# What governs the distribution of postverbal adverbs and PP-adverbials in flexibly verb-final languages?

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### Background: Pre- and postverbal PPs in Dutch (Neeleman 2017)

#### (1) a. 321V

dat hij [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> strandde that he by a steering-error with a bang on the fence got.stuck 'that he got stuck on the fence with a bang because he made a steering error'

#### b. V123

dat hij strandde [op het hek] [met een knal] [door een stuurfout] that he got.stuck on the fence with a bang by a steering-error

#### \*V321

\*dat hij strandde [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> that he got.stuck by a steering-error with a bang on the fence

#### d. $V_2321$

Hij strandde [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> he got.stuck by a steering-error with a bang on the fence

### RESEARCH QUESTIONS

#### **Factual**

What patterns of multiple postverbal adverbs and PPs do we find in flexibly verb-final languages?

### **Analytical**

How is the workload distributed between syntax and prosody in accounting for these patterns?

### **Big-picture**

What do these results tell us about the possible kinds of non-syntactic displacement?

#### Preview of the results

#### \_\_\_ Udmurt \_\_\_\_\_

PP-merger is not symmetric, only leftward, and free verb movement challenges the marked status of head movement.

### Hungarian \_

The availability and neutral status of every logically possible word order suggests a non-syntactic derivation.

### . Basque (Bizkaian and Navarrese) \_\_\_\_

The distribution of postverbal adverbials questions the standard analyses of Basque and calls for PF involvement.

#### ROADMAP

- Background: The symmetric U20-based approach (SUBA)
- 2 Udmurt free verb movement
- 3 Hungarian radically free word order
- 4 (Dialectal) Basque adverbial patterns
- 5 Conclusion
- **6** Bigger picture: consequences for the syntax-prosody interface

Background: The symmetric U20-based approach (SUBA)

### Universal 20 Pattern (Abels 2016, Cinque 2009, Neeleman 2015)

pre-head	post-head	
ZP YP X	X ZP YP	
YP ZP X	X YP ZP	



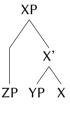
more freedom behind the head than in front of the head true for N and V as heads (Abels 2016, Abels & Neeleman 2012, Neeleman 2017)

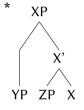
### AD NEELEMAN'S AND KLAUS ABELS' EXPLANATION OF THE PATTERN

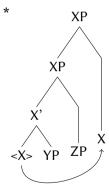
- (A) The axioms of the Symmetric U20-based approach (SUBA), advanced in Abels (2016), Abels & Neeleman (2012), Neeleman (2015, 2017)
  - I. There are **independent** merger hierarchies. The order of merge is only restrained within each merger hierarchy.
  - II. Merge is **symmetric**. Structure building can take place to the left and to the right.
  - III. Neutral orders are **base-generated** or derived by **X**<sup>+</sup>-**movement**.
  - IV. X<sup>+</sup>-movement is **asymmetric**: it must be leftward.

#### Only one order before the head

Leftward merge | Merge hierarchy violation | Rightward head movement

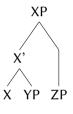


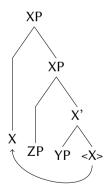


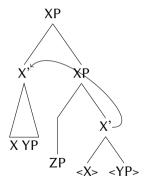


#### More orders behind the head

Rightward merge | Leftward X movement | Symmetric Merge + Leftward X<sup>+</sup>-movement







#### THREE DEPENDENTS: DUTCH PP-OVER-V

■ only mirror-image orders without V movement (V2) ⇒ symmetric merge

#### (2) a. 321V

dat hij [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> strandde that he by a steering-error with a bang on the fence got.stuck 'that he got stuck on the fence with a bang because he made a steering error'

#### b. **V123**

dat hij strandde [op het hek] $_1$  [met een knal] $_2$  [door een stuurfout] $_3$  that he got.stuck on the fence with a bang by a steering-error

#### c. \***V321**

\*dat hij strandde [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> that he got.stuck by a steering-error with a bang on the fence

