Head movement – Introduction

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1 Phenomena

- V-to-T-movement: French vs. English:

(1) a. Jean {✓embrasse} souvent {✗embrasse} Marie.
John kisses often kisses Mary
'John often kisses Mary.'
b. John {✗kisses} often {✓kisses} Mary.

- diagnostic: position of the V w.r.t. VP-adverbials, negation, floating quantifiers (*all*)
- presupposes that the adverbials occupy the same position in both languages
- unlike main verbs, English auxiliaries undergo movement to T as well:

(2) John {✓has} often {✗kissed} Mary.

- similarly, in French non-finite clauses, only auxiliaries can (optionally) move to T:

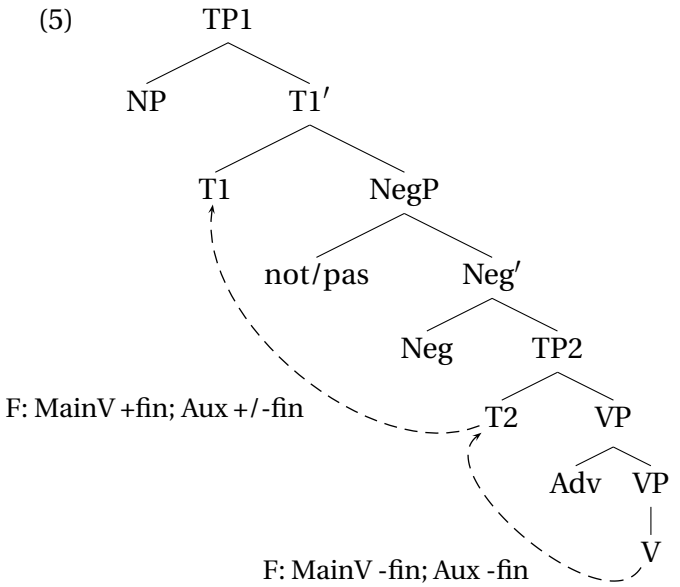
(3) a. N' {✓avoir} pas {✓avoir} de voiture en banlieu crée des problèmes.
not have.INF not have.INF of car in suburbs creates of problems
'Not having a car in the suburbs creates problems.'
b. Ne {✗posséder} pas {✓posséder} de voiture en banlieu crée des problèmes.
not possess.INF not possess.INF of car in suburbs creates of problems
'Not having a car in the suburbs creates problems.'

- while main verb infinitives cannot move over negation in French, they can optionally precede VP-adverbs and floating quantifiers:

(4) {✓Souvent} paraître {✓Souvent} triste pendant son voyage de noce, c'est rare
often appear.INF often sad during one's honeymoon, this.is rare
'To often appear sad during one's honeymoon is rare.'

– motivates Split-Infl: 2 functional heads between V and C (Pollock 1989):

(5)



– T1 = Agr; T2 = T (Tense)
– Iatridou (1990) argues against 'short verb movement': instead, the facts follow from a more liberal theory of adverb placement: V-Adv orders may be base-generated (and once Aux+V are present, there my be 2 VPs providing adjunction sites)

- V-to-T-movement in VSO languages:
  – VSO languages appear to pose a problem for the assumption that all languages have a VP underlyingly
  – in many there is evidence that the verb has moved out of VP, e.g. to T (but for some languages, a higher head may be involved)
  – Modern Standad Arabic: partial agreement in VSO, full agreement in SVO, see Corbett (2006: 154)

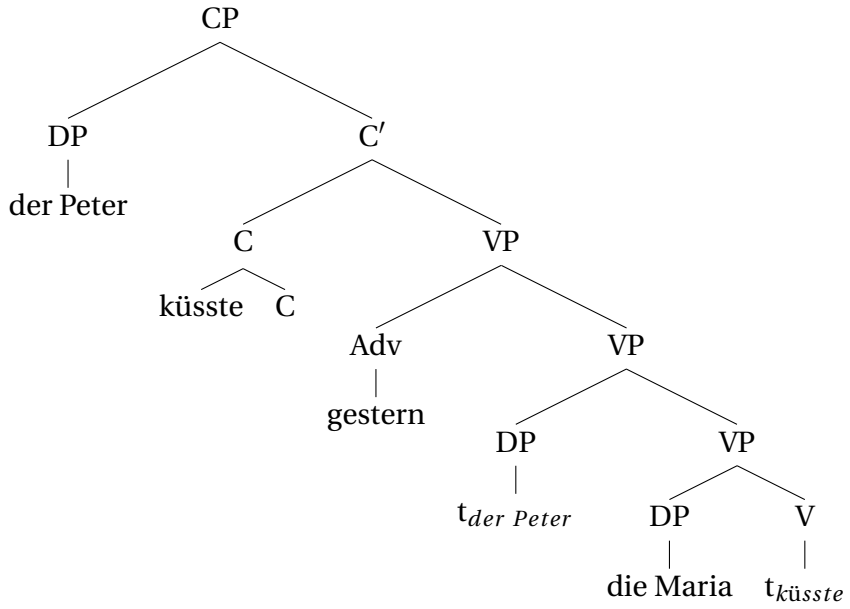
(6) a. xaraj-at l-banaat-u (not: *xaraj-na)
went.out-3SG.F DEF-girls-NOM went.out-3PL.F
'the girls went out.'
b. l-banaat-u xaraj-na (not: *xaraj-at)
DEF-girls-NOM went.out-3PL-F went.out-3SG.F
'the girls went out' *Modern Standard Arabic*

