Linguistics 795.10 Unbounded dependency constructions: between Linguistic Theory and Corpus Annotation

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TuTh 11:30–1:18, 132 Cunz Hall

Course website http://ling.osu.edu/ dm/07/autumn/795.10/ (please consult for details)

The Syntax of Extraction: some basics

Core properties of UDCs

$\bar{X}$ positions

(1) a. I like Robin.
b. Robin, I like __.

(2) a. I won't speak to Robin.
b. Robin, I *won't* speak to __.

(3) a. I doubt Robin is a spy.
b. Robin I *doubt* __is a spy.

(4) a. I want to take the exam that day.
b. Which day do you want to take the exam?

'Fetch'

(5) a. Leslie believes that I like Robin.
b. Robin, Leslie believes that I like __

(6) a. Those people are sure that Leslie believes I like Robin.
b. Robin, those people are sure that Leslie believes I like __.

(7) a. *I like __.
b. *Leslie believes that I like __.
c. *Those people are sure that Leslie believes that I like __.

(8) a. *Robin, I like Chris. [non-vocative]
b. *Robin, Leslie believes that I like Chris.
c. *Robin, those people are sure that Leslie believes that I like Chris.

(9) a. I mentioned that problem to Robin.

b. *I mentioned that problem Robin.
c. *I mentioned about that problem to Robin.

(10) a. To Robin, I mentioned that problem.
b. *Robin, I mentioned that problem.

(11) a. That problem, I mentioned to Robin.
b. *About that problem, I mentioned to Robin.

(12) a. I very much doubt Robin and Pat are/*is spies.
b. Robin and Pat I very much doubt __are/*is spies.
c. I very much doubt Robin is/*are a spy.
d. Robin I very much is/*are a spy.

(13) a. I resent him/*he.
b. Him, I resent __.
c. *??He, I resent __.
d. Him/*??he I suspect Leslie knows you resent __.

(14) a. I doubt she is a spy.
b. She I doubt __is a spy.
c. *Her I doubt __is a spy.
d. She/*her I am sure Leslie would guess I doubt __is a spy.

Compare with:

(15) a. Terry criticizes Pat and Leslie a lot.
b. Pat and Leslie are criticized a lot by Terry.

(16) a. They criticized me.
b. I was criticized (by them).

(17) a. Robin is proud of herself.
b. Proud of herself, Robin definitely is __.
c. Proud of herself, I would say Robin definitely is __.
d. Proud of herself, I guess I'd have to say Robin definitely is __.

(18) a. Robin has nothing to say to Leslie.
b. To Leslie, Robin has nothing to say __.
c. To Leslie, I suspect that Robin has nothing to say __.

(19) a. *Queen of Belgium, I dislike the __.
b. *Against the wall, I leaned the ladder right __.
c. *Proud of herself, Robin is less __.

What do we know about the dependency so far?

Summary of results

- Extraction appears to have unbounded fetch;
- it applies to all major category types;
- it appears to be largely independent of properties of distinct lexical classes;
- it relates a higher position to a lower position that is unrestricted with respect to $\bar{X}$ relations
- case, person and number are shared between the extracted constituent and the gap site;
- only maximal projections can be extracted.

Wh-UDCs

Wh-questions

(20) a. What did you see?
b. What did Leslie think you saw?
c. What is Robin sure that Leslie thinks you saw?
d. What did Dana insist that Robin sure that Leslie thinks you saw?

(21) a. You will read **what**
b. **What** will you read?

(22) a. You will read **which book**
b. **Which book** will you read?

(23) a. I wonder you will read $\left\{ \begin{array}{c} \textbf{what} \\ \textbf{which book} \end{array} \right\}$
b. I wonder $\left\{ \begin{array}{c} \textbf{what} \\ \textbf{which book} \end{array} \right\}$ you will read.

(24) a. You will give presents to **whom**
b. **whom** will you give presents to?
c. **To whom** will you give presents?

