Ways of structuring in syntax

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LUNCH MENU

I. **Three** universal principles plus a **single** parameter are sufficient for capturing a lot of robust cross-linguistic differences between (clauses involving) head-*initial* vs. head-*final* (verb) phrases.

II. The parametric outcome amounts to **three** ways of phrase structuring. Each type is cross-linguistically widely instantiated.

"It is almost impossible to carry the torch of wisdom through a crowd without singeing someone's beard."
G.C. Lichtenberg (1742-1799)

"La Notice"

on potential adverse reactions

What follows **deviates** from currently favoured assumptions in Generative theorizing.

The reason for deviating is the extent of **counterevidence** challenging the respective assumptions.

Such deficits will be exemplified, but cannot be exhaustively covered in the talk due to time limitations. Please, solicit additional facts and justifications in the discussion period.

Lunch MENU

- **Basic architecture** of syntactic phrases

  3 attested vs. 2 acknowledged options:

  Head-*final* ("OV") – Head-*initial* ("VO") – and "third" ("T3")

- **Prominent** syntactic correlates of head-positioning, e.g.:
  - **Shell**-structures in head-initial phrases only ("little v") – Why?
  - **EPP** as an "SVO" phenomenon – Why?
  - **Left-Left**-Constraint only with head-initial phrases – Why?
  - No **in situ wh**-subjects or higher-type wh-adverbials only in "SVO. Why?
  - …. and there are many more syntactic properties that correlate with head-positioning (e.g. *adverb positioning, scrambling, V-aux order, verb-particle order, verb-clustering*, complementizer serialization ….)

LUNCH MENU

Three principles and one parameter

P1: Phrases are **right-branching** (= Merger is to the left)

&

P2: Head-complement **licensing** under canonical **directionality**

&

P3: '**mmc**'-Identification (***m****inimal &* ***m****utual* ***c****-command)*

&

Parameter: values of canonical directionality: {⇐, ⇒; "⇔"}

WHAT IS SYNTACTIC STRUCTURING GOOD FOR?

Syntactic **structuring** is a cognitive **app** for "dimension management"

- A linearly organized PF is mapped on a box-in-box-structure needed by SF
  = unfolding **two-dimensional** structures on **one-dimensional** inputs

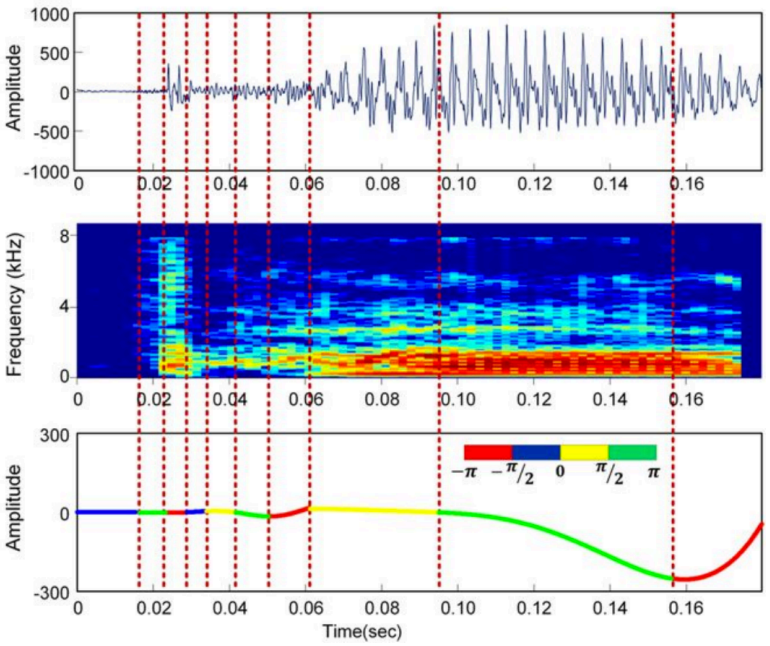
- A box-in-box structure is mapped on a linear structure needed by PF
  = compressing **two-dimensional structures** into **one-dimensional** outputs.

- Syntax is mainly a cognitive computation system for **dimension mappings**.

