Syntax – LIN331
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Functional Structure

What functional structure do we need to introduce the arguments of a predicate?

1. Preamble: External arguments and PISH
2. Internal arguments and vP shells
3. External arguments and vP shells
4. Unaccusative and unergative intransitive verbs

Terminology: external vs internal argument

- external arguments: introduced external to projection of the verb.
- internal arguments: introduced internal to projection of the verb

1) Franny [read many books]

VP

3 eras of synthetic theory

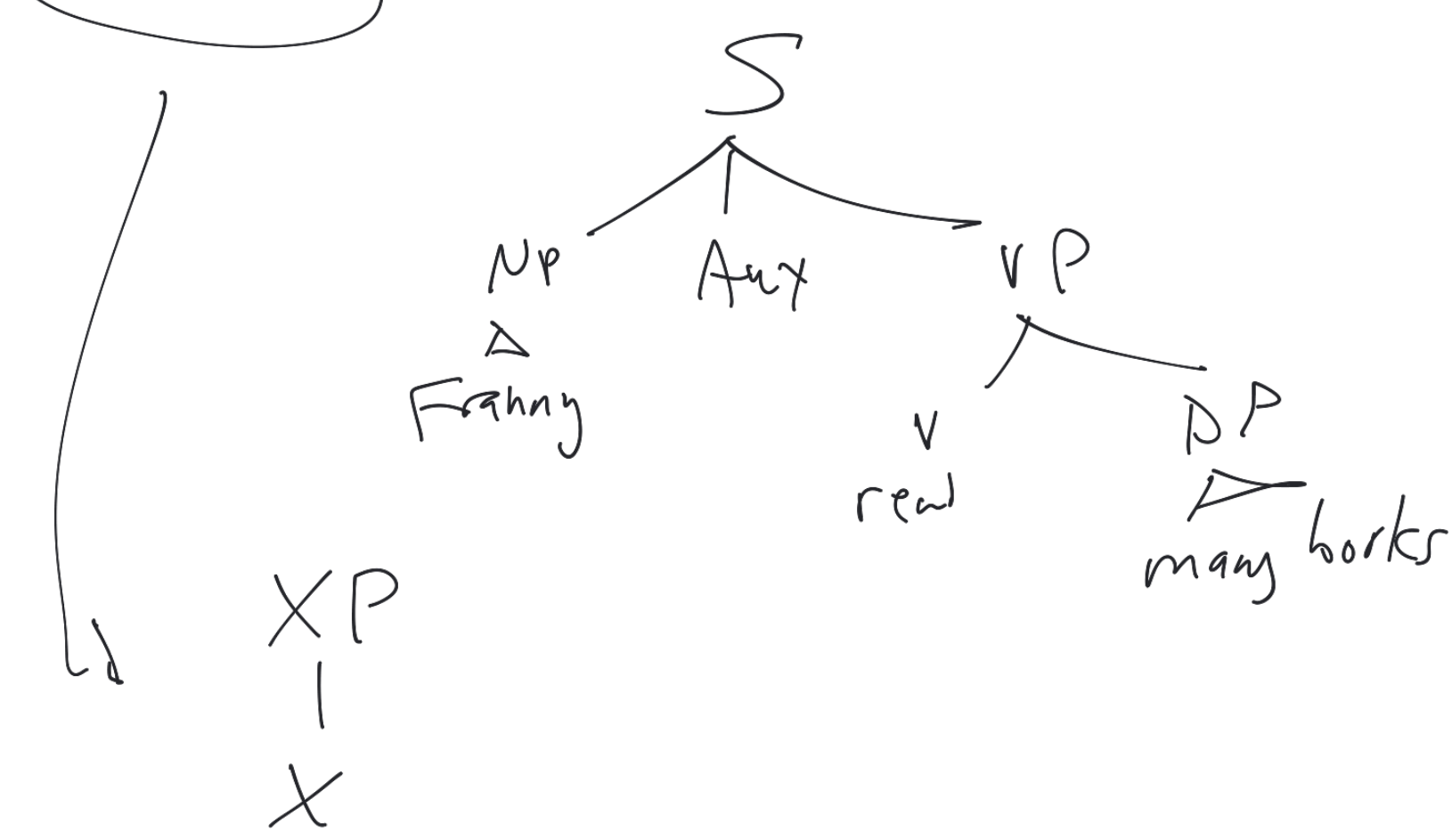
Standard Theory

GR

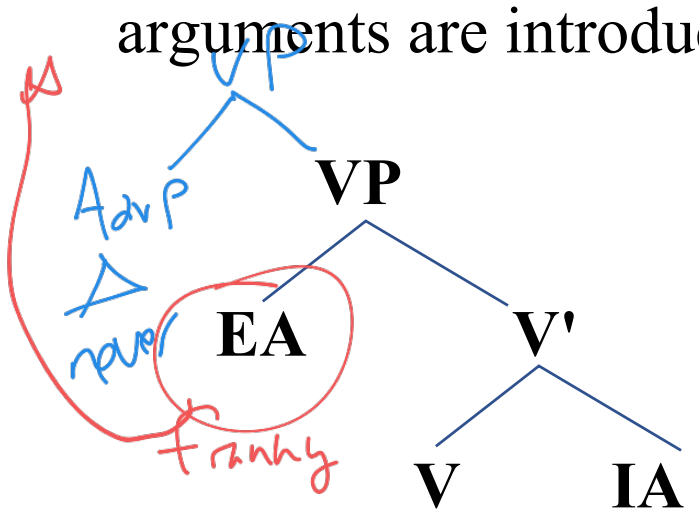
Minimalism

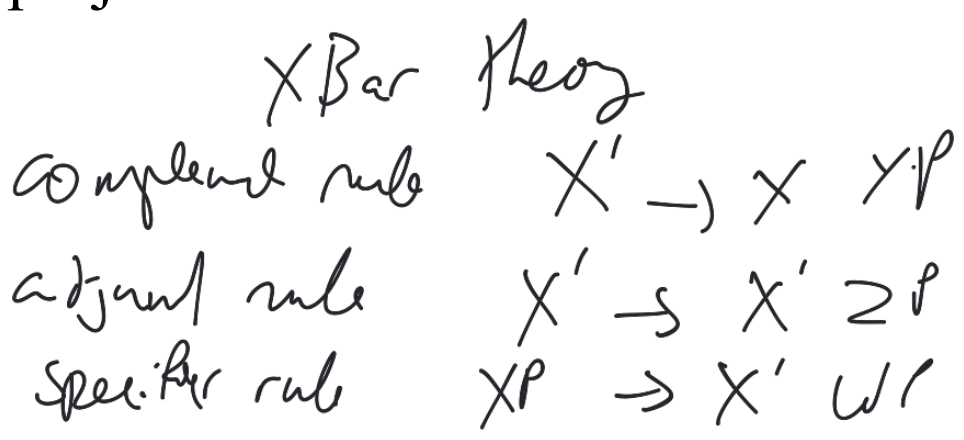
1. Preamble: external arguments and PISH

Standard Theory: internal arguments are introduced within projection V but the external argument is introduced in ~~Infl~~. outside



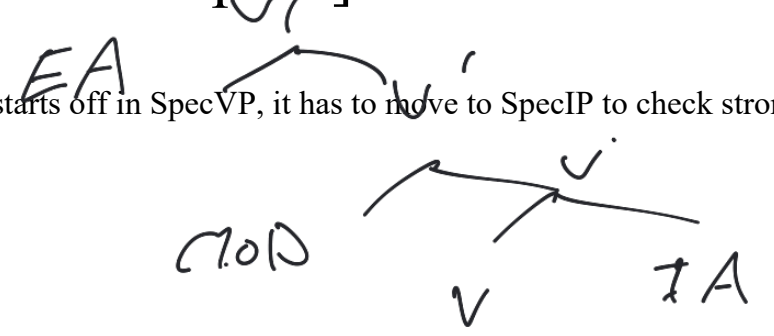
Government and Binding Theory: both external and internal arguments are introduced inside projection of V.





