

Syntactic, Semantic and Information Structures of Floating Quantifiers

Ryo Otaguro & Liselotte Snijders

Waseda University

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WASEDA University

1 Introduction

2 Previous analyses

3 Proposal

4 Conclusion

- (1) a. The students have *all* finished the assignment.
- b. Elles sont *toutes* allées à la plage.
 they.F are all.F.PL gone.F.PL to the beach
 ‘They all went to the beach.’ (French)
- c. Diesen Studenten habe ich gestern *allen*
 these.DAT.PL students have I yesterday all.DAT.PL
 geschmeichelt.
 flattered
 ‘I flattered all of these students yesterday.’ (German) (Bobaljik, 2003, 107–9)
- d. kodomo-tati wa *minna* eiga o tanosinda.
 children-PL TOPIC all movie ACC enjoy.PAST
 ‘The children all enjoyed the movie.’ (Japanese)

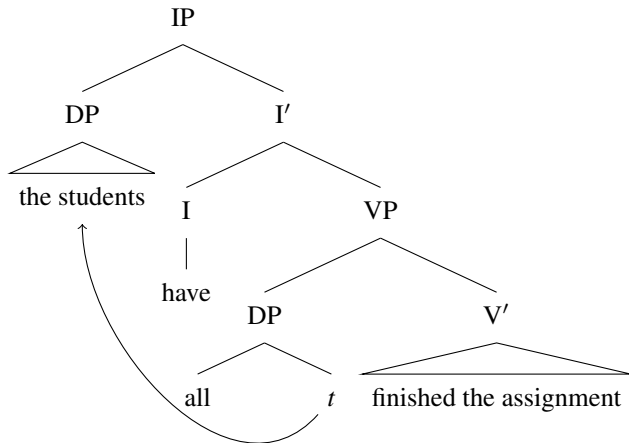
1 Introduction

2 Previous analyses

3 Proposal

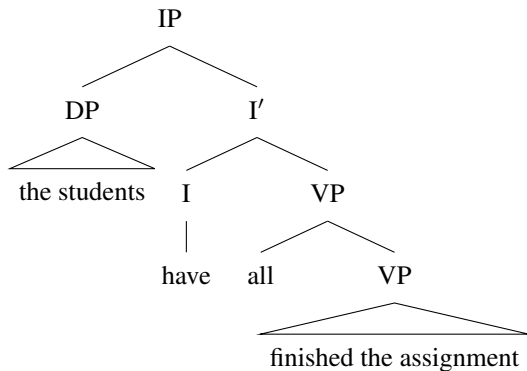
4 Conclusion

(2) Stranding analysis



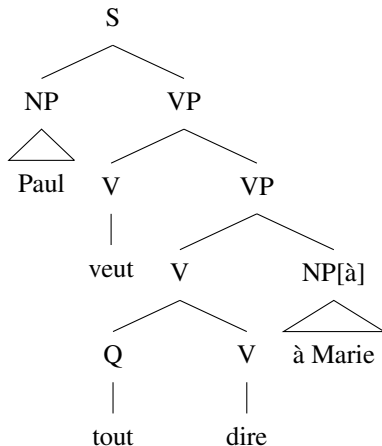
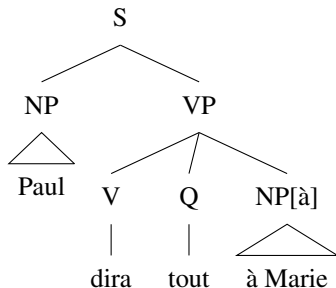
(cf. Sportiche, 1988; Shlonsky, 1991)

(3) VP modifier analysis



(cf. Dowty and Brodie, 1984; Baltin, 1982; Bobaljik, 2003; Kim and Kim, 2009)

(4) Complement/adjunct analysis



(Abeillé and Godard, 1998, 82)

Against stranding analysis

- ▶ A sentence with an FQ does not always have a corresponding sentence with a non-floating quantifier ((5), (6)).

- (5) a. Ces enfants ont *chacun* lu un livre différent.
 these children have each read a book different
 ‘These children have each read a different book.’
- b. **Chacun* ces enfants a lu un livre différent.
 each these children has read a book different
 ‘Each of these children has read a different book.’ (French)
 (Bobaljik, 2003, 123–4)
- (6) a. John, Bill and Tom *all* came to the class.
- b. **All* of John, Bill and Tom came to the class.