#### THREE DEPENDENTS: DUTCH PP-OVER-V

- more, but not all, postverbal orders with V movement  $\Rightarrow$  symmetric merge + V movement (no V<sup>+</sup>-movement; only to highest position)
- (3) a. [V ... [3 [2 [1 < V >]]]]Hij strandde [door een stuurfout]<sub>3</sub> [met een knal]<sub>2</sub> [op het hek]<sub>1</sub> he got.stuck by a steering-error with a bang on the fence
  - b. [V ... [3 [[ <V> 1 ] 2 ]]] Hij strandde [door een stuurfout]<sub>3</sub> [op het hek]<sub>1</sub> [met een knal]<sub>2</sub> he got.stuck by a steering-error on the fence with a bang

# Full PP-over-V Pattern (Neeleman 2017)

	I	II	III	IV
a.	$PP_3 \; PP_2 \; PP_1 \; V$	$VPP_1PP_2PP_3$	$V\;PP_3\;PP_2\;PP_1$	$PP_1 \; PP_2 \; PP_3 \; V$
b.	$PP_3 \; PP_2 \; V \; PP_1$	$PP_1 V PP_2 PP_3$	$PP_3 V PP_2 PP_1$	$PP_1 \; PP_2 \; V \; PP_3$
c.	$PP_3 \; PP_1 \; V \; PP_2$	$PP_2 V PP_1 PP_3$	$PP_1 V PP_3 PP_2$	$PP_2 \; PP_3 \; V \; PP_1$
d.	$PP_3 V PP_1 PP_2$	$PP_2 \; PP_1 \; V \; PP_3$	$VPP_2PP_1PP_3$	$PP_3 \; PP_1 \; PP_2 \; V$
e.	$PP_1 \; PP_3 \; PP_2 \; V$	$VPP_2PP_3PP_1$	$V\;PP_3\;PP_1\;PP_2$	$PP_2 \; PP_3 \; PP_1 \; V$
f.	$PP_1 \; PP_3 \; V \; PP_2$	$PP_2 V PP_3 PP_1$	$VPP_1PP_3PP_2$	$PP_2 \; PP_3 \; PP_1 \; V$



But: we are missing cross-linguistic insights outside of DEM-NUM-A-N

#### Cross-Linguistic SUBA

- **Udmurt**: SUBA works, but raises general questions regarding the directionality of merge and the freedom of head movement.
- **Hungarian**: SUBA doesn't work, but the data are also problematic for alternative syntactic approaches.
- **Basque**: SUBA works depending on further analytical choices, but some data patterns point towards non-syntactic solutions.

# Udmurt

#### No mirror image effects in Udmurt with PPs

- (4) Standard Udmurt (colloquial; elicited; Svetlana Edygarova, p.c.)
  - a. Udmurt neutral order of PPs: 2 1

```
Mon <vetli> Mašajen<sub>2</sub> <vetli> arńapumin<sub>2</sub> <vetli> ńuleskij<sub>1</sub> <vetli>. 1sG go:PST[1sG] Masha:INS weekend:IN forest:ILL
```

'I went into the forest with Masha on the weekend.'

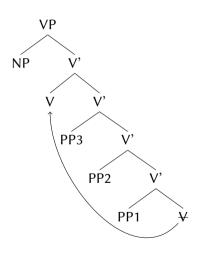
b. Udmurt marked order of PPs: 1 - 2

```
#Mon <vetli> Mašajen2 <vetli> ńuleskij1 <vetli> arńapumin2 <vetli>.

1sc go:Pst[1sc] Masha:INS forest:ILL weekend:IN
```

'I went into the forest with Masha on the WEEKEND.'