For a language like English, this is an abstraction, because we know the subject does not surface in this VP-internal position

1) Franny [$_{VP}$ never studied the chapter]
2) *Never [$_{VP}$ Franny studied the chapter]



You may recall from LIN232, (2) is bad because although *Franny* starts off in SpecVP, it has to move to SpecIP to check strong D/Case/EPP. [$_{IP}$ Franny$_i$ [$_{I'}$ I [$_{VP}$ t$_i$ [$_{V'}$ studied the chapter]]]]

3) Predicate Internal Subject Hypothesis (PISH)

All theta roles associated with a head H are assigned within projections of H

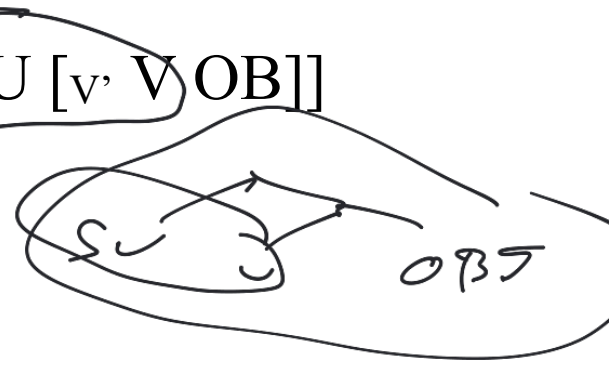
What evidence is there for PISH?

1.1 Idiomatic interpretations
1.2 Coordinate subject extraction
1.3 Binding
1.4 Floating quantifiers

1.1 Idiomatic interpretations

Idiom chunks correspond to syntactic constituents, so idiomaticity can be used as a test for diagnosing constituency.

- We find many idioms involving a verb and its object, excluding the subject, but not ones involving the subject and the verb excluding the object.
- This is accounted for with the structure [VP SU [V' V OB]]



4) The shit hit the fan.
5) a. The shit may/should/might/can hit the fan.
   b. The shit hit/will hit/is hitting/has hit the fan.
   c. The shit did not hit the fan.
6) The shit seemed to hit the fan.

We couldn't capture the facts with SU base-generated in SpecIP.

7) [$_{VP}$ the shit [$_{V'}$ hit the fan]]

8) [$_{IP}$ [the shit]$_i$ [$_{I'}$ may/should/might/can [$_{VP}$ t_i [$_{V'}$ hit the fan]]]]

Aside: And idiom can be larger than VP, and for example, involve IP and CP. In these cases too we cannot change the material within these structures, see (9)-(10).

9) a. A rolling stone gathers no moss.
   b. #A rolling stone gathered/might gather/is gathering no moss.
   c. #A rolling stone seemed to gather no moss.

10) a. Is the Pope catholic?
    b. #Was the Pope catholic?
    c. #Mary wonders whether the Pope is catholic.

1.2. Coordinate subject extraction

Coordinate structure constraint: Extraction out of a single conjunct is not permitted (11a). However, extraction from all conjuncts in so-called **across-the-board (ATB) movement** is permissible (11b).

11) a. *[$_{CP}$ what$_i$ did [$_{IP}$ John eat t_i] and [$_{IP}$ Bill cook hamburgers]]

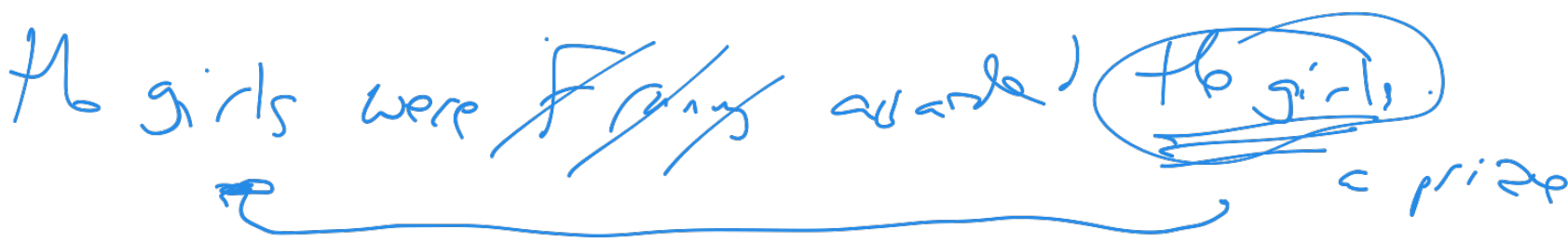
b. [$_{CP}$ what$_i$ did [$_{IP}$ John eat t_i] and [$_{IP}$ Bill cook t_i]]

Consider the ATB-extraction in (12). (12) cannot be accounted for if we assume base-generation of the subject in SpecIP, as shown in (13), but base-generation in SpecVP as in (14) resolves the problem.

12) The girls will write a book and be awarded a prize for it.

13) [$_{IP}$ [the girls]$_i$ will [[$_{VP}$ write a book] and [$_{VP}$ be awarded t_i a prize for it]]]

14) [$_{IP}$ [the girls]$_i$ will [$_{VP}$ t_i write a book] and [$_{VP}$ be awarded t_i a prize for it]]



1.3. Binding

Consider (15).

15) a. Which stories about each other did they say the kids liked?

b. ... but listen to each other, they say the kids won't.

(15a): *each other* is ambiguous with either the matrix or embedded subject as antecedent.

(15b): *each other* allows only embedded subject as antecedent

The difference between the interpretations available in 15a and 15b is a puzzle!!

Let's see how PISH paves the way for an account of this contrast.

According to PISH, the base-generated VP structure for the two sentences is as given in (16).

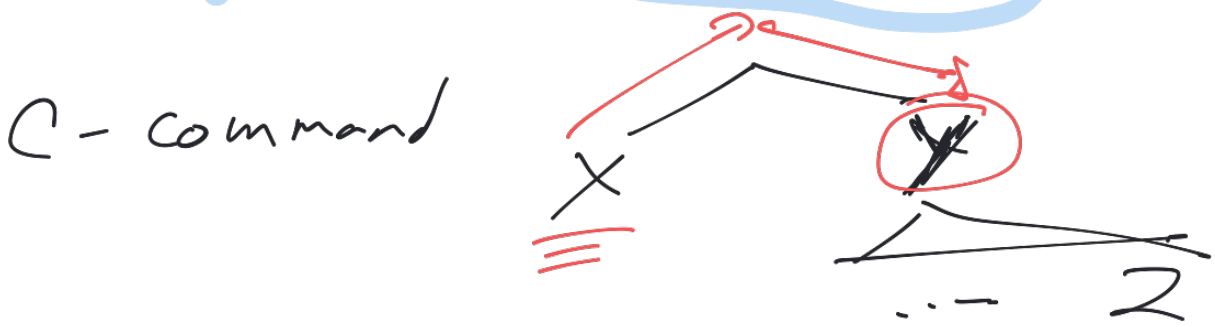
16) a. [$_{VP}$ [the kids] [$_{V'}$ liked [which stories about each other]]]