(25) a. You will give presents to friends of **whom**
b. ??***Friends of whom** will you give presents to?
c. ??*I wonder **friends of whom** you will give presents to.
d. ??***To friends of whom** will you give pictures?
e. ??*I wonder **to friends of whom** you will give pictures.

(26) a. I wonder **what** to do.
b. I wonder **what** to tell Leslie to do.
c. I wonder **whom** to consult with on this.

d. I wonder **with whom** to consult on this.

(27) a. **Who** said that?
b. **Who** do you think said that?
Gap or no gap??

(28) a. I wonder **who** to persuade Robin to go out with.
b. ?(?)I wonder **who** to persuade Robin that she should go out with.
c. **who** did you persuade Robin that she should go out with?

Relative clauses

(29) a. The people **who** did this should be ashamed of themselves.
b. Robin is someone **about whom** I have heard good things.
c. Robin is one person **pictures of whom** I would never allow in my house.
d. There are certain books**the lettering on the covers of which** I do not approve of.
e. There are ce certain books**the height of the lettering on the covers of which** I do not approve of.

(30) a. *The people someone did this should be ashamed of the themselves.
b. *Robin is someone about him I have heard good things.
c. *Robin is one person pictures of him I would never allow in my house.

(31) The people **who** hired Leslie are not very friendly.
Gap or no gap??

(32) a. I am proud of Robin.
b. Robin is someone **proud of whom** we all are.
c. I believe that we all like Robin.
d. *Robin is someone **That we all like whom** I truly believe.
e. That we all like Robin I truly believe.

Clefts

(33) a. It's Robin who/that wants that particular job.
b. It's Robin who/that I expect to get that particular job.
c. It was under the bed where/that Robin kept her beer.
d. It's Tuesday that the exam will take place.

- Clefts $\neq$ relatives.

(34) a. [Every soldier]$_i$ believes that that he$_{j/*i}$ who knows what he$_{j/*i}$ is doing is mistreated by his$_{j/*i}$ superiors.
b. [Every soldier]$_i$ believes that it is he$_{j/i}$ who knows what he$_{j/*i}$ is doing.

(35) a. *The culprit was himself$_i$ who Robin$_i$ has to blame for what happened.
b. It's (only) himself$_i$ who Robin has to blame for what happened.

(36) a. The reason that he quit was not obvious.
b. *It was that reason that he quit.

(37) a. It's Robin that we all like __.
b. It's Robin that we all doubt that Leslie likes __.
c. It's Robin that we all imagine some people doubting that Terry likes __.

(38) a. It's Robin that we all doubt __like*(s) Terry
b. It's those people that we all doubt __like(*s) Terry.

Pseudoclefts

(39) a. What I like __is the fact that Robin is so modest about her achievements.
b. What I like are pictures of imposing mountain peaks.
c. What I like pictures of are imposing mountain peaks.
d. *Pictures of what I like are imposing mountain peaks.

(40) a. *Which I like are pictures of imposing moutain peaks,
b. Where I'm going is New York City.
c. %When I'm going is this summer.
d. ??*Who I want to talk to is Robin's advisor.

(41) a. What Robin wants __is a new job.
b. What Leslie doubts Robin wants __is a new job.
c. What Terry is sure that Leslie doubts Robin wants __is a new job.

Topicalization

(42) a. Robin, we all like __.
b. Robin, I doubt we all like __.
c. Robin, I doubt Leslie imagines we all like __.

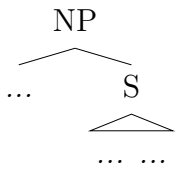
Missing objects

(43) a. Robin was difficulty for us to please __.
b. Robin is $\left\{ \begin{array}{c} \text{too stubborn} \\ \text{well-informed enough} \end{array} \right\}$ for the committee to pick __for the debating team.
c. Terry is graceful to dance with __.
d. I bought it for you to read on the train.
e. You know what$_1$ Robin$_2$ is like __$_1$ to argue with gap$_2$.
f. This cake took me an hour to bake __.
g. That building will cost a lot to build __.