#### Udmurt verb movement



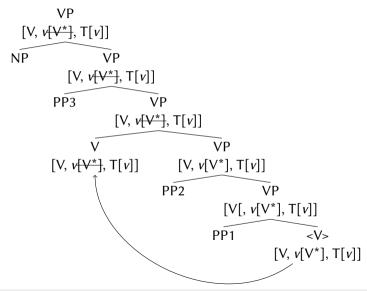
- only leftward merge (ordering statements (Abels & Neeleman 2012))
- information-structurally neutral V movement
- no predetermined landing-site ⇒ reprojection head movement

### UDMURT V MOVEMENT VIA REPROJECTION

#### Reprojection in a nutshell:

- Head movement is adjunction of a head to the root of the tree.
- After head movement takes place, the head projects at the landing site.
- Head movement is triggered by a feature on the head.
- "extra projections are the consequence, not the cause, of verb movement" (Ackema et al. 1993)

### UDMURT V MOVEMENT VIA REPROJECTION



- a feature of V subcategorises for another feature of V:
- a strong feature (\*) can only be satisfied via movement:
- $\Rightarrow$  V movement as the only way to satisfy subcategorisation.

#### OPEN PROBLEMS

- ordering statements
- Is V-movement more common than other head movement?
- What is the status of move-over-merge?
- Why does lexicon provide both strong and weak feature variants?

# Hungarian

#### HUNGARIAN AS ON OV LANGUAGE

- underlying OV status: Marácz (1989), Halm (2021), Schmidt & Surányi (2019) ⇒ verb movement gives rise to postverbal elements (PVE) (5)
- (5) [ $_{\rm CP}$  A húg-om [ $_{\rm PREDP}$  meg-talál-ta $_{\rm VP}$  [ $_{\rm VP}$  [ $_{\rm NP}$  a kiskutyá-d-at] [ $_{\rm PP}$  a DEF sister-1SG PV-find-PST.3SG DEF puppy-2SG-ACC DEF park-ban] t $_{\rm V}$ ]]]. park-Loc

'My sister found your puppy in the park.'

### HUNGARIAN MULTIPLE ADVERBIAL PPS: PREVERBAL

- preverbally: only one neutral order (6)
- otherwise: easily available (contrastive) topicalisation
- [CP [TP [PREDP [PP Két alkalom-mal]] [PREDP [PP hosszú percek-ig]] [PREDP [PP two occasion-with long minutes-for nagy füst-tel]<sub>1</sub> [ $P_{REDP}$  égetty [ $V_{P}$  [ $V_{P}$  [ $V_{P}$  a tűz] t $V_{P}$ ]]]]]]]. big smoke-with burned.3sg DEF fire

'The fire burned with great smoke for long minutes on two occasions.'

### HUNGARIAN MULTIPLE ADVERBIAL PPS: RADICAL POSTVERBAL FREEDOM

- postverbally: every logically available order is neutral
- including SUBA violations, see \*V231 order in (7)  $\Rightarrow$  more than V<sup>+</sup>-movement + symmetric merge is involved
- Égett [PP hosszú percek-ig]2 [PP két alkalom-mal]3 [PP nagy füst-tel]1 burned.3sc long minutes-for two occasion-with big smoke-with [NP a tűz].the fire

'The fire burned with great smoke for long minutes on two occasions.'

#### HUNGARIAN PVE AS MOVEMENT: INTERMINGLING ADVERBIALS

- premise: sentential adverbials are base-generated high (outside PredP)  $\Rightarrow$  (8) cannot be derived by V-movement
- possible solution: deriving (8) via phrasal PP movement
  - SUBA violation (phrasal movement  $\rightarrow$  non-neutral order)
- (8) Low adverbials following PredP-external unfortunately

```
[CP] [TP] [PREDP] Égett [NP] a tűz ] [ADVP] sajnos
              burned.3sg the fire unfortunately
```

```
[pp két alkalom-mal] [pp hosszú percek-ig] ]
   two occasion-with long minutes-for
```

'Unfortunately the fire burned for long minutes on two occasions.'

# The profile of Hungarian postposing (data in appendix)

- long rightward movement (= right-roof-constraint violation)
- scope ambiguities with respect to negation and quantifiers
- no information-structural impact
- any information-structural role (except single focus)

Does postposing take place at PF?