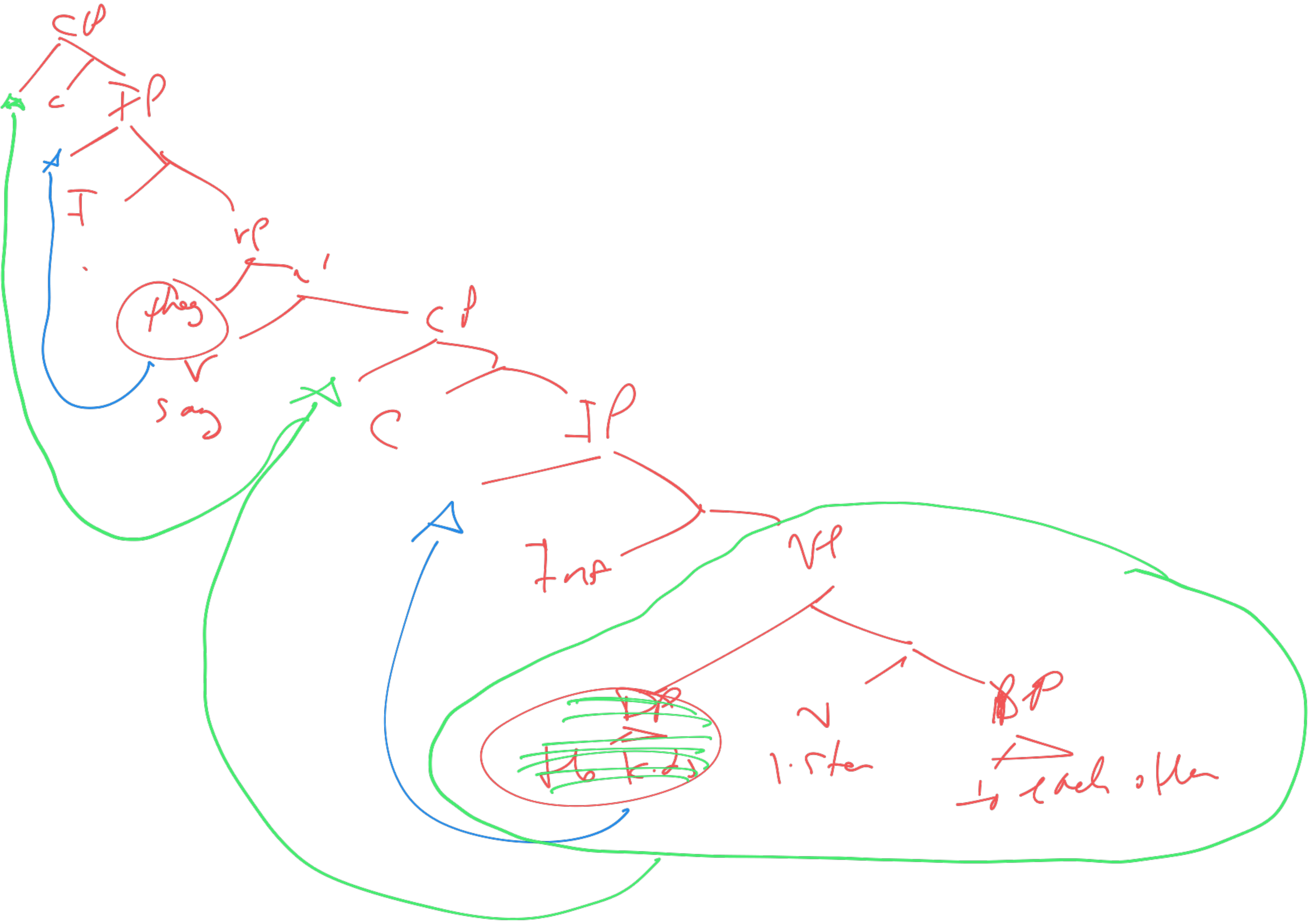
b. [$_{VP}$ [the kids] [$_{V'}$ listen to each other]]

The final structures are given in (17).

17) a. [$_{CP}$ [which stories about each other]$_i$ did [$_{IP}$ they say [$_{CP}$ t_i [$_{IP}$ [the kids]$_k$ [$_{VP}$ t_k liked t_i]]]]]

b. [$_{CP}$ [$_{VP}$ t_k listen to each other]$_i$ [$_{IP}$ they say [$_{CP}$ t_i [$_{IP}$ [the kids]$_k$ won't t_i]]]]





CP
C
IP
I
vP
v'
they
v
say
CP
C
IP
Infl
VP
DP
the kids
V
listen
PP
to each other

17) a. [$_{CP}$ [which stories about each other]$_i$ did [$_{IP}$ they say [$_{CP}$ t_i [$_{IP}$ [the kids]$_k$ [$_{VP}$ t_k liked t_i]]]]]

b. [$_{CP}$ [$_{VP}$ t_k listen to each other]$_i$ [$_{IP}$ they say [$_{CP}$ t_i [$_{IP}$ [the kids]$_k$ won't t_i]]]]

- In (17a), **the matrix subject is the local binder of the anaphor relative to the intermediate position of the fronted wh-phrase. However, the embedded subject is local binder relative to the base position. This explains why two readings for the reciprocal are possible.**

- In (17b), **the trace tk of the embedded EA is always the local binder for the anaphor, preventing binding by the matrix subject. This expains why only one reading for the reciprocal is possible. (Crucially, this explanation is only available if we assume PISH)**

1.4. Floating quantifiers

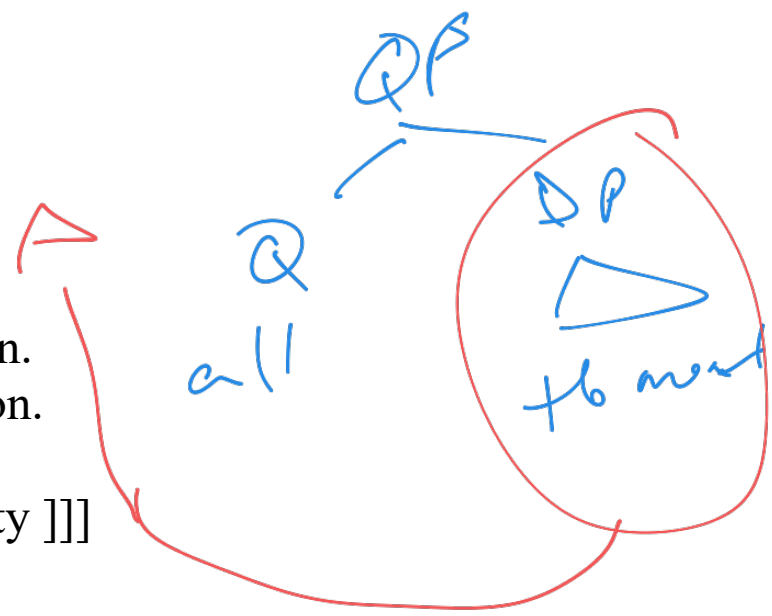
Consider (18)-(20). The (b) sentences involve **floating quantifiers**. To account for the semantic relation between the floating quantifier and the DP, it has been suggested that floated quantifiers are the result of movement. Their position indicates their base position and can thus be taken as support for PISH (21).