- ▶ Languages like Dutch and Mandarin Chinese have different lexical items for non-floating quantifiers ((7), (8)).

(7) a. *Alle* toeristen zullen Boston bezoeken.

all tourists will Boston visit

‘All tourists will visit Boston.’

b. De toeristen zullen *allemaal* Boston bezoeken.

the tourists will all Boston visit

‘The tourists will all visit Boston.’ (Dutch)

(8) a. *suo you* de ren zou le

all PRT people left ASP

‘All the people have left.’

b. ren *dou* zou le

people all left ASP

‘The people have all left.’ (Mandarin Chinese)

(Dowty and Brodie, 1984, 82)

Issues

- ▶ An FQ semantically quantifies the modified NP.
- ▶ FQs can appear in the VP-internal positions ((9), (10)).

(9) a. I gave the kids *each* a quarter.

b. Mary put the books *all/both/each* (back) on the proper shelf.

(Maling, 1976, 712)

(10) a. Marie sloeg de mannen *allebei* op het gezicht.

M. hit the men both in the face

‘Marie hit the men both in the face.’

b. Ik vind de talen *allemaal* mooi.

I find the languages all beautiful

‘I find the languages all beautiful.’ (Dutch)

- ▶ An FQ agrees with the modified noun in some languages ((1b, c)).

(1) b. Elles sont *toutes* allées à la plage.

they.F are all.F.PL gone.F.PL to the beach

‘They all went to the beach.’ (French)

c. Diesen Studenten habe ich gestern *allen*

these.DAT.PL students have I yesterday all.DAT.PL

geschmeichelt.

flattered

‘I flattered all of these students yesterday.’ (German)

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- ▶ Information-structurally, the NP quantified by an FQ is a ‘reference-oriented topic expression’ (Lambrecht, 1994; Neeleman and van de Koot, 2008; Neeleman and Vermeulen, 2012) and the FQ functions as a focus in the comment (cf. Kuno and Takami, 2003).
- ▶ The default position for a reference-oriented topic expression is sentence-initial, and the following part functions as a comment that consists of a focus and a background ((11a)).
- ▶ The isomorphic syntactic configuration corresponding to the topic–comment structure consists of a clause initial subject (topic) and the VP (comment) ((11b)).

- (11) a. topic* [comment focus [background ...]]
 (Neeleman and van de Koot, 2008, 146)
- b. NP_{SUBJ} [VP QP [VP ...]]

- (12) a. [_{topic} The students] have [_{comment} [_{focus} *all*] [_{background} finished the assignment]]
 b. [_{NP} The students] have [_{VP} [_{QP} *all*] [_{VP} finished the assignment]]
- (13) a. [_{topic} De toeristen] zullen [_{comment} [_{focus} *allemaal*] [_{background} Boston bezoeken]]
 b. [_{NP} De toeristen] will [_{VP} [_{QP} *allemaal*] [_{VP} Boston bezoeken]]
 the tourists will all Boston visit
 ‘The tourists will all visit Boston.’ (Dutch)

- ▶ An FQ can appear VP-internally as long as the preceding NP is a topic and the following elements functions as a background.

- (14) a. I gave [_{topic} the kids] [_{comment} [_{focus} *each*] [_{background} a quarter]].
 b. I [_{VP} gave [_{NP} the kids] [_{QP} each] [_{NP} a quarter]]
- (15) a. Ik vind [_{topic} de talen] [_{comment} [_{focus} *allemaal*] [_{background} mooi]]
 b. Ik vind [_{VP} [_{NP} de talen] [_{QP} *allemaal*] [_{AP} mooi]]
 I find the languages all beautiful
 'I find the languages all beautiful.' (Dutch)

Topic–comment structure

- ▶ An indefinite NP makes the sentence illicit with an FQ since it is normally not taken as a referent-oriented topic expression ((16a, b)).
- ▶ An indefinite NP with an FQ indicates a generic characteristic of the NP ((17)).

(16) a. The children *all* visited London.

b. #Children *all* visited London.

(17) Kinderen genieten *allemaal* van de film.

children enjoy all of the film

‘Children all enjoy the film.’ (Dutch)

- ▶ In Japanese an FQ cannot quantify an NP with the dative particle *ni* or ablative particle *kara* in the preverbal focus position ((18a, c)), while it can when those casemarked NPs are marked by the contrastive topic marker *wa* ((18b, c)).