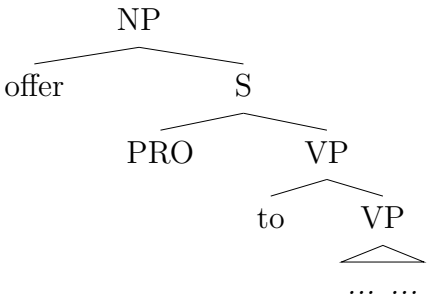
(44) a. This new kind of box was hard to produce __.
b. This new kind of box was hard to persuade the twins to produce __.
c. This new kindof box was hard to persuade the twins to retool their factory to produce __.

Islandhood parallelisms

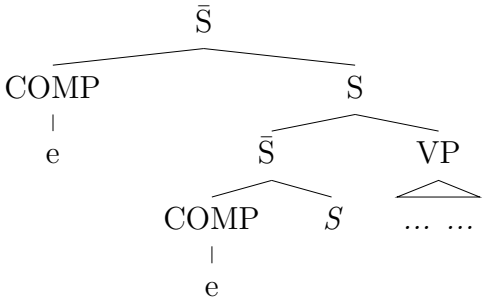
Ross-era island conditions:
Complex NP Constraint Nothing can be extracted out of an NP where the gap site is under S in the configuration

(45)


(46) You accepted Robin's offer to insult who?/*Who did you accept Robin's offer to insult

(47)


(48) **Sentential Subject Constraint** Nothing may be extracted from a clausal subject.

(49)


(50) a. That Robin spied for *who* disturbed you greatly?
b. *I wonder who that Robin spied for __disturbed you greatly.

Extraction from a subject is impossible?

(51) a. Only the hoods of these cars were damaged in the explosion.
b. These are the cars of which only the hoods— were damaged in the explosion.
c. Of which cars were only the hoods damaged in the explosion?

(52) a. The key to this lock has been lost.
b. This is the lock to which the key has been lost.
c. To which locks have the keys been lost?
d. Has the key to this lock been lost?
e. I expect to the key to this lock to be lost.

(53) a. I believe that Robin taking the key to that lock without asking is very suspicious.
b. *To which lock do you believe that Robin taking the key — without asking is very suspicious?

The Coordinate Structure Constraint

(54) a. I like raspberries and papayas in fruit salad.
b. *What do you like raspberries and — in fruit salad?
c. *What do you like — and papayas in fruit salad?

(55) a. I play cards with the gang and go to night classes on alternate Thursdays.
b. ??Who do you play cards with — and go to night classes on alternate Thursdays?
c. ??What do you play cars with the gang and go to— on alternate Thursdays.

(56) a. Florence is the city that I went to last year and photographed a lot of churches in.
b. To whom have you presented your plans or shown your prospectus?
c. Visit Paris, Robin definitely will this summer and I really should sometime next year.

Subjacency

• No single movement operation may related positions separated by more than one bounding node, where for English the bounding nodes are NP, S and $\bar{S}$.

(57) a. You met the guy who sold *which* car to Robin?
b. *Which car did you meet the guy who sold __to Robin?

50

a. That Robin spied for *who* disturbed you greatly?

b. *I wonder who that Robin spied for __disturbed you greatly.

(58) a. You were wondering who to talk to *how*?
b. *How were you wondering who to talk to __?

Relative clauses

(59) a. *That's the car which I met the guy who sold __to Robin.
b. *The group which that Robin spied for __disturbed you greatly has been banished.
c. *That's the place where I wonder what they found __. [narrow-scope reading]

Clefts

(60) a. *It was *that* car which I met the guy who sold __to Robin.
b. *It was *that* group which that Robin spied for __disturbed me greatly.
c. *It was *there* that I wonder what they found __. [narrow-scope reading]

Pseudoclefts

(61) a. *What I met the guy who sold __to Robin was that car.
b. *What that Robin spied for __disturbed me greatly was that group.
c. *Where I wonder what they found __was behind the wall.