18) a. All the men have left the party.
b. The men have all left the party.

19) a. The women each seemed to eat a tomato.
b. The women seemed to each eat a tomato.

20) a. Both the girls may sing arias in the production.
b. The girls may both sing arias in the production.

21) [IP [the men]$_i$ [I' have [VP [QP all t_i] left the party]]]



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2. Internal arguments and ditransitive verbs

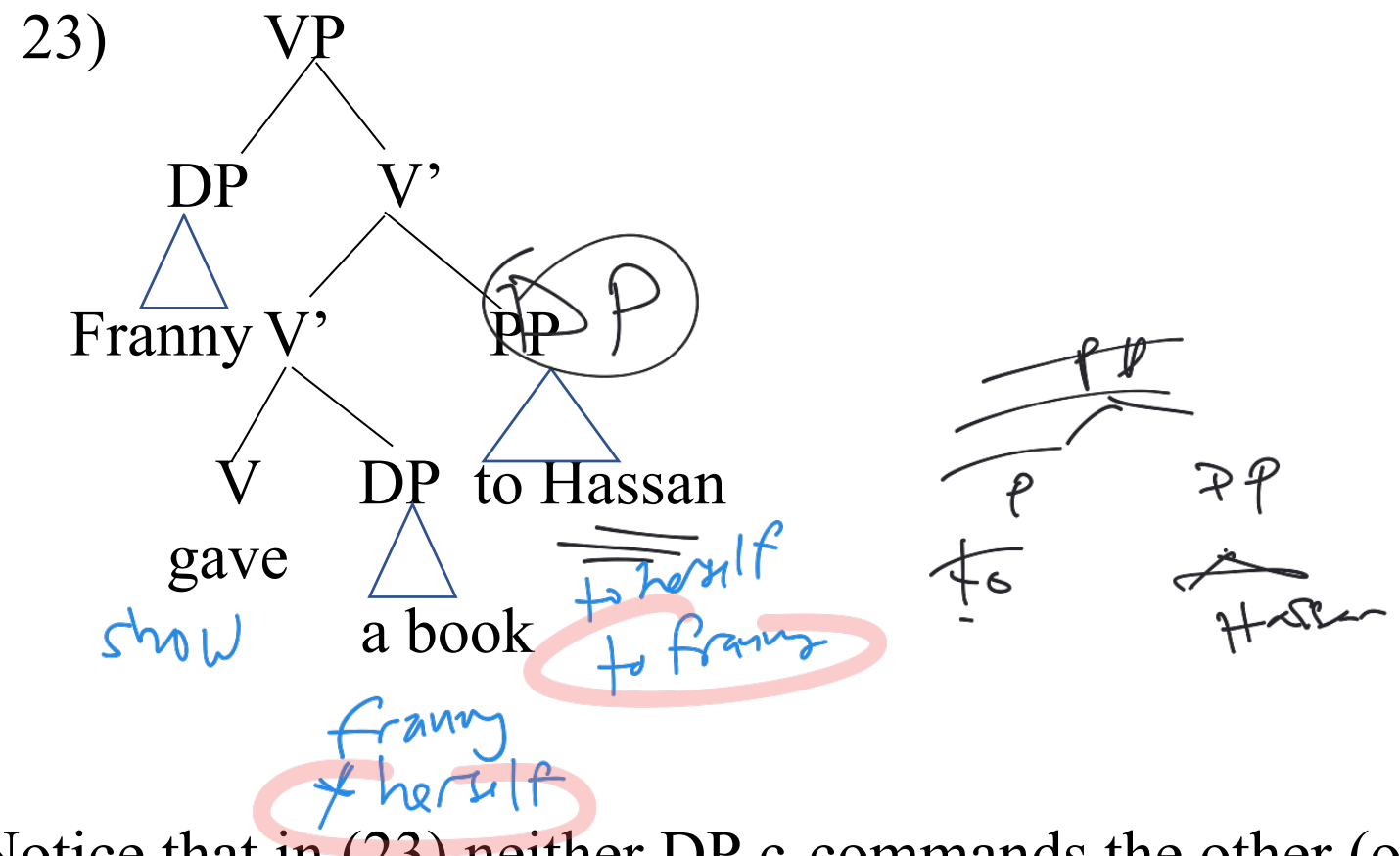
Let us now turn to constructions involving two internal arguments.

Q: What is the structure for a sentence like (22)?

22) Franny gave a book to Hassan.

One possibility is the tree diagram given in (23).

23)



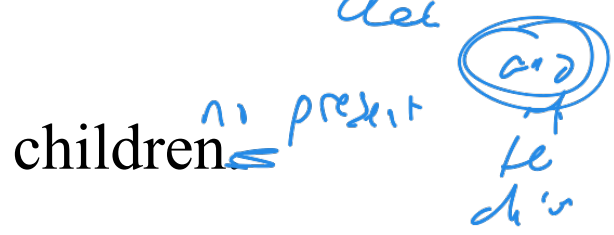
Notice that in (23) neither DP c-commands the other (or perhaps if we make the P somehow transparent, it is the second DP that asymmetrically c-commands the first one).

Meanwhile, (24)-(27) show that the first DP should c-command the second one.

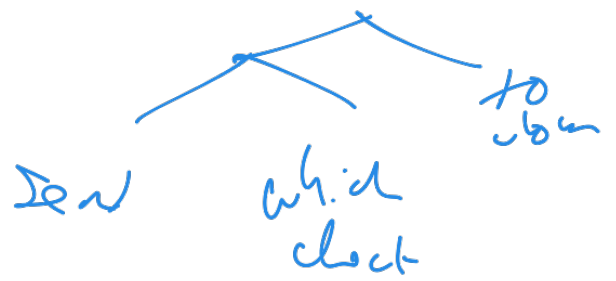
24) a. I presented/showed Franny to herself.
b. *I presented/showed herself to Franny.

25) a. I gave/sent [every check]$_i$ to its$_i$ owner.
b. ??I gave/sent his$_i$ paycheck to [every worker]$_i$.

26) a. I sent no presents to any of the children.
b. *I sent any of the packages to none of the children.

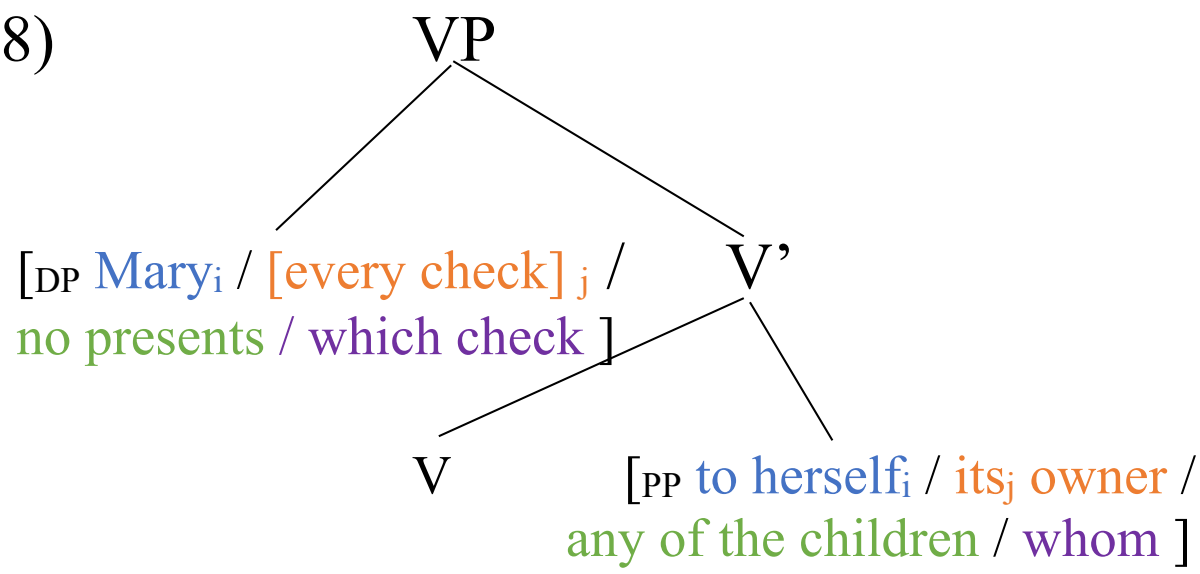


27) a. Which check did you send to whom?
b. *Whom did you send which check to?