#### PROSODIC CONTRAINTS DISALLOW SINGLE NARROW FOCI AS PVE

■ any IS-role, including focus, postposes behind sentential adverbs (9)

#### (9) Focus can be postposed

[C: Who messed up only one excercise?]

Csak János rontott el sajnos CSAK EGY FELADATOT. only Janos messed.3sc PV unfortunately only one task.Acc 'Unfortunately only Janos messed up only one exercise.'

#### PROSODIC CONTRAINTS DISALLOW SINGLE NARROW FOCI AS PVE

- preverbal focus is prosodically conditioned (Szendrői 2003)
- single foci cannot be postposed ⇒ suggests PF involvement in postposing

#### Single focus cannot be postposed (10)

- a. Csak egy kávét főztem. only one coffee.Acc cooked.1sg 'I made only one coffee.'
- b. \*Főztem CSAK EGY KÁVÉT. cooked.1sg only one coffee.Acc

#### PF REORDERING?

- **any** syntactic theory will struggle with Hungarian PVE
  - e.g. É. Kiss (2008) proposes non-configurational postverbal field but even non-configurationality of PredP would not suffice (high adverbs)
  - otherwise: free, untriggered phrasal movement
- across the board, missing 1:1 mapping of syntax to semantics
- not only local reordering
- ⇒ non-syntactic derivation: PF movement

Basque

### BASQUE PVE

arguments: marked when postverbal (11)

### (11) Postverbal object

#Nire arrebiek parkien topa dau **zure txakurkumi-e**. my sister.erg park.Loc find AUX your puppy-DEF 'My sister has found your puppy in the park.' (neutral)

adverbials: marked when preverbal (12)

### (12) Postverbal PP-adverbials

Nire arrebiek zure txakurkumi-e topa dau **parkien**. my sister.erg your puppy-def find Aux park.loc 'My sister has found your puppy in the park.' (neutral)

(Bizkaian)

(Bizkaian)

#### POSTVERBAL MULTIPLE PP-ADVERBIALS

both postverbal orders are neutral (13)

```
(13) a. Nire arrebiek zure txakurkumi-e topa sauen
                                                                     (Bizkaian)
        my sister.erg your puppy-def find Aux
          <parkien1 atzo2>/ <atzo2 parkien1>.
          park.Loc yesterday yesterday park.Loc
        'My sister found your puppy in the park yesterday.'
```

b. Xabier Miren-egaz jun san Xabier Miren-with go Aux (Bizkaian)

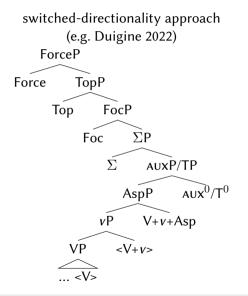
```
<azokara1 asteburuen2>/ <asteburuen2 azokara1>.
market.to weekend.on weekend.on market.to
```

'Xabier went to the market with Miren on the weekend'

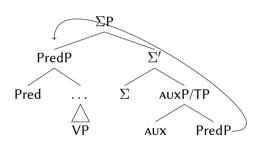
#### POSTVERBAL LOW ADVERBS

- Bizkaian + Navarrese: postverbal neutral low adverbs (14)
- cf. Standard Basque: only preverbal low adverbs (A. Elordieta 2001)
- (14) a. Nire nebiek txakurre jo dau **gogor**. (Bizkaian) my brother.erc dog.det hit Aux hard 'My brother has hit the dog hard.'
  - b. Nire anaiak txakurra jo zuen gogorki. (Navarrese)
     my brother.erc dog.det hit Aux hard
     'My brother hit the dog hard.'

