

Quasi-Light Verbs and the Scope Interpretation of Complex Predicates in Japanese

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0 Aims and scope

- Extend a novel but undeservedly ignored proposal of the theory of syntax and semantics interface in HPSG by Cipollone (2001).
- Empirical domain: complex predicates in Japanese; parallelism of scope interpretation possibilities of adverbs and quantifiers with respect to different types of complex predicates.
- None of the previous approaches to complex predicates in Japanese can capture this parallelism straightforwardly.
- Cipollone's (2001) approach, when properly generalized, accounts for the empirical generalization very elegantly.

1 Quasi-light verbs