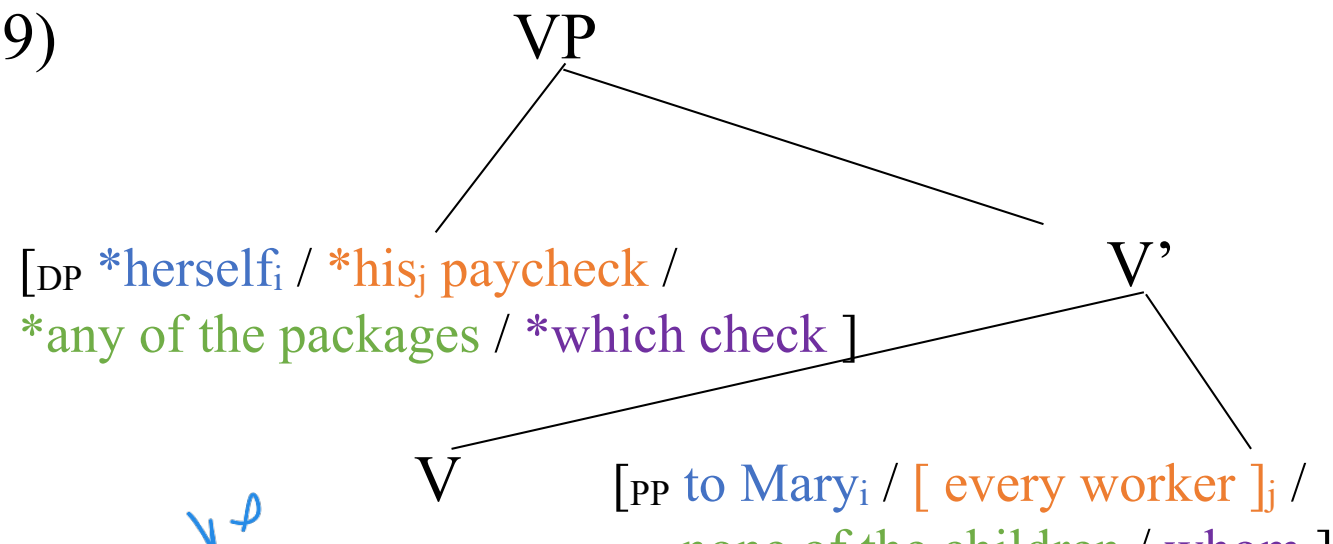


The contrasts in (24)-(27) can be accounted for if we assume a structure in which the theme DP c-commands the goal PP. See (28)-(29), and for ‘gave a book to Hassan' (30).

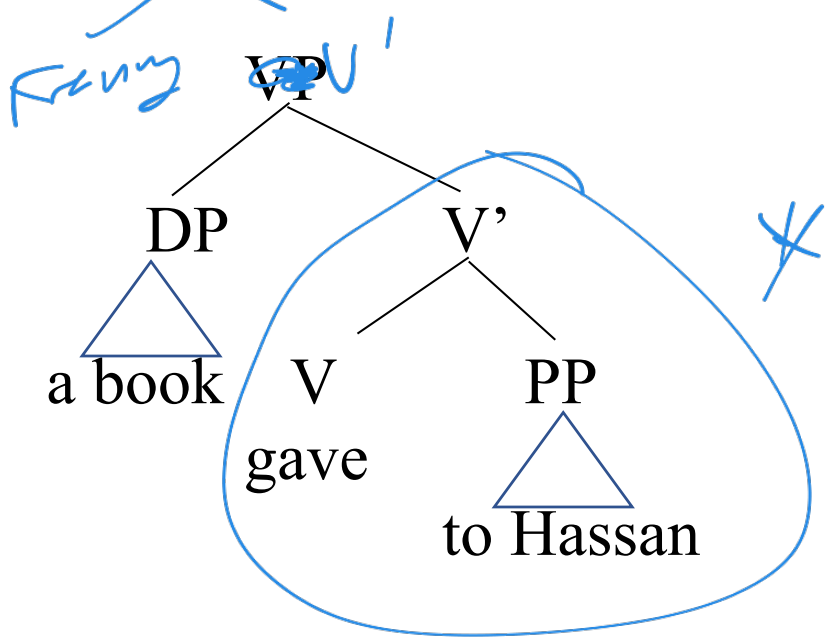
28)



29)