  – the agreement asymmetry can be interpreted as follows: full agreement requires Spec-head → V raises to T, subject raises optionally to SpecTP

- V-to-C movement: verb second, e.g. German:

(7) a. dass der Peter gestern die Maria küsste.
that the.NOM Peter yesterday the.ACC Mary kissed
'that Peter kissed Mary yesterday'
b. Der Peter küsste gestern die Maria.
the.NOM Peter kissed yesterday the.ACC Mary
'Peter kissed Mary yesterday.'

(8)



- T-to-C movement: e.g. with aux/*did* in English

  (9) a. Has John t_{has} kissed Mary?
  b. Did John $_{did}$ kiss Mary?
  c. Never have I $_{have}$ kissed Mary.
  d. I said that never had I $_{had}$ seen a place like Leipzig.

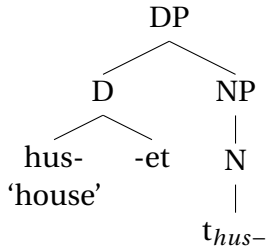
- affix hopping in English = Lowering from T to V: although the finite inflection is associated with T, it surfaces on V (recall: no V-to-T-movement):

  (10) John t_{ed} often play-*ed* the trumpet.

- N-to-D-movement

  – post-nominal articles in Scandinavian:

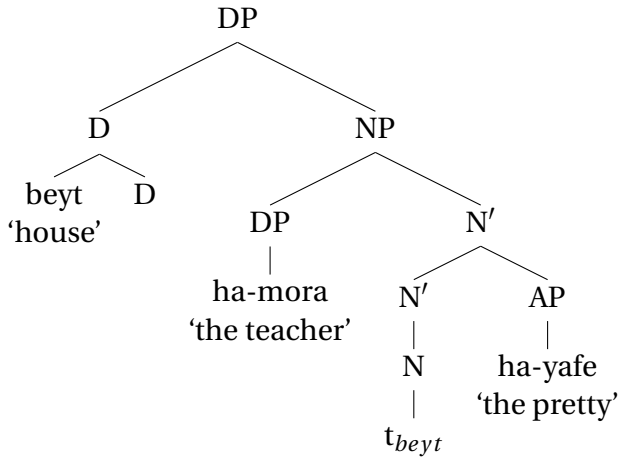
  (11)



  – Semitic construct state

  (12) beyt ha- mora ha- yafe
  house.M the- teacher.F the- pretty.M
  ‘the teacher’s pretty house’ *Modern Hebrew*

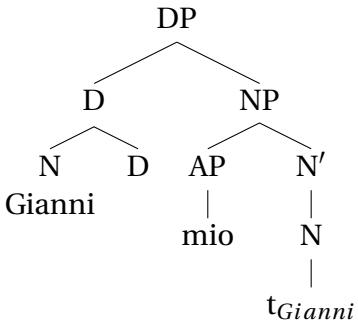
(13)



– Italian proper names:

(14)
a. *mio il Gianni
my the John
‘my John’
b. il mio Gianni
the my John
c. *mio Gianni
my John
d. Gianni mio
John my

(15)



- incorporation:
  - N incorporates into V (noun-incorporation)

(16)
a. Seuan-ide ti-mũ-ban.
man-SUF 1.SG-AOR-see-PST
‘I saw the/a man.’
b. Ti-**seuan**-mũ-ban.
1.SG.AOR-man-see-PST

Southern Tiwa, cf. Baker (1988: 77)

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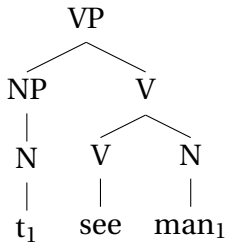

→ arguments for movement: UTAH and locality restrictions on movement

– P incorporates into V (applicatives)

(18) a. Ndi-na-tumiz-a chipanda cha mowa kwa mfumu
1SGS-PST-send-ASP calabash of beer to chief
'I sent a calabash of beer to the chief.'
b. Ndi-na-tumiz-ir-a [$_{PP}$ t_{ir} mfumu] chipanda cha mowa
1SGS-PST-send-**APPL**-ASP chief calabash of beer
'I sent the chief a calabash of beer.' *Chichewa*