### Basque clause structure: high aux



head-initial approach (e.g. A. Elordieta & Haddican 2017)



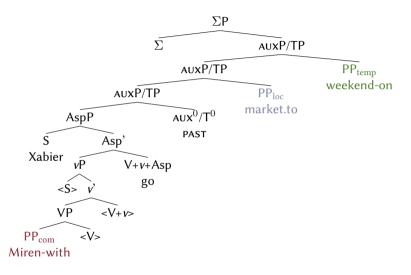
### COMBINING BASQUE APPROACHES WITH SUBA

construction	switched directionality	head initial
V Aux PP <sub>2</sub> PP <sub>1</sub>	✓	✓
V Aux PP <sub>1</sub> PP <sub>2</sub>	✓	<u> </u>
V Aux LowAdv	<u> </u>	<u>``</u>

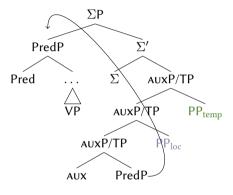


illustration and two possible solutions

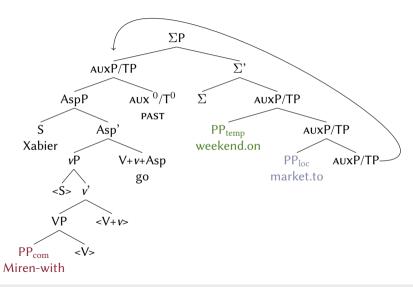
# $\checkmark$ Switched directionality: V Aux PP₂ PP₁



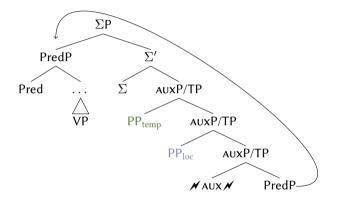
# $\checkmark$ Head initial: V Aux PP $_2$ PP $_1$



# $\checkmark$ Switched directionality: V Aux PP<sub>1</sub> PP<sub>2</sub>



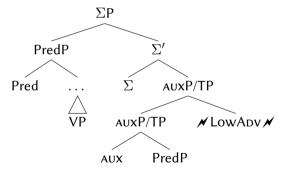






### Problem: for the adverb to follow the high AUX, it also needs to be quite high.

- Rightward phrasal movement from within VP? Not with SUBA.
- Rightward merge to Aux? Too high, semantic mismatch.



## Possible solutions to Basque adverbial placement

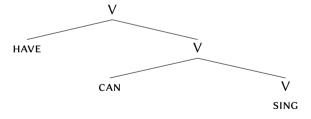
- Solution 1: Aux is not high  $\Rightarrow$  verb-clustering analysis of Basque
- Solution 2: PF movement  $\Rightarrow$  accounts for further likely phonological restrictions

#### LOW ADVERBIAL PROBLEM ALSO IN GERMANIC

- (15) a. Nire nebiek txakurre jo dau **gogor**. (Bizkaian) my brother.erc dog.det hit Aux hard 'My brother has hit the dog hard.'
  - b. dat hij vroeger prachtig heeft kunnen zingen. (Dutch) since he formerly beautifully has can.inf sing.inf
     'that he formerly used to be able to sing beautifully.' (Abels 2016: 189)

## Germanic verb cluster (Ackema & Neeleman 2024)

(16) dat hij vroeger **prachtig** heeft kunnen zingen. since he formerly beautifully has can.INF sing.INF 'that he formerly used to be able to sing beautifully.' (Abels 2016: 189)

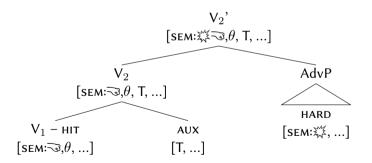


(Dutch)

### Solution 1: Basque verb cluster

(17) Nire nebiek txakurre jo dau **gogor**. my brother.erg dog.det hit aux hard 'My brother has hit the dog hard.'

(Bizkaian)



#### BIJT: FURTHER FACTORS PERTAINING TO LOW ADVERB PLACEMENT

#### ■ Bizkajan:

- lexically-determined placement (18)
- competition for preverbal position (18a vs. b,c)
- (18) a. Nire nebiek txakurre jo dau gogor. my brother.erg dog.det hit aux hard 'My brother has hit the dog hard.'
  - b. Nire nebiek txarto aparka dau kotxie. my brother.erg badly park AUX car.DET 'My brother has parked the car poorly.'
  - Nire lagunek **ondo** eindxau (= egin dau) azterketie. my friend.erg well do.aux exam.DFT 'My friend has done well on the exam.'