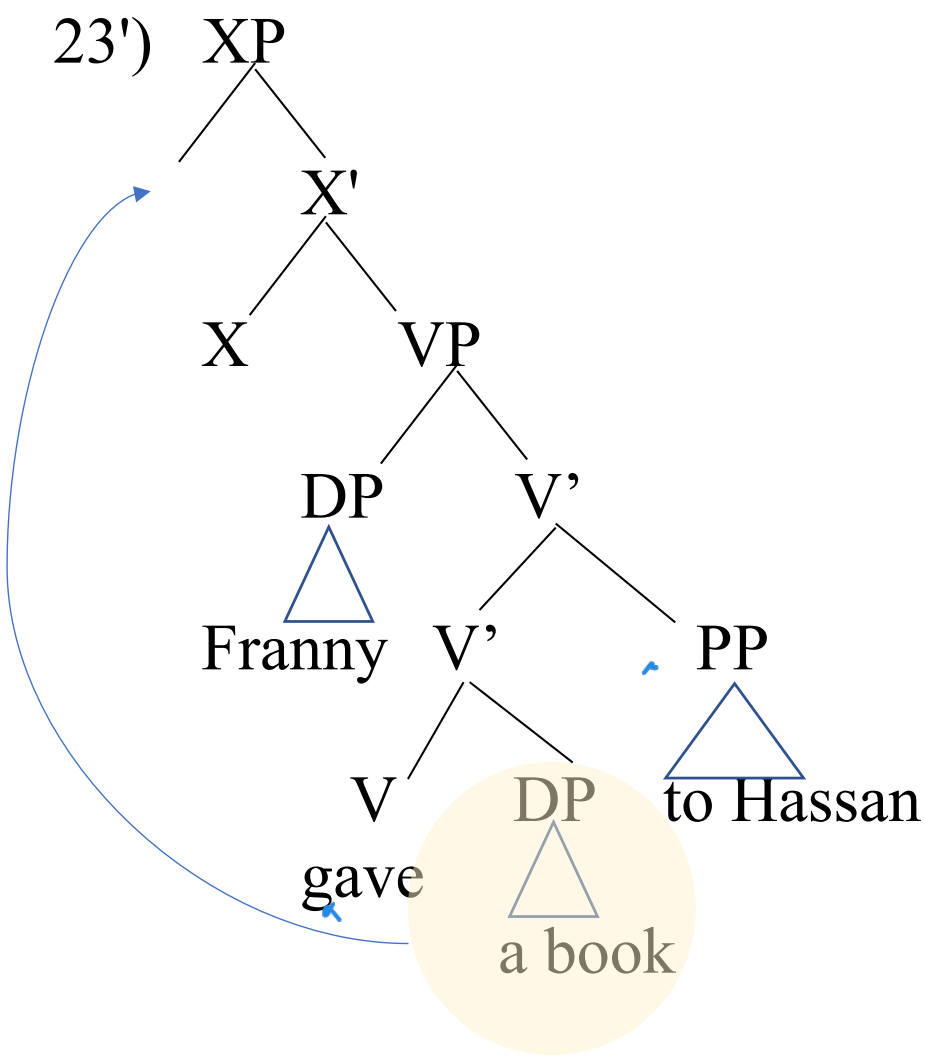

VP
[DP *herselfi / *hisj paycheck /
*any of the packages / *which check]
V’
V
[PP to Maryi / [every worker]j /
none of the children / whom]

30)


VP
DP
V’
a book
V
gave
PP
to Hassan

Q: What if we assumed the original structure in (23) and posited that the correct c-command relation is the result of movement of the theme DP to some higher position later in the derivation?

23')



Idioms provide evidence against (23'), as shown in (31). They provide support for the idea that the verb and the complement PP form a constituent (in their base positions) in the exclusion of the direct object.

31) a. Lasorda *sent* his starting pitcher *to the showers*.
b. Mary *took* Felix *to the cleaners / to task / into consideration*.
c. Felix *threw* Oscar *to the wolves*.
d. Max *carries* such behavior *to extremes*.

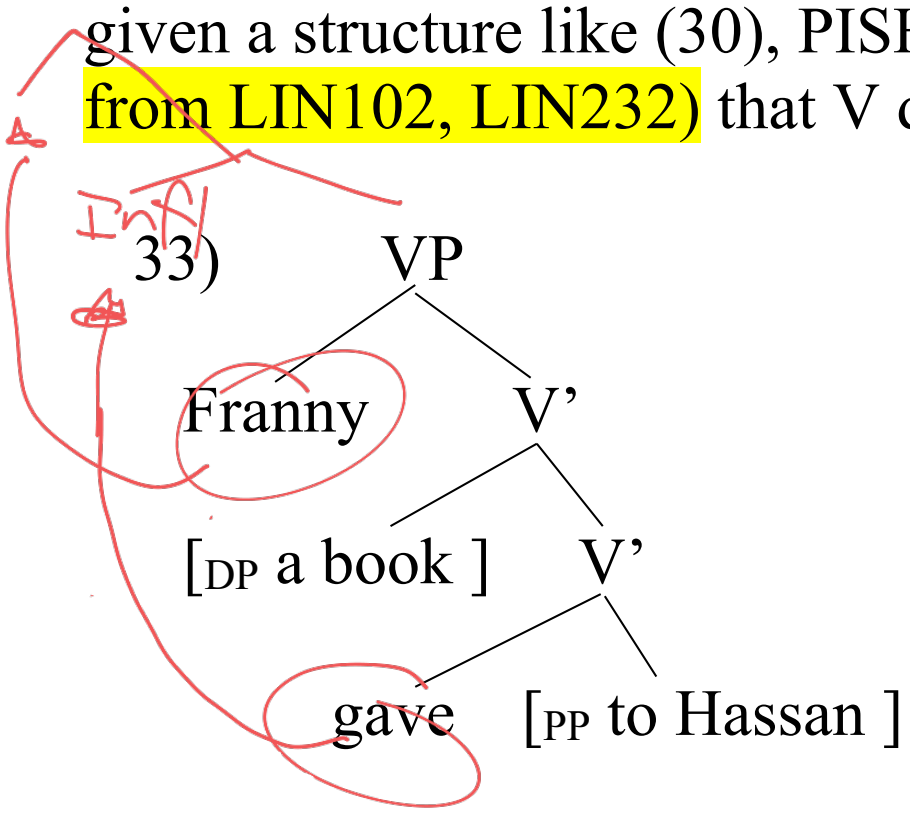
We skipped this slide in class

Also, there is evidence that shows that the interpretation of the theta role of the theme DP depends on the PP, as shown in (32), indicating that it is in fact 'external' to the V PP complex. Recall a similar argument in the discussion of external/internal arguments.

32) a. John took Felix to the end of the road.
b. John took Felix to the end of the argument.
c. John took Felix to the brink of disaster.
d. John took Felix to the cleaners.

The obvious problem: How do we get the correct word order, given a structure like (30), PISH and the additional fact (recall from LIN102, LIN232) that V doesn't move to Infl in English?

33)



34) a. $[_{IP}$ Franny$_i$ $[_{I'}$ I^0 $[_{VP}$ t_i $[_{V'}$ $[_{DP}$ a book] $[_{V'}$ gave $[_{PP}$ to John]]]]]]

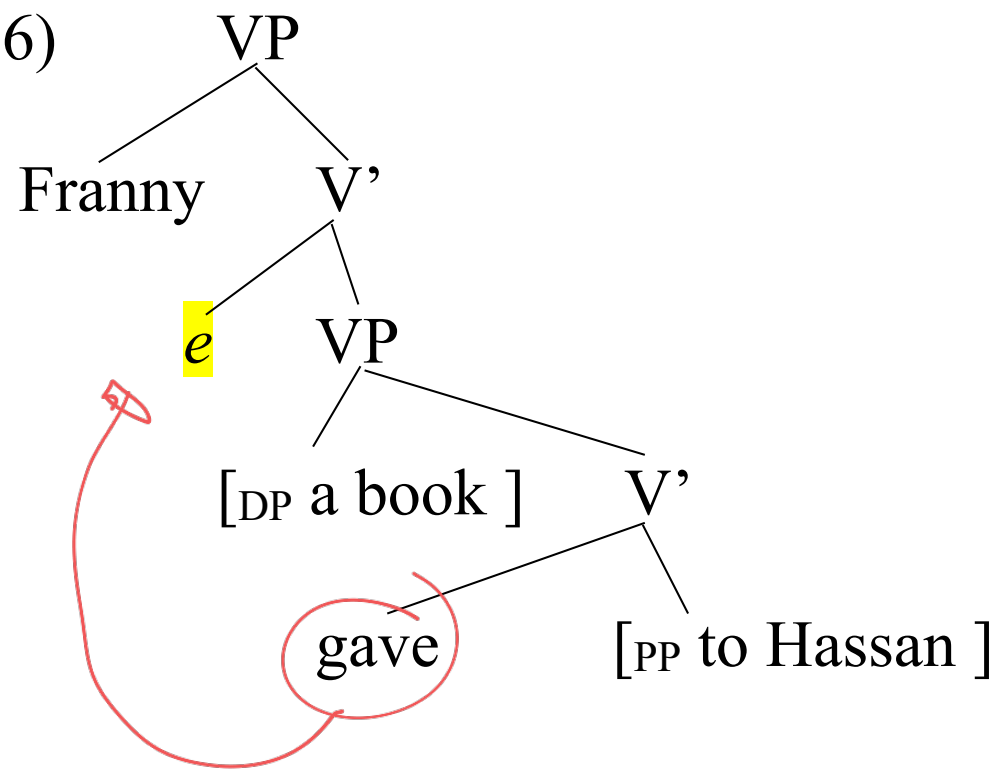
b. *Franny a book gave to Hassan.