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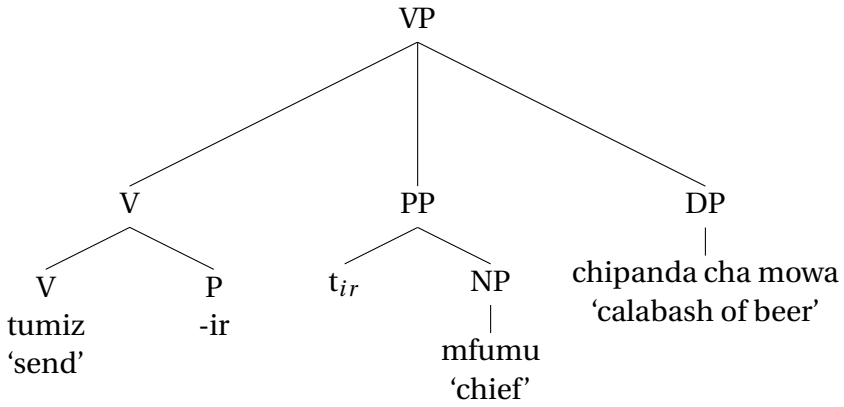
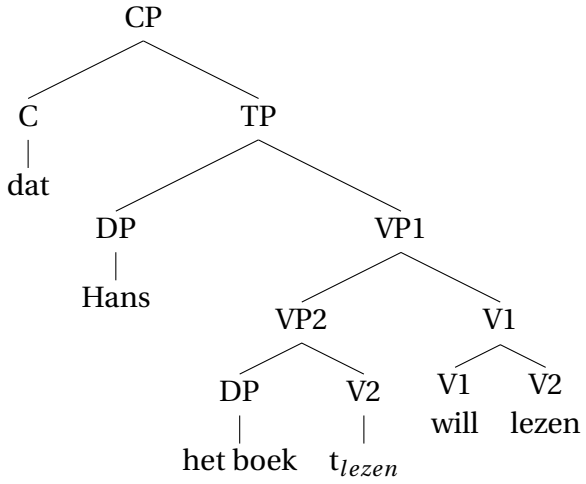


– V incorporates into V (causatives, verb raising)

(20) a. dat Hans het boek lezen wil
that John the book read.INF wants
'that John wants to read the book'
b. dat Hans het boek wil lezen
that John the book wants read.INF

Dutch

(21)



2 Properties of head movement

2.1 Locality

- like other movement operations, head movement is subject to regular constraints on movement, traditionally:
- head movement leaves a trace subject to the Empty Category Principle (ECP):

  (22) Traces must be head- and antecedent-governed

- in more current terms: head movement is subject to locality (c-command, barriers) and minimality (no intervener) constraints

2.1.1 Minmality

- traditionally: head movement constraint (Travis 1984):

  (23) Head movement of X to Y cannot "skip" an intervening head Z

  (24) *Have they could t_{have} left?

- essentially a Minimality effect, cf. Rizzi (1990) on Relativized Minimality and Chomsky (1995) on the Minimal Link Condition
- intervention is to be understood in terms of asymmetric c-command
- is head-movement invariably blocked by intervening heads or can it be sensitive to the feature content of intervening heads (like XP-movement)?
- possible case in favor of featural intervention: long head-movement:

  (25) Lennet en deus Yann al levr
  read 3sg.m has Yann the book
  'Yann has read the book.' *Breton*

→ differs from remnant vP-movement in that it is clause-bound and blocked by negation

- the fact that it is blocked by some but not by all auxiliaries (progressive vs. perfect) very much suggests that the feature content of the intervening heads plays a role (whichever features that may be ...)

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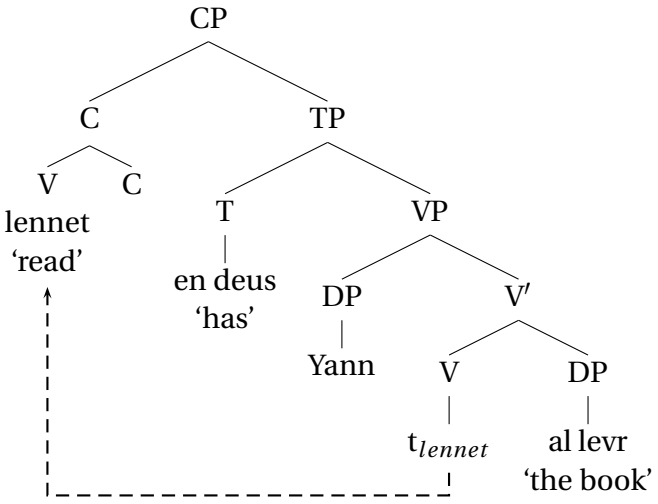
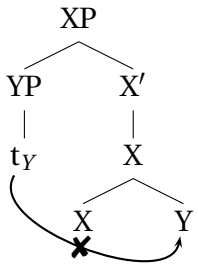


- but why is head-movement normally so local?