Topicalization

(62) a. *That car, I met the guy who sold __to Robin.
b. **That* group, that Robin spied for __disturbed me greatly.
c. ??There, I wonder what they found.

Missing objects

(63) a. It would be hard for us to choose a car to buy from this guy.
b. *Which guy would be hard for you to choose a car to buy from __.
c. It would be natural for Robin spying for that group to disturb you.
d. *That group would be natural for Robin spying for __to disturb you.
e. It's hard to figure out what to say to those people
f. (?)Those people are hard to figure out what to say to __.

(64) a. I_i have some paperwork$_j$ PRO$_i$ to do $___j$ on the trip home.
b. Robin$_i$ suspects that PRO$_i$ to talk about herself$_i$ at the interview would be a big mistake.
c. I_i wonder what$_j$ PRO$_i$ to do $___j$.

• Conclusion: a reasonable parallelism exists among UDCs with respect to island conditions; in particular, MOCs display the characteristics of movement, not deletion.

Evidence for locality

French

(65) Quand partira ton ami?
'When will your friend leave?'

(66) Avec qui jouaient tes enfants?
With whom were your children playing?

(67) Oú espèraient dîner tes amis?
'Where did your friends hope to dine?'

(68) a. Le fait que cette fille t'a communiqué ne nous intéresse pas.
b. Le fait que t'a communiqué cette fille ne nous intéresse pas.
'The fact that this girl told you about does not interest us.' [K&P 11a&b]

(69) a. Le fait que cette fille t'a parlé ne nous intèresse pas.
b. *Le fait que t'a parlé cette fille ne nous intèresse pas.
'The fact that this girl spoke to you does not interest us.' [K&P 10a&b]

(70) a. Ton ami partira quand? 'Your friend will go when?'
b. Ton ami partira où? 'Your friend will go where?' [K&P 6a&b]

(71) a. *Partira ton ami quand?
b. *Partira quand ton ami?
c. *Partira ton ami où?
d. *Partira où ton ami?

(72) Avec qui croit-elle qu'a soupé Marie?
'Who does she think that Marie has dined with?'

(73) Où/Quand Marie a-t-elle déclaré que Paul était mort?
'Where/when did Marie declare that Paul had died?'

(74) Où/Quand Marie a-t-elle déclaré qu'était mort Paul?
'Where/when did Marie declare that Paul had died?'

Irish

(75) Shíl mé **goN** mbeadh sé ann.
thought I COMP would-be he there
'I thought that he would be there.'

(76) Dúirt mé **gurL** shíl me **goN** mbeadh sé ann.
said I **goN**+PAST thought I **goN** would-be he there
'I said that I thought that he would be there.'

(77) an fear **aL** shíl mé **aL** bheadh __ ann
[the man]$_j$ COMP thought I COMP would-be e$_j$ there
'the man that I thought would be there'

(78)
an fear **aL** dúirt mé **aL** shíl mé **aL** bheadh __ ann
[the man]$_j$ COMP said I COMP thought I COMP would-be e$_j$ there
'The man that I said I thought would be there'

(79) an fear **aL** shíl __ **goN** mbeadh sé ann
[the man]$_j$ COMP thought e$_j$ COMP would-be he there
'the man that thought he would be there'

(80) an fear **aL** dúirt sé **aL** shíl __ **goN** mbeadh sé ann
[the man]$_j$ COMP said he COMP thought e$_j$ COMP would-be he there
'the man that he said thought he would be there'

(81) I mBetlehem **aL** dúirt na targaireachtaí **aL** béarfaí an Slánaitheoir __.
[in Bethlehem]$_j$ COMP said the prophecies COMP would-be-born the Saviour e$_j$
'It was in Bethlehem that the prophecies said the Saviour would be born.'