#### COUNTING PREVERBAL ELEMENTS IN BIZKAIAN

- (19) a. Nire nebiek txakurre **jo dau** (gogor). my brother.erg dog.det hit Aux hard 'My brother has hit the dog hard.'
  - b. Txakurre (gogor) **jo dau**. dog.det hard hit AUX '[S/he] has hit the dog hard.'

c. ??Txakurre **jo dau** (gogor).

dog.det hit aux hard

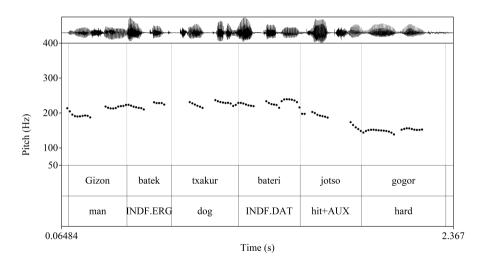
(20) a. (Gogor) jo dau. hard hit AUX '[S/he] hit [it] hard.' b. \*Jo dau (gogor).

hit AUX hard

#### SOLUTION 2: PF OPERATION

- The nature of this process does not seem to be syntactic  $\Rightarrow$  it may be prosodic
- three-way partitioning of Bizkaian prosodic utterances (G. Elordieta 2003: 76)
- SLOT 1 the obligatory immediately preverbal phrase (main prominence)
- SLOT 2 the phrase that precedes the immediately preverbal one (topic/subject; if overt)
- SLOT 3 the verb and PVE
- Generalization: Fill slots 1 and 2 first
  - slot 1: fill with object or adverb (contingent on lexical and other factors)
  - 2 slot 2: fill with subject (if overt)
  - 3 slot 3: everything else

#### Prosodic profile of a Bizkaian clause



#### ADDITIONAL EVIDENCE: THREE ADVERBS

- only one adverb can be preverbal in Bizkaian
- (21) a. Katuek altu miau egin sauen <atzo sarritzen>/ <sarritzen atzo>. cat.erg loudly miau do Aux vesterday often often vesterday 'A cat often meowed loudly vesterday.'
  - b. Katuek sarritzen miau egin sauen <altu atzo>/ ??<atzo altu>. miau do Aux loudly yesterday yesterday loudly cat.erg often 'A cat often meowed loudly yesterday.'

### However: no 'counting' in Navarrese

- (22) a. Nire anaiak txakurra **jo zuen** (gogorki). my brother.erc dog.det hit Aux hard 'My brother hit the dog hard.'
  - b. Txakurra **jo zuen** (gogorki). dog.det hit aux hard '[S/he] hit the dog hard.'
  - c. **Jo zuen** (gogorki). hit AUX hard '[S/he] hit [it] hard.'

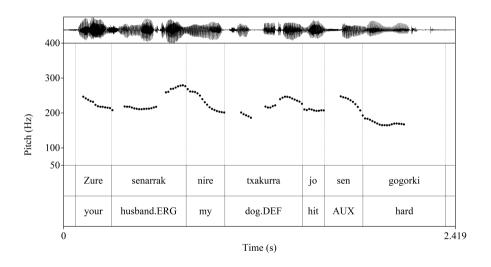
(Navarrese)

#### LEXICAL FACTORS NOT AT PLAY IN NAVARRESE EITHER

- (23) a. Nire anaiak txakurra jo zuen (gogorki). my brother.erg dog.det hit Aux hard 'My brother hit the dog hard.'
  - b. Nire anaiak kotxea **aparkatu zuen** (gaizki). my brother.erg car.det park Aux badly 'My brother parked the car poorly.'
  - Nire lagunak azterketa egin zuen (ongi).
     my friend.erg exam.det do Aux well
     'My friend did well on the exam.'