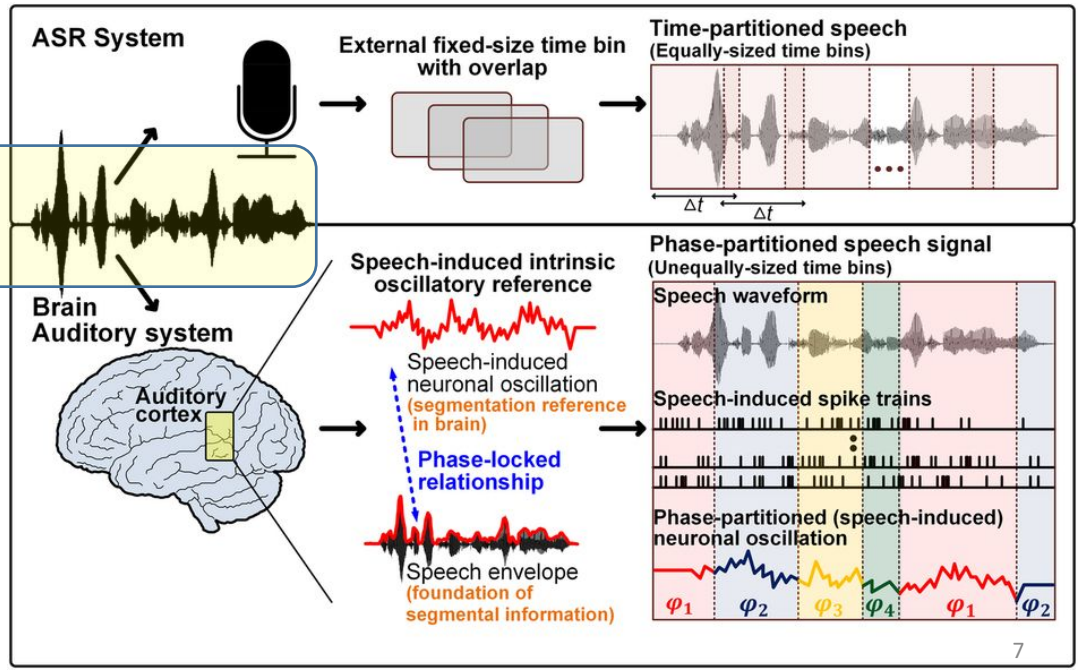
Syntactic structuring is a cognitive "dimension management app"

The principal object of **phonological structuring** has a **linear structure: PF**

➢ Reason**: PF-interface.**



This: ☞



Source of the graphics:
Byeongwook Lee & Kwang-Hyun Cho 2016. Brain-inspired speech segmentation for automatic speech recognition using the speech envelope as a temporal reference.
Nature Scientific Reports volume 6, Article number: 37647 (2016)

Syntactic structuring is a cognitive "dimension management app"

The principal object of **semantic structuring** has a **box-in-box structure: SF**

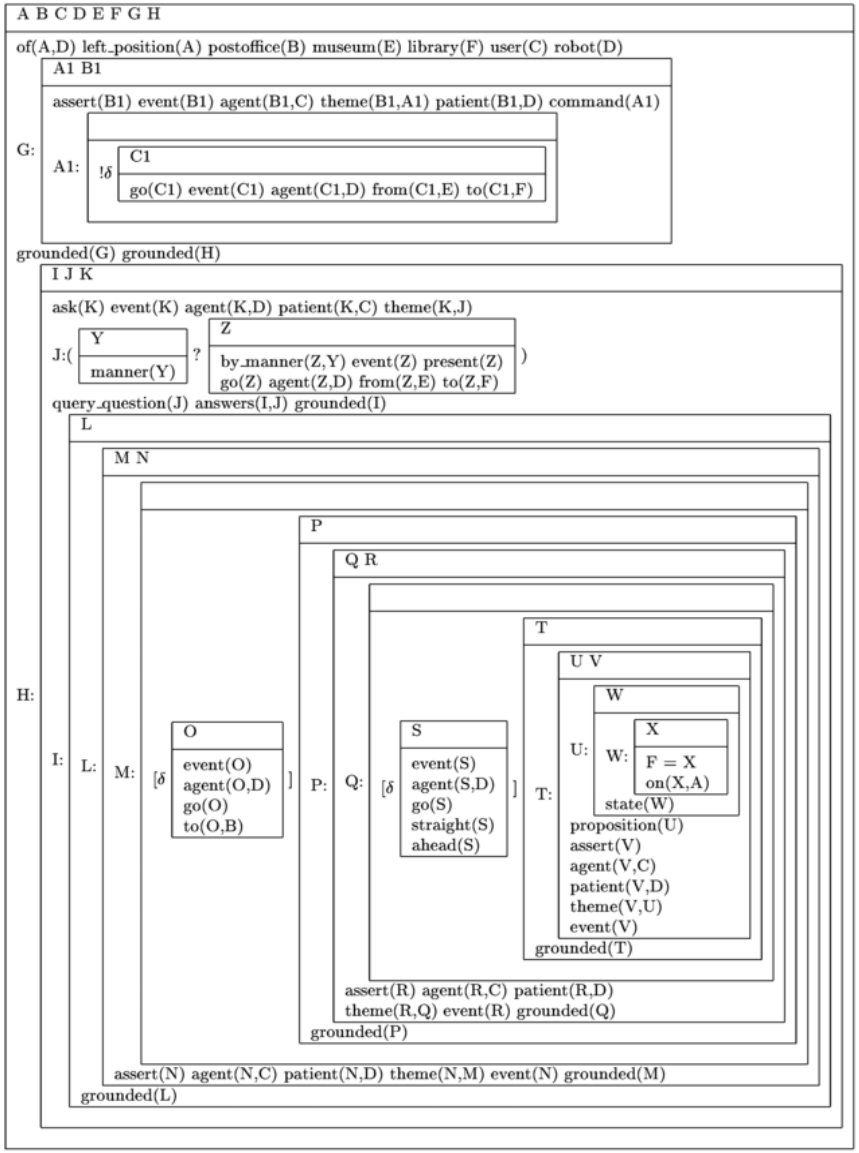
- Reason**: CR-interface**

Representation structure
of the following dialogue
with a robot:

User : *Go to the library.*

Robot: *How do I go to the library?*

User : *Go to the post office.*
Go straight ahead.
The library is on your left.