(82) an lá **aL** bhí muid i nDoire __
[the day]$_j$ COMP were we in Derry e$_j$
'the day we were in Derry'

(83) Cén uair **aL** tháinig siad ńa bhaile __
[which time]$_j$ COMP came they home e$_j$
'What time did they come home?

Icelandic

(84) það var dansað í gær.
there was danced yesterday
'People danced yesterday.'

(85) það drekka margir vín á Íslandi
there drink many wine in Iceland
'Many people drink wine in Iceland.'

> *það* can only occur if nothing else precedes the tensed part of the verb, and in that case it is obligatory both in main and in embedded clauses... the result of *það* insertion in Icelandic is that in declarative main clauses and embedded clauses the tensed part of the verb is always in second position... There is however one exception to this generalization...; namely, in binding domains *það* must be omitted. The verb can then come first under the S-node in these domains if the subject is indefinite or if the sentence contains an impersonal passive.

(86) a. Hann spurþi, hvaþ drekki margt fólk á Íslandi.
he asked what drink many people in Iceland
'He asked what many people drink in Iceland.'

b. *Hann spurði, hvað þaðdrekki margt margt fólk á Íslandi.

(87) a. Vodka veit ég að er talið að drekki margt fólk á Íslandi.
Vodka know I that is said that drink many people in Iceland
'I know it is said that many people in Iceland drink vodka.'

b. *Vodka veit ég að þaðer talið að drekki margt fólk á Íslandi.

c. *Vodka veit ég að það er talið að það drekki margt fólk á Íslandi.

(88) *Í Rússlandi sagði hann að drekka margt vodka á Íslandi.
In Russia said he that drink many vodka in Iceland
'In Russia he said that many people drink vodka in Iceland.'

(89) Í Rússlandi sagði hann að það drekka margt vodka á Íslandi.
In Russia said he that there drink many vodka in Iceland
'In Russia he said that many people drink vodka in Iceland.'

(90) a. Hann spurði, hvar væri dansað
he asked where was danced.
'He asked where people danced.'

b. *Hann spurði, hvar *það* væri dansað

(91) a. Hann spurði, hvenær væri dansað
he asked when was danced
'He asked when people danced.'

b. *Hann spurði, hvenær það væri dansað

(92) Á Íslandi sagði hann að drykkaju margir vodka __.
In Iceland said he that drink(past subj.) many vodka
'In Iceland he said that many people drink vodka.'

(93) ?/*Á Íslandi sagði hann að það drykkaju margir vodka __.
In Iceland said he that there drink(past subj.) many vodka
'In Iceland he said that many people drink vodka.'

Yiddish

(94) a. Vos hot er nit gevolt az mir zoln leyenen?
what has he not wanted that we should read
'What did he not want us to read?

b. Vos hot er nit gevolt zoln mir leyenen?
what has he not wanted should we read
'What did he not want us to read?

c. *Vos hot er nit gevolt az zoln mir leyenen
what has he not wanted that should we read

d. ?Vos hot er nit gevolt az es zoln mir leyenen
what has he not wanted that *es* should we read
'What did he not wanted us to read?'

e. *Vos hot er nit gevolt mir zoln leyenen
what has he not wanted we should read

(95)

a. Ven hastu gezogt az Max hot geleyent dos bukh t?
when have-you said that Max has read the book
'When did you say that Max read the book?'

b. Ven hastu gezogt hot Max geleyent dos bukh t?
when have-you said has Max read the book
'When did you say that Max read the book?'

c. *Ven hastu gezogt Max hot geleyent dos bukh t
when have-you said Max has read the book

d. * Ven hastu gezogt az hot Max geleyent dos bukh t
when have-you said that has Max read the book

Chamorro

(96)

If the argument dominating the gap is:	Then the verb is marked as follows:
Nominative	Replace ergative agreement with *-um-*.
Object	Optional nominalization; if the verb is transitive, insert *-in-*.
Oblique (= neither of above)	Nominalization; if the verb is unaccusative optionally insert *-in-*.