- (18) a.??Taroo ga Hanako o sinseki ni *minna* syookai sita.
 T. NOM H. ACC relatives DAT all introduce do.PAST
 ‘Taro introduced Hanako to all of his relatives.’
- b. Taroo ga Hanako o sinseki ni wa *minna* syookai
 T. NOM H. ACC relatives DAT TOPIC all introduce
 sita.
 do.PAST
 ‘As for his relatives, Taro introduced Hanako to all of them.’

- (18) c. *sono seizika ga kihukin o siensya kara 50-meī*
 that politician NOM donation ACC supporter from 50-CL
 atumeta.
 collect.PAST

‘That politician collected donations from 50 supporters.’

- d. *sono seizika ga kihukin o siensya kara wa 50-meī*
 that politician NOM donation ACC supporter from TOPIC 50-CL
 atumeta.
 collect.PAST

‘As for supporters, that politician collected donations from 50 of them.’ (Japanese)

- ▶ Manner adverbs, which are by default given a focus interpretation, cannot appear before the FQ since they prevent the FQ from forming a topic–comment structure ((19a), (20a), (21a))
- ▶ The same effect does not arise with non-focus bearing locative adverbs ((19b)) or sentential adverbs ((20c)).

- (19) a. **kodomo ga geragera-to hutari waratta.*
 child NOM loudly two.CL laughed
 ‘Two children laughed loudly.’
- b. *gakusei ga office ni hutari kita.*
 student NOM office to two.CL came
 ‘Two students came to the office.’

(Japanese; Kuno and Takami 2003, 283–4)

- (20) a. *These thieves could completely *all* crack this safe in 5 minutes flat.
 b. These thieves could *all* completely crack this safe in 5 minutes flat.
 c. The thieves have certainly *all* been apprehended.
 d. The thieves have *all* certainly been apprehended.
 (Bobaljik, 1995, 231–2)
- (21) a. *Los estudiantes entenderán completamente *todos* (ese the students will.understand completely all that problema).
 problem
 b. ?Los estudiantes entenderán *todos* completamente (ese problema).
 (Spanish; Bošković 2004, 686)

Analysis

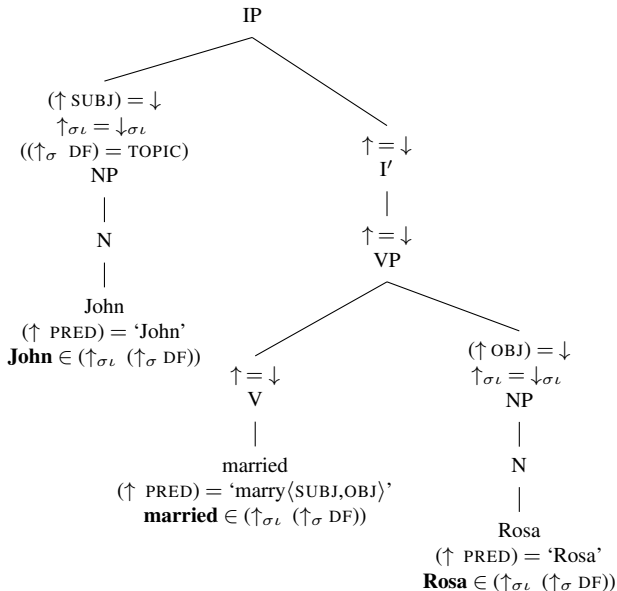
- ▶ A sentence is partitioned into TOPIC, FOCUS, BACKGROUND and COMPLETIVE in information structure (Butt and King, 1996, 2000; Choi, 1999).
- ▶ The semantic structure feature DF is specified in various ways, such as phrase-structure position, prosody and morphological marking ((25)).
- ▶ Specification of a value for the semantic structure feature DF determines the membership of the information structure roles ((26)) (Dalrymple and Nikolaeva, 2011).

(22) Q: What did John do?

A: John married Rosa.