To appear in edited form in IEEE –Intelligent System & their Applications.
Special Issue on: Semi-Sentient Robot: Routes to Integrated Intelligence.

Personal Robot Training via Natural-Language Instructions.

Stanislao Lauria, Guido Bugmann, Theocharis Kyriacou, Johan Bos*, Ewan Klein*

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Drake Circus, Plymouth PL4 8AA, United Kingdom.

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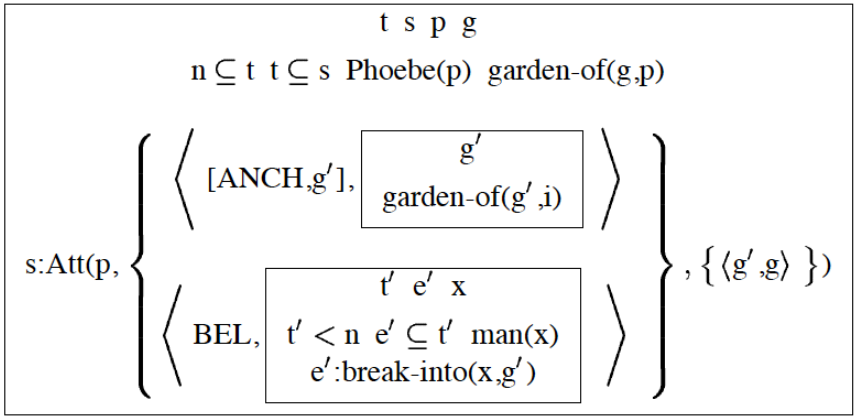
Buccleuch Place, Edinburgh EH8 9LW, Scotland, United Kingdom.

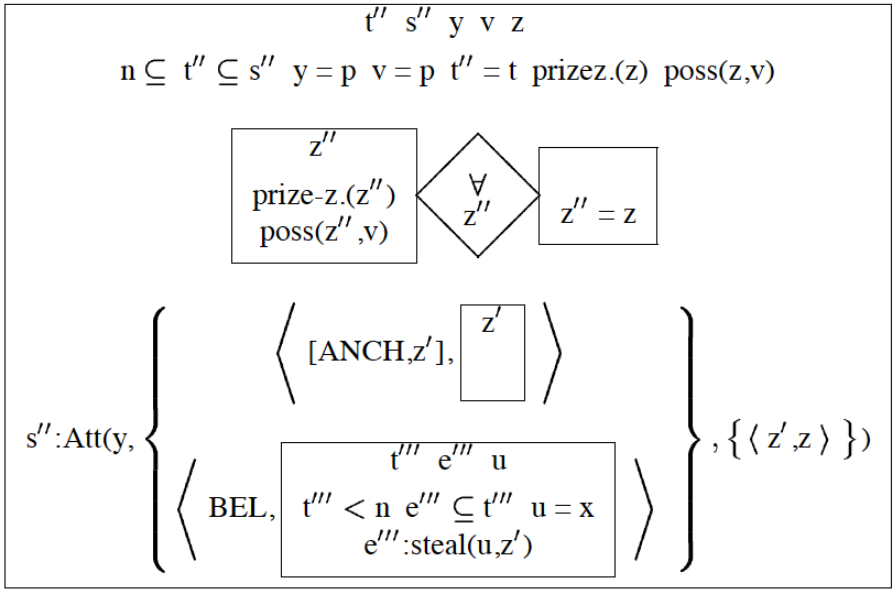
http://www.tech.plym.ac.uk/soc/staff/guidbugm/ibl/index.html

19/3/2001

(1) Phoebe believes that a man has broken into her garden.
(2) She thinks that he has stolen her prize zucchini.

DRS of the discourse sample (1) followed by (2):