A solution: Larson (1988) **VP-shells**

The general structure proposed by Larson is shown in (35) and the specific tree for our sentence in given in (36).

35) [VP [external argument] [V' *e* [VP [direct obj.] [V' verb [indirect obj.]]]]]

36)



There are two verbal shells in (36), one headed by *gave* and one by an empty head, which is just a place holder. The verb *gave* moves to the empty position. The subject then moves to SpecIP. This is shown in (42).

37) $[_{IP}$ Franny$_k$ $[_{I'}$ I^0 $[_{VP}$ t_k $[_{V'}$ gave$_i$ $[_{VP}$ $[_{DP}$ a book] $[_{V'}$ t_i $[_{PP}$ to Hassan]]]]]]]

(For Larson, *gave* moves so that it can discharge its theme **theta-role**. Note that this is in tension with the dominant view at the time, that theta-roles are discharged at D-structure)

Problem for phrase structure: projection of higher VP from an empty head!

Chomsky (1995) building on influential work by Hale and Keyser (1993) adapted Larson's proposal: The upper verbal shell is not projected from an empty head, but from a 'light' (i.e. **functional** as opposed to **lexical**) verb *v* which is phonetically null in English. This is shown in (38).

38) $[_{vP}[$ external argument $][_{v'}$ *v* $[_{VP}[$ direct obj. $][_{V'}$ verb $[$ indirect obj. $]]]]]$

Q: How do we derive the surface order?

By further assuming that English *v* has a V-feature that triggers this movement, as shown in (39).

39) $[_{IP}$ Franny$_k$ $[_{I'}$ I^0 $[_{vP}$ t_k $[_{v'}$ gave$_i$+v^0 $[_{VP}$ $[_{DP}$ a book $][_{V'}$ t_i $[_{PP}$ to Hassan $]]]]]]]$

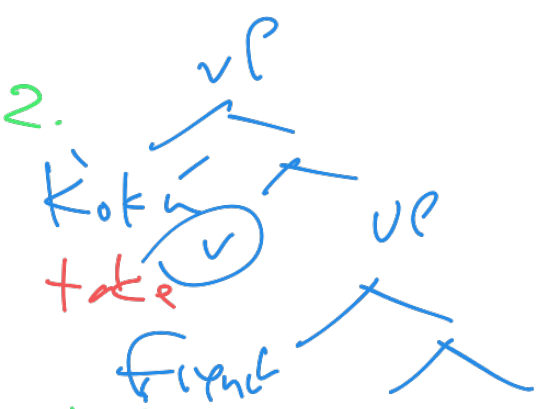
Some support: **serial verb constructions** in some languages which seem to provide examples with overt light verbs, as shown in (40)-(41) for Fongbe and Mandarin.

40) *Fongbè*

Kòkú **só** flãsé hélé Àsíbá.

Koku take French teach Asiba

'Koku teaches French to Asiba.'



41) *Mandarin Chinese*

Zhangsan **ba** shu gei wo.

Zhangsan take book give me

'Zhangsan gave the book to me.'

3. External arguments and VP shells

Q: Should we extend the VP-shell (light verb v) analysis to the case of a simple transitive construction?

YES!

- First, consider (42) and its paraphrase with a light verb *do* in (43). If we assume a light v analysis (see (44) and (45)), the two constructions receive parallel accounts which is a good result given their similar meaning.

42) TV violence harms children.

43) TV violence does harm to children.

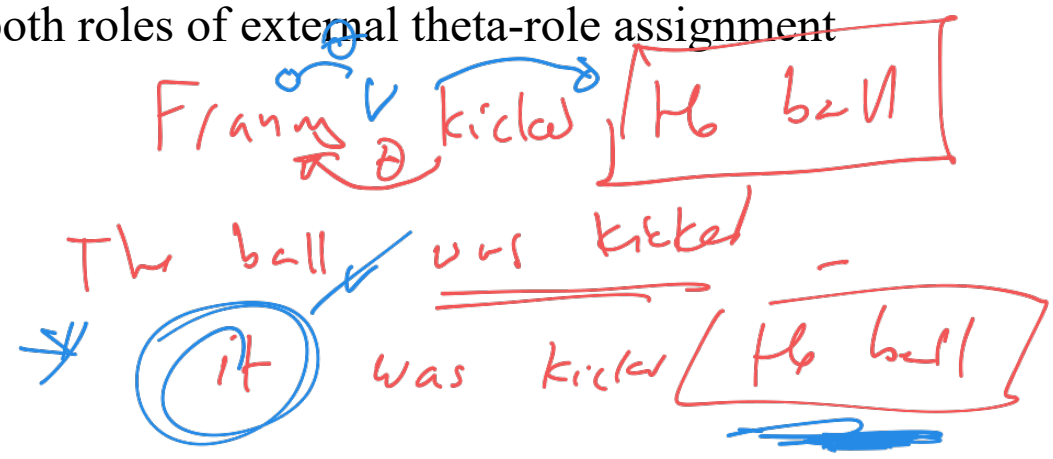
44) [$_{vP}$ [TV violence][$_{v'}$ *v* [$_{VP}$ harms [children]]]]

45) [$_{vP}$ [TV violence] [$_{v'}$ does [$_{NP}$ harm [$_{PP}$ to children]]]]

- Second, consider the pair in (46). If we assume that (46b) involves a light verb v structure like (46a), the identical theta role of ‘Hassan' in both sentences follows naturally.

46) a. Hassan threw the ball to Franny.
b. Hassan threw the ball.

