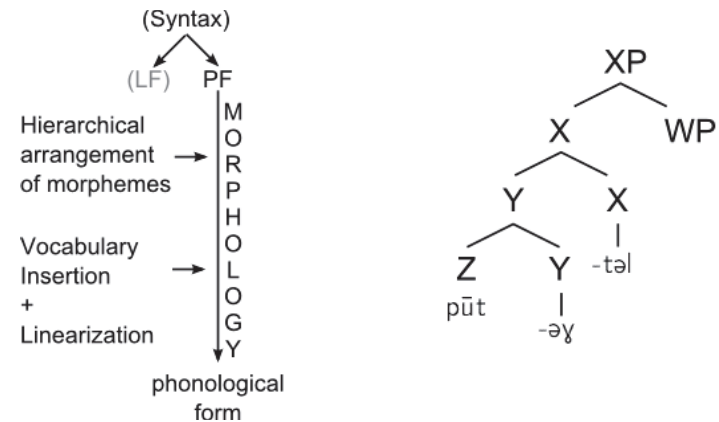
Framework: Distributed Morphology

Architecture of grammar



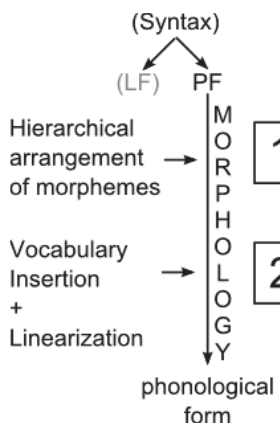
Framework: Distributed Morphology

Architecture of grammar



Two types of Merger

There are two types of merger operations that take place at different stages in the PF derivation and have different properties:



Lowering (before Vocabulary Insertion)

- Follows all syntactic movement
- Operates in terms of hierarchical structure
- Sensitive to syntactic headedness/features
- May affect elements that are not string adjacent

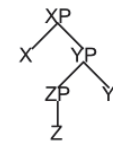
Local Dislocation (after Vocabulary Insertion)

- Operates in terms of linear precedence and adjacency
- Can't skip adjoining elements
- Sensitive to specific vocabulary items

Lowering: example

A head X lowers to Y, the head of its complement. In English, main verbs don't move to T in overt syntax, but tense morphology appears on the verb.

(3) John kick-**ed** the ball to Mary.



Lowering has a (potentially) nonlocal character:

(4) a. Mary [_{TP} t₁ [_{vP} loudly play-**ed**₁ the trumpet]]
 b. *Mary did loudly play the trumpet.



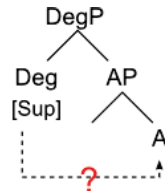
The intervening adjoined adverb does not prevent T from lowering to V.



Local Dislocation: example

Could the formation of English superlatives be done by means of Lowering?

- (5) a. Mary is the smart-est person ...
 b. Mary is the mo-st intelligent person ...
 c. *Mary is the intelligent-est person ...
 d. ?*Mary is the mo-st smart person ...

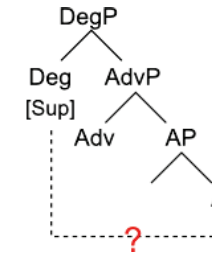


[-st[smart]] → [[smart+st]]
 [-st[intelligent]] → [intelligent+st] → [mo-st [intelligent]]

Local Dislocation: example

Local Dislocation can only reorder adjacent elements:

- (6) a. Mary is the mo-st amazingly smart person ...
 b. *Mary is the t amazingly smartest person ...



[-st[amazingly] [smart]] → [[amazingly-st] [smart]] → [mo-st [amazingly] [smart]]

Clitics and affixes in Lexicalist theories

The difference between clitics and affixes (Zwicky & Pullum 1983)

- ### Clitics
- placed by syntax
 - low degree of selection with respect to their host
 - less likely to exhibit morphophonological and semantic idiosyncracies
 - arbitrary gaps: less likely
 - can attach to material containing clitics
 - word+clitic not treated as a unit by syntactic operations

- ### Affixes
- placed via lexical rules
 - high degree of selection with respect to their host
 - more likely to exhibit morphophonological and semantic idiosyncracies
 - arbitrary gaps: more likely
 - cannot attach to material containing clitics
 - word+affix treated as a unit by syntactic operations

Bulgarian definiteness element: the data

Definiteness element (-ta) in Bulgarian appears suffixed to nominals:

- (7) kniga-ta book-DEF

When the nominal is modified by an adjective, it suffixes to the first adjective in a sequence:

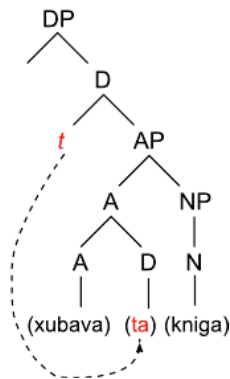
- (8) xubava-ta kniga nice-DEF book

Adverbs may not host the DEF:

- (9) *mnog-at star teatr very-DEF old theater
 mnogo starij-ø teatr very old-DEF theater
 'very old theater'

Bulgarian definiteness element: analysis

DEF lowers from D to the A head:



The operation may skip intervening adverbs because DEF targets the head of its complement. The adverb, as an adjunct, cannot be the target.

Bulgarian definiteness element vs. the possessive clitic

Problem: the distribution of the possessive clitic mirrors the distribution of Def.

- (11) kniga-**ta** vi
book-DEF your
'your book'
- (12) xubata-**ta** vi kniga
nice-DEF your book
'your nice book'
- (13) mnogo-**to** ti novi knigi
many-DEF your new books
'your new books'

This is difficult to derive in a Lexicalist model.

Bulgarian definiteness element vs. the possessive clitic

- (10) kniga-**ta** vi
book-DEF your
'your book'

DEF element

- its phonological form depends on the host
- participates in word-level phonological processes
- has some lexical idiosyncrasies when used with kinship terms

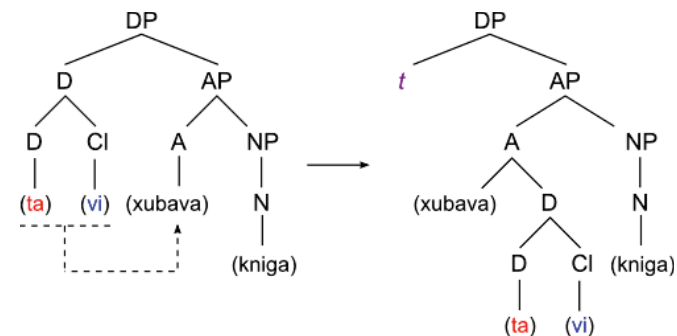
Possessive clitics

- phonological form does not depend on the host
- do not participate in phonological processes
- no lexical idiosyncrasies

DEF looks like an affix, the possessive element looks like a clitic.

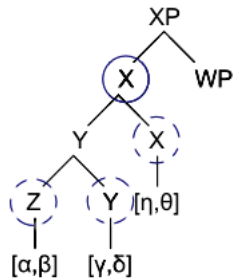
Bulgarian definiteness element vs. the possessive clitic

Solution: Cl(itic) is attached to def D in syntax, then the complex head lowers in PF:



The basic atoms of postsyntactic movement operations

Two types of objects can undergo merger:



Morphosyntactic words

At the input to morphology, a node X^0 is (by definition) a *morphosyntactic word* (MWd) iff X^0 is the highest segment of an X^0 not contained in another X^0 .

Morphosyntactic subwords

A node X^0 is a *subword* (SWd) if X^0 is a terminal node and not a MWd.

When a Morphosyntactic Word is moved by Local Dislocation, it adjoins to an adjacent MWd; Subwords adjoin to adjacent SWds.

Local Dislocation of Morphosyntactic Subwords: Huave

In Huave, the reflexive affix *-ay* appears directly before the final inflectional affix of a verb, if any:

- (16) s-a-kohč-ay
1-TH-cut-REFL
'I cut myself'
- (17) s-a-kohč-ay-on
1-TH-cut-REFL-PL
'We cut ourselves'
- (18) t-e-kohč-ay-os
PAST-TH-cut-REFL-1
'I cut (past) myself'
- (19) t-e-kohč-as-ay-on
PAST-TH-cut-1-REFL-PL
'We cut (past) ourselves'
- (20) *t-e-kohč-ay-os-on
PAST-TH-cut-REFL-1-PL
'We cut (past) myself'

Analysis: *-ay* is structurally peripheral to the verb+inflection complex, but it undergoes Local Dislocation to left-adjoin to the rightmost inflectional suffix.