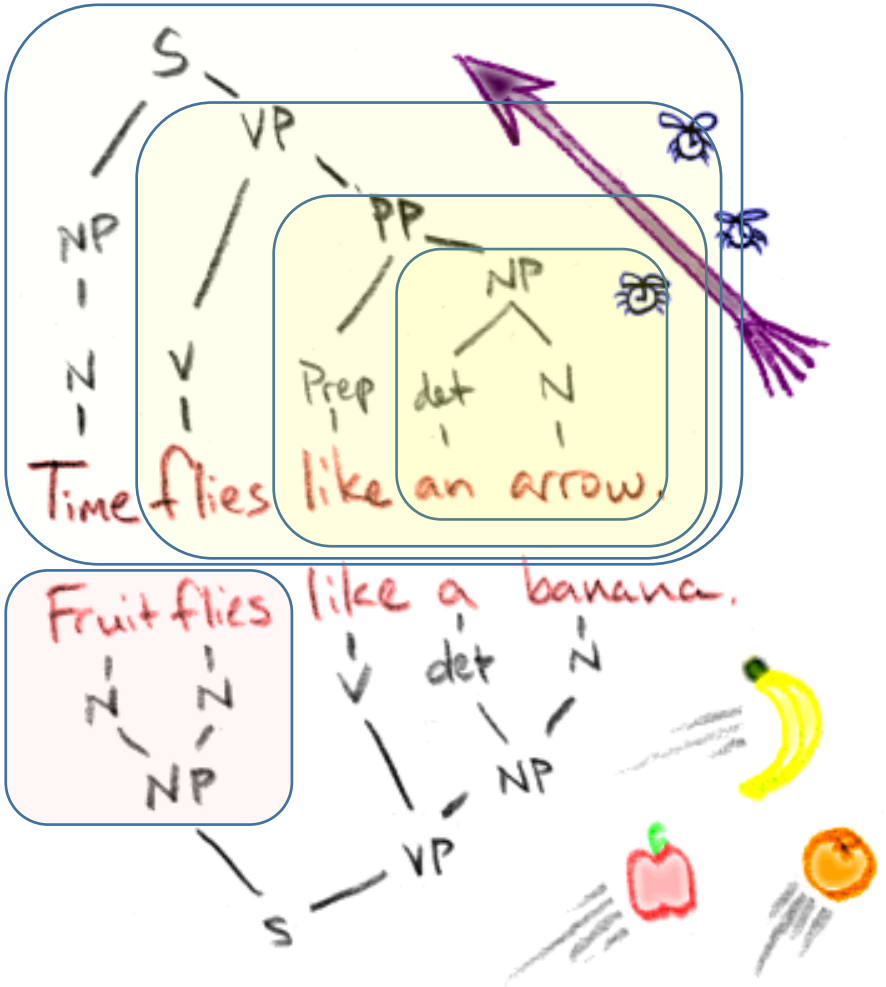
Kamp, Hans, Josef van Genabith & Uwe Reyle 2011. Discourse Representation Theory. In Dov Gabbay (ed.) *Handbook of Philosophical Logic*. vol. 15, 125–394. Berlin: Springer.
p. 233.

SYNTAX = The algorithm that maps linear representations to box-in-box representations, and vice versa

2– dimensional ☞ ☞

1– dimensional ☞

2– dimensional ☞ ☞



a. „time“ and „fly“ are ambiguous: N° or V°. b. „like“ is ambiguous: V° or P°

Basic ingredients of the dimension-mapping algorithm, preserving the qualities of „epistemological priority“ for „primary linguistic data“

„The primitive basis must meet a condition of epistemological priority“ (Chomsky 1981:10)

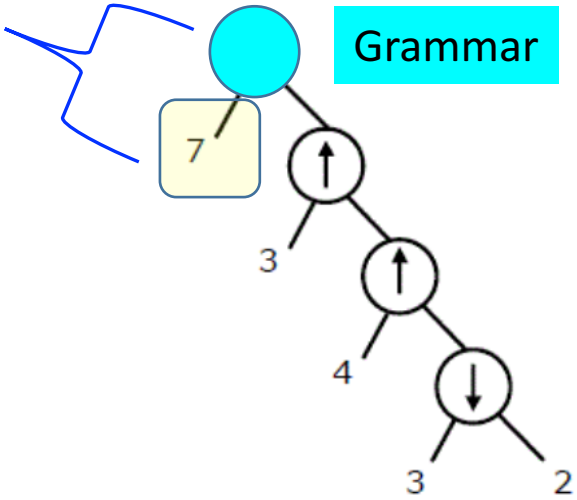
- **DIRECTIONALITY** — Input-output ‘faithfulness’ w.r.t. to the linear signal: What precedes or follows what?
- **COMPOSITIONALITY** — The structure of a complex expression is determined by its constituent expressions and the rules used to combine them.
- **SIMULTANEOUS BOTTOM-UP & TOP-DOWN accessibility**

top-down = **grammar**-driven

bottom-up = **input**-driven

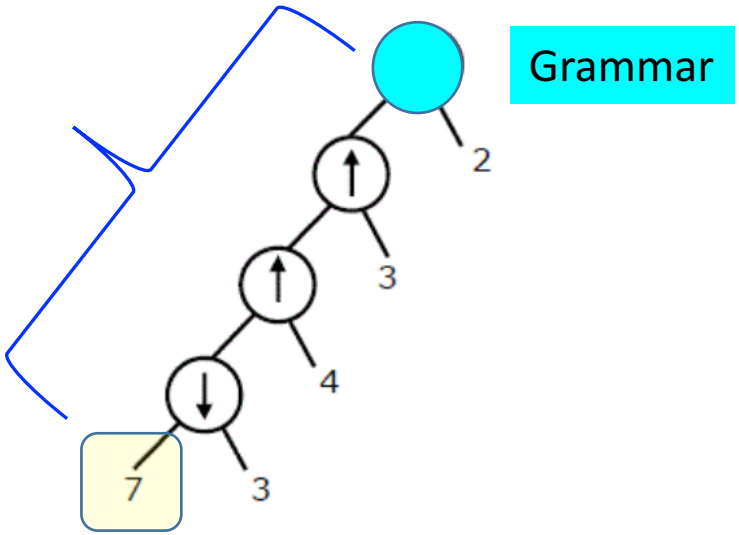
Top down & bottom up

= ‚parser-friendly‘



Top down ≠ bottom up

= ‚parser-unfriendly‘



Der$_7$ sprang$_3$ nogen$_4$ --$_3$ op$_2$ (Danish)

there jumped somebody up

(Germanic SVO & V2-language)