TOPIC FOCUS

(23)



$$(24) \quad m : \left[\begin{array}{l} \text{PRED} \quad \text{'marry' (SUBJ, OBJ)'} \\ \text{SUBJ} \quad s : [\text{PRED} \quad \text{'John'}] \\ \text{OBJ} \quad o : [\text{PRED} \quad \text{'Rosa'}] \end{array} \right]$$

$$(25) \quad s_\sigma : [\text{DF} \quad \text{TOPIC}]$$

$$m_\sigma : [\text{DF} \quad \text{FOCUS}]$$

$$o_\sigma : [\text{DF} \quad \text{FOCUS}]$$

$$(26) \quad m_{\sigma\iota} : \left[\begin{array}{l} \text{TOPIC} \quad \{ \mathbf{John} \} \\ \text{FOCUS} \quad \left\{ \begin{array}{l} \mathbf{married} \\ \mathbf{Rosa} \end{array} \right\} \end{array} \right]$$

(Dalrymple and Nikolaeva, 2011, 84–5)

VP-adjunction FQ

- ▶ The VP adjunction rule can be formulated as in (27).

$$\begin{array}{ccc}
 (27) \quad \text{VP} & \longrightarrow & \begin{array}{cc}
 \text{QP} & \text{VP} \\
 \downarrow \in (\uparrow \text{ADJ}) & \uparrow = \downarrow \\
 \uparrow \sigma_i = \downarrow \sigma_i & \uparrow \sigma_i = \downarrow \sigma_i \\
 (\uparrow_\sigma \text{ DF}) = \text{FOCUS} & (\uparrow_\sigma \text{ DF}) = \text{BACKGROUND}
 \end{array}
 \end{array}$$

- ▶ Semantically, an FQ relates an individual x to two propositions $R(x)$ (restrictive meaning) and $S(x)$ (scope meaning) (Dalrymple et al., 1997; Dalrymple, 2001).
- ▶ The NP modified by an FQ is identified by its topic status, i.e. the value of DF must be TOPIC in s-structure.

(28) a. *minna* Q (\uparrow PRED) = 'all'

$\lambda R. \lambda S. all(x, R(x), S(x)) :$

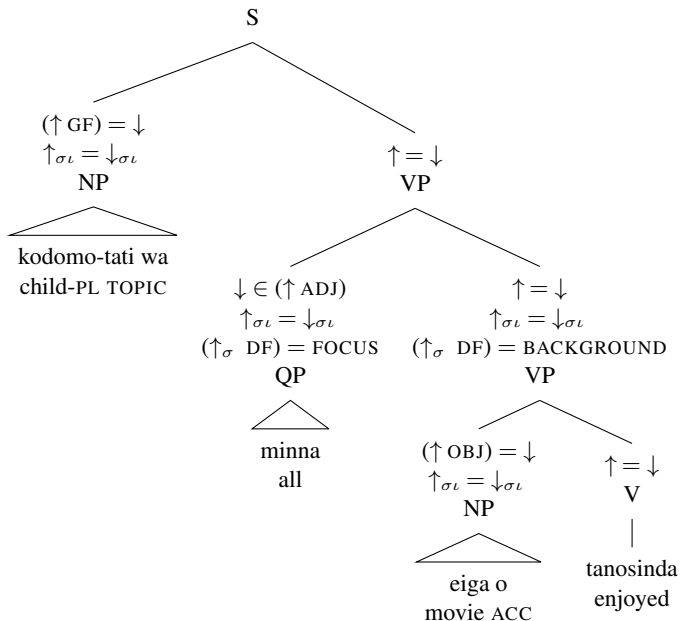
$[((\%t)_\sigma \text{ VAR}) \rightarrow_\sigma ((\%t)_\sigma \text{ RESTR})]$

$\rightarrow_\sigma [\forall H. [(\%t)_\sigma \rightarrow_\sigma H] \rightarrow_\sigma H]$

$((\text{ADJ} \in \uparrow) \quad \text{GF} \quad) = \%t$
 $(\rightarrow_\sigma \text{DF}) = \text{TOPIC}$

all $\in (\uparrow_{\sigma_L} (\uparrow_\sigma \text{DF}))$

(29)



$$(30) \quad e : \left[\begin{array}{l} \text{PRED} \quad \text{'enjoy'} \langle \text{SUBJ, OBJ} \rangle \\ \text{SUBJ} \quad s : [\text{PRED} \quad \text{'child'}] \\ \text{OBJ} \quad o : [\text{PRED} \quad \text{'movie'}] \\ \text{ADJ} \quad \{ a : [\text{PRED} \quad \text{'all'}] \} \end{array} \right]$$