Local Dislocation of Morphosyntactic Words: Latin

The Latin enclitic *-que* (roughly 'and'), used in conjunction, appears after the 1st word of the second conjunct:

- (14) Input: (Conjunct 1 X Y) *-que* (Conjunct 2 W Z)
Surface: (Conjunct 1 X Y) t (Conjunct 2 W-*que* Z)

-que is a Morphosyntactic Word. It attaches to the first MWd, not to the first SWd:

- (15) Input: [[bon+T̄ puer+T̄] [-que] [bon+ae puell+ae]]
good+NOM.PL boy+NOM.PL and good+NOM.PL girl+NOM.PL
'good boys and girls'
Surface: bon+T̄ puer+T̄ bon+ae+que puell+ae
* bon+T̄ puer+T̄ bon+que+ae puell+ae

Local Dislocation: discussion and predictions

Discussion:

- In addition to Local Dislocation of MWds, dislocation of SWds must also be permitted.
- Movement of a MWd to adjoin to an SWd (or the other way round) is impossible.

Predictions:

- A complex X^0 created in syntax (or by lowering) cannot be infixd within another X^0 during Morphology.
- An SWd, that is a terminal node within a complex X^0 created by Raising or through the insertion of dissociated morphemes in Morphology, can never adjoin to an element outside that X^0 .

Swedish determiner system: the data

A definiteness marker in Swedish appears suffixed to the noun when there is nothing else in the DP:

- (21) mus-en
 mouse-DEF
 'the mouse'

When an adjective precedes the head noun, overt determiners cooccur with definiteness marking on the noun:

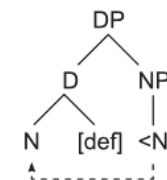
- (22) den gamla mus-en
 the old mouse-DEF
 'the old mouse'

Swedish determiner system: analysis

The doubling is the result of well-formedness restrictions imposed at PF:

- The head N must be marked with definiteness when D is [def]
- D_{def} must have a host.

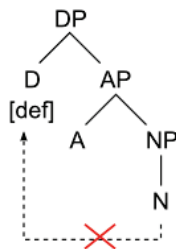
These requirements are affected by the syntactic derivation. In (21), N has moved to D:



Now the N is marked with definiteness and D_{def} has a host.

Swedish determiner system: analysis

N-to-D movement is restricted and does not occur if N is dominated by a modifier (like in (22)):



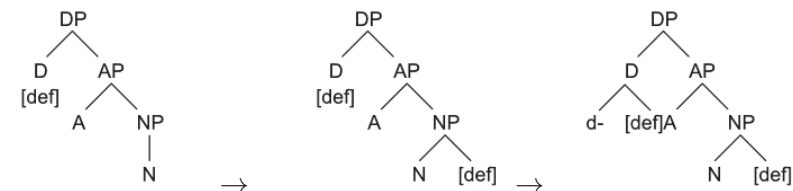
Here the N is not marked with definiteness and D_{def} does not have a host.

Swedish determiner system: analysis

To satisfy the PF requirements on Ns, a dissociated morpheme is inserted.

To satisfy the PF requirements on Ns, a dissociated morpheme is inserted.

A d- support operation satisfies the PF requirement on D_{def}.



Now N is marked with definiteness and D_{def} has a host.

Swedish determiner system: comparison with Danish

Swedish forms a minimal contrast with Danish, where the definite article occurs in complementary distribution with determiners when it appears suffixed to the noun:

- (23) mand-en
man-DEF
'the man'
- (24) den unde mand
the young man
'the young man'
- (25) *den unde mand-en
the young man-DEF
'the young man'

The clitic/affix distinction

- The modular distinction between *clitics* (generated through syntactic operations) and *affixes* (generated through lexical processes) cannot be made because both elements are syntactic heads.
- The distinction has to stem from different sources: the provenance of the morpheme (*syntactic* or *dissociated*), its distribution, and how it becomes attached to its host.

Types of post syntactic movement

- There are two types of post-syntactic movement:
 - *Lowering*, which applies before Vocabulary Insertion. It operates in terms of hierarchical structure, is sensitive to syntactic headedness and may affect elements that are not string adjacent.
 - *Local Dislocation*, which applies after Vocabulary insertion. It operates in terms of linear precedence and adjacency, can't skip adjoined elements and is sensitive to specific vocabulary items.
- Adopting these frees syntax from movement operations that would complicate the syntactic computation.
- The basic atoms of postsyntactic movement operations are *Morphosyntactic Words* and *Subwords*. Movement of each obeys distinct locality effects.

References

- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*. Cambridge, Mass.: MIT Press. 1-52.
- Embick, David, & Rolf Noyer. Movement operations after syntax. *Linguistic Inquiry* 32. 555-595.
- Zwicky, Arnold, & Geoffrey K. Pullum. 1983. Cliticization vs. inflection: English n't. *Language* 59: 502-513.