Why simultaneous bottom-up **&** top-down accessibility?

Because of a psycholinguistic fact

Processing (= input or output processing) is **on-line** and does **not hang on**.

- It starts with the **first** segment of an utterance that is uttered.
- Hence, **effective input-processing** rests on reliable **structural predictions** without much **backtracking.**
- **Grammars** provide **predictive** information on what kind of sub-structure may or may not come next (cf. Germanic declarative clause: cf. **[XP [V_{fin} [...]]].**
- **Right-branching** structures are **inherently "top-down".** So, the grammar can feed in at any step, **without** look-ahead.

A general remark

Grammar systems are a **product of an ongoing cognitive evolution** (= variation + selection = adaptation) of grammars.

This *evolution* of grammars has **enhanced** the immediate bottom-up & top-down fit.

The various structures, which evolved through ongoing filtering in the course of diachronic changes, turn out to be parser friendly.

Note

- Diachronically, SVO is a late development. SOV is much earlier.
- Many languages have changed from SOV to SVO, but:
- No language has ever changed from English-like to Sanskrit-like.

Haider, H. 2018 (submitted). An anthropic principle in lieu of "Universal Grammar".

Haider, H. 2015 “Intelligent design” of grammars – a result of cognitive evolution. In Aria Adli & M. García García & G. Kaufmann (eds.) *Variation in language: System- and usage-based approaches.* 205-240. Berlin/New York: de Gruyter.

1991

In February 1991, a colleague of mine – *Werner Frey* – asked me the following question:

> "How come, that in German noun phrases, a reflexive is bound by a DP that does **not** c-command the anaphor?"

- die [[Wut des Mannes^{i}] auf sich^{i}]$_{NP}$

  the anger (of) this man$_{Gen}$ against himself

The next day, I had arrived at the following conjecture:

"So, THIS cannot be the correct structure!" was my answer.

- die [[Wut des Mannes] auf sich]$_{NP}$
  the anger of this man against himself

The **correct structure** must be this:

- die [Wut$_i$ [des Mannes [--$_i$ [auf sich]]]]$_{NP}$

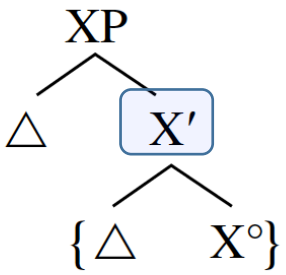
An how could an L1-learner find this out?

The learner does not have to find this out. It is an invariant property of any basic syntactic projection.

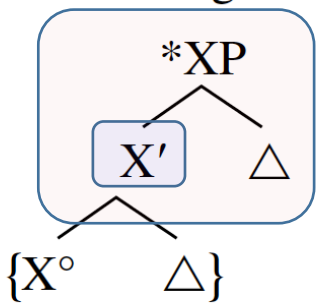
They are UNIVERSALLY right-branching.

"Basic branching constraint" (BBC) (Haider 1992)

a. **right**-branching



b. **left**-branching



projection line: X° – X′ – XP

merger to the left

„the later, the deeper"

= parser-friendly

***merger continued to the right**

„the earlier, the deeper"

= parser-unfriendly

[The BBC, I first presented at the *Conference for Lexical Specification and Lexical Insertion* at the University of Utrecht, December 9th 1991. (Haider 1992, 2000)]

1992 Branching and Discharge. *Working Papers of the SFB 340*, #23. Univ. Stuttgart/Tübingen/IBM Heidelberg. (**2000** in: Peter Coopmans & M. Everaert & J. Grimshaw. *Lexical Specification and Insertion*. 135-164. Amsterdam: Benjamins.)

[s. Cinque 1993, Univ. Venice Linguistics Working Papers #3. (1994, in Fs. for R. Kayne)].

1992 Die Struktur der Nominalphrase - Lexikalische und funktionale Strukturen. In Hoffmann, Ludger (ed.) *Deutsche Syntax. Ansichten und Aussichten*. 304-333. Berlin: de Gruyter.

A review of some pertinent facts (1) – Scrambling

Take any language with a head-final **VP** and a head-initial **NP**, and ...
... you will find „VO“ properties next to „OV“ properties **in the very same language**, for instance in Germanic OV-languages, or Persian, or ....