2.1.2 C-command and barriers

- (i) movement must not cross barriers, (ii) traces/copies need to be c-commanded
- Baker (1988) observed that incorporation is blocked from subjects and adjuncts → follows if incorporation involves movement:

(27) incorporation from a specifier



- potential counterarguments:
  - incorporation can also involve adjuncts, and sometimes, there is doubling, i.e. there is an object in addition, cf. Spencer (2000: 315, 323)
  - there are also cases of incorporated subjects, cf. Ackema and Neeleman (2007: 341)
  - EXERCISE: discuss the restrictions on incorporation from subjects based on current assumptions about clause structure
- downward head-movement (e.g. affix-hopping) is ruled out as well

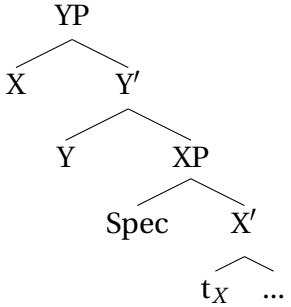
2.2 Structure Preservation/Uniformity of chains

(28) The Chain Uniformity Condition
A movement chain must be uniform with regard to the phrase structural status of its links

- consequences:
  - landing site of head-movement must be another head
  - type of movement: head movement is adjunction (usually to the left, see Kayne 1994); in earlier stages, there was also substitution movement, i.e. into an empty slot, see e.g. van Riemsdijk (1998), although that may create problems for X′-theory
- alternatives:
  - head-to-spec movement, e.g. Matushansky (2006), Vicente (2007), for both predicate clefts and head-movement more generally:

(29) Leer, Juan ha leído un libro
read.INF John has read a book
'AS for reading, John has read a book.'

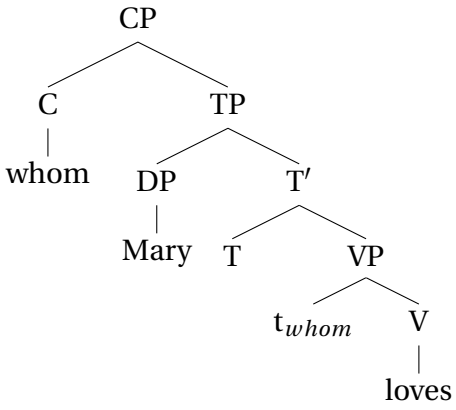
(30)



– phrase to head-movement, with reprojection, see Donati (2006), Bayer and Brandner (2008): the wh-word becomes a head - e.g. the D-head of a free relative or the C-head of a complement clause (argument: wh-phrase and C in complementary distribution):

(31) Ich weiss nicht, wen Maria liebt
I know not whom Mary loves
'I don't know who Mary loves'

(32)



2.3 Excorporation

- HM is not successive-cyclic but rather roll-up, i.e. forms successively more complex heads; there is no excorporation:

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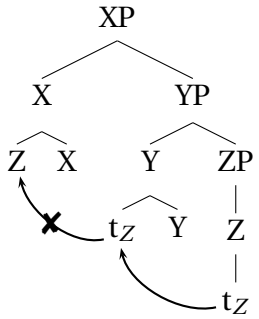


- what rules out excorporation?
  - Baker (1988): words cannot contain traces
  - Roberts (1991): a minimality violation: the head left behind blocks antecedent-government
- neither solution is obvious given current assumptions:
  - if words are built in syntax (see DM), the ban on excorporation canont follow from lexical integrity
  - for a minimality violation, the head that is left behind would have to count as an intervener, but this is not obvious – even under Kayne's definition, the trace of Z would not be c-commanded by Y

- Excorporation has been argued to be necessary for the following operations (Roberts 1991):
  - If verb raising involves the formation of a complex head, V1 must be able to excorporate when it undergoes verb second (V2 never involves a complex head in German/Dutch):

    (34) a. Peter wil dat boek kunnen lezen.
    Peter wants that book can.INF read.INF
    'Peter wants to be able to read that book.'
    b. *Peter [$_V$ wil kunnen lezen] dat book
    Peter wants can.INF read.INF that book *Dutch*

  - Romance clitic climbing may be head-movement of the clitic via intervening heads (at least: embedded V-embeddedT-matrix V-matrixT):

    (35) La volevo t_{la} chiamare t_{la} ieri.
    her wanted.1SG call.INF yesterday
    'Yesterday I wanted to call her up.' *Italian*

  - the two cases differ in that in verb raising, it is the host of the incorporation structure that excorporates while in clitic climbing it is the incorporee
  - Roberts (1991) explains the possibility of excorporation in these structures by stipulating that they form different types of adjunction structures where no minimality problem obtains

2.4 Syntactic effects of head-movement

- incorporation opens barriers/extends government domains, cf. Baker (1988: 64): Government Transparency Corollary:

  (36) An Y° which has an X° incorporated into it governs everything which X° governed in its original structural position

  - in possessor advancement, the possessor triggers agreement with the verb after incorporation (the verb is unaccusative, the possessed DP is thus a structural object):

    (37) a. Ka-rakv ne sawatis hrao-nuhs-aʔ
    3N-be.white DET John.M 3M-house.N-SUF
    'John's house is white'
    b. Hrao-nuhs-rakv ne sawatis
    3M-house.N-be.white DET John.M
    'John's house is white.' *Mohawk* Baker (1988: 96f.)