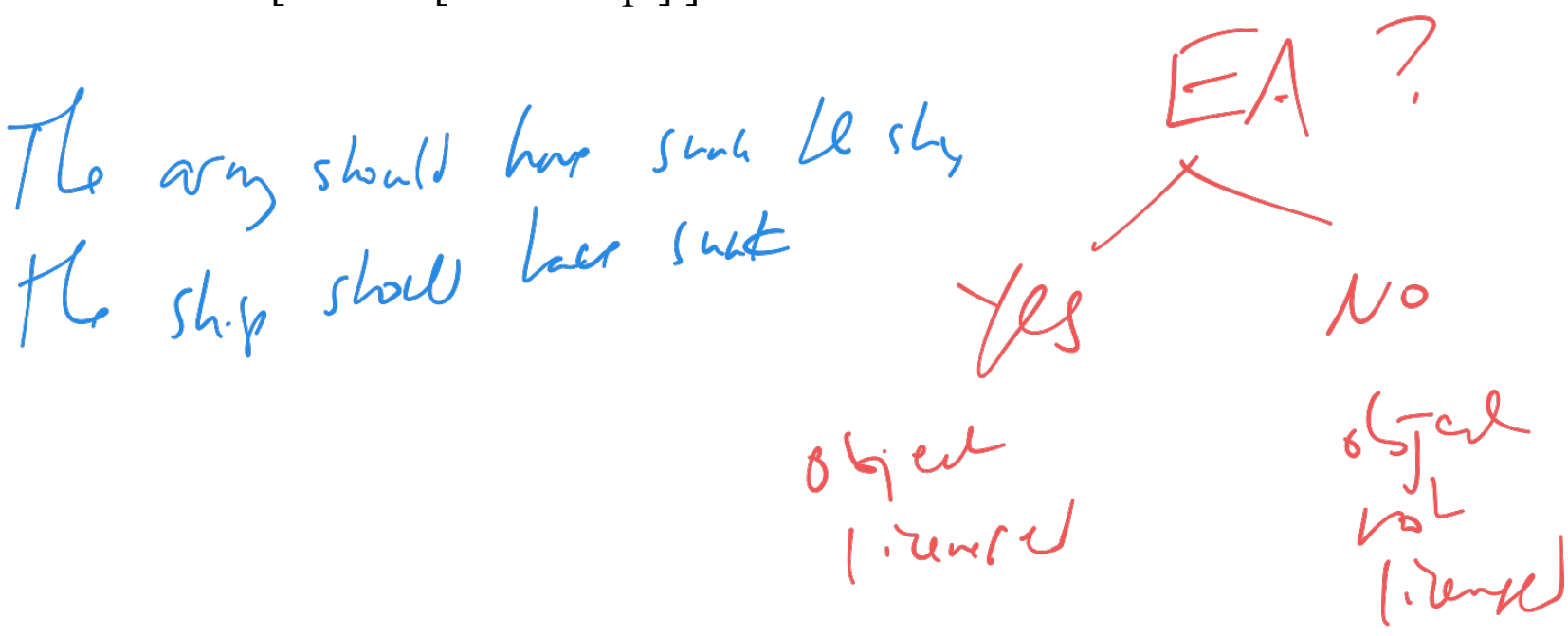
- Third, the VP shell structure provides a plausible explanation for **Burzio’s generalization**: a DP can surface in object position of a verb **only if that verb theta-marks its subject**.
  - You may recall from LIN232 that a verb licenses its object by assigning it **accusative Case**. Burzio's generalization receives a natural explanation if the light verb *v* can be taken to play both roles of external theta-role assignment and accusative case-checking.



- This also allows us to capture the properties of **causative/inchoative** pairs like (47), as in (48). Proposal: causatives have little *v* and inchoatives do not.

47) a. The army sank the ship.
b. The ship sank.

48) a. [$_{vP}$ [$_{DP}$ the army] [$_{v'}$ *v* [$_{VP}$ sank [$_{DP}$ the ship]]]]
b. [$_{VP}$ sank [$_{DP}$ the ship]]



- Fourth, independent support for distinguishing causative/inchoative pairs in terms of verbal shells comes from languages where the light v has an overt realization, e.g. Kannada in (49).

49) *Kannada*

a. Neer kud-i-tu.
water.ACC boil-PAST-1.S.NEUT
'The water boiled.'

b. *Naan-u neer-annu kud-id-e.
I-NOM water-ACC boil-PAST-1.S
'I boiled the water.'

c. Naan-u neer-annu kud-**is**-id-e.
I-NOM water-ACC boil-CAUS-PAST-1.S
'I boiled the water.'

- Fifth, we have an argument from Passives: If the light verb v is taken to be responsible for both the external theta role and accusative case, it is not surprising that suppressing accusative case assignment in passives also changes the status of the external theta role by realizing it as an adjunct.

- Sixth, the little *v* hypothesis is supported by languages where the phonetic realization of light verb v is not as restricted as English, e.g. Basque (50).

50) Basque

Jonek	Aitorri	min	egin	dio.
Jon.ERG	*Aitor.DAT*	*hurt*	*do*	*AUX*

'Jon hurt Aitor.'

Conclusion: The double shell structure for ditransitives should be extended to transitives, a widely accepted assumption in mainstream generative linguistics today.

We stopped here in class, but we will return to unergatives/unaccusatives next class and they feature in the Harley reading that you are doing this week so you should take a look at these slides.

4. Unaccusative and unergative intransitive verbs

Standard GB assumption: There are two types of verbs with single arguments:

- **unergative** verbs whose single argument behaves like an external argument
- **unaccusative** verbs whose single argument behaves like an internal argument

The data in (52)-(54) support for this distinction.

52) Italian

a. Giovanni ha / *è comprato un libro.
Giovanni has/is bought a book
'Giovanni bought a book.'

b. Giovanni ha / *è telefonato.
Giovanni has/is called
'Giovanni called.'

c. Giovanni è / *ha arrivato.
Giovanni is/has arrived
'Giovanni arrived.'

(68) *Portuguese*

a. A Maria comprou os livros.
the Maria bought the books
'Maria bought the books.'

b. Comprados os livros, …
buy.PART.MASC.PL the books
'After the books were bought, …"

c. *Comprada a Maria, …
buy.PART.FEM.SG the Maria
'After Maria bought (something), …'

d. Chegada a Maria, …
arrive.PART.FEM.SG the Maria
'After Maria arrived, …'

e. *Espirrada a Maria, ...
sneeze.PART.FEM.SG the Maria
'After Maria sneezed, …'

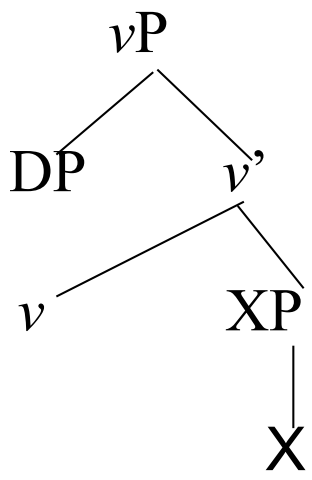
(54) a. John smiled (a beautiful smile).
b. John arrived (*an unexpected arrival).

The unaccusative/unergative distinction has been traditionally accounted for in terms of the position where the only argument is base-generated, as shown in (70).

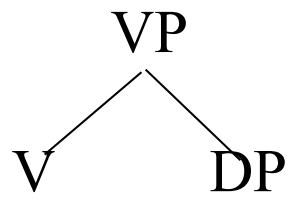
53) a. Unergative verbs: [$_{VP}$ DP [$_{V'}$ V]
b. Unaccusative verbs: [$_{VP}$ V DP]

We can posit that unergatives, but not unaccusatives, have light *v*:

54) unergative



unaccusative



Evidence for this proposal: Languages which have an overt light verb for both transitive and unergative but not unaccusative constructions, as shown for Basque in (56)-(58).

56) *Basque* (transitive constructions)

a. Jonek Mireni min **egin** dio.
Jon.ERG Miren.DAT hurt do AUX
'Jon hurt Miren.'

b. Jonek kandelari putz **egin** dio.
Jon.ERG candle.DAT blow do AUX
'Jon blew out the candle.'

57) *Basque* (unergative constructions)

a. Emakumeak barre **egin** du.
woman.DEF.ERG laugh do AUX
'The woman has laughed.'

b. Nik eztul **egin** dut.
I.ERG cough do AUX
'I have coughed.'

58) *Basque* (unaccusative constructions)

a. Emakumea erori da.
woman.DEF.ABS fallen AUX
'The woman has fallen.'

b. Kamioiak etorri dira.
truck.DET.PL arrived AUX
'The trucks have arrived.'

Summary:

A vP shell, headed by a functional head known as light v, has been proposed to account for ditransitive clauses.

vP shell structure has since been widely adopted as part of the core functional structure of any clause where the predicate introduces an external argument.

• Today we saw arguments for extending the vP shell structure to simple transitives. We didn't get to talking about intransitives, but we will see next week that we can extend vP shell structure to unergative intransitives as well.

Next week

We will return to the little v hypothesis and connect it to changes introduced in the minimalist framework to how phrase structure is modeled.