☑ Scrambling within head-**final** VPs:

(1) a. [solche Antibiotika an Kinder ohne Not verabreichen$_{V°}$]$_{VP}$
such antibiotics to children without need administer

b. [solche Antibiotika ohne Not an Kinder verabreichen$_{V°}$]$_{VP}$

c. [an Kinder ohne Not solche Antibiotika verabreichen$_{V°}$]$_{VP}$

d. [an Kinder solche Antibiotika ohne Not verabreichen$_{V°}$]$_{VP}$

SECTION II – REVIEWING SOME **EMPIRICAL** ISSUES

A review of some pertinent facts (1) – Scrambling

Take any language with a head-**final VP** and a head-**initial NP**, and ...
... you will find „VO“ properties next to „OV“ properties **in the very same language**, for instance in Germanic OV-languages, or Persian, or ....

☒ **S**crambling within head-**initial** NPs:

(2) a. das [Verabreichen$_{N°}$ solcher Antibiotika$_{Gen}$ an Kinder ohne Not]$_{\mathbf{NP}}$

b. ☒ das [Verabreichen$_{N°}$ an Kinder solcher Antibiotika$_{Gen}$ ohne Not]$_{\mathbf{NP}}$

c. ☒ das [Verabreichen$_{N°}$ ohne Not an Kinder solcher Antibiotika$_{Gen}$]$_{\mathbf{NP}}$

Fact: In Afrikaans, Dutch, German, Persian, ..., there are objects that are scrambled within the VP, but **not** within the NP.

In other words:

The NP behaves like an NP of English, Icelandic, Swedish, ...,

The VP does not behave like a VP in English, Icelandic, Swedish, ...

Why?

The NP is head initial, like in English, ...

The VP is head final, unlike in English, ...

A review of some pertinent facts (2) – EPP

☞ EPP = no subjectless clauses

"in English and similar languages" – Chomsky (1981:40)

(1) **No SOV language** is known that *unequivocally* requires a subject expletive in the standard passive construction of an *intransitive* verb.

(2) **In every Romance pro-drop language**, the standard passive applied to an *intransitive* verb is ungrammatical in the absence of an **overt** expletive subject.

On absent, expletive, and non-referential subjects. (in press). Topic-volume of *Linguistische Berichte* on on impersonal constructions. Ed. by P. Herbeck, B. Pöll, and A. Wolfsgruber.

A review of some pertinent facts (2) – EPP

☞ EPP = no subjectless clauses

(1) a.*Tomorrow (*there/it*) will not be worked.
b. Finally *(*there*) has emerged a solution.

(2) Vandaag wordt niet alleen gedemonstreerd. *Er* wordt tevens gestaakt.
today is not only picketed. *there* is also gone-on-strike
http://www.taalportaal.org/taalportaal/topic/link/syntax_Dutch_vp_V3_alternations_V3_alternations.3.2.1.2.xml

(3) a. *Il* a beaucoup été fumé dans cette salle. Gaatone (1998: 124)
it has much been smoked in this room
b. *Il* a été dormi dans ce lit. Rivière (1981: 42)
it has been slept in this bed

(4) a.*È stato fumato in questa sala. (n.b. intransitive 'fumare')
has been smoked in this hall
b.*È stato dormito in questo letto.
has been slept well in this bed

On absent, expletive, and non-referential subjects. (in press). Topic-volume of *Linguistische Berichte* on on impersonal constructions. Ed. by P. Herbeck, B. Pöll, and A. Wolfsgruber.

A review of some pertinent facts (3) – Wh-in-situ

☞ **SVO: no** wh-subjects and **no** higher-order wh-adverbials in situ.

(1) a. Who would *what surprise?

b. Who remembers when *who has left the party (Chomsky 1981:236)

c. What has therefore/*why not been approved?

d. Who has somehow/*how *managed* to live with dyslexia?

e. Inmiddels weten we wel hoe wie daarop scoort. (Dutch)
in-the-meantime know we well how who on-it scores

f. zodat voor alle betrokken duidelijk is wanneer wat moet gebeuren
so-that for all concerned clear is when what must happen

g. Wie heeft het hoe opgelost?
who has it how solved

A review of some pertinent facts (4) – LLC ("left-left constraint")

☞ Left adjuncts of left-headed phrases are head-adjacent to the host

(1) a. She has [[much more profoundly (*than others)] [studied these facts]].

b. This is a [[much more powerful (*than a tank)] [weapon]].

c. Lausanne a [[plus souvent (*que Berne)] [perdu]].

d. une [[très fière (*de soi)]$_{AP}$ [femme]]

(2) a. Sie hat das Problem [*genau so schnell (wie ihr Konkurrent)*] gelöst
she has the problem [*exactly as fast (as her competitor)* solved

b. De ziekte heeft zich [veel sneller (dan werd verwacht)] verspreid.
the disease has itself [much faster (than was expected)] spread

H.H. (submitted 2018) The Left-Left Constraint – a structural constraint on adjuncts. Ulrike Freywald & Horst Simon (eds.) "*Headedness and/or Grammatical Anarchy*?" Berlin: Language Science Press