(97) *Nominative marking*
Todu i dos **um**aluk **t** na bunitu esti na na'an i Juan
all the two WH-NOM-say COMP AGR.pretty this L name the Juan
'Both of them said that this name Juan was beautiful.'

(98) *Object marking*

Hafa$_i$ kinannóno'-mu t$_i$?
what? sc wh.eat-AGR
'What have you been eating?'

(99) *Oblique marking*
Hafa puno?-mu ni lälu?
what? kill+NMLZ-your OBL fly
'What did you kill the fly with?'

(100) Hafa um-istotba hao [ni malago?-ña i lahi-mu] gap?
what? UM-disturb you COMP want+NMLZ-his the son-your
'What does it disturb you that your son wants?'

(101) Hafa s-in-angan-ã si Juan [pära godde-tta ni chiba __]?
what? IN-say+ NMLZ-his UNM FUT tie+NMLZ-our OBL goat
'What did Juan say that we should tie up the goat with?

(102) sagan-ña si Juan __?
how? say+NMLZ-his UNM
'How did Juan say it?

(103) Taimänu malago?-mu [**t** pära arekla-nña si Pedro ni kareta **t**]?
how want:WH[OBL]-AGR you FUT WH[OBL].fix-AGR UNM Pedro OBL car
'How do you want Pedro to fix the car?'

Monostratal feature-logical grammar

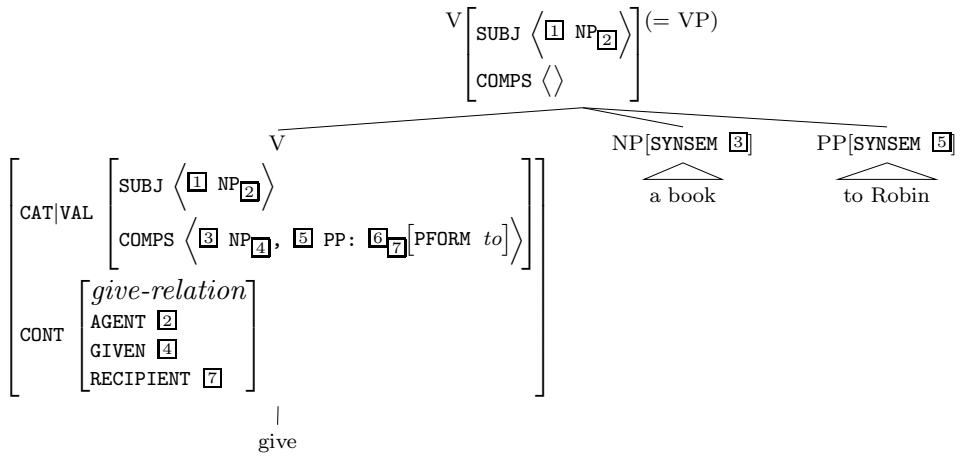
(104)

$$\begin{bmatrix} \textsc{phon} \left\langle \ldots \right\rangle \\ \textsc{synsem} \begin{bmatrix} \textsc{loc} \begin{bmatrix} \textsc{cat} \begin{bmatrix} \textsc{head} \ldots \\ \textsc{val} \ldots \\ \textsc{arg-st} \ldots \end{bmatrix} \\ \textsc{cont} \ldots \\ \textsc{conx} \ldots \\ \textsc{qstore} \left\{ \ldots \right\} \end{bmatrix} \\ \textsc{nonloc} \ldots \end{bmatrix} \\ \textsc{dtrs} \begin{bmatrix} \textsc{head-dtr} \ldots \\ \textsc{nonhead-dtrs} \ldots \end{bmatrix} \end{bmatrix}$$