(Navarrese)

#### Prosodic profile of a Navarrese clause



#### TAKING STOCK

- standard approaches to Basque syntax cannot fully accommodate postverbal PPs and adverbs
- a verb-cluster analysis accomodates all postverbal PPs and adverbs
- Bizkaian: a PF analysis seems more amenable

#### OVERALL CONCLUSIONS

#### **Cross-linguistic PP-over-V**

Udmurt: SUBA works; smaller theoretical questions

Hungarian: SUBA fails; possible PF operations

⇒ Hungarian PVE as potential testing ground for PF phrasal movement

Hungarian: SUBA partly works; possible PF operations

⇒ employing SUBA to inform structural analyses

⇒ general questions of handling seemingly non-syntactic phenomena

#### BIGGER PICTURE: THE NATURE OF NON-SYNTACTIC/PF DISPLACEMENT

Several kinds of non-syntactic/PF processes have been identified:

- Displacement that lacks certain features of syntactic movement (e.g., is subject to total reconstruction) but does not have (known) phonological motivation
  - e.g., Sauerland & Elbourne (2002) on multiple scrambling in Japanese
  - Navarrese?
- Displacement that has explicit phonological motivation
  - e.g. Göbbel (2013) on extraposition in English
  - Bizkaian
  - Hungarian?

What does the existence of (at least) these two different kinds of non-syntactic/PF processes tell us about the nature of non-syntactic/PF displacement?

#### FACTS ON HUNGARIAN PVE I

#### (24) Intermingling high and low adverbials

```
[CP] [TP] [TP] [PREDP] Égett [NP] a t\tilde{u}z ] ] + [ADVP] sajnos
                burned.3sg the fire unfortunately
                                                                   two
  alkalom-mal] [PP hosszú percek-ig] ]
  occasion-with long minutes-for
'Unfortunately the fire burned for long minutes on two occasions.'
```

#### (25)Violating the right-roof constraint

```
lól esne
          valószínűleg enni a lányoknak valamit.
well fall.cond.3sc probably eat.INF the girls.DAT something.Acc
'The girls probably feel like eating something.'
```

#### FACTS ON HUNGARIAN PVE II

#### (26) Ambiguous scope of negation

```
[[[ Nem rontottam el (sok feladatot) ] valószínűleg ] (sok feladatot) not messed.1sg pv many exercise.Acc probably many exercise.Acc ].
```

'Probably I didn't mess up many exercises.' (MANY > NOT / NOT > MANY)

#### (27) NCIs following negation

- a. [[[ Nem főztem (semmit) ] sajnos] (semmit)].
  not cooked.1sc nothing.Acc unfortunately nothing.Acc
  'Unfortunately, I didn't cook anything.'
- b. \*[[] Semmit [sajnos [nem főztem]]]. nothing.Accunfortunately not cooked.1sg

#### FACTS ON HUNGARIAN PVE IV

#### (28) First occurence focus cannot be postposed

- a. Csak egy kávét főztem.
   only one coffee.Acc cooked.1sc
   'I made only one coffee.'
- b. \*Főztem csak egy kávét. cooked.1sg only one coffee.Acc
- (29) Second-occurence focus can be postposed
  [C: Who messed up only one excercise?]

  CSAK JÁNOS rontott el sajnos CSAK EGY FELADATOT.
  only Janos messed.3SG PV unfortunately only one task.ACC

  'Unfortunately ONLY JANOS messed up ONLY ONE EXERCISE.'

## DIALECTAL BASQUE: PREVERBAL MULTIPLE ADVERBIALS

- preverbal placement enforced by relative clause ⇒ only one neutral order (30)
- (30) Nire arrebiek atzo<sub>2</sub> parkien<sub>1</sub> topa sauen txakurkumie osasuntsu dau. my sister.erg yesterday park.loc find Aux puppy.def healthy is 'The puppy that my sister found in the park yesterday is healthy.'

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