  - in applicative constructions, for instance, the applied object is directly governed by V after P incorporates into V and therefore behaves like a direct object
  - in verb raising, a biclausal construction becomes monoclausal by incorpoaration of the embedded verb into the matrix verb → scrambling becomes possible (which is otherwise blocked across clauses):

    (38) a. *dass ihn Andrea glaubt, dass Maria t_{ihn} liebt
    that him Andrea believes that Mary loves
    'that Andrea believes that Mary loves him'
    b. dass ihn Andrea [$_{VP}$ gut t_{ihn} zu kennen] glaubt
    that him Andrea well to know.INF believes
    'that Andrea believes to know him well'

– Holmberg's generalization: Object shift (= DP-movement to SpecvP) is only possible if the verb moves out of VP (it is thus blocked with compound tenses and in V-final structures)

(39) a. jag kysste henne inte
I kissed her not
'I did not kiss her'
b. at jag <*henne> inte kysste <henne>
that I her not kissed her
'that I did not kiss her'
c. Jag har <*henne> inte kysst <henne>
I have her not kissed her
'I have not kissed her' *Swedish*

– for more phenomena, see denDikken (2007)

3 Minimalist qualms and reanalyses of HM

3.1 How head movement is different from phrasal movement

- Early Minimalism, Chomsky (1993, 1995): HM is driven by designated features explicitly singling out heads (as opposed to phrases); furthermore, these features can be either strong (French V-to-T-mvt) or weak (English V-to-T-mvt)
- but Chomsky (1995: 4.10): The abolishment of Agr-nodes leads to problems for transitive expletive constructions like (pseudo-Icelandic)

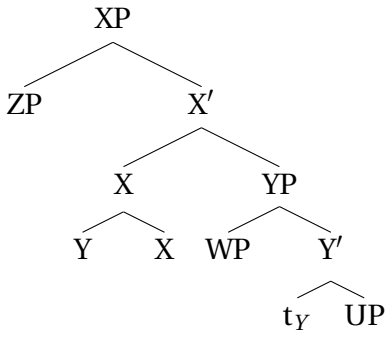
(40) a. There painted a student the houses.
b. There have some cakes been baked for the party

– Since the expletive and the subject must be in specifiers of a single head, there is no landing site for the verb anymore → speculation that V2 may be phonological

- Chomsky (2001): 'a substantial core of head-raising processes may fall within the phonological component.':
  – lack of semantic effects (e.g. scope) → not LF-relevant
  – head movement complicates the feature system: has to distinguish between heads and phrases: e.g. DP-mvt to SpecT and V-mvt to T
  – head-adjunction violates Chain Uniformity under Bare Phrase Structure: The copy in the base position is +minimal and -maximal while the copy in the adjoined position is both +minimal and +maximal (not dominated by a projection of itself)
  – countercyclicity: HM violates the Extension Condition
  – due to adjunction, the moved head fails to c-command its trace/copy (at least given a very simple definition of c-command):

(41) a. c-command1: X c-commands Y iff Y
(i) is the sister of X
(ii) is contained in the sister of X
b. c-command2 (Kayne 1994: 18):
X c-commands Y *iff X and Y are categories* and X excludes Y)[X excludes Y if no segment of X dominates Y] and every category that dominates X dominates Y

(42)



  - if dominance requires dominance of all segments, head movement can be argued to satisfy the c-command condition on mvt
  - when does c-command need to hold? before of after movement?
- head movement is never successive-cyclic but always roll-up, i.e. forms successively more complex head; there is no excorporation – why if it is a syntactic operation like XP-movement?

3.2 Reanalyses of head movement

3.2.1 Remnant movement analyses

- basic idea: head movement of X is replaced by remnant movement of XP after all constituents except X have been scrambled out of XP:

  (43) a. X ... [$_{XP}$ ZP t_X WP] → replaced by
  b. [$_{XP}$ t_{ZP} X t_{WP}] ... ZP ... WP t_{XP}

- Müller (2004): V2 as vP first: vP is emptied except for its head and whatever XP happens to be on the edge of vP, then, vP undergoes remnant mvt to SpecCP:

  (44) [$_{CP}$ [$_{vP}$ Das Buch t_{Fritz} t_{VP} hat] [$_{C'}$ C [$_{TP}$ Fritz [$_{T'}$ [$_{VP}$ *dasBuch* gelesen] [$_{T'}$ t_{vP} T]]]]]

- evaluation:

  - Satisfies the extension condition and the c-command condition on movement
  - the strict locality of head-movement, which must be mirrored in this approach, is a priori unexpected
  - raises questions about the movement triggers for the movement steps needed to create the remnant – at least in languages where scrambling is not freely available
  - problems arise with the LF-effects that can be found:

    (45) a. *I know why anyone didn't help us,
    b. Why didn't anyone help us?