What you can get for free, since it follows from P1 – P3 & Parameter

(= slide 4)

- Shell-structure of head-initial projections
- Obligatory functional subject position of the SVO clause structure
- Compactness of head-initial projections (no scrambling, no interveners)
- Strict linear order within head-initial projections
- Obligatory head-adjacency of left adjuncts of head-initial lexical projections
- … and a lot more.
- **Here it is:**

How lexical projections are structured

1. Head in the **foot** position (endocentric)
2. Merger to the **left** (= P1)
3. **Licensing** under canonical **directionality** (=P2)
   (by a node on the projection-line)
4. **Identification** under **minimal & mutual** c-command (= P3)

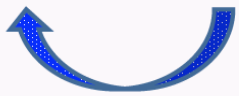
a. $[XP \leftarrow h^{\circ}]$ head-final

b. $[h^{\circ} \rightarrow XP]$ head-initial

c. $[YP \leftarrow [_{H'}\ XP \leftarrow h^{\circ}]]]$ head-final

d. $[YP\ [_{H'}\ h^{\circ} \rightarrow XP]]]$ head-initial, with an unlicensed YP

e. $[h_i^{\circ} \rightarrow\ [YP\ [_{H'}\ e_i \rightarrow XP]]]]$ re-merged head, licensing is restored; = Shell.



f. [ZP [h_i°→ [YP [H' e_i → XP]]]]

Two options for licensing ZP

i. Re-merge h° once more. Result: VSO-structure (g.)

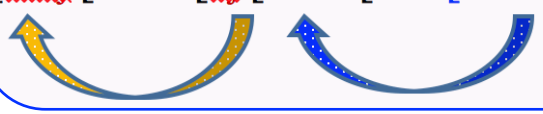
ii. Introduce a functional licenser: SVO-structure (i.)

g. [h_i°→ [ZP [e_i°→ [YP [H' e_i → XP]]]]]] ⇐ VSO structure

SVO structure

h. [F° → [ZP [h_i°→ [YP [H' e_i → XP]]]]]

i. [ZP$_j$ [F° → [e_j [h_i°→ [YP [H' e_i → XP]]]]]]



ZP in the directional domain of the functional head F°, but no mutual c-command. Therefore:

Obligatory raising to Spec-F°. Consequence: obligatory subject position (☞ "EPP").

INTERIM SUMMARY

SOV: $[_{HP}\ ZP \leftarrow [_{H'}\ YP \leftarrow [_{H'}\ XP \leftarrow h°]$

VSO: $[_{HP}\ h_i° \rightarrow [_{H'}\ ZP\ [_{H'}\ e_i \rightarrow [YP\ [_{H'}\ e_i \rightarrow XP]]]]]]$

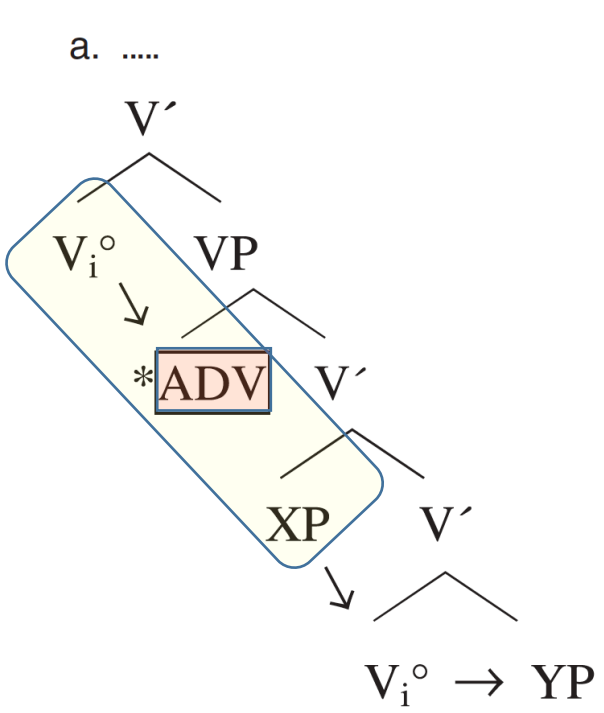
SVO: $[_{FP}\ ZP_j\ [_{F'}\ F° \rightarrow [_{HP}\ e_j\ [_{H'}\ h_i° \rightarrow [_{H'}\ YP\ [_{H'}\ e_i \rightarrow XP]]]]]]$

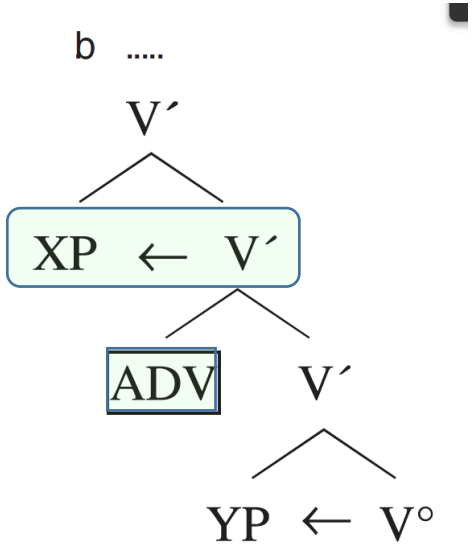
These properties follow. They need not be postulated.