$$(31) \quad s_{\sigma} : \left[\begin{array}{l} \text{STATUS} \quad \text{IDENTIFIABLE} \\ \text{ACTV} \quad \text{ACTIVE} \\ \text{VAR} \quad [] \\ \text{RESTR} \quad [] \\ \text{DF} \quad \text{TOPIC} \end{array} \right] \quad \begin{array}{l} o_{\sigma} : [\text{DF} \quad \text{BACKGROUND}] \\ a_{\sigma} : [\text{DF} \quad \text{FOCUS}] \\ e_{\sigma} : [\text{DF} \quad \text{BACKGROUND}] \end{array}$$

$$(32) \quad e_{\sigma\iota} : \left[\begin{array}{l} \text{TOPIC} \quad \{ \mathbf{children} \} \\ \text{FOCUS} \quad \{ \mathbf{all} \} \\ \text{BACKGROUND} \quad \left\{ \begin{array}{l} \mathbf{enjoyed} \\ \mathbf{movie} \end{array} \right\} \end{array} \right]$$

- (33) **all** $\lambda R.\lambda S.all(x, R(x), S(x)) :$
 $[(s_\sigma \text{ VAR}) \multimap (s_\sigma \text{ RESTR})] \multimap [\forall H.[s_\sigma \multimap H] \multimap H]$
child $\lambda x.child(x) : (s_\sigma \text{ VAR}) \multimap (s_\sigma \text{ RESTR})$
enjoy-movie $\lambda x.enjoy(x, movie) : s_\sigma \multimap e_\sigma$
all, child, enjoy-movie $\vdash all(x, child(x), enjoyed-movie(x)) : e_\sigma$

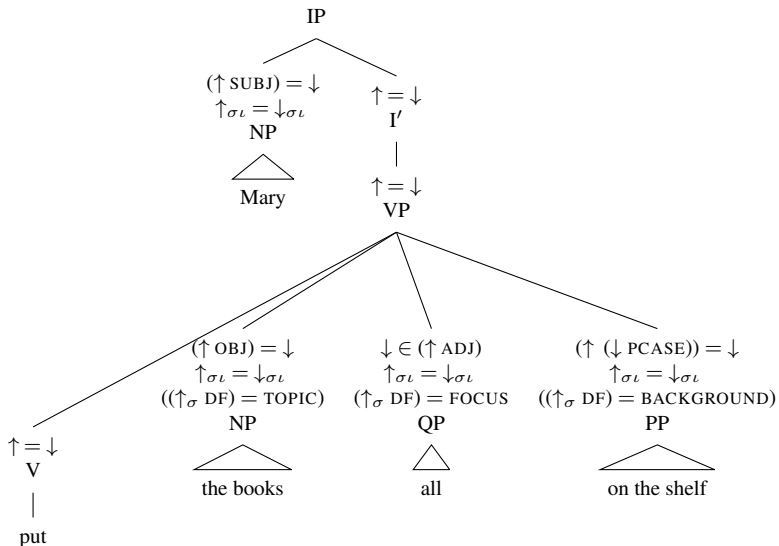
VP-internal FQ

- ▶ When QP appears under VP, it requires the preceding NP to be a topic and the following constituent to be a background.

(34)

VP	→	V		NP		QP		PP
		$\uparrow = \downarrow$		$(\uparrow \text{OBJ}) = \downarrow$		$\downarrow \in (\uparrow \text{ADJ})$		$(\uparrow (\downarrow \text{PCASE})) = \downarrow$
				$\uparrow_{\sigma\iota} = \downarrow_{\sigma\iota}$		$\uparrow_{\sigma\iota} = \downarrow_{\sigma\iota}$		$\uparrow_{\sigma\iota} = \downarrow_{\sigma\iota}$
				$((\uparrow_{\sigma} \text{DF}) = \text{TOPIC})$		$(\uparrow_{\sigma} \text{DF}) = \text{FOCUS}$		$((\uparrow_{\sigma} \text{DF}) = \text{BACKGROUND})$

(35)



$$(36) \quad p : \left[\begin{array}{l} \text{PRED} \quad \text{'put'} \langle \text{SUBJ, OBJ, OBL}_{on} \rangle \\ \text{SUBJ} \quad s : \left[\text{PRED} \quad \text{'Mary'} \right] \\ \text{OBJ} \quad o : \left[\begin{array}{l} \text{SPEC} \quad \left[\text{PRED} \quad \text{'the'} \right] \\ \text{PRED} \quad \text{'book'} \\ \text{NUM} \quad \text{PL} \end{array} \right] \\ \text{OBL}_{on} \quad l : \left[\begin{array}{l} \text{PRED} \quad \text{'shelf'} \\ \text{PCASE} \quad \text{OBL}_{on} \end{array} \right] \\ \text{ADJ} \quad \{ a : \left[\text{PRED} \quad \text{'all'} \right] \} \end{array} \right]$$