    - In b. T-to-C-movement pied-pipes the clitic negation so that it c-commands the NPI (arguably, *n't* cliticizes onto the aux in T); without T-to-C-mvt, Neg remains below and thus the NPI cannot be licensed in a.
    - Under a remnant movement account, an entire TP would move to SpecCP:

      (46) [$_{CP}$ [$_{TP}$ t_{SU} T t_{vP}] [$_{C'}$ ... SU ... vP ... t_{TP}

    - it is unlikely that the Neg/Aux can c-command out of the TP ...
    - of course, these LF-effects argue against PF-movement approaches as well

3.2.2 Reprojection

- basic idea: it is the moving category that determines the label of the newly formed constituent (and not the attracting one)
- Haider (2010): Instead of postulating V-to-v-movment, V reprojects to satisfy the subcategorization requirements of the V (thus derives the Larsonian shells):

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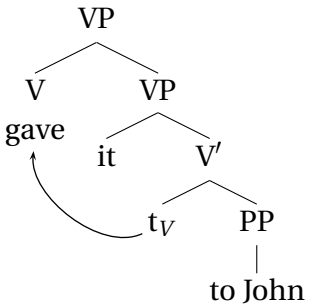
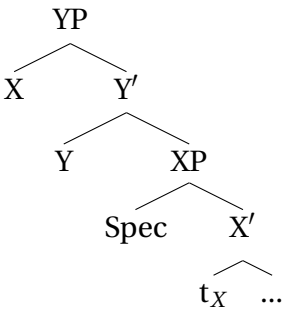


- advantages:
  - satisfies the extension condition
  - no problem with c-command
  - compatible with LF-effects
  - trigger: subcategorization
  - the strict locality of head movement does not follow automatically
- has also been proposed for movement in the noun phrase (Georgi and Müller 2010)and free relatives (Donati 2006)

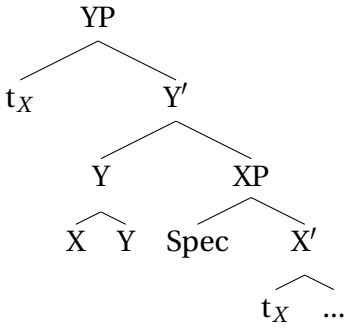
3.2.3 Head-to-Spec-movement + Merger

- Matushansky (2006) proposes that head movement involves movement of a head X to a specifier position of Y, followed by Merger between X and Y:

(48) head-to-spec movement



(49) Morphological Merger (X lowers onto Y)



→ Merger applies after every instance of head movement → multiple spell-out

- advantages
  - no problem with the extension condition and c-command
  - compatible with LF effects
  - derives ban on excorporation
  - trigger? – selection?
  - strict locality? - selection?
  - violates uniformity condition under BPS

4 Head movement and the morphology-syntax interface

4.1 The rich agreement hypothesis and V-to-T-movement

- contrast between e.g. Icelandic and Danish

(50) a. aþ hann keypti ekki bókina
that he bought not the.book
'that he did not buy the book' *Icelandic*

b. at han ikke købte bogen
that he not bought the.book
'that he did not buy the book' *Danish*

→ V-to-T-mvt in Icelandic, but not in Danish

- another difference: agreement for person and number:

	Icelandic 'hear' present	Danish 'hear' present
1sg	heyr-i	hør-er
2sg	heyr-ir	hør-er
3sg	heyr-ir	hør-er
1pl	heyr-um	hør-er
2pl	heyr-iþ	hør-er
3pl	heyr-a	hør-er

(51) Hypothesis: rich agreement drives V-to-T-movement, weak agreement entails lack of movement → morphology drives syntax

- how to capture the relationship under a late insertion model of morphology (DM)? See Bobaljik (2002)

4.2 Syntactic word formation

- Since Baker (1988) there has been a shift towards syntactic analyses of morphological phenomena: complex words arise in syntax via head-movement, especially when valency-changing operations are involved: incorporation as with applicatives

(52) a. Ndi-na-tumiz-a chipanda cha mowa kwa mfumu
1SGS-PST-send-ASP calabash of beer to chief
'I sent a calabash of beer to the chief.'

b. Ndi-na-tumiz-ir-a $[_{PP}$ t_{ir} mfumu] chipanda cha mowa
1SGS-PST-send-**APPL**-ASP chief calabash of beer
'I sent the chief a calabash of beer.' *Chichewa*

- here it is the affixal nature of the preposition that triggers head-movement (Stray Affix Filter)

4.2.1 The mirror principle

- systematic correspondence between word syntactic and phrasal syntactic structures: Mirror Principle, cf. Baker (1988) → morphological structure reflects the syntactic derivation and semantic scope:

(53) a. Mbidzi zi-na-perek-a mpiringidzo kwa mtsikana.
zebras AGR-PST-hand-ASP crowbar to girl
'The zebras handed the crowbar to the girl.'
b. Mbidzi zi-na-perk-**er**-a mtsikana mpiringidzo.
zebras AGR-PST-hand-APPL-ASP girl crowbar
'The zebras handed the girl the crowbar.'
c. Mpiringidzo u-na-perk-**edw**-a kwa mtsikana ndi mbidzi.
crowbar AGR-PST-hand-PASS-ASP to girl by zebras
'The crowbar was handed to the girl by the zebras.'
d. Mtsikana a-na-perek-**er-edw**-a mpiringidzu ndi mbidzi.
girl AGR-PST-hand-APPL-PASS-ASP crowbar by zebras
'The girl was handed the crowbar by the zebras.' *Chichewa*, cf. Baker (1988: 14)