(105)
$$\left[\begin{array}{l}\textsc{phon}\ \langle \text{give} \rangle \\ \textsc{synsem|loc}\ \left[\begin{array}{ll}\textsc{cat} & \left[\begin{array}{ll}\textsc{head} & \left[\begin{array}{l}\textit{verb} \\ \textsc{aux}\ -\end{array}\right] \\ \textsc{val} & \left[\begin{array}{l}\textsc{subj}\ \langle \boxed{1}\ \textsc{np}_{\boxed{2}} \rangle \\ \textsc{comps}\ \langle \boxed{3}\ \textsc{np}_{\boxed{4}},\ \boxed{5}\ \textsc{pp}_{\boxed{6}}\left[\textsc{pform}\ \textit{to}\right] \rangle\end{array}\right]\end{array}\right] \\ \textsc{cont} & \left[\begin{array}{l}\textit{give-relation} \\ \textsc{agent}\ \boxed{2} \\ \textsc{given}\ \boxed{4} \\ \textsc{recipient}\ \boxed{6}\end{array}\right]\end{array}\right]\end{array}\right]$$

- The VALENCE PRINCIPLE ensures that a phrase can be projected from a head just in case there is exactly one sister for that head corresponding to every *synsem* object on the head's COMPS list.
- The HEAD FEATURE PRINCIPLE requires the HEAD specifications of a mother and its head daughter to be structure-shared (i.e., the arc from the mother category labeled HEAD and the arc from the head daughter category labeled HEAD terminate on the same node, in the graphic representation of admissible feature structures sketched earlier).

(106) a.



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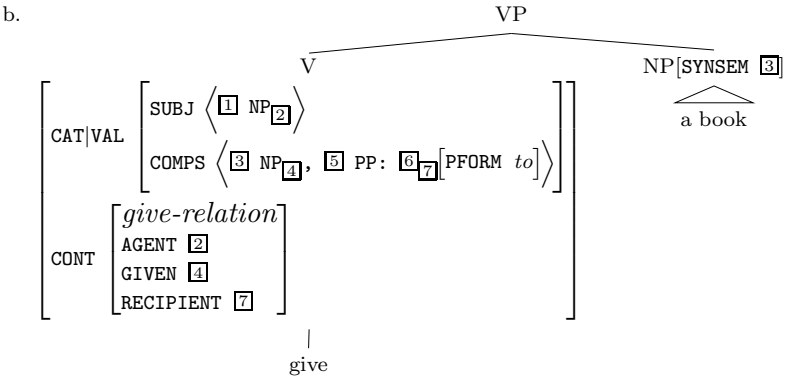

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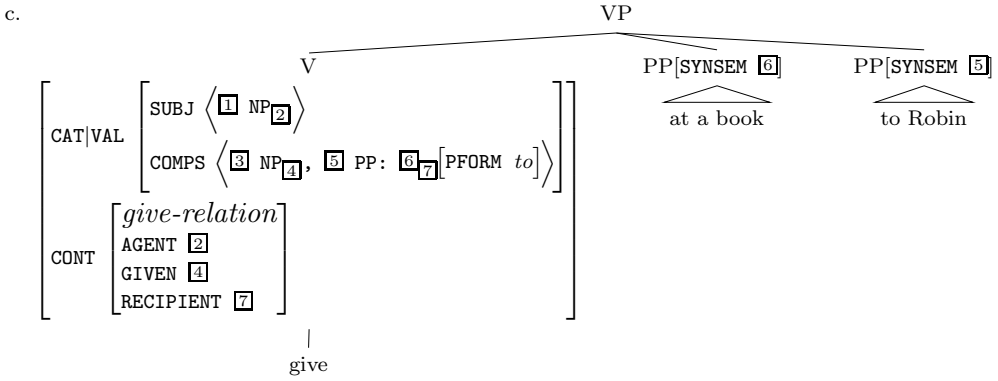