(37) s_σ : [DF COMPLETIVE]

$$o_\sigma : \left[\begin{array}{l} \text{STATUS IDENTIFIABLE} \\ \text{ACTV ACTIVE} \\ \text{DF TOPIC} \end{array} \right]$$

l_σ : [DF BACKGROUND]

a_σ : [DF FOCUS]

p_σ : [DF COMPLETIVE]

(38)

$$p_{\sigma\iota} : \left[\begin{array}{l} \text{TOPIC } \{ \mathbf{the-books} \} \\ \text{FOCUS } \{ \mathbf{all} \} \\ \text{BACKGROUND } \{ \mathbf{on-the-shelf} \} \\ \text{COMPLETIVE } \left\{ \begin{array}{l} \mathbf{Mary} \\ \mathbf{put} \end{array} \right\} \end{array} \right]$$

Agreement

- ▶ Adjective–noun agreement is not necessarily restricted to a relation between NP-internal constituents, e.g. secondary predication ((39), (40)).

- (39) a. Ella llegó borracha.
 she arrived drunk-F.SG
 ‘She arrived drunk.’
- b. Ellas llegaron borrachas/*os.
 they.F arrived drunk-F.PL
 ‘They arrived drunk.’ (Spanish; Fitzpatrick 2006, 75)
- (40) a. Vadim vernulsja iz bol’nicy zdoroviy.
 V.NOM returned from hospital healthy.NOM
 ‘Vadim returned from the hospital healthy.’
- b. Ja zakazala rybu syruju.
 I ordered fish.ACC raw.ACC
 ‘I ordered the fish raw.’ (Russian; Fitzpatrick 2006, 76)

- Agreement between a topic constituent and a predicate is widely found (Polinsky and Comrie, 1999; Nikolaeva, 1999; Givón, 2001; Bobaljik and Wurmbrand, 2002; Dalrymple and Nikolaeva, 2011)

- (41) a. (ma) tam kalaŋ we:l-s-əm /
 I this reindeer kill-PAST-1.SG.SUBJ
 we:l-s-∅-e:m
 kill-PAST-SG.OBJ-1.SG.SUBJ
 ‘I killed this reindeer.’
- b. (What did you do to this reindeer?)
 tam kalaŋ we:l-s-e:m / *we:l-s-əm
 this reindeer kill-PAST-OBJ/1.SG.SUBJ kill-PAST-1.SG.SUBJ
 ‘I killed this reindeer.’
- c. kalaŋ xalśa we:l-s-əlli / *we:l-əs
 reindeer where kill-PAST-OBJ/1.SG.SUBJ kill-PAST-1.SG.SUBJ
 ‘Where did he kill the/a reindeer?’

(Ostyak; Dalrymple and Nikolaeva 2011, 142, 146)

- ▶ The topic status of the agreement controller can be specified in the lexical entry of an FQ.

(42) Diesen Studenten habe ich (gestern) *allen*
 these.DAT.PL students have I (yesterday) all.DAT.PL
 geschmeichelt.
 flattered
 ‘I flattered all of these students yesterday.’ (German)

(43) *allen* Q $(\uparrow \text{ PRED}) = \text{‘all’}$
 $(\%t \text{ CASE}) = \text{DAT}$
 $(\%t \text{ NUM}) = \text{PL}$
 $[[((\%t)_\sigma \text{ VAR}) \multimap ((\%t)_\sigma \text{ RESTR})]$
 $\multimap [\forall H. [(\%t)_\sigma \multimap H] \multimap H]$
 $((\text{ADJ} \in \uparrow) \quad \text{GF} \quad) = \%t$
 $(\rightarrow_\sigma \text{ DF}) = \text{TOPIC}$
 $\mathbf{all} \in (\uparrow_{\sigma_l} (\uparrow_\sigma \text{ DF}))$

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- ▶ An FQ functions as a focus and marks the left-edge of the comment in the topic–comment structure.
- ▶ The most salient phrase structure configuration consists of a fronted topic constituent followed by an FQ that is adjoined to VP.
- ▶ An FQ can appear VP-internally only when the topic–comment structure is satisfied.
- ▶ Agreement can be formulated between a topic constituent and an FQ.

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