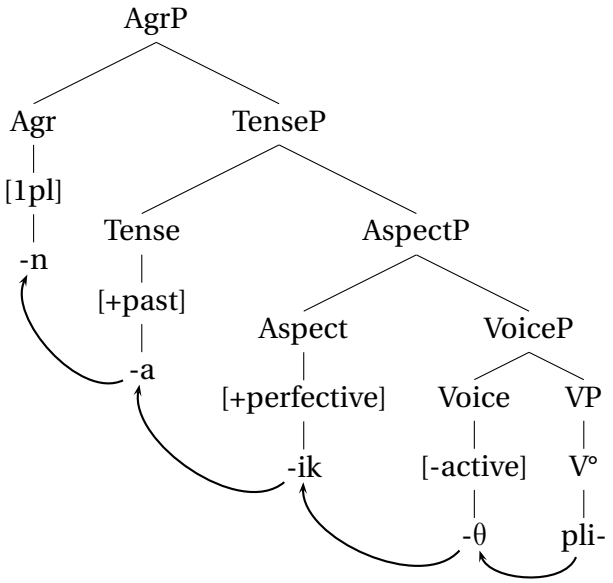
→ 1. applicative, 2. passive → only the applied/indirect object can become the subject. Had the operations applied in reverse order, the direct/theme-object would have become the subject

(54) a. Maria-ta=ne uka uusi-ta bwik-tua-sae.
Maria-ACC=1SG.NOM the.ACC child-ACC sing-CAUS-DIR
'I am telling Maria to make the child sing.'
b. Maria-ta=ne uka uusi-ta bwik-sae-tua
Maria-ACC=1SG.NOM the.ACC child-ACC sing-DIR-CAUS
'I am making Maria tell the child to sing.' *Hiaki(Uto-Aztecan)*

4.2.2 The Mirror Principle extended to inflectional morphology

- The Mirror Principle proposed in Baker (1988) was later related to work on functional projections above VP (AgrP and TenseP) like Pollock (1989):
- each affix is located in a different functional head, and inflected words are derived by successive head-movement, cf. e.g. Modern Greek *plí*-θ-*ik*-*an* 'they washed themselves':

(55)



- the nodes contain phonological material
- the affixhood of the inflectional morphemes is taken to be the trigger for verb movement
- the resulting complex head corresponds to a phonological word
- in cases like English T-to-C-mvt, T will adjoin to a silent C-affix

- (putative) problems for the Mirror Principle
  - if head-movement is uniformly left-adjunction (Kayne 1994), it will only derive suffixes → the direction of adjunction in syntax would have to be variable, depending on the affix/head involved:

    (56) pe- ya- qál
    3SG.PST(T)- say(V)- IPFV.SG(Asp)
    'He was saying' *Cupeño* [Uto-Aztecan]

  - works well in case the affix order neatly corresponds to an independently established order of functional heads (mirror principle), but becomes problematic if languages differ in the order of morphemes (e.g. root-tense-agr vs. root-agr-tense), without there being independent reasons to postulate a different order of functional heads

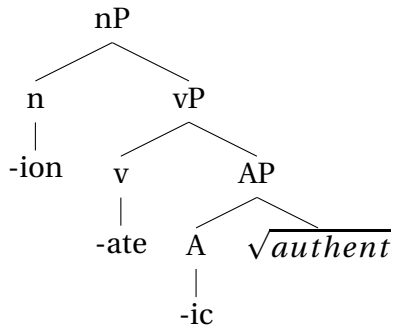
  → danger of circularity: functional heads are ordered because of the order of affixes, and the affixes then happen to reflect the order of functional heads → as a side-effect, the the extension of the Mirror Principle to inflectional morphology has lead to a proliferation of functional heads in syntax

- more general morphology-syntax mismatches
  - what about non-concatenative means of exponence, e.g. ablaut, reduplication, discontinuous affixes, root and pattern morphology?
  - what about extended/multiple (1 feature, several morphemes) and cumulative exponence (1 morpheme, several features)?
- most of the above-mentioned problems for the Mirror Principle also obtain for lexicalist approaches where fully inflected forms are introduced into syntax

4.2.3 Head movement and Distributed Morphology

- major advantage: it is post-syntactic and realizational: syntax only manipulates roots and features (= abstract morphemes), insertion of phonological exponents (= vocabulary insertion) takes place in the Morphology, i.e. after spell-out (= late-insertion)
- complex morphological objects can be derived via head-movement in syntax, which derives the effects of the Mirror Principle as the default. The mvt-trigger is purely syntactic
- both inflectional and derivational morphology is handled in the syntax, cf. e.g. *authentication* (syntax all the way down):

(57)



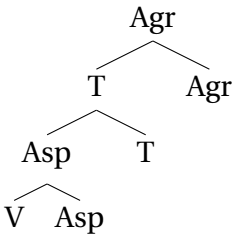
- in the default case, the morphological structure matches the syntactic, but there are also deviations, which are the result of (language-particular) PF-operations:

  → Merger, Fusion, Fission, Enrichment, Local Dislocation (= post-syntactic movement)