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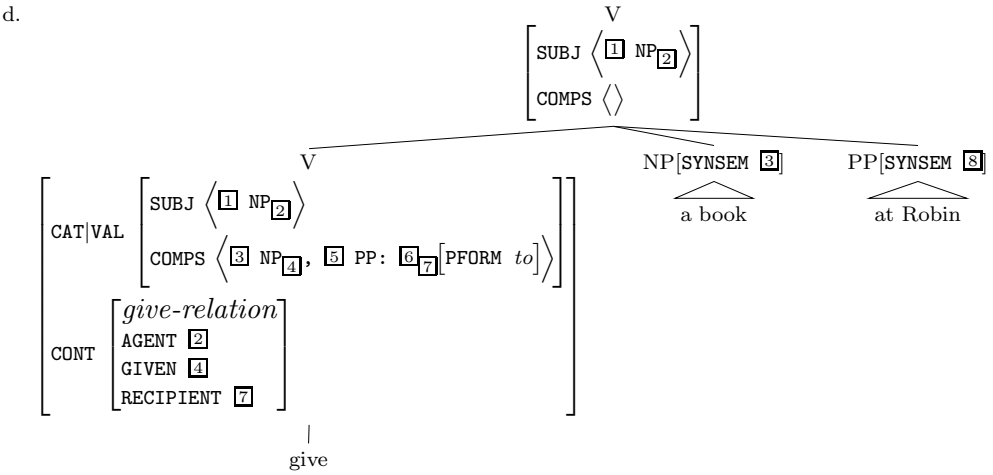
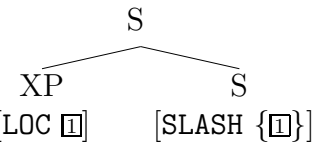
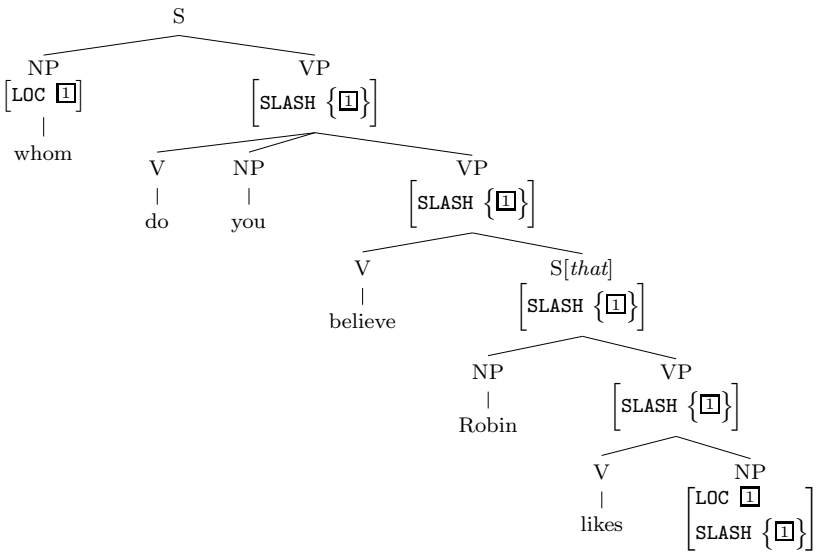


(107)



The Slash Inheritance Principle forces SLASH specifications on mothers to be shared with at least one daughter and vice versa, subject to conditions which ensure that the SLASH value at the top of the dependency is bound off at that point.

(108)



(109)
$$\begin{bmatrix} \texttt{PHON} \left\langle \right\rangle \\ \texttt{SYNSEM} \begin{bmatrix} \texttt{LOC} \boxed{1} \\ \texttt{SLASH} \left\{ \boxed{1} \right\} \end{bmatrix} \end{bmatrix}$$