

# The view from the syntax: on the relation between linear order and hierarchical structure

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# 1 General Introduction

Series of Lectures organized around the following general theme:

- To what extent are direct interfaces of the syntax semantics and syntax phonology interfaces based on linear order within reach?
  - Standard view: there are syntax semantics mismatches (as well as syntax phonology mismatches).

Many "mismatches" are resolved by undoing syntactic movements:

- (1) a. Mary can't swim  
b. <Mary> n't can <Mary> swim

But some cannot: QR.

- (2) someone saw everyone ∀> someone

- Learners have only access to linear strings.  
The null hypothesis: together with UG principles, this should suffice to figure out the hierarchical structures on which meanings are calculated. From this perspective covert movement or feature movement is a problem.
- Explore view from the syntax:  
incorporate "innovations" coming out of Antisymmetry into a Minimalist Theory [Kayne \(1994\)](#) *LCA: linear order is a reflection of hierarchical structure*<sup>1</sup>. and continuing the "Cartography" enterprise from the 80ies and nineties: syntactic structures are highly decompositional structures,. We need to figure out what the atoms are, what the sequence of merge is within a language, and what is stable or may vary across languages .

## 1.1 More specifically

..to what extent can the syntax semantics and syntax phonology interfaces be taken to be direct?  
(to what extent is there postsyntactic structure building or structure manipulation, or low spell out?)

I will (continue to) argue that the current standard views on this topic are overly pessimistic, and are in fact often based on results from earlier stages of the theory. (*schrinking syntax has not been useful*)

Point of departure: direct interfaces are not only desirable, but are (perhaps) also within reach, within a Minimalist syntactic theory that incorporates cartography (i.e. is highly decompositional) and Antisymmetry (Spec H C structures in conjunction with leftward movement)<sup>2</sup>.

In the past (and ongoing)

–Explored syntax-phonology mismatches w.r.t. morpheme order<sup>3</sup> Here I will turn more to form-meaning interaction. (There will be some crossover to phonology, but the main focus will be on the interpretative interface).

- Within approaches that assume 'One single computational engine/one syntax'.  
QR/scope, and phonology/spell out  
with Scope is based on hierarchical structures c-command.

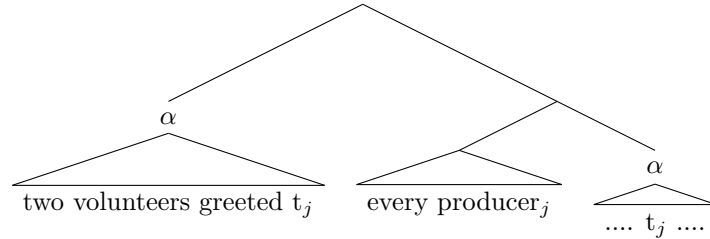
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<sup>1</sup>Antisymmetry requires a good understanding of the empirical underpinnings of the theory, see [Sportiche, Koopman, and Stabler \(2013\)](#)

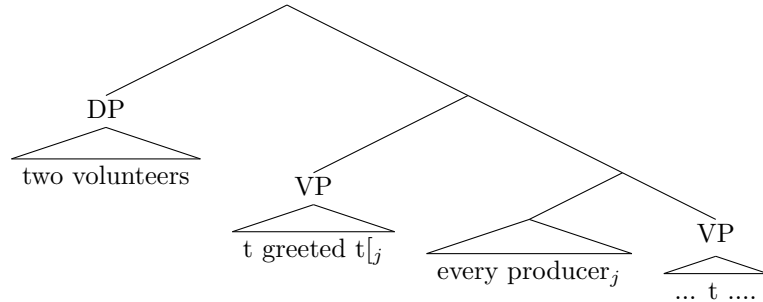
<sup>2</sup>cf. also [Abels and Neeleman \(2012\)](#).

<sup>3</sup>Building on the results coming from the U20 literature ([Cinque \(2005a\)](#), [Cinque \(2009\)](#) among others), see [Koopman \(2015-2017\)](#), and [Koopman \(2018\)](#).





and surface scope: the universal Q is lower than the position where the subject QP takes scope.<sup>6</sup>



– If this is on the right track, the syntactic structure is more "complicated" than we are used to.

How would we support such an analysis?

– Arguments internal to English? (model I-language)

→ interaction with other syntactic processes.

(9) two volunteers greeted every producer. Bill did too  
*only reading (6-b) (Fox (2000))*

\* Fox (2000):

**Scope economy:** QR of a quantifier (crossing another quantifier) is allowed when it has a semantic effect and disallowed when it does not.

VP ellipsis and scope:

(10) a. Some boy admires every teacher, and some girl does too  $\forall > \exists$  or  
 b. Some boy admires every teacher, and Mary does too *some > every*

(11) a. Wide scope, (long) QR possible in both the first conjunct and the second one in a.

b. Wide scope is blocked in the first conjunct on b.

c. **Parallelism:** Ellipsis requires parallel structures, so wide scope must be impossible in the elliptical conjunct.

Since *Mary* is not a scope bearing element, QR of *every N* would not result in a different reading, and hence, by scope economy QR does not happen. Therefore it cannot happen in the first conjunct either. → QR only happens if it makes a difference in meaning.

*..but QR in languages with scrambling (overt QR)*

\* *General question:* the role of Economy conditions in UG.

<sup>6</sup>relevant literature: [Beghelli and Stowell \(1997\)](#), ...

- Comparative syntax.  
...imagine VP movement past the QP is lacking..

(12) where do we get scopal ambiguities, where don't we, and what does that correlate with<sup>7</sup>?

- Expectation: undoing syntactic movement reveals the scope hierarchy.  
Better chance of determining this in head final languages (Universal 20).

- General questions about architecture of UG. Narrow syntax or not?  
Head movement or not? Are inflected lexical items with (ordered) feature bundles allowed? Antisymmetry or not? Postsyntactic movements/reordering or not?  
How do we decide/evaluate different frameworks?

- Results from formal language theory: theories must fall within mildly context sensitive grammars. (see [Joshi \(1985\)](#)).  
As [Stabler \(2011\)](#) and his colleagues have shown frameworks with antisymmetry or without, with head movement or without, with right and left adjunction all fall within the class of Mildly Context sensitive grammars. This means that questions of implementation cannot decide between frameworks.

(13) syntax we need is the syntax that is appropriate for the interfaces, and that yields insights into language variation.  
Important role of comparative syntax. Insights into English can come from properties of Japanese.

Price to pay (for us linguist): longer syntactic derivations, and working them out. This does not mean increased complexity ([Stabler \(2011\)](#)).

*but what this means for the future is that syntacticians need to work with computational linguists to build apps that we can use to help us figure out the exact empirical predictions that the derivations make.*

- Program
  - lecture 2: Background on antisymmetry and functional Ps/ case, including *of- insertion*, Case/Prepositional Cs, and PP extraposition, P stranding. )
  - lecture 3: [Kayne \(1998\)](#) Overt versus covert movement.  
Negative indefinites [Burnett, Koopman, and Tagliamonte \(2018a\)](#) and some comparative Germanic.
  - lecture 4: inverse scope out of PPs contained within DPs
  - workshop: *When the syntax is not as it seems: insights from the interfaces.*

## 1.2 Basic theoretical assumptions that I will assume

Theoretical Assumptions underlying my work: Minimalism with Antisymmetry; [Kayne \(1994\)](#), LCA.

- **One Syntax:**  
Hypothesis: There is one structure building algorithm in UG: (binary) Merge. Merge (External, Internal).
- atoms: small, correspond to single features (not feature complexes)
- strictly derivational (bottom up)

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<sup>7</sup>See [Bobaljik and Wurmbrand \(2012\)](#)

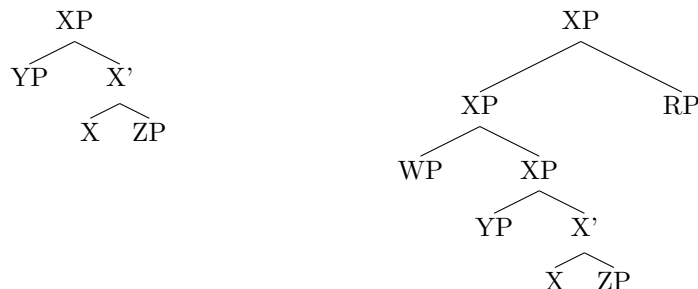
- extension condition; outputs phrases (cyclic spell out, and interpretation), phrases are further input to Merge, etc.
- morphology is the output of syntax
- "selection" (cooccurrence) strictly locally satisfied under sisterhood at some point in the derivation (Spec head [Koopman \(2006\)](#) now called upward agree);
- **Not:** narrow syntax and postsyntactic syntax. Ps, Case and infinitival markers etc are an important part of the syntax.
- **Not:** atoms: feature complexes, atoms of syntax are "words", or "ordered complex feature bundles".
- **Not:** morphology follows all syntax [Arregi and Nevins \(2012\)](#)
- **Not:** the output of syntax are words (=X-zeros). Spell out domains are phrases forming "phonological domains"/ phases .

### 1.3 From Phrase structure rules to X-bar theory to Antisymmetry and Bare Phrase structure

- 1960-1970 Phrase structure Rules
- 1970–1994 Development of X-bar theory (: **X-bar theory is a primitive of UG.**)
- [Kayne \(1994\)](#) LCA (Linear Correspondence Axiom)–puts deriving X-bar theory on the agenda.
- [Chomsky \(1995a\)](#) **Bare phrase structure.**

#### 1.3.1 X-bar theory

(14)



Hierarchical structure

- (15)
- Head Compl
  - Spec [ H Compl ]
  - Adjuncts (sister to XP) (modifier rule)

**Merge:** (E-"base generation" or movement)

- (16)
- YP and ZP are maximal projections (all properties of heads are satisfied)
  - X has a max of one Spec (*or multiple specs, Chomsky 1993*)
  - Binary branching [Kayne \(1984\)](#): X has max of one complement
  - Adjuncts are maximal projections (or heads, see [Cinque \(1999\)](#))
  - Each X is dominated by a XP, each XP has a head.
  - Adjuncts adjoin to XP (Sisterhood: modification)

**Internal merge:** (Movement= copy + Delete)

- (17)
- Head movement: targets Heads (+ HMC [Baker \(1988\)](#))
  - XP movement targets Spec. ( Spec, TP, i.e. movement/raising to subject, A-movement)
  - XP movement targets Spec, CP (i.e. wh-movement targets Spec, CP: A' movement)
  - XP movement creates adjunction structures (perhaps heavy NP shift, ..) (leftward or rightward movement), "QR" ..  
(NB not always easy to determine: what categories adjoin to?)
  - Heads move to head positions (adjunction, also called incorporation)
  - XPs move to XP positions.
  - X' segments cannot move
  - (traditionally assumed to be) disallowed/not allowed:  
adjoin a Head X to YP/WP/RP  
adjoin an ZP to X (or to Y).



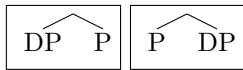
Hierarchical order is disassociated from linear order

**word order typology variation:** typology and universals [Greenberg \(1963\)](#)

Directionality parameters (word order parameters) yield linear orders

- (18) head initial/ head final
  - a. Head compl (yes, no)
  - b. Spec H (yes, no)
  - c. Adjuncts XP and XP Adjunct (left, right)
- (19) Departures of ideal language are (widely) attested, (in fact no pure types! )
- (20) Violations of locality of selection (movement):  
indicate head positions, spec positions, adjunction sites.

P DP and P DP: OV and VO are symmetrical:



Try: SSWL(go to [test.terraling.com](http://test.terraling.com) and choose the dataset SSWL, and search SVO,SOV,VSO, VOS, PNP, NPP: cross all. )

### 1.3.2 Kayne 1994: Antisymmetry [Kayne \(1994\)](#)

**Background early 90ies**

Discoveries made possible:

- (21) a. Head movement ([Koopman \(1984\)](#), [Baker \(1988\)](#), [Travis \(1984\)](#)).  
development of clausal spine (Pollock, 1989).  
the Head Movement Constraint and the Mirror Principle [Baker \(1985\)](#) allow integrating morphologically rich languages into the theory (empirical coverage).

Period of rapid Progress.

In depth analyses of individual languages, including the study of DPs, deepening and broadening of the field, more and better analytical tools, development of semantics.. " lexical domain". Aspectual Domain, T..Case/ quantifier domain, CP domain (topic, focus(contrast),...)

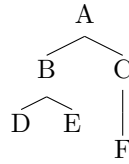
What this lead to in the 80ies/90ies: "cartography" -- > Decomposition of structures: VP domain, IP domain [Cinque \(1999\)](#) CP domain, among others [Rizzi \(1997\)](#), [Rizzi \(2004\)](#) )

- (22) Leading idea in Kayne: languages are not symmetrical.
  - a. Linear Correspondence axiom (LCA):  
linear order reflects hierarchical structure– linear order reflects asymmetric c-command
  - b. Puts deriving X-bar theory on the research agenda – Shows how the LCA derives the principles of X-theory.

C-command:

(23)  $\alpha$  c-commands  $\beta$  iff  $\alpha$  does not dominate  $\beta$  and every category dominating  $\alpha$  dominates  $\beta$ .

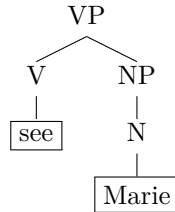
Try this on:



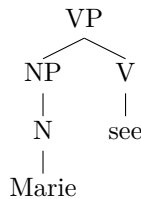
- (24)
- A dominates everything, and c-commands nothing
  - B does not c-command D or E
  - B c-commands C and F
  - C c-commands B, D and E
  - D and E c-command each other.

(25) **asymmetric c-command:** (holds in one direction)  
 C asymmetrically c-command D and E.  
 B asymmetrical c-commands F

(26) **LCA** (linear Correspondence axiom (*simplified*, read Kayne))  
 If a non terminal node A asymmetrically c-commands another non terminal node B then all terminals  $\alpha$  .. dominated by A precede terminals  $\beta$ ... dominated by B.

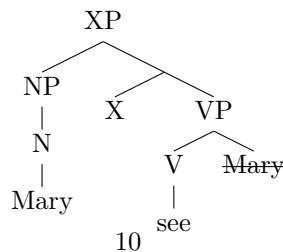


- (27) V asymmetrically c-command Marie. by the LCA: *see* must precede *Marie*.  
 (28) The conclusion in (27) would follow even if we draw the OV structure!

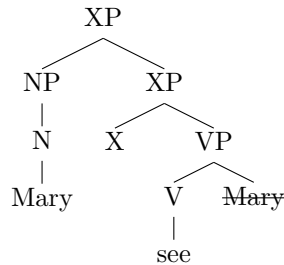


This leads to an astonishing conclusion: (28) cannot be the structure for OV languages, as the structures cannot be linearized.

- (29) VO and OV are not symmetrical: *stronger claim: we don't ever find mirror images*.  
 surface O V is "derived".  
 How exactly? *different paths to get to OV*



VO and OV are not symmetrical: surface O V is "derived"  
 How exactly? *different paths to get to OV*



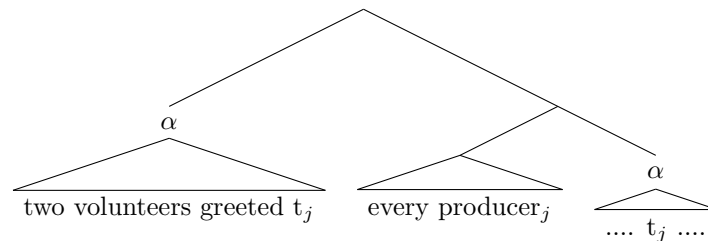
In languages with surface OV(-T) word order, objects must asymmetrically c-command the verb, i.e. have undergone a step of movement..

- (30) Support:  
 In all known OV-T languages an object can be separated from the verb, i.e. undergo "scrambling".<sup>8</sup>
- (31) But: why would OV languages and VO languages be different? Can we unify them?  
 This in turn leads to a further question: is the V O order of languages like English actually the same, but obscured by movement of the Vp responsible for VO order? U20. (on the cartography of object positions, see [Koopman \(2015a\)](#)).

Note that this could in fact also be the case in English, if there is an additional rule of VP movement that moves the remnant vP higher than all objects (except wh), accounting for scope ambiguities (from day 1). This is in agreement with the overt scope principle (and with QR/type shifting) .

- (32) a. two volunteers greeted every producer Move QP to scope position
- b. [ [ every producer<sub>j</sub> ] [α two volunteers greeted<sub>j</sub> ] ] scope (OK); Move α ]
- c. [α two volunteers greeted<sub>j</sub> ] [ every producer<sub>j</sub> [α t ] ] ] 2 volunteers will move up further

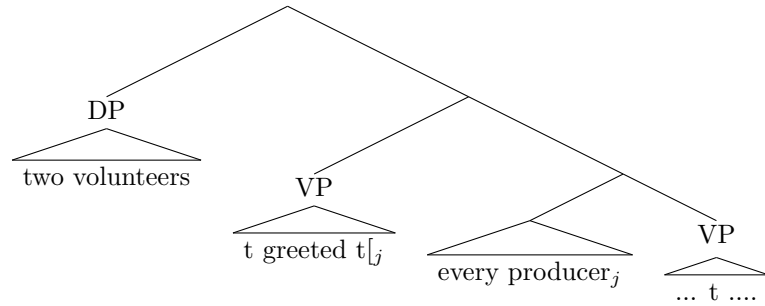
Simplified trees that represent the different scopal relations:



and surface scope: the universal Q is lower than the position where the subject QP takes scope:<sup>9</sup>

<sup>8</sup>For discussion see [Kayne \(2009\)](#), for how counterexamples are apparent and fall under this, see [Koopman \(2015a\)](#) on Bambara.

<sup>9</sup>relevant literature: [Beghelli and Stowell \(1997\)](#), ...



In OV languages we expect unambiguous surface scope: in many cases this is reported to be case! (but, unless specific other conditions hold that obscure this further. (see Korean problem below. (or skip it and get back to it once you have finished antisymmetry discussion.).

- (33) a. .... Scope<sub>everyone(O)</sub>.... Scope<sub>twoNs</sub> .. vP
- b. Scope<sub>twoNsS</sub> everyone<sub>everyone(O)</sub> .... two volunteersS everyoneO....

**1.3.3 Where can scope positions be merged? Which readings can arise? Where form matters**

- (34) a. narrow syntax? with postsyntactic syntax
- b. or one syntax.

Koopman (2005): on Korean

" Lee (2004) shows that an accusative object that precedes a universal subject cannot take scope over a subject QP (60), but a preceding PP can take scope either over or under the quantified subject (61).Lee (2004)

- (35) the view from the syntax:  
       where syntax/form determines what scope positions that are in principle available in a language can actually lead to a convergent derivation, i.e. movement is blocked for particular reason so that the derivation cannot converge.  
       If UG requires some element to be pronounced in a scope position, then movement must be available to get you there for the derivation to converge.  
       It is possible that a given form prevents an output from converging! This shows these forms must have an effect in the syntax, i.e. must in the narrow syntax.

=60. OSV

- (36) John man-ul            motun-salam-i        salangha-ta.  
       John FOCUS-ACC every-person-NOM love-DECL  
       Everyone loves John (and no one else). (every > only ; \* only > every)  
       NB: order of focus and case morpheme!

- (37) PF order: DP only ACC every (Nom)  
       **Scope Hierarchy:**  
       a. every(subject) > only(obj) > Acc(obj)  
       b. \*only(O).... every(subject)

question: why can "only" only need to scope under the subject? See the contrast with (39) =61 PP-only S V

- (38) John hako-man motun-salam-i akswuhay-ss-ta.  
 John with-only every-person-NOM shake.hands-PAST-DECL  
 Everyone shook hands with only John' or 'John is the only one with whom everyone shook hands".  
 (every>only, only>every)  
 NB: order of P and only.

In addition a OSV oder object which does not have an overt accusative case can narrow or wide scope  
 w.r.t. inverse scope  
 =64 OSV

- (39) John-man<sub>i</sub>motun-salam-i e<sub>i</sub> salanghata.  
 John-only every-person-NOM love  
 Only John, everyone loves e.  
 (Lee 2005:(26))

- (40) PF order: DP only every (Nom)

**Scope Hierarchy:**

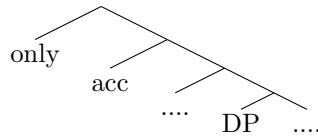
a. every(subject) > only(obj) > Acc(obj)

b. only(O)..... every(subject)

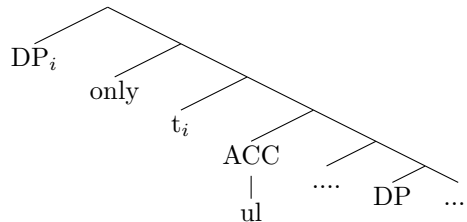
a. Everyone loves John and no one else. (every>only)

b. John is the only one whom everyone loves (only>every)

- (41) DP -FOC-ACC: The linear order: only is merged in the Focus, it attracts the DP.  
 Accusative is merged below *only*: it attracts the DP



Surface order (Acc is stranded):



If Acc is merged below strong quantified subject: then it must be the case that *only* MUST be merged below every(subject in the surface order given in (39) where the DP-only-ACC is initial):

a. every(subject) > only(obj) > Acc(obj)

- (42) What about when Acc is absent? Here the linear string is ambiguous.

a. narrow scope (interpretation before fronting of object) OK like above

b. wide scope of *only* possible:

(i) *only* is merged in the left periphery higher than every(subject) (independently possible with PPs)

- (ii) DP *only* results Spec movement, stranding acc,
- (iii) DP only > everyoneS > t<sub>i</sub> A<sub>ee</sub>
- (iv) pied-piping ACC is not possible: \* [ DP acc ] only > everyoneS > t<sub>i</sub> A<sub>ee</sub>     \* DP ACC ONLY is not a possible Korean order  
This forces ACC to delete (stranding and deletion, and deleting acc. (independently attested in Korean and Japanese).

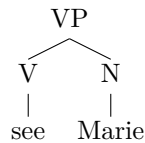
What's the point:

- (43) → syntactic form (absence or presence of ACC must play a role in whether high scope of only is available.
- a. Acc must be there in the syntax.
  - b. neither insertion, not word order done postsyntactically
  - c. if the overt scope principle is correct, we can account for this puzzle, as high merger of only must be excluded in the linear order DP only ACC order

### 1.3.4 Further discussion

- (44) antisymmetry derives the fact that the complement must be a XP !

not:



- (45) a. ZP in (14) must be a maximal projection (have two nodes).  
**this is a problem with bare phrase structure.**
- b. How do you get a Spec? Segments do not c-command: Spec asymmetrically c-commands XP.
  - c. how do you get an adjunct (Spec =adjunct )

Kayne continues and shows:

- (46) a. Spec precedes heads  
Spec are initial across languages .. Therefore movement is to the left
- b. No distinction Spec=adjuncts
  - c. Adjuncts invariably precede XP, right adjuncts are derived by leftward movement around the adjunct.
- (47) What about right adjoined structures? – > these must be reanalyzed.

Quote from Kayne p. 132:

To a significant extent, the LCA based theory of syntax proposed here allows us to have the all too infrequent pleasure of seeing the theory choose the analysis.

To sum up:

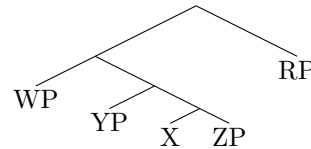
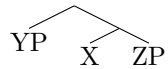
- (48) a. Kayne: theoretical contribution– Bare phrase structure.
- b. put the focus on left right asymmetries and the importance of comparative syntax for theoretical linguistics.
  - c. applies LAC to all kinds of puzzles known from the literature, and shows how it forces new analyses: empirical support.
  - d. and introduces innovations...

What to remember:

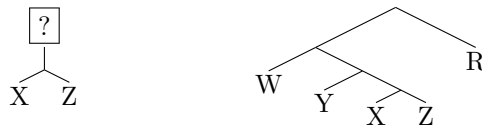
- (49) a. We have access to the output/linear order, and contexts in which these are fine
- b. ..But we don't know how the structures are built to yield these linear orders.
- c. focus on left right asymmetries: the research around Universal 20. (Go to section).

### 1.3.5 Chomsky, Bare Phrase Structure, 1995

- (50) Derive properties of X-bar theory: LCA applies to pronounced elements only.



Labeling nodes? ("headedness")

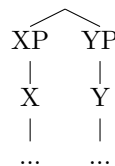


- (51) bar levels, relational notions: minimal and maximal, Muysken 83.
  - a. minimal, maximal, (neither minimal nor maximal)
- (52) Maximal projection: projection internal to which all lexical properties of a head are satisfied.

The Merge algorithm: (see ?)

- (53) a. 1) SELECT: A and B, and MERGE them into a set, to form C.<sup>10</sup>
- b. (2) LABEL Give C the label of either A or B.
- c. (3) Repeat as many times necessary.
- d. TRANSFER to interfaces: chunks get TRANSFERRED to the interfaces ( SPELL OUT (PHON) and INTERPRET)
- e. LINEARIZE Hierarchical structures are linearized – at the PF interface (Chomsky: LCA: only pronounced elements need to be linearized).
- (54) Merge leads to binary branching.
- (55) Chomsky: Merge: set merge or pair merge .  
 Kayne: antisymmetry (Spec H ComPL) and bare phrase structure; only one type of Merge.
- (56) Since the introduction of Bare Phrase structure:  
 Can we force movement (Internal Merge) rather than stipulating it (by epp features?? Focus on symmetry, and breaking symmetry. → Labeling algorithm (headedness):  
<sup>11</sup>
- (57) What is the structure of predicative nominal small clauses (John a boy):

a.



<sup>10</sup>Kayne builds an ordered set Merge

<sup>11</sup>Moro (2000): Andrea Moro. **Dynamic antisymmetry**. Forces movement ( Koopman (1996), Koopman (2003)

Moro: starts out as a symmetrical structure: cannot be linearized! Movement creates asymmetric c-command

Small clauses: (see also [Moro \(1997\)](#))

- (58)
- a. John a boy
  - b. John BE <John> a boy
  - c. John BE <John> the teacher
  - d. John[T+BE ] <John> BE <John> the teacher
  - e. The teacher [ T+BE ] John                   predicate inversion
  - f. the cause of the riot is the picture on the wall
  - g. the picture on the wall is the cause of the riot



## 2 Universal 20 and generalized Universal 20

from Greenberg (1963) to Cinque (2005b), and beyond.

Greenberg's extensively studied<sup>12</sup> Universal 20, formulated as follows in Cinque (2005b):

- (59) a. *Prenominaly*:  
The order of demonstrative, numeral, and adjective (or any subset thereof) conforms to the order Dem Num A (basically uncontested).
- b. *Postnominaly*:  
The order of the same elements (or any subset thereof) conforms either to the order Dem Num A or to the order A Num Dem.

Only 14 out of the 4!=24 logically possible patterns are attested.

These generalizations hold up in Cinque's now extensive database of 1700 languages.test.terraling.com.

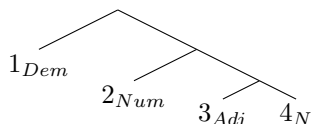
In the table below and throughout: 1, 2, 3, 4 represent an independently established syntactic/semantic(scopal) hierarchy where 1 c-commands 2, 2 c-commands 3, etc). For U20, this translates as 1= Dem, 2= Num, 3= Adj, and 4= N. with 1Dem > 2Num > 3 Adj > 4 N >.

U20 patterns: Attested ✓; Un-attested 0<sup>13</sup> Neutral orders (no contrast)

1234	✓	1324	0
1243	✓	1342	✓
1423	✓	1432	✓
4123	✓	4132	✓ or 0?
2134	0	2314	0
2143	0	2341	✓
2413	0	2431	✓
4213	0	4231	✓
3124	0	3214	0
3142	0	3241	0
3412	✓	3421	✓
4312	✓	4321	✓

Cinque's modeling:

- (60) a. Antisymmetry (Kayne 1994).  
b. An independently motivated fixed universal syntactic/semantic hierarchy:



- c. Different surface orders (in neutral orders) are derived from this hierarchy by (leftward) Movement (Internal Merge) of  
(i) a *phrase*, that  
(ii) must contain the lexical noun.

**Variation**(language internal or crosslinguistic) is due to the interaction with two different types of parameters

<sup>12</sup>Hawkins (1983) Deligianni (2001), Croft & Rijkhoff 1981, and Cinque himself, among others)

<sup>13</sup>Frequency of patterns omitted, alternative orders not included/not known.

(i) **height-of-movement**: how high up in the hierarchy does the subtree containing the noun move (if at all)?

(This captures well-established empirical generalizations starting with [Pollock \(1989\)](#) study of the distribution of verbal forms in English and French. )

(ii) **pied-piping** parameters: determine if the nominal constituent can pied-pipe Adjectives, or Numerals etc. on its journey up into the hierarchy.

(61) Unattested patterns cannot be derived.

- U20 type patterns turn out to:  
generalize to many hierarchical syntactic/semantic domains (i.e. given an independently motivated (universal) syntactic/semantic hierarchy, it turns out only certain linearization patterns are attested, and

- show a fundamental *left right asymmetry* <sup>1415</sup>

Here is some space to try deriving some possible orders 1243, 2341, 3412, 4321, and some excluded ones [1324](#), [3214](#), using the little grammar above, to get the flavor of these derivations.

---

<sup>14</sup> [Cinque \(2009\)](#), [Abels and Neeleman \(2009\)](#), [Abels \(2011\)](#), [Koopman \(2015b\)](#)...

<sup>15</sup>I have no time to discuss Abels and Neelmans proposal, which is in essence a weaker theory (without [\(60-a\)](#) (which Kayne takes as an "axiom")), all movement is leftward (a theorem) which needs to be derived), but right and left E merged Specifiers are allowed.

### 3 Adpositions, and prepositional Cs: Development of ideas, empirical support

..related to the lectures. (treatment of *of* and Ps more generally) The view from the syntax.

..related to infinitives and how to analyze *to/* (Romance *de/di*, Dutch "te", German "zu"...). Related to the workshop talk.

...Please add arrows to the derivations, and do some practice to get a feel for the derivations.

#### 3.1 What happened to *of*-insertion? Where is case? From LGB to Minimalist "Practice" and Antisymmetry.

General questions:

- Is Case part of syntax? Does Case project (is it a syntactic atom?)
- Do DPs have to move to Case positions? Agree and low spell out vs movement
- What is the relation between case and adpositions (Ps)?
- Is there a distinction between narrow syntax (only meaningfully elements are part of narrow syntax): and post- narrow syntax syntax?  
**Current view:** case is not part of the narrow syntax; but inserted post-syntactically. (coming from DM).  
 What does this imply for meaningless elements like functional Ps?
- "one syntax" view versus narrow syntax: Case is always a syntactic configuration (with movement to designated positions).

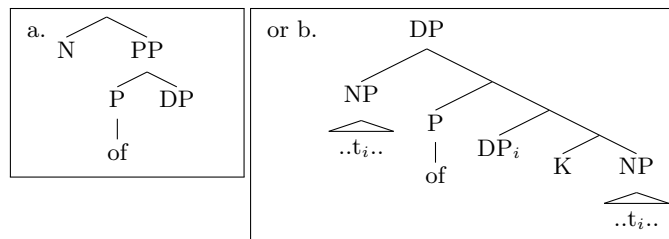
Structure of PPs:

- Are PPs (base generated constituents, or do they result from two separate E-merged pieces brought together by movement (I-merge)  
 I will refer to this phenomenon as *scattering*. *How do we support this empirically.*

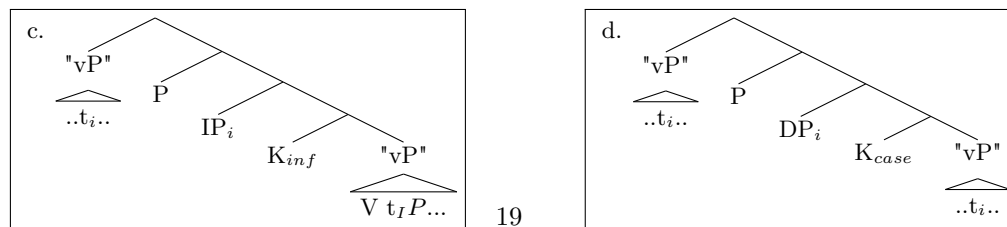
- distributional properties from Merge.

Over time, in a series of papers: Kayne pursues these questions:

First study: *of*-insertion: not a. but b.



Second extends it to prepositional complementizers *de, di, to(c)*, and adpositions (*d*)



- What do we get from this?

- of-insertion
- c-command out of PPs (Cinque 2006c:chapter ? )
- subject object asymmetries for infinitivals (c.. )
- extraposition of infinitivals
- extraposition of that-clauses (Dutch, German, Yiddish)
- P stranding (d)
- PP extraposition and rightroof constraint (d)
- PP scrambling
- ?inverse linking out of PPs contained in DPs.

Which are a strong argument for QR!May (1985)May (1988) *I did not get to these*

(62) Some senator in every city<sub>i</sub> dispises it<sub>i</sub>

- Technical questions: how to motivate the movement?

same way as we motivate predicate inversion

(63) Ps can have an epp property (attracting "vP": checking the "vP" shell they select for). (not as we are used to: V selects P, but P selects VP).

This can be deduced on the basis of linear order in the primary data.

### 3.2 (Kayne 1994:Chapter 8 )

(Kayne 1994:Chapter 8 )

How to analyze postnominal possessors *of John's?* of DP 's in (64) a cannot be a complement of N, it cannot be right adjoined because of the LCA.

Distribution:

- (64) a. I have [ [ two pictures (of Mary) ] of John's ] indefinites.  
 b. \*?I found the two pictures of John's  
 c. I found the two pictures of John's that you took <two pictures of John's> promotion analysis (Vergnaud 1974)
- (65) a. I saw (the) two pictures of Mary theme, \*agent, \* possessor  
 b. I saw (\*the) two pictures of Mary's possessor, agent

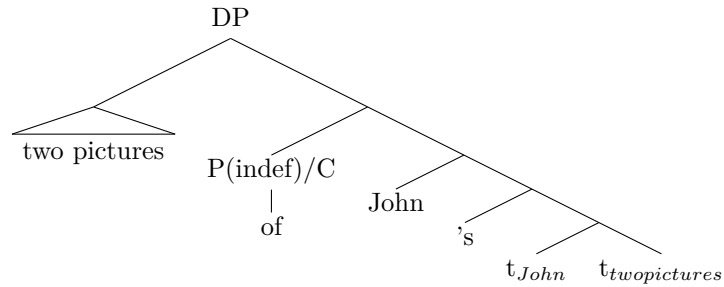
- Kayne: *of/ de* cannot not form a E-merged constituent with DP's in (67-a) .

- (66) a. [ NP [<sub>PP</sub> P [ DP ] 's] ]  
 b. [ N [<sub>PP</sub> P [ DP ] ] ]

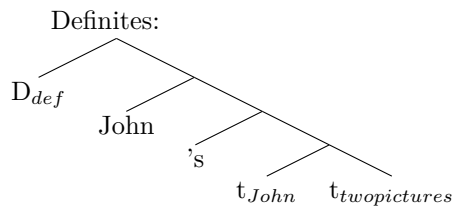
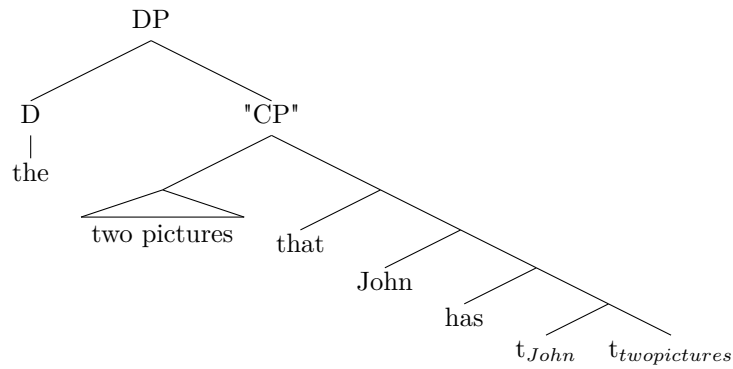
There must be a missing part, cannot be righadjoined (because of the LCA).

- (67) a. [ NP [<sub>PP</sub> P [ DP ] 's] .... ]

Indefinites: (*of* is a P/C complementizer of an indefinite possessive relative<sup>16</sup>)



Basically similar to a tensed relative clause:



Where does the possessive interpretation come from? possessive SC nominal predicate.

(68) John HAS two pictures / two pictures BE AT John / John BE WITH 2 pictures

### 3.2.1 Filling in some history: How are these constructions traditionally/currently analyzed in Minimalist Accounts without antisymmetry?

I WILL SKIP THIS. READ IT AND FEEL FREE TO ASK ME QUESTIONS.

- Early work (pre Case theory pre 78): Phrase structure rules: rule of *of*-insertion (read a.o. [Stowell \(1981\)](#) for intricacies).
- Case theory (version 1): [Chomsky \(1980\)](#), [Chomsky \(1981\)](#).  
**Theory:**  
 no VP internal subjects;  
 no vP shells (1983);

<sup>16</sup>Also often called a linker: required in cases of predicate inversion (see among others [den Dikken \(2006\)](#))

No IP decomposition (starting from Pollock (1989), Cinque (1999) Cinque (2006b)), or CP decomposition (starting with Rizzi (1997), Cinque (1999) Cinque (2006b) ) No DPs  
 No Spec, CP (1986), But S' → COMP S and COMP -> (wh-phrase/OP) C

- (69) a. NP/DPs are born Caseless.  
 b. Depending on the type of case, NPs/DPs must appear in specific configurations. Focus on subjects and objects!  
 c. Case theory allowed a unification of movement types ( A- movement and A'-movement), and was a big step forwards from theories with individual rules to modular theories.  
 d. But ..it was not sufficient to account for languages like Icelandic which had oblique subjects,  
 e. and ..it was not sufficient as a theory to account for the distribution of subjects (or objects). (There are many more subject/object positions than predicted. (Norwegian, Italian... ).  
 f. It had little/nothing to say about PPs, or of-insertion.
- (70) Movement (I-Merge) is a way to satisfy the Case filter.  
 NP movement: A movement (Passive, raising to subject, raising to object, Unaccusative, ...) is Case driven. <sup>17</sup>

	T	.....	DP	...
	T	.....	$\theta$	...
+Case	T	.....	-Case	...

- Issues:  
 is it N which needs Case, or NP (now DP?)  
 Why?  
 Where?

- Case assignment configurations:  
 -lexical categories are defined with features: +, - N, +, - V:  
*and nominative case is a special case.*

(please fill in the following table):

	+ V	-V
+N		N
-N	V	

- (71) a. destroy the forest  
 b. for the forest  
 c. destruction \*(of) the forest  
 d. proud \*(of) the forest

- Some categories assign case, some don't.

- (72) a. [+ N] categories do not assign case;  
 b. [-N, +V ] acc iff external theta-role (Burzio's generalization Burzio (1986))

---

<sup>17</sup>Or partially case driven

- Insertion of *of* for (72) b of N/A (+ N categories do not assign case)  
*Why*: to pass the Case filter.  
*when must of-insertion happen*: before case filter.

- (73) a. D-structure: destruction the house  
 b. S-structure: destruction [<sub>PP</sub> of [ the house ] ]  
 c. A picture of Mary Mary = theme.

- How does this installment of case theory account for (66-b):

- (74) a. (67-a)?  
 b. (66-b)
- (75) two pictures [ of John's [ec ] ]  
 a. is the *of phrase* a complement of picture? *show*  
 b. why indefinite?  
 c. What is *of* doing here?  
 d. What is [ec ] ? ellipsis? part of a movement chain ?  
 e. Where does the possessor/ agent theta role come from?  
 f. Paraphrases useful?  
 (i) John has a book  
 (ii) A book of John's / a book that John has

- Case theory (version 2) [Chomsky \(1986\)](#)

- (76) a. NP/DPs are born Caseless.  
 b. Case filter.

- (77) What changes, Case assignment: Structural case (nominative (finite verbs), accusative (little v), (?genitive, ?dative... )  
 Inherent case (theta-related, idiomatic), "assigned" under theta-role assignment

conserved under A movement, but also disappears in nominalizations or middles (icelandic, Russian),...
--

- Case realization principle ([Chomsky \(1986\)](#) (to capture N/V complementation asymmetries) ([Chomsky \(1970\)](#), [Kayne \(1984\)](#) (V can govern over a clausal boundary, but N cannot)

N, A, (P) assign inherent case –realized as 's or *of*.

- does not extend to the following

- (78) a. 2 pictures of John's [ ec ]  
 b. predicative *of*  
 this idiot of a doctor  
 (predicate inversion)

- Minimalist Program [Chomsky \(1995b\)](#)

From ([Chomsky 2000:127](#)) According to this conception, agreement (hence movement) is driven by uninterpretable features of the probe, which must be deleted for legibility **With this shift in perspective, structural Case is demoted in significance.** The Case Filter still functions indirectly in the manner of Vergnauds original proposal, to determine

the distribution of noun phrases. But what matters primarily are the probes, including  $\phi$ -features [person, number, gender ] of T, v. That reverses much of the recent history of inquiry into these topics and also brings out more clearly the question of why Case exists at all. The question arises still more sharply if matching is just identity, so that Case can never be attracted; **operations are not induced by Case-checking requirements.**

- Ns/Ds are borne with case features, (or perhaps not as Gurmeet Kaur told us in her lecture ) which need to be checked/valued for legibility reasons
  - DP external case- (external Probe (v, P, T/C))
  - DP internal case- (genitive, 's) comes from DP internal probe:
    - "-compatible with D/P and N as genitive probe"
    - Where? **Post syntactic/outside of narrow syntax?—if DM is right :**
- Case morphemes are inserted (violated the extension condition) and spelled out postsyntactically.
- Questions: Are Ns borne with case features, which can be checked under Agree (Minimalist Practice)?
- Or do they DP acquire case in syntactic configurations?
- On Case in nanosyntax, read the papers by Caha, starting from [Caha \(????\)](#),

### 3.3 P merging in the spine; From of-insertion to Prepositional complementizers, CP extraposition, PP extraposition, P-stranding, PP scrambling.

#### 3.3.1 Literature [Kayne \(2000\)](#) Parameters and Universals

1. Chapter 12 (1997): The English complementizer of
  - "This chapter demonstrates that it is entirely plausible that some varieties of English would have a complementizer *of* in cases of *John should of left*. ..
  - Key: bring to bear on this ultimately UG question elements of the syntax of (at least) French, Italian, and Scandinavian.**
2. Chapter 13: Overt versus covert movement (Syntax 1:1998).
  - very relevant for lectures. Lecture 4* Negative indefinites (no child..), scope of negatives, particle constructions/verbal complexes, only DP, (even DP), every, and wh-in situ (which contrasts with negXPs, section 13.3.8)
3. Chapter 14: Prepositional Complementizers as attractors (Probus: 1999) (see below) *de/di*...IP.
4. Chapter 15. 'A note on Prepositions, Complementizers and Word Order Universals
  - Important: some DP islands (picture of ) follow from *of* merging with VP.
  - PP extraposition follows from Merge, in particular from where the P is merged.
  - explores Universals.

Further results-:

Why don't P block c-command? They are not there at the relevant step in the derivation. A solution to the c-command out of PP-problem [Cinque \(2006a\)](#)

5. [Kayne \(2005\)](#) Movement and Silence
  - Chapter 5: Prepositions as Probes. (causatives),
  - Chapter 7 returns to P above VP (On some Ps that look VP internal: English *of* and French *de*).
  - Chapter 9 considers Postpositions (and clitic doubling)
6. [Kayne \(2010\)](#) Comparisons and Contrasts



### 3.3.2 Chapter 14: Prepositional Complementizers as attractors (Probus: 1999)

*de/di*.

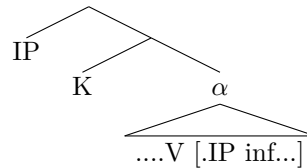
- (79) FR. Jean a essayé de chanter  
 IT. Gianni ha tentato di cantare  
 John has tried *de/di* sing.inf.  
 ENG. John has tried *to* sing (but not *of* singing)  
 DU. Jan heeft geprobeerd te zingen

How are these strings put together?

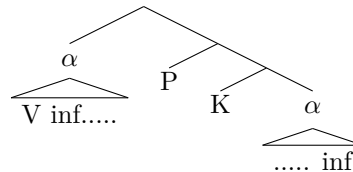
- (80) Standard view:

Jean a essayé [<sub>CP</sub> de PRO chanter ].  
 John has tried [ "of" PRO sing.inf ]

- (81) Kayne suggests that: "the derivation involves more syntactic movement than usually thought":  
*de* and Inf get together by I-merge, not by E-merge.

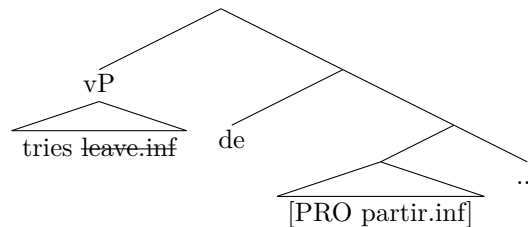


Merge P(*de/di*)



- (82) a.  $di_K [_{VP} \text{ tries } [PRO \text{ leave.inf } ]$   
 $[PRO \text{ leave.inf } di_K [_{VP} \text{ tries } t_{PRO \text{ leave.inf } } ]$   
 b.  $de \text{ leave.inf } t_{di} [_{VP} \text{ tries } t_{\text{leave.inf} } ]$   
 $[_{VP} \text{ tries } t_{[PRO \text{ leave.inf} ]} ] de \text{ PRO leave.inf } t_{de} [ t_{\text{tryleave.inf} } ]$

- (83) a. *de* merges with the try VP.  
 b. *de* "probes" for inf VP → "Attracts" Merge infl VP in Spec, *de*.  
 c. *de* comes with a double *de* (P) , head movement of *de* to P  
 d. P(rep) requires a VP in its Spec. *motivation? word order? or Koopman (2005)*<sup>18</sup>



<sup>18</sup> Relativized Minimality Proposal proposal made at a conference in Venice on the cartography of PPs, and definitely running through some later papers (On Dutch and West Ulster English, double passives in Samoan, and the dance of subject and objects (slides). See also Barbiers for earlier proposal that the P is a predicate taking a subject VP...

## Argumentation. Evidence

1. *de/di* take an infinitive, not a finite clause

- Case or not? → selection
- Romance infinitives are nominal, finite verbs are not.

(84) **Bare infinitives**

- a. Jean désire chanter  
John desires sing-ing

(85) **De-infinitives:**

- a. Le désir \*(de) chanter  
The desire\* (de) sing.INF  
b. Jean est désireux \*(de) chanter  
John is desir.ADJ \*(de) sing.INF

2. Distribution Bare infinitivals

- In certain context (Italian, the infinitive can be combined with a definite article. )

(86) il mangiare la carne il venerdì  
the eat.inf the meat the Friday

3. Bare infinitives do not occupy DP positions (recalls Koster tKoster (1978), Stowell (1981))

- bare infinitives cannot be the object of subcategorized Ps. (count on, insist on)

(87) \*Contavo su essere onesto  
count.I on be-ing honest  
(cf English I count on being honest, \*I count on be honest \*I count to be honest)

- bare infinitives are not fully acceptable in pre-predicate position of a small clause

(88) ?Jean considère aller au cinéma absurde  
John consider go-inf to-the movies absurd

4. Di/de infinitives..Italian/ French de infinitives/ di infinitives cannot occur in DP positions.

- de/di infinitives infinitives cannot be the object of subcategorized Ps. (count on, insist on)

(89) \*Contavo su di essere onesto  
I count on di be-ing honest  
(cf English I count on being honest, \*I count on be honest \*I count on to be honest)

- In Italian: cannot be a subject (Cinque 1990; Rizzi 1988) (movement away does not help.)

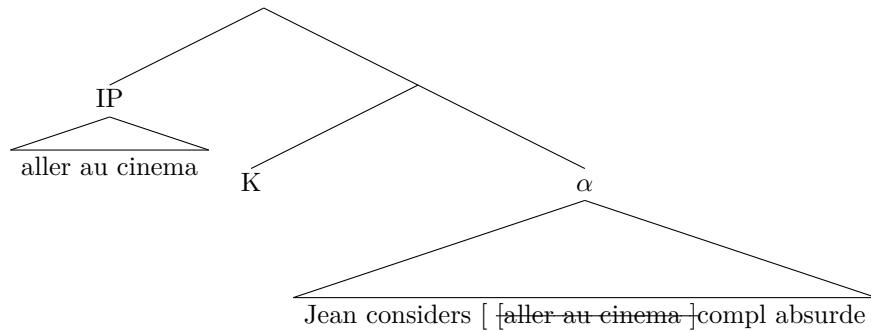
(90) \*Di cercar.lo comporta dei rischi  
di look for inf.him implies some risks

- *de* infinitives are sharply excluded from the pre-predicate position of small clause

(91) \*jean considère d' aller au cinéma absurde  
\*John considers to go-inf to-the movies absurd  
John considers it absurd to go to the movies

Instead the small clause predicate must precede the de infinitival in French/Italian: ("obligatory extraposition")

- (92) jean considère (complètement) absurde *d' aller au cinéma absurde*  
 John consider (completely absurde *de go-inf to-the movies absurd*



Merge P: and I-merge  $\alpha$  with P.  
 Draw the output tree

**IMPORTANT:**

Extraposition of the infinitival follows from the derivation: no need for head movement, complex verb formation, or PF constraints: heavy material after light, PF movement.

This is a super minimalist account: the restrictions fall out from Merge.

How would this extend to extraposition?

- (93) E possibili \*(di) capire quello domande  
 is possible \*(di) understand this question

- (94) Start from e [[comprendre quello domande] possibile. Then Merge K, merge di and move remnant

5. For further analysis of the distributional properties outlined above, French Italian differences, extension to English *to* and discussion: read the paper!
6. Conclusion: bare IP moves to licensing position:  
 de [ .....] INF

to [..... ] Inf

7. Further question: what part of the spine can P...K merge with? Subject vs object

- (95) If P.INF always requires remnant to move to its spec you cannot derive preverbal order of de/di- complements, unless you have formed the [de complement ] at an earlier point in the derivation, and you subsequently move the de complement.

### 3.4 Chapter 15. A note on Prepositions, Complementizers and Word Order Universals

- Important: some DP islands (picture of ) follow from *of* merging not within DP but with VP.  
– PP extraposition follows from Merge P with VP. –CP extraposition follows from *that* with VP. **but how is this different from 1994? is this one of the sources for CP extraposition?** – explores Universals.

- *of* can be merged D/C, and end up DP internally.

(96) I admired a picture of John

a. admiring [ ~~John~~ a picture [ John of [ ~~John~~ a picture ]

Where else can *of* be merged?

PP extraposition:

(97) I admired [ John a picture ] yesterday

- Merge of with [VP ]

(98) a. admire [ John a picture ] yesterday  
b. of John K [ admiring ~~John~~ a picture yesterday]  
c. [ admiring ~~John~~ a picture yesterday] of John

- structural ambiguity for

(99) a. *of* is merged DP internally: I admired [ a picture of John ]  
b. *of* can be merged with VP, DP externally: I admired [ a picture of John ]

- relevance for the analysis of:

(100) who did you admire a picture of

Bach and Horn (1976); Chomsky (1977): Readjustment rule [admire a picture of] readjusts: [ *admire a picture*] *of* i.e. PP extraposition feeds P-strandinf

(101) Who was Bill admiring/?destroying a picture of?

- Kayne: Preposition stranding is not allowed from a constituent 'D N of XP'  
Subject Island: (i) No VP attracted since "of DP" precedes the VP: (i.e. no way to get *of* fully outside a DP constituent.)

- (102) a. A picture of John just arrived in the mail  
b. \*Tell me who a picture of t just arrived in the mail

- Extraposition of PP and relative clauses

- (103) they were showing a picture of John to me  
a. ... showing [John a picture ] to me  
b. ... of John K [ showing ~~John~~ a picture to me ]  
c. ...[ showing ~~John~~ a picture to me ] of John

- (104) who did they show a picture to me of

- (105) a picture arrived in the mail of John  
a. [ John a picture arrived ]  
b. of John [ ~~John~~ a picture arrived ]  
c. [ ~~John~~ a picture arrived ] of John

- (106) a. a picture arrived in the mail of John  
b. \*a picture arrived of John in the mail

Relative *that that* must come into the derivation above VP:

- (107) they were showing [ a picture I like ] to me  
a. ... that I like K [ showing [a picture t ] to me  
b. ...[ showing [ a picture t to me [that [ I like K ]

- Much more to say, but:

- of-insertion of can be merged with DP- [Nominal predicate ] of DP/ [Nominal predicate ] of DP's  
of can be merged with vP – [Verbal predicate ] of DP of can be merged with IP (but will attract nominal predicate only)
- c-command out of PPs (Cinque 2006c:chapter ? )
- subject/object asymmetries for P-infinitivals (Italian, Dutch)
- extraposition of P-infinitivals
- extraposition of that-clauses (Dutch, German,...)
- PP extraposition and rightroof constraint (see paper)
- PP scrambling (OV languages)
- (?) inverse linking out of PPs contained in DPs.  
Which are a strong argument for QR!May (1985)May (1988)

- (108) Some senator in every city<sub>i</sub> dispises it<sub>i</sub>

- Technical questions: how to motivate the movement?  
same way as we motivate predicate inversion

- (109) Ps can have an epp property (attracting "vP": checking the "vP" shell they select for). (not V selects P but P selects V).  
of has an epp property (nominal predicate)  
of can have a epp property (verbal predicate) (English).

This can be deduced on the basis of linear order in the primary data.

## 4 14- 1 4 Thursday: Overt versus covert movement

This handout mostly concerns the role of remnant VP movements.

It is less about PPs.

[Kayne \(1998\)](#), [Kayne \(2000\)](#).

*Abstract.* In a number of cases (involving, e.g., negation, only, reverse scope of some and every, ACD) where covert (LF) phrasal movement has been postulated, it is possible and advantageous to dispense with covert movement (including feature raising) and replace it with a combination of overt movements of phonetically realized phrases.

The strongest interpretation of this conclusion is that the cases explicitly considered are typical. UG leaves no choice: Scope must be expressed hierarchically, there are no covert LF phrasal movements permitted by UG, and neither can the effect of covert phrasal movement be achieved by feature raising. Scope reflects the interaction of merger and overt movement.

Structure of the paper:

1. introduction
2. Negation
  - 2.1. Scandinavian
  - 2.2. English
  - 2.3. More complex VPs
  - 2.4. no vs some
  - 2.5. wide scope negation
  - 2.6. Subject-object asymmetry
3. Only
  - 3.1. similarities to negation
  - 3.2. An important difference between 'only' and some negation
  - 3.3. Attraction by 'only'
  - 3.4. Attraction by Neg+0 and 'not'
  - 3.5. More on wide scope
  - 3.6. Subject and pre-subject 'only' and negation
- 4.0. Other elements related to 'only' and negation
  - 4.1. 'even'
  - 4.2. 'too'
  - 4.3. Focus
  - 4.4. Universal Grammar
  - 4.5. Heavy NP shift
  - 4.6. German 'nur' only.
  - 4.7. Scandinavian negation
  - 4.8. Covert movement
  - 4.9. German
  - 4.10. Scope ambiguities with two quantifiers
  - 4.11. A digression on particles
  - 4.12. ACD
5. Conclusion

examples in main text : 229

footnotes: 127

references: 8 pages

(languages: English, Scandinavian, German/dutch, Romance, ..)

## 4.1 Introduction

Setting the stage:

Klima (1964:285): =(1)

- (110) I will force you to marry no one.  
a. I will force you to not marry anyone  
b. There is noone I will force you to marry, I will not force you to marry anyone

Kayne (81), subjunctives

- (111) She has requested that they read not a single linguistics book.  
a. narrow scope  
b. wide scope (In all these years, ...)

LF (phrasal) movement, not *not* incorporation/movement.

- (112) a. I will force you to NOONE NEG marry no one.  
b. I will NOONENEGforce you to marry no one

Subject object asymmetries: ECP effects/ that/t effects =3

- (113) She has requested that not a single student read our book.  
a. \*She has [ NOT A SINGLE STUDENT ] NEG requested that ~~not a single student~~ read our book.

Not covert, but rather overt (pre-Spellout) movement.

- (114) Narrow scope:  
a. [ noone NEG to marry ~~noone~~ -> VP movement  
b. to marry [ noone ]
- (115) wide scope: *noone* is in the force clause:  
a. [<sub>NegP</sub> noone [ Neg force you to marry ~~noone~~ -> VP movement  
b. [ force you to marry ~~noone~~ ] noone NEG

Ok, but how to support this?

- Insights from Scandinavian (negation, and negative indefinites)"  
(overt movement masked by V-second (past negation) in root clauses, no remnant VP movement around negative objects)
- informs English (overt movement masked by V movement past negation; and by remnant VP movement for object/ postVP indefinites)  
verb particle constructions (particle climbing)

## 4.2 Norwegian

Norwegian, Christensens (1986) (Svenonius (2002) analysis of *ingen*, which is like English *no*.  
ikke... noen is like not ..any  
noen= some



- (116) Jon leser ingen romaner.  
John reads no books  
'John reads no books.'  
(Kayne 1998/2000:224)
- (117) Jon leser ikke noen romaner.  
J reads not any novels  
John doesn't read any novels.
- (118) \*Jon har lest ingen romaner.  
John has read no novels  
Intended: 'John has read no novels.' (can in fact also mean: Joh has read zero novels: the sentence is not negative)
- (119) a. \*Dette er en student som leser ingen romaner.  
this is a student that reads no novels  
b. Dette er en student som **ikke** leser **noen romaner**.  
this is a student that not reads any novels
- (120) a. \*Dette er en student som har lest ingen romaner.  
this is a student that has read no novels  
b. Dette er en student som ikke har lest noen romaner.  
this is a student that not reads any novels
- (121) Sentential negation *ikke* precedes the finite verb *leser*.  
*ingen romaner* must appear in the position in which negation appears.
- (122) Shifted negative object depends on the position of the main V(P).  
In this respect it is like object shift [Holmberg \(1986\)](#)[Holmberg \(1999\)](#)  
(which bring us to cyclic linearization : [Fox and Pesetsky \(2004\)](#), [Fox and Pesetsky \(2005\)](#) and the articles in that volume)

#### 4.2.1 A bit more on the distribution of negative indefinites

Where else do negative indefinites occur? *Anywhere higher than ... ikke T ...*

- (123) Jon leser ingen romaner.  
John reads no novels  
'John doesn't read novels.'  
*NB. This sentence is negative (a tag will be positive)*
- (124) Ingen student leser disse romanene  
No student reads these novels.DEF  
No student reads these novels.
- (125) ingenten har Jon lest  
nothing has John read  
Nothing has John read

In written registers of Norwegian, the following forms are possible, but they don't occur in spoken registers of Norwegian- though these forms occur throughout Scandinavian : See [Engels \(2012\)](#) for microvariation in Scandinavian.

Written Norwegian ✓, spoken Norwegian \*.

- (126) Jon har ingen romaner lest  
John has no novels read  
'John has read no novels/ John hasn't read any novels

- (127) Neg indefinites that express sentential negation, must be in the T region at spell out. This is OK for subjects, or topics, and preverbal negative adverbs, but not for objects,
- (128) a. *ingen N* must move to Spec, NegP, or above  
 b. Neg precedes the finite verb/ or verb cluster;  
 c. unless the aux or lexical verb moves to T and C (past negation).  
 → Negative objects can only be postverbal if the lexical V has moved past negation.

### 4.3 English

English vs Norwegian

- (129) a. John reads no novels. (=17)  
 b. John has read no novels. (=18)  
 c. \*John has no novels read

V movement past Neg is different in English.

V to T movement: highest Aux, or modal

- (130) a. John is no Einstein/ John isn't an Einstein  
 b. \*John became no Einstein/John didn't become an Einstein
- (131) a. John has no car  
 b. John owns no car *more emphatic*

with emphasis elsewhere:

- (132) (28) The only person who has/?owns no car this year is John.
- (133) a. If V to T past negation: no NP is fine  
 b. If NP move past negation. (subjects, objects): [no NP] is fine  
 c. Hyp: no- phrases must raise in English, but VP movement around the object obscures this
- (134) John reads no novels.
- (135) a. English: "V - to- T past negation and VP movement around negative indefinite objects (no-NPs)  
 b. Scandinavian: V to T to to C(root) movement, no VP movement around negative indefinite objects  
 → negative indefinites cannot be postverbal, unless V to T to C

### 4.4 More complex VPs

The role Particles and small clauses play (complex predicate formation).

- (136) (=31) John invited in no strangers.  
 (137) (=32) John invited no strangers in.

Derivation of (31) yields V Part DP order

- (138) a. John invited [ no strangers in ] → Move NegP  
 b. John no strangers invited ~~no strangers in~~ ] → Move VP  
 c. John [invited ~~no strangers in~~ ] no strangers

Derivation of (32): yields V DP Part order

- (139) a. John invited [ no strangers in ] → (particle preposing)  
 b. [ in [ invited [ no stranger ]

- c. Move to NegP, move remnant VP

Does the order NegO Part or Part O matter for interpretation? *only in case particle climbing is blocked*

- (140) a. I will force you to turn down no one. (=57) OK, narrow scope, wide scope
- b. I will force you to turn no one down. (=58) OK: narrow scope, ??wide scope

(in all these years, ..they have forced us... (fnt 32: on some speakers don't seem to find a contrast...)

- (141) a. They have forced us to turn no one down . → (\*particle preposing to matrix: no climbing out of object control verbs)
- b. [down [force us to turn out no one ] → Move noone to NegP
- c. [no one [down [force us to turn t ] → Move remnant
- d. [ force us to turn [ noone [ down → No wide scope because the order would require an illicit step of part climbing

Support for movement from Condition C:

*footnote: 35* Note that in (i) it seems possible for *he* to take *John* as antecedent:

- (142) (i) In all these years, shes requested that he revise none/not a single one of the articles that John has written for her journal

This supports the idea that, in the wide-scope reading, the NegDP (none/not a single one of the articles that John has written for her journal) moves into the matrix, past the embedded subject.

#### 4.5 Subject Object asymmetries

How could you ever have a derivation where not a single student is physically pronounced in the NegP of the request clause?

The following should be a failing derivation:

- (143) (65) She has requested that not a single student read our book.  
           read our book [ requested that not a single student ~~read our book~~  
           not a single students [ read our book [ requested that
- (144) Neg indefinites raise to Spec, NegP in the overt syntax.

#### 4.6 Scandinavian negation

To judge by some initial data, it seems that one does not find ambiguities of the (194) sort in Scandinavian. More specifically for our purposes, if the negative phrase moves overtly to a landing site within the infinitival (recall that in Scandinavian there is no subsequent VP-preposing), then only the narrow scope reading is available ((195) from Swedish, (196) from Icelandic):102

- (145) Hon har bett oss att inga böcker läsa. (=195)  
           she has asked us to no books read  
           She has asked us not to read any books.

Icelandic has V movement in the infinitival

- (146) Pabbi hennar mun neydhá hana til adh giftast engum. (=196)  
           father her will force her till to marry no one

Her father will force her not to marry anyone.

True for Dutch as well: a negative DP never takes scope higher than where it is pronounced.

- (147) → scope differences between languages with negative indefinites are not due to a choice of overt vs covert movement they depend on the syntactic movement inventories.

## 4.7 Covert movement

In Chomsky (1995:265), covert (LF-) movement is limited to the raising of features.

- (148) a. Why can covert feature movement not alter the scope of a negative (=197)) phrase that has been moved overtly to some Spec,NegP?  
b. Why must negative phrases (of the English sort) always move overtly to some Spec,NegP? (cf. (165a)) That is, why can negative scope not be set covertly (low spell out)

Taken jointly, these two questions suggest a strong limitation on the power of covert feature-movement. A joint answer would then be either of the following:103

- (149) a. Covert feature-movement does not exist. (=198)  
b. Covert feature-movement is subject to locality restrictions at least as strong as those to which overt head-movement is subject.  
(150) *wh-in situ* In addition, it must also be the case that movement of an empty operator of the sort proposed by Watanabe (1992) can neither alter scope already set by overt movement nor establish scope, as far as negative phrases (of the English sort) are concerned.

West Flemish (only narrow scope)– English (wide scope possible) contrast:

- (151) (199) da Jan hee willen geen vlees eten  
that J has want(ed) no meat (to)eat  
*only narrow scope available: understand why*  
(152) John wanted to eat no meat/none of the meat. (=200) (due to masking VP movement in English)

### 4.7.1 on the difference with wh in situ

Haegeman & van Riemsdijk (1986:451) observe that multiple wh-questions act differently from negation (where all negative phrases must raise): why can wh- question be in situ and lead to a pair list reading?

- (153) Possible: ... "multiple wh-questions can have a derivation of the sort proposed by Watanabe (1992). The lower wh-phrase in (201) would contain an empty operator that would move in the overt syntax (as a phrase, not as a head). This is plausible, because Haegeman & van Riemsdijk (p. 450) have shown that overt extraction from within an infinitival clause of the relevant type is possible.  
(154) why not with a negative QP?  
(155) (202) where, somewhere, anywhere, nowhere, everywhere, elsewhere  
(203) how, somehow, anyhow, nohow

The idea, then, would be that the empty operator, being of the series some/wny/no/every, could not cooccur with one of those, i.e., the empty operator could be associated with (form a constituent with) where,107

but not with nowhere,<sup>108</sup> as desired.

#### 4.8 4.10 Scope ambiguities with two quantifiers

German versus English:

(156) weil jemand versucht hat [ jeden reinzulegen ] (=209)  
since someone tried has everyone to-cheat  
*unambiguous.*

(157) (since) someone has tried to cheat everyone (=210)  
possible reading: everyone > someone

(158) [*DistP* Everyone [ someone has tried to cheat t ] → remnant VP fronting.

As German (OV) lacks remnant-VP fronting; → in German *jeden* 'everyone' is unambiguously within the infinitival

since there is no covert QR, and since the subject of *try* is not under the scope of the embedded object at any point in the derivation, there cannot be inverse scope.

in English remnant VP movement obscures this!

German does allow some contexts in which *jeden* can scope over someone: Here German and English behave in the same way:

(159) a. weil irgendjemand auf jeden gespannt ist (=211)  
since someone for everyone anxious is

b. someone is anxious about everybody

→ *someone* is below *everybody* which is in the scope position, at some point in the derivation.  
about [ everybody [ ~~someone~~ is anxious. ]

(160) Williams 1986: wide scope is best in final position. (setting aside sentence final adjuncts)<sup>19</sup>

(161) footnote 114:

Similarly for: (i) A different student called up every professor.

(ii) A different student called every professor up.

The multiple student reading (cf. Beghelli & Stowell 1997, Johnson 1997) seems much more accessible in (i) than in (ii). Beghelli & Stowell discuss the fact that in (iii) there is a natural reading with one book having scope over negation but under every boy:

(iii) Every boy didn't read one book.

The following suggest that in such readings the indefinite must move overtly to their Spec,ShareP:

(iv) Every student didn't look up one/some word.

(v) ?Every student didn't look one/some word up.

## 5 Burnett, Koopman, and Tagliamonte (2018b) Structural explanations in syntactic variation: The evolution of English negative and polarity indefinites

Looked at variation *no* and *any* in a corpus constructed for sociolinguistic research (Sal Tagliamonte): Toronto English corpus (Sali Tagliamonte), using the insights coming from Scandinavian. We coded the

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<sup>19</sup> also true for stranding Ps

utterances according to syntactic structures, with the insights coming from the distribution in Scandinavian and Kayne's paper:

- (162) a. Higher than VP  
 b. pragmatic widening no/any (turns out a property of the higher domain)  
 c. Lower than VP

Construction Type	Syntactic Domain					
	Higher than VP			Lower than VP		
	Neg-Q	NPI	%Neg-Q	Neg-Q	NPI	%Neg-Q
<i>be</i>	42	9	12	3	12	20
existential	299	19	6	10	6	62
<i>have</i>	182	0	100	1	91	1
other verb	45	0	100	21	414	5
Total <i>n</i>	568	28		35	523	

"Table 4 shows that while No and Not...any appear close to the same frequency in the corpus (Neg-Q (603); NPI (553)), the variants are almost categorically associated with different syntactic positions: no appears in the higher syntactic domain 95.3% of the time, while any appears in the higher syntactic domain at most 6.3% of the time. Moreover, it now becomes clear that the lexical constructions that have been considered a defining condition on No/Not...any variation are an epiphenomenon of the underlying syntactic domain. Indeed, for the verb *have* and lexical verbs (shaded in the table) the contrast is virtually categorical."

We then constructed a binomial mixed-effect regression model using the lme4 package in R (Bates, Mächler, Bolker, & Walker, 2015; R Core Team, 2016). We included speaker as a random effect, and as fixed effects the three-way predictor for syntactic domain, verb, as well as two sociolinguistic factors (age and gender).<sup>1</sup>

See Table 6 confirms the enormous effect of the syntactic position of the indefinite, even in the small area of the grammar where optionality reigns. Speaker gender does not significantly condition Neg-Q/NPI variation; however, it is now apparent that the middle-aged individuals have a heightened use of Neg-Q.

TABLE 6. *Binomial mixed-effect regression model predicting ‘any’ negation.*

	<b>AIC</b>	<b>BIC</b>	<b>logLik</b>	<b>Deviance</b>	<b>df.resi</b>
<b>RANDOM EFFECTS</b>	215	2476	-100	199	392
Groups	Name	Variance	Standard Deviation		
Speaker	(Intercept)	1.05	1.02		
<b>MODEL INFORMATION</b>					
Number of Observations	400	Number of individuals	81	Overall proportion	12% <i>any</i> negation
<b>FIXED EFFECTS</b>	<b>Estimate</b>	<b>Standard Error (SE)</b>	<b>Pr(&gt; z )</b>	<b>Ns/cell</b>	<b>% <i>any</i> negation</b>
(Intercept)	-0.653	0.683	0.3393		
Predictors					
<b>VERB</b>					
<i>be</i> (reference level)				66	<b>8</b>
Existential	1.516	0.464	0.0011**	334	<b>32</b>
<b>SYNTACTIC DOMAIN</b>					
Higher than VP (reference level)				31	<b>58</b>
Lower than VP	3.620	0.618	4.5e-09***	351	<b>6</b>
Widening	0.806	0.753	0.2845	18	<b>39</b>
<b>GENDER</b>					
Female (reference level)				242	<b>12</b>
Male	0.196	0.521	0.7072	158	<b>11</b>
<b>AGE</b>					
Older	-1.734	0.645	-0.0017**	137	
Middle-aged (reference level)				165	<b>8</b>
Young	-0.893	0.677	0.1877	98	<b>14</b>
					<b>14</b>
Significance codes	0 '****'	.001 '***'	0.01 '**'	0.05 '.'	

Examining 35 examples of negative quantifiers below VP more closely suggests that we may not be dealing with true optionality.

**HK: following VP does not mean below VP.**

(163) What do you think the difference is between the English grammars that Kayne describes and Toronto English C (TEC)?

For speakers that have (only) the TE grammar what would the predictions be w.r.t the availability of wide scope (115) or narrow scope (114). (i.e. what in Kayne’s analysis allows wide scope? What is the role of VP movement around negation in this respect?)

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## 6 When the syntax is not as it seems: On Interface Mismatches

*The following sections are part of the invited lecture presented at the form meaning workshop on August 3. I have not adjusted the sections/subsections/subsections structure. This means that in the table of contents sections 5 to 12 are all part of the same talk.*

## 7 Introduction

- To what extent can the syntax semantics and syntax phonology interfaces be taken to be direct?
  - (164) a. *Is there postsyntactic structure building or structure manipulation?*
  - b. *Is QR (low spell out of a quantified phrase) justified?*
- The field seems to be (almost) uniformly in agreement that there must be postsyntactic structure building, and that QR (low spell out of a quantified phrase) is the correct way to interpret (certain) scopal interactions.
- More specifically: can we distinguish empirically between the two hypotheses below: in particular, how far can we get with overt movement only?
  - Within 'One single computational engine/onesyntax' approaches, QR/scope, and phonology/spell out.
    1. A syntactic object can be interpreted higher than where it is pronounced in the syntax. (Fox and Nissenbaum (1999) Extraposition and scope. QR)  
*standard assumption.. hardly challenged*
    2. Kayne (1998): "cases of covert phrasal movement can be advantageously rethought in terms of overt movement"  
→ *LF and PF Interpretation are maximally informative about the sequence of Merge*
- (165) **Overt Scope Principle**  
A syntactic object cannot be interpreted higher than where it is pronounced in the syntax.  
→ reconstruction (cyclic interpretation) is OK, but no QR (or spell out of low copy)
- today's talk<sup>20</sup> is a case study of an (apparent) form meaning mismatch in a particular English construction (both syntax semantic and syntax phonology), and how it informs these questions, or questions about the architecture of the model, and ultimately what kind of syntax we should pursue.

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<sup>20</sup>A further elaborates of a squib Koopman (2017). Thanks to audiences at UCLA, Humboldt University, University of Vienna, and University of Venice where various aspects of this work were presented.



- General questions about architecture of UG. Narrow syntax or not?  
Head movement or not? Are inflected lexical items with (ordered) feature bundles allowed?  
Antisymmetry or not? Postsyntactic movements/reordering or not?  
How do we decide/evaluate different frameworks?
- Results from formal language theory: theories must fall within mildly context sensitive grammars. (see [Joshi \(1985\)](#)).  
As [Stabler \(2011\)](#) and his colleagues have shown frameworks with antisymmetry or without, with head movement or without, with right and left adjunction all fall within the class of Mildly Context sensitive grammars. This means that questions of implementation cannot decide between frameworks.

(166) syntax we need is the syntax that is appropriate for the interfaces, and that yields insights into language variation.  
Important role of comparative syntax. Insights into English can come from properties of Japanese.

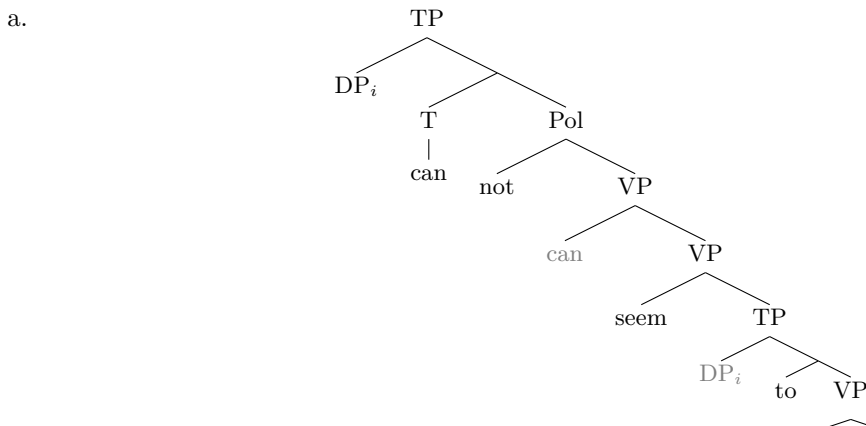
Price to pay (for us linguist): longer syntactic derivations, and working them out. This does not mean increased complexity ([Stabler \(2011\)](#)).  
*but what this means for the future is that syntacticians need to work with computational linguists to build apps that we can use to help us figure out the exact empirical predictions that the derivations make.*

## 8 A scope puzzle from English: What we can learn from an idiosyncratic construction.

A particular type of mismatch between the syntax and the semantics can be found in sentences with *can't seem*: (cf. [Langendoen \(1970\)](#), [Jacobson \(2006\)](#), [Homer \(2011\)](#)).

- (167) I cannot seem to get away from verbal complexes
- Paraphrasable as:*  
It seems that I cannot get away from verbal complexes SEEM > NOT > CAN  
It seems that I am unable to get away from verbal complexes.
  - Not as:*  
It cannot seem that I get away from verbal complexes. NOT > CAN > SEEM  
\*I am unable to seem to get any work done on the bus

(168) The syntactic structure of (167) seems to be rather straightforward. *a simplified tree:*



- (i) *Can* appears to be in T, *not* in POL, and *seem* in the VP combining with a to- infinitival complement, *cannot* > *seem* > *to get away*, with the subject raising out of the infinitival complement.
- (ii) By undoing/blocking raising to subject, we expect to find the paraphrase in (167-b).
- (iii) But instead we find (167-a).

(169) →Syntax and Semantics Mismatch!  
*As I will show below: the syntax is not as simple as it seems*

## 8.1 When does this scope mismatch occur?

3 necessary ingredients.

- Raising to subject verb: *seem* (but not *appear*).

- (170) a. I can no longer seem to get away from verbal complexes  
 b. # I can no longer appear to get away from verbal complexes

- A downward entailing expression  $E_{DE}$ .

- (171) a. noone can seem to forget about the vote  
 b. Few can seem to fathom how he could be so popular. [Jacobson 2006, ex. 9]  
 c. At most five people can seem to understand this.  
 d. John can never seem to speak in full sentences. [Jacobson 2006, ex. 7]  
 e. I just bought this lens, and I can rarely seem to get a clear picture.  
 f. Only John can seem to stomach watching reruns of the 6th game of the 1986 Series. [Jacobson 2006, ex. 10]

but: (unless with Pol focus)

- (172) ?\*I can seem to get work done on the bus

- The ability modal *can*
- Scope reversal puzzle: (following Homer (2011).  
 ( $E_{DE}$  refers to downward entailing expression, and CAN to an abstract (ability) modal.)

- (173) a. Surface order (ignoring V-to-T movement):  
 $E_{DE} . . . can . . . seem$   
 b. Scopal relations:  $SEEM > E_{DE} > CAN$

## 8.2 Previous accounts

- No syntax semantics mismatch:

- (174) Syntax:  $SEEM > E_{DE} > CAN$  Langendoen (1970)  
*cannot* raises in subject raising environments.

- (175) Syntax:  $E_{DE} > can > seem$  Jacobson (2006) scope mismatch is an illusion<sup>21</sup>

- Syntax semantics mismatch: Homer (2011)

<sup>21</sup>Tries to assign meanings to the pieces in such a way that the surface scope is the semantic scope

- (176) a. Syntax:  $E_{DE} > \text{can} > \text{seem}$   
 b. LF: *seem* is a PPI that must raise out of the scope of downward entailing expressions. This movement is blocked by CP.

### 8.3 The syntax is not what it seems... not: $E_{DE} > \text{can} > \text{seem}$

- Late spell out, one syntax, LCA, direct interface – Surface order must be the output of the syntactic derivation.
- Syntactic hierarchy represents scope (c-command).  

Syntax: SEEM > $E_{DE}$ > CAN > V
-----------------------------------

*But how can syntax derive the linear order from this hierarchy?*
- Insights from German/Dutch/Hungarian "verbal complexes" "complex verb formation" [Koopman and Szabolcsi \(2000\)](#) what we see here is basically a verbal complex in English.

### 8.4 Structure of the main argument

#### 1. Building up the analysis: the *cannot seem to* construction

- Motivating the syntactic hierarchy
  - Two arguments: the syntactic order of Merge must be SEEM >  $E_{DE}$  > CAN  
 Not: CAN be syntactic, but MUST be syntactic.
- **The problem:** what the syntactic derivation must achieve—mismatches!  
 from an underlying order of (e-) merge in (177-a), with numbers referring to c-command (1 c-commands 2, 2 c-commands 3, etc.) we must derive a surface structure in which 3 (not 1) combines with T, and 2 with POL, when raising to subject occurs.

- (177) a. SEEM1.. >  $E_{de}$ 2.. > CAN3...  
 It seems I cannot get away from verbal complexes  
 b. CAN3 [T] >  $E_{de}$ 2 [POL] > SEEM1  
 I cannot seem to get away from verbal complexes

321

- No new tools: A crucial insight for the derivation comes from Dutch and German verb clusters— "step of complex verb formation"<sup>22</sup>. Extend the analysis in [Koopman and Szabolcsi \(2000\)](#) to English. Verbal complexes: (not part of standard English syntax!  
 after all it is a Germanic family trait. English syntax is surface opaque)
- Building up the details of the derivation...  
 Analytical ingredients: *seem, to, DE, can, V/v, complex verb formation, raising to subject, idioms.*

#### 2. The analysis will yield a more refined understanding of raising to subject (in *seem* constructions)

3. it will account for why several factors must hold at the same time for convergence (DE and CAN and subject raising each have a role to play.

#### 4. solution to two other problems:

*seem* but not *appear*  
 no experiencer intervention

<sup>22</sup>For remnant VP movement in English and the interaction with verb particles see [Kayne \(1998\)](#) and refs cited therein

5. **(Apparent) Syntax- Phonology mismatches** represent converging syntactic derivations in the proposed analysis.

(Possible) insights from English into a problem for German: a syntactic account for "displaced" *zu* in certain verbal complexes [Saltzmann \(2016\)](#). No need for postsyntactic local dislocation for this case. (see in particular [Hinterhölzl \(1999\)](#), and for Huave, see [Koopman \(2018\)](#)).

## 9 A verbal complex in English

Recall: the paraphrases below show the following scopal relations: SEEM > E<sub>DE</sub> > CAN > VP.

- (178) a. They could not seem to figure the syntax out  
 b. *Paraphrasable as*: It seems that they could not figure the syntax out

### 9.1 Two arguments that CAN merges with the lexical "VP"

- (179) (... seem to) >CAN > VP

1. Textbook arguments for raising of CAN NOT (cooccurring with subject raising):

- The merge order appears when *seem* takes a *that* clause.

- (180) a. They cannot seem to figure the syntax out  
 b. *Paraphrasable as*: It seems that they cannot figure the syntax out

→ factoring out *seem to* always yields a perfectly well-formed string, keeping the meaning constant.

- Idioms: *can VP* or *cannot VP* can be idiomatic, but there are no idioms of the type *can seem to V*: (([Langendoen 1970](#):2 and 3)).

- (181) a. Abe can't (seem to) afford paying the rent  
 b. Harry can't (seem to) help falling asleep  
 c. Sam couldn't (seem to) stand the sound of jackhammers underneath his bedroom window  
 d. Tevye couldn't (seem to) tell the difference between right and left

*can afford* is an idiom:

- (182) a. Abe can afford paying the rent  
 b. \*Abe affords paying the rent  
 c. \*Abe doesn't afford paying the rent

- (183) It seems that Abe [can afford ] paying rent

- What do the idiom data show?

Depends on the theory of "possible idioms" [Koopman and Sportiche \(1991\)](#), [Sportiche \(2005\)](#):

- (184) Possible idioms must be a connected and uninterrupted sequence of heads.

Specifiers can be free positions :

- a. to *pull* one [ 's [ *leg* ] ]  
 b. CAN > afford

Must be met at some point in the derivation: → E-Merge

- (185) → relative order of E-merge must be: seem > CAN > V

- **Conclusion:** a (syntactic) movement account is required, with (NEG) CAN taking a bare VP complement, as modals usually do, and *seem to* merging with the result.

– Wait... but why does this show *can* always merges locally with *afford* in the *syntax*?

Why cannot idiom composition happen at LF?

I take it I don't have to argue for (184). *i.e. alternative analysis will have to mimic this raising syntax.*

2. **Lifting aspectual restrictions:** A second argument further confirms the relative order of E-merge of *seem to* and *can*, as *seem to* > *DE* > *can*.

The *cannot seem to* construction is exempt from an aspectual restriction that present tense *seem* otherwise always imposes: the main embedded predicate must be stative, (or receive a non-episodic reading), with the exception of the *can't seem to* construction (Homer (2011)).

- (186) a. \*They seem to sleep  
b. They cannot seem to sleep
- (187) a. \*I seem to swim faster  
b. I cannot seem to swim faster

This directly follows if *sleep* is directly embedded under CAN, as I just showed it must be. Then CAN is the main predicate that should satisfy the aspectual restrictions of *seem* by virtue of the structure (which it does).

- (188) a. ...seem to THEY NOT CAN sleep  
b. ...seem to I NOT CAN swim the butterfly

Although *can* may not surface in infinitivals, *be able to* can do so (and fails to climb).

- (189) a. They seem unable to sleep / They seem to be unable to sleep/ \*they are unable to seem to sleep  
b. They seem unable to sing / They seems to be unable to sing  
c. They cannot seem to ~~not can~~ sing

- **Conclusion:**  
the *cannot seem to* construction *must* be derived in the syntax, as Langendoen proposed in (1970).  
*must* or *can*?  
(see 10.1 for further discussion/possible alternatives of aspectual and temporal restrictions)

- (190) (..seem) >CAN>VP.

## 9.2 The syntactic derivation –A verbal complex, pied-piping, remnant movement, and subject raising

in addition to raising to subject:

- the structure in (191-a) shows the order of E-merge underlying (191-b)

- (191) a. It seems that they can no longer afford paying the rent  
b. *derivation to be developed*  
... seem to THEY NEG CAN afford paying the rent

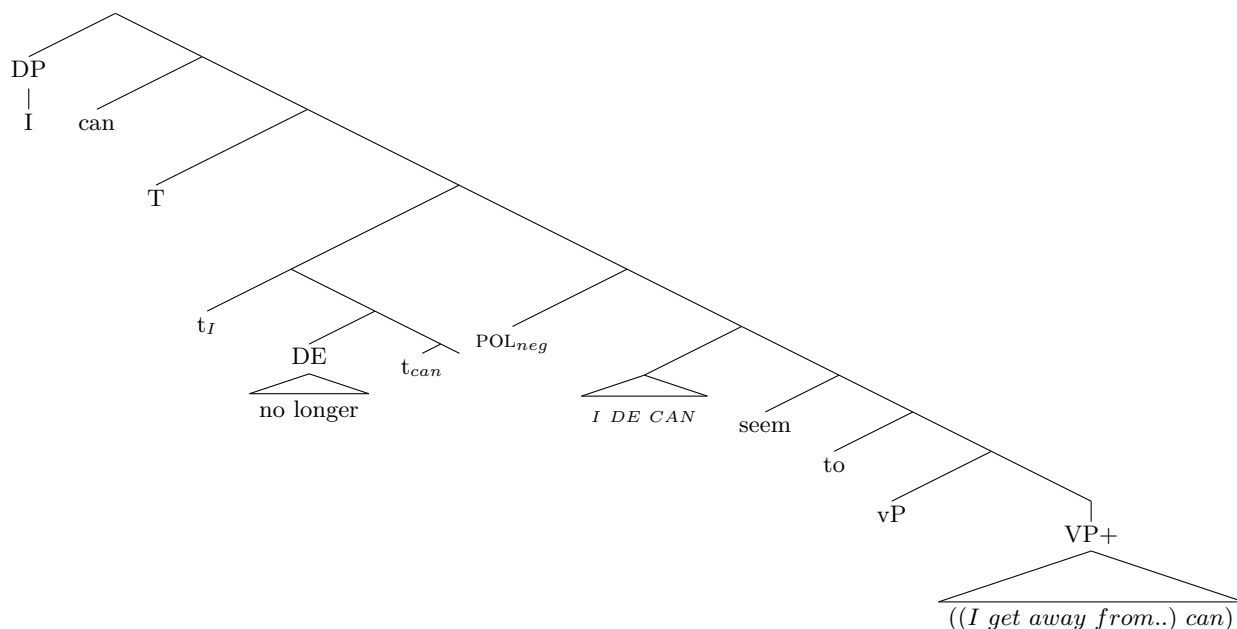
Problem: Given that only constituents can move, how can the relevant chunk of structure, with the subject, and *no longer can* move out of the infinitival complement?

- (192) (i) Must be phrasal movement (or phrasal movements)  
(ii) Must be remnant movement *can we further restrict the derivation?*

**Ingredients: lexical properties, Merge (E and I) (locality of selection), attract closest, extension condition**

- Complex verb formation (Germanic) *can* , and *seem* must form a complex verb. *can* attracts a subpart of its complement, which can trigger pied-piping in English.
- The role of *to* in the syntactic derivation.. (*It* attracts the *vP* and creates the relevant remnant) support: see my lecture 3 of summerschool (*Kayne 2000: chapter 14, 15*), and the evidence from *Koopman and Szabolcsi (2000)*
- How does the remnant end up in the *seem* clause? through complex verb formation, as found in the OV Germanic languages and Hungarian).
- What role does negation/downward entailment play? Marks POL as negative, raises outside VP, and brings the remnant chunk closer to T.
- how come the finite T can combine with *can*, and not with *seem*? (complex verb formation and pied-piping to DE brings "can" closer to T than *seem* ).
- How does the subject map onto the subject position? (by extracting from the raised constituent)

### 9.3 Where this leads to: the outcome of the derivation



Considerably more derivational depth!

Broken down in pieces from bottom up in the next sections. The mechanics..

### 9.4 Germanic syntax—A verb "cluster" in English

I will assume *Seem* and *CAN* are clustering verbs, as they are in Dutch and German .

What is a verb cluster? sequence of verbs with separable particles/small clause predicates, infinitives, participles, *te*, *zu*.that do not contain any of the arguments

(193) Dutch

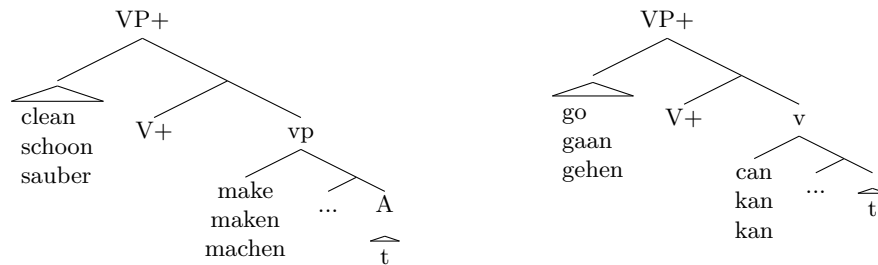
- ... < *op* > kan < *op* > bellen  
... can call up
- ... < *schoon* > kan < *schoon* > maken  
... < *clean* > can < *clean* > make.ing

- ... < *piano* > kan < *piano* > spelen  
... can play piano
- ... < *gaan* > kan < *gaan* >  
... can go

(194) German

- |  |   |
|--|---|
| <p>a. ... an rufen kan<br/>... up-call can</p> <p>b. .. sauber machen kan<br/>... clean make can<br/>can clean</p> | <p>c. ... Klavier spielen kan<br/>... piano play.inf can</p> <p>d. ... gehen kan<br/>go.inf can</p> |
|--|---|

- Extend [Koopman and Szabolcsi \(2000\)](#) to English *cannot seem to*.
- Parameters: same grammar: variation is due to phrasal movement (restrictions on size) and pied-piping *we don't want to add new tools, we want to move towards being able to model the typological variations (within Germanic (synchronic or diachronic), including what is possible, and what may be excluded)*
- Complex predicate formation (UG) small clauses must form a complex predicate with the selector: this is phrasal movement, and represented as a designated syntactic configuration (slightly larger than the minimal VP), which we called VP+ (sometimes called PredP). These may surface as such in Dutch, German, Hungarian,



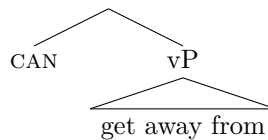
- Clustering verbs must form a complex predicate (a UG requirement)—they attract a VP+ to the VP+ that dominates them (sometimes labeled as PRED).

As we demonstrated in K&Sz, these movements are overt phrasal movements, driven by the need to satisfy feature selection in strictly local configurations (through (I-)merge, not Agree), and obey the extension condition. They have been studied for their formal properties [Stabler \(2011\)](#), and have been implemented in Stabler's Minimalist Grammar. They have been shown to not add complexity.

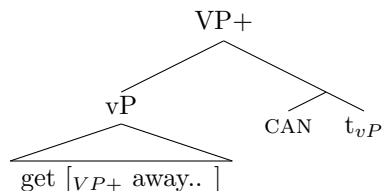
## 9.5 A sketched out bottom to top derivation

### 9.5.1 Complex verb formation and piedpiping

Picking up the derivation at the point CAN merging with a vP complement.

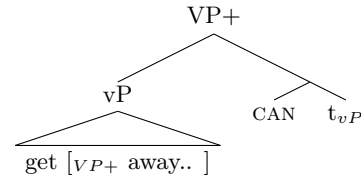


CAN must form a complex predicate: it attracts a subconstituent of the vP (which we called VP+ [ get [vP away get ] ], which merges on its left (in VP+),



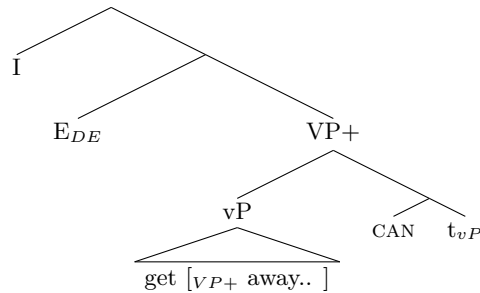
Pied-pipes away: pied-pipes the lexical projection  $vP$ , as shown (195).

- (195)
- CAN merges with vP/VP
  - CAN attracts VP+ to form a complex predicate (V+ omitted)
  - VP+ pied-pipes vP



### 9.5.2 Merge DE and subject

Merger the downward entailing expression and the subject DP *either by E(xternal) merge, or I(internal) merge, nothing hinges on this.*

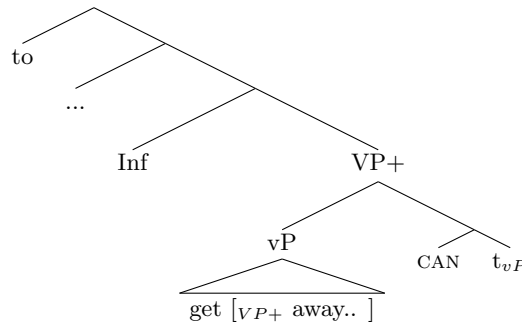


### 9.5.3 ..Merge to

*seem* and *to*

- Question: what is the relative order of merge of *to* > *seem*, or *seem* > *to*. I follow K&Sz here <sup>23</sup>.
- Insights from Dutch *te* and German *zu*: attract an infinitive. *to* comes Infl which attracts an "infinitival" VP (a morphologically bare VP in English)<sup>24</sup>.

- (196) Question: which Vp/VP is attracted to *Inf* and *to*?
- not CAN, but vP (in effect skipping *can* is a by-product of complex verb formation)



### 9.5.4 Output of vP movement to *to*

vP moves to the *to*-region: this creates remnant constituent □

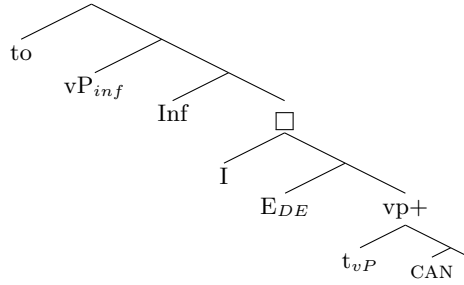
*seem* enters into complex verb formation:

The constituent containing *can* is what *seem* needs for complex verb formation..

<sup>23</sup>Though again nothing much hinges on this for the purposes of the presentation

<sup>24</sup>I depart from K&Sz here in allowing subextraction out of a specifier within a phase.



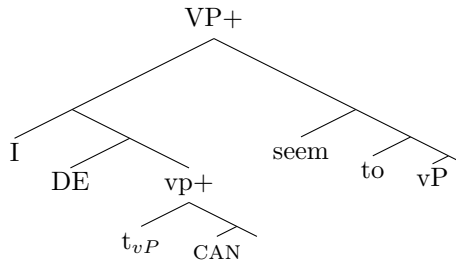


In Dutch and German, the only element following *te zu* will be the infinitive. In English it is a vP.

### 9.6 Merge *seem*, form a verbal complex (by attracting CAN which pied-pipes DE and Subject)

NB: This step "smuggles" CAN past *seem*

(197)



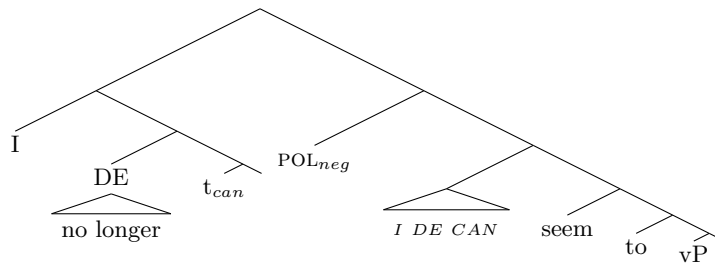
(198) SCOPE: *seem* is not c-commanded by the DE expression, and hence *seem* is not in the scope of the DE

NB: this step *must* be the highest point at which scope is calculated: even though *cannot* ends up marking the polarity of the clause as negative<sup>25</sup>, as the Horn tests show "*He cannot seem to do this, can he?*" it does not appear to interact with the calculation of relative scope over *seem*.

#### 9.6.1 What is the role of DE

(199)

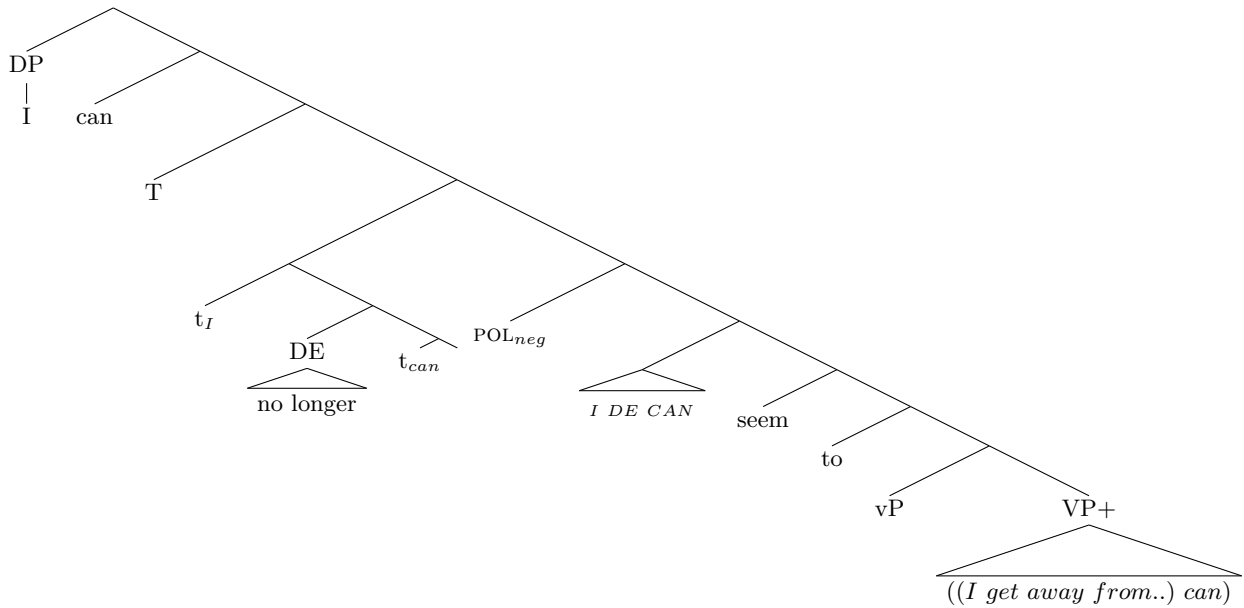
- a. DE is a necessary actor in the derivation
- b. Hypothesis: DE expressions must occur in the T region (obviously true for Negative elements, ..)
- c. DE will I merge, and pied-pipe *can*. *collaboration under pied-piping: free riders*



<sup>25</sup>Many thanks to Chris Collins for discussion of this problem.

### 9.6.2 Merge T

In the next steps in the derivation T merges, *can* merges with T, and the subject to Spec, TP, and the closest DP.



## 9.7 End of Part 1–Interim Conclusion

Part 1: Analysis. (motivating the syntactic hierarchy, working out the syntactic derivation, ie. solving the problem for (177-a) )

- A syntactic derivation can be motivated, and spelled out, informed by close common syntax with other Germanic, bringing English (partially) in the Germanic mold. No new tools added to the grammar.
- falls within mildly context sensitive grammars. **Mildly Context sensitive grammars** (see [Joshi \(1985\)](#)). (As Edward Stabler [Stabler \(2011\)](#) and his colleagues have shown frameworks with antisymmetry or without, with head movement or without, all fall within the class of Mildly Context sensitive grammars)
- There is no syntax semantics mismatch

But there are what may seem to apparent mismatches of *to* going with the "wrong verb" (from a non-movement perspective), and *cannot* ending up in T (instead of *seem*). Both are however simply the effect of legitimate steps that are created in the course of the derivation.

## 10 Part 2: Broader Implications and discussion

### 10.1 Discussion and Implications

I have argued so far that not only CAN be syntax, but that it MUST be syntax.

- Two arguments: the syntactic order of Merge must be SEEM > E<sub>DE</sub> > CAN
- The idiom argument  
But, but....  
suppose instead we take the syntax for ?? to be: *not* > *can* > *seemto* > *V*.

couldn't we do this equally well at LF?<sup>26</sup>

Can we save this syntactic input somehow to derive the properties of the construction?  
(if we do so, we must use well-understood and independently needed semantic tools).

(200) idiom formation: semantics take1: (can afford) takes place at LF, where we semantically compose *can* and V after *seem* moves out of the way, and scopes over *can*. (Homer (2011))  
*Why should UG allow this rebracketing or structural change. This mimics the structure where seem is not intervening, but that we get from what the syntax shows us. So, it is looks like a non-starter to me.*

(201) Or couldn't we form the idiom by lowering *cannot* below *seem* at LF?  
*I take Lowering is the theory of reconstruction: you can only reconstruct if you were present at some earlier stage in the derivation(i.e. if you undo movement, interpret before movement). Can you lower CANNOT in some other way using semantics at LF? The only real option (as Clemens Mayr suggests to me) would be some version of neg-lowering via some presupposition of SEEM. However, under such an approach CAN NOT crucially will not take literal narrow scope wrt. SEEM, and it will be unable to semantically combine with V at LF.*

- The second argument: aspectual restrictions on V under *seem* appear to be lifted. This I suggested is expected since it is CAN that should satisfy these restrictions  
*seem to > DE > can V.*

(202) Is this argument sound? Can we assume a different mechanism, (which might be independently needed? Here is an attempt <sup>27</sup>

the progressive restriction under SEEM disappears when SEEM occurs in the PAST-*ie.*, "They seemed to sleep" is OK (as pointed out by Wurmbrand (2014), who takes this as evidence that the complement of SEEM is entirely tenseless and the aspectual composition is dependent on the matrix tense.

(203) T seem [*notense* aspect ] Wurmbrand (2014)

- (204) a. \*They seem to sleep" *is like* \*they sleep now.  
b. They seemed to sleep *is like* They slept

From here perhaps not a big jump to:

(205) a. [ can(not) [ seem to [ ASP sleep ] ] ] LF CAN can "see" embedded ASP

(206) *My reply to* "all we'd need (if at all) is an LF where the embedded aspect can 'see' CAN" if *seem* linearly intervenes.

- We already have a mechanism to understand this: movement (internal merge): yields apparent violations of selection
- It does not explain why DE seems to be required
- It does not explain why this "\*John can/could/ seem to sleep" does not yield the suspension

## 10.2 Are there other elements that can raise as well?

So far, I have argued that (under *seem*) → Raising to subject is preceded by a step of remnant movement.

(207) seem [ to vP/VP [<sub>α</sub> DP T DE/NEG CAN [<sub>β</sub> ..... ]

---

<sup>26</sup> thanks to

<sup>27</sup>suggested by anonymous

This now raises the expectation that some other elements hierarchically merged in the stretch of structure with CAN could be contained in  $\alpha$  under *seem*, and could potentially raise with  $\alpha$  ending up in the seem clause.

- (208) a. people often cannot seem to lose weight  
 b. t seems that people often cannot lose weight

brings us to the adverbs:

### 10.3 English adverbs

- Adverbs do not scramble. They take scope in their E-merge position (but can undergo movement). But: there is an apparent problem in *seem* constructions that seems relevant in the present context. Adverbs do seem to scramble.

(Examples From Homer)

- (209) a. a. Context: Just looking at the hospital's visitors register, a doctor says. . .  
 People often seem to visit the patient of room 32. SEEM > OFTEN \*OFTEN > SEEM  
 b. Some of you guys easily seem to forget that football is a team sport. SEEM > OFTEN

The *only* option is surface scope when *seem* takes a tensed complement:

- (210) a. It often seems that people visit this patient. \*SEEM > OFTEN OFTEN > SEEM  
 b. It easily seems that some of you guys forget that football is a team sport. \*SEEM > EASILY ; EASILY > SEEM

- *Solution* vP moves to to..inf. Adverbs pied-pipe in the remnant with the subject shifting past *seem*!

- (211) a. seem [ to [ visit his patient [ people often [ ~~visit his patient~~ ] ...  
 b. [ people often [ ~~visit his patient~~ ]<sub>k</sub> seem [ to [ visit his patient t<sub>k</sub> .. ] ] ] ]
- (212) a. people often cannot seem to lose weight  
 b. t seems that people often cannot lose weight

## 11 Restrictions within English

Does the analysis have anything to say about restrictions?

- Why only with subject raising *seem*, but not *appear*?

- (213) a. John cannot seem to lose weight  
 b. \*John cannot appear to lose weight

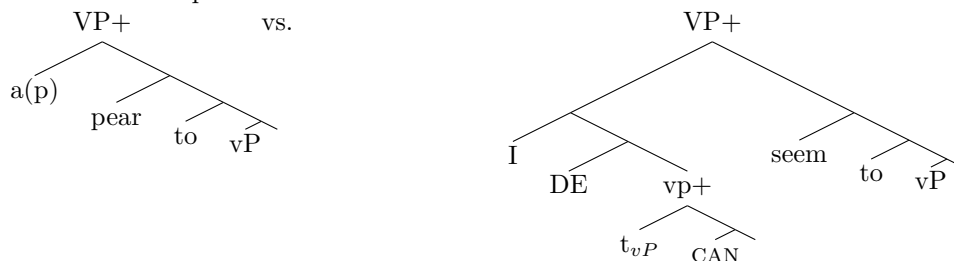
- Intervention why cannot a PP experiencer intervene between *cannot seem* and the infinitival? (see below)
- why "ability" CAN but no other modals *I have no definitive answer?*<sup>28</sup>
- Beyond English: From English back to German 'zu'. a German PF problem.

<sup>28</sup>I need to work out the finer modality based on comparison with Romance lexicalization patterns (thanks to G Cinque) for pointing this out.

## 11.1 *seem* vs *appear*

Why does this only work under *seem* but not *appear*? The construction can only arise if a constituent with CAN raises past *seem* (forming a complex predicate) in VP+. If that is not possible with *appear* then we can explain why it fails.

- (214) Proposal: *appear* has preserved its Romance syntax: it is synchronically [<sub>P</sub> a ]- [<sub>V</sub> pear, the composed of an inseparable root/verb and a P/Part (in VP+). The particle/P is in the position CAN needs to go through, and this type of verbal complex formation (which is the most extreme one with IPP effects). It is well known that Romance P-V verbs are in complementary distribution with Germanic particle verbs.



cf. Like Dutch *toe* which blocks particle climbing via Spec, VP+

## 12 Restrictions

### 12.1 The intervention problem

Langendoen (1970) already mentions that an experiencer cannot intervene between *seem* and the *to infinitival* in the *cannot seem* construction, and gives the following paradigm: (Langendoen 1970:(9))

- (215) a. It seems to me that John can't run very fast  
 b. \*John can't seem to me to run very fast  
 c. ?John can't seem to run very fast to me  
 d. To me, John can't seem to run very fast

For speakers who have the *cannot seem to* construction, the following are OK.

- (216) a. John seems to me to be quite happy  
 b. John seems to be quite happy to me  
 c. To me John seems be quite happy

As Langendoen states:

The difference in grammaticality between (9c)(=(215-c)) and (9d)(=(215-d)), however, has nothing to do with can't-raising, but rather with restrictions on the order of post-verbal constituents, based on the length and internal complexity of their constituents (for discussion, see Ross 1967, Chapter 3). In order for can't-raising to be applicable,

**the restriction is that *seem* must be followed immediately by the infinitival phrase**

Note that this would follow under the proposal in Cinque (2006c):  
 a restructuring verb (a verb merged in a functional projection) cannot project an argument.

The *seem* in the *cannot seem to* construction is certainly a restructuring verb, as part of the lower clause end up in the higher clause.

Yes, I will try to see if I can derive it from the syntactic derivations and possible variation.



## 13 Further Extensions

### 13.1 Insights from English to German displaced "zu": an (apparent) syntax-phonology mismatch problem

- Insights from English into German: a syntactic account for "displaced" *zu* in certain verbal complexes [Saltzmann \(2016\)](#).<sup>29</sup>

No need for postsyntactic local dislocation. ([Koopman \(2015-2017\)](#), [Koopman \(2018\)](#))

German verbal complexes have strict V3 V2 V1 order (corresponding to the scope order),

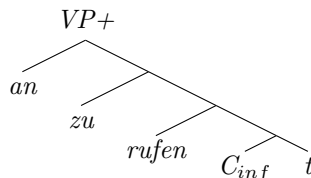
(222) .. lesen müssen kan  
 .. read.inf must.inf can.inf

except in the so called IPP context: the modal shows up with infinitival, not participial morphology, and depending on the German variety the following strings are found:

(223) T>Have> Mod >V  
 a. ... V3 V1+T V<sub>inf</sub>2 ..lesen hat können "read.inf" had "be.able.INF"  
 b. .... V1+T V3 V2<sub>inf</sub>2 hat lesen können "had "read.inf" ""be.able.INF:"

- in infinitival clauses of the type *ohne -zu* "without .... to", a problem arises w.r.t. the placement of *zu* in IPP clusters like (223) (V1 will be Infinitive, because these are infinitives).

(224) Derived surface shape of "zu" (German) (slightly simplified). *zu* has a bare infinitive to its right and the rest of the V cluster and the cluster to its left.



- the derivation must be compatible with the shape that *zu* imposes. (lexical properties must be satisfied)
- combining *zu* with a sequence of 3 infinitives (plus three infinitival morphemes, and a hidden participle) Hierarchy of Merge does not tell us about the hierarchy, because of verbal complex formation in English:

(225) hierarchy of Merge: *zu*>have> Mod >V Not

a. ... \*zu V3 V1.inf V<sub>inf</sub>2 \*..lesen zu haben können  
 \*.. zu lezen haben können  
 b. .... \*zu V1.inf V3 V2<sub>inf</sub>2 \*zu haben lesen können

But: *zu* shows up before V2!

(226) a. ... V3 V1 zu V<sub>inf</sub>2 ..lesen haben zu können  
 b. .... V1 V3 zu V2<sub>inf</sub>2 .. haven lezen zu können

- putting the results from English together with German:

<sup>29</sup>Cite MA thesis of the late Darcy Bruce Berry

(227) *können must be closest to zu at the point where zu is merged. (just as cannot must be closest to T since it ends up in T, even though in the scope hierarchy seem seems higher.!*

- *and bringing in (my) Dutch into the picture: this must be an option: te must precede any number of infinitives (so it is well behaved), but kunnen can be the highest infinitive, contrary to expectations:*

(228) a. *zonder dat boek te hebben kunnen lezen*  
b. *zonder dat boek te kunnen hebben lezen*

*These structure must be based on a syntactic derivation where können is the highest at the point where we merge zu.*

(229) *and ultimately, this is a problem how V2 (the modal) "escapes" the requirement of building a participle, which a resulting switch in linear order. (Clearly not something which is postsyntactic.)*

*I conclude that (228) b is significantly similar to the structure that underlies German zu placement as well! If correct, we have a possibility of finding a syntactic account for the German mismatch, which means that one strong argument for postsyntactic reordering (local dislocation) is (at least) severely weakened!*

## 13.2 What it shows about the future: what syntactic framework we should be pursuing

Form of the syntactic theory we are looking for–

- falls within mildly context sensitive grammars. **Mildly Context sensitive grammars** (see [Joshi \(1985\)](#)). (As Edward Stabler [Stabler \(2011\)](#) and his colleagues have shown frameworks with antisymmetry or without, with head movement or without, all fall within the class of Mildly Context sensitive grammars)
- models the empirical data, not just for individual languages, but for the typology of human languages in general. *provides insight in the relation of English and the syntax of Germanic.*
- makes empirical predictions about what is found and what is not.
- analyses must extend within a language (speaker variation) and to related languages (comparative), and UG (a problem in English: how German and Dutch yield clues for the derivation in English and how that derivation informs German *zu* and Dutch)
- is implementable in Stabler's Minimalist Grammars ([Koopman and Szabolcsi \(2000\)](#))
- Direct interfaces. syntax that is appropriate for the interfaces with phonology and semantics.
- provides a likely path to acquisition. *mapping linear orders onto hierarchical structures*



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