- for the Cupeño case above one can assume affix-/category-sensitive linearization statements, e.g., tense morphemes are linearized as prefixes

→ the Mirror Principle can still constrain the possible affix orders: suppose you have a complex head with 4 affixes V > Asp > Tense > Agr; for instance, one cannot derive the order V > Tense > Asp > Agr

(58)



- by combining several operations that can affect affix order, viz. head-movement, flexible linearization and Merger (= downward head-movement), more orders can be derived, see Harley (2013: 60)
- see Julien (2002), Julien (2007) for a syntactic approach that derives word-like properties with a variety of means (head-movement, phrasal roll-up movement); she shows that the impression of wordhood can also obtain if inflectional morphemes are simply adjacent to other morphemes without there being complex head-formation (e.g. if for independent reasons the specifier between two heads is always empty)
- note finally that not all instances of head movement lead to affixation: verb raising, particle shift, clitic climbing, predicate clefts

References

Ackema, Peter and Ad Neeleman (2007): Morphology is not syntax. *In:* G. Ramchand and C. Reiss, eds, *The Oxford handbook of linguistic interfaces*. Oxford University Press, Oxford, pp. 325–352.

Baker, Mark C. (1988): *Incorporation a theory of grammatical function changing*. University of Chicago Press, Chicago [etc.].

Bayer, Josef and Ellen Brandner (2008): On Wh-Head-Movement and the Doubly-Filled-Comp Filter. *In:* C. B. Chang and H. J. Haynie, eds, *Proceedings of the 26th West Coast Conference on Formal Linguistics*. Cascadilla Proceedings Project, Somerville, MA, pp. 87–95.

Bobaljik, Jonathan (2002): 'Realizing Germanic Inflection: Why Morphology Does Not Drive Syntax', *The Journal of Comparative Germanic Linguistics* **6**(2), 129–167.

Chomsky, Noam (1993): A minimalist program for linguistic theory. *In:* K. Hale and S. J. Keyser, eds, *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*. MIT Press, Cambridge, MA, pp. 1–52.

Chomsky, Noam (1995): *The minimalist program*. MIT Press, Cambridge, Massachusetts.

Chomsky, Noam (2001): Derivation by phase. *In:* M. Kenstowicz, ed., *Ken Hale: A life in language*. MIT Press, Cambridge, Mass., pp. 1–52.

Corbett, Greville G. (2006): *Agreement*. Cambridge University Press, Cambridge.

denDikken, Marcel (2007): 'Phase Extension: Contours of a Theory of the Role of Head Movement in Phrasal Extraction', *Theoretical Linguistics* **33**(1), 1–41.

Donati, Caterina (2006): On wh-head-movement. *In:* L. L. S. cheng and N. Corver, eds, *Wh-movement: Moving on*. MIT Press, Cambridge, Mass., pp. 21–46.

Georgi, Doreen and Gereon Müller (2010): 'Noun-Phrase Structure by Reprojection', *Syntax* **13**(1), 1–36.

Haider, Hubert (2010): *The syntax of German*. Cambridge University Press, Cambridge.

Harley, Heidi (2013): Getting morphemes in order: Merger, affixation, and head movement. *In:* L. L.-S. Cheng and N. Corver, eds, *Diagnosing syntax*. OUP, Oxford, pp. 44–74.

Iatridou, Sabine (1990): 'About Agr(P)', *Linguistic Inquiry* **21**(4), 551–577.

Julien, Marit (2002): *Syntactic heads and word formation*. Oxford University Press, Oxford ; New York.

Julien, Marit (2007): On the relation between morphology and syntax. *In:* G. Ramchand and C. Reiss, eds, *The Oxford handbook of linguistic interfaces*. Oxford University Press, Oxford, pp. 209–238.

Kayne, Richard S. (1994): *The antisymmetry of syntax*. MIT Press, Cambridge, Mass.

Matushansky, Ora (2006): 'Head Movement in Linguistic Theory', *Linguistic Inquiry* **37**(1), 69–109.

Müller, Gereon (2004): 'Verb-Second as vP-First', *The Journal of Comparative Germanic Linguistics* **7**(3), 179–234.

Pollock, Jean-Yves (1989): 'Verb Movement, Universal Grammar, and the Structure of IP', *Linguistic Inquiry* **20**(3), 365–424.

Rizzi, Luigi (1990): *Relativized minimality*. MIT Press, Cambridge, Mass. [etc.].

Roberts, Ian (1991): 'Excorporation and Minimality', *Linguistic Inquiry* **22**(1), 209–218.

Spencer, Andrew (2000): Morphology and syntax. *In:* G. Booij, C. Lehmann and J. Mugdan, eds, *Morphology: an international handbook on inflection and word-formation*. De Gruyter, Berlin, pp. 312–335.

Travis, Lisa (1984): Parameters and effects of word order variation. Doctoral dissertation, MIT.

van Riemsdijk, Henk (1998): 'Head Movement and Adjacency', *Natural Language & Linguistic Theory* **16**(3), 633–679.

Vicente, Luis (2007): *The syntax of heads and phrases. A study of verb (phrase) fronting*. LOT, Utrecht.