1. "Little ***v***" in complex head-initial VPs.
2. "Little ***n***" in complex head-initial NPs.
3. No need for postulating an "EPP" feature.

- These syntactic peculiarities follow from independently motivated principles of phrase structuring.
- These peculiarities are **immediate consequences** of the structuring of head-initial phrases. They are an immediate result of
  - the **universal** branching structure (= merger to the left), and
  - the resulting ***mismatch*** with licensing to the right in head-initial phrases.

Compactness and ***rigid order*** within head-initial projections – an effect of the identification condition: Minimal & mutual c-command.





Any intervener disrupts the **minimal** c-command requirement between a licensing **head** and the **licensee,** and vice versa.

Interveners such as **adjuncts** or **scrambled** phrases do **not** matter since there is always a minimally c-commanding licensing sister node on the projection line.

LLC – The "left-left constraint" for adjuncts of head-initial lexical phrases

- The phrase adjoined to a head-initial phrase is not within the licensing & identification domain of the phrase-initial head of the host phrase.

  a. [adverbial $[_{VP}$ V°$_{\rightarrow}$ …. $]]_{VP}$

  b. [attribute $[_{NP}$ N°$_{\rightarrow}$ …. $]]_{NP}$

Compare: head-final phrases

  c. [attribute ⇐ $[_{NP}$ …. $_{\leftarrow}$N°$]]_{NP}$

  d. [adverbial ⇐ $[_{VP}$ …. $_{\leftarrow}$V° $]]_{VP}$

The adjacency requirement is the result of a ‚fake' complementation relation as a grammatical means for 'gluing' a *directionally unidentified* adjunct to its host phrase: **each node** on the projection line is **adjacent.**

Note: The LLC-constraint is unexpected under a Spec-analysis of adverbials.

Haider, H. 2018 (submitted) **The Left-Left Constraint – a structural constraint on adjuncts**. U. Freywald & H. Simon (eds.) "*Headedness and/or Grammatical Anarchy*?" Berlin: Language Science Press

SECTION IV – THE HITHERTO NEGLECTED THIRD TYPE

Type 1: $[\ldots {}_{\leftarrow}[XP\ {}_{\leftarrow}H^{\circ}]]_{HP}$ ←: head-final

Type 2: $[\ldots [H^{\circ}{}_{\rightarrow}\ XP]]_{HP}$ → : head-initial

Type 3: $[\ldots {}_{\leftarrow}[H^{\circ}\ {}_{\rightarrow}\ XP]]_{HP}$ unconstrained = ambidirectional (= unrestricted directionality)

T3 : **3** principal word order variants:

a. … XP YP ←V	(right-peripheral = OV-like)	|
b. … Vi → XP $\mathbf{e_i}$ → YP	(left-peripheral = VO-like)	| {XP, YP}: objects
c. … XP ←V → YP	(neither OV-, nor VO-like)	|

Note: Because of the frequent serialization pattern (b.), T3 languages tend to be misfiled as **exceptional SVO** languages.

Example of misfiled languages? – Slavic languages

For instance POLISH

Leszkowicz (2015:121)

a. (że) Marek Ewie kwiaty ←*dał*.

(that) $\text{Marek}_{\text{Nom}}$ Eve_{Dat} $\text{flowers}_{\text{Acc}}$ *gave*

b. (że) Marek Ewie ←*dał*→kwiaty.

c. (że) Marek ←*dał*→Ewie kwiaty.

d. (że) *dał*→ Marek Ewie kwiaty.

Note: Each one of the **4!** orders (= 24) is grammatical in Polish, with different *information structure* effects.

Haider H. & Luka Szucsich (submitted) 2018: *Slavic languages – "SVO" languages without SVO qualities*? (downloadable)

Leszkowicz, Joanna 2015. Scrambling im Polnischen als A-bar-Bewegung. In Elena Dieser (ed.) *Linguistische Beiträge zur Slavistik: XX. JungslavistInnen-Treffen in Würzburg, 22.-24. September 2011.* p. 117-133. München: Verlag Otto Sagner.

Are Slavic languages really SVO-Languages? – NO!

Syntactic profile	SVO	SOV	SLAVIC
a. S-V-O as an acceptable order	☑	no	☑
b. obligatory preverbal subject (EPP)	yes	no	**no**
c. subject wh-in-situ restriction	yes	no	**no**
d. adverbial wh-in-situ restriction	yes	no	**no**
e. LLC-constrained adjuncts	yes	no	no
f. rigid argumental word order	yes	no	**no**
g. rigid relative order of auxiliaries	yes	no	**no**

Hubert Haider & Luka Szucsich (2018) (*downloadable*)
Slavic languages – "SVO" languages without SVO qualities?

The Slavic stuff would be another talk.

Thank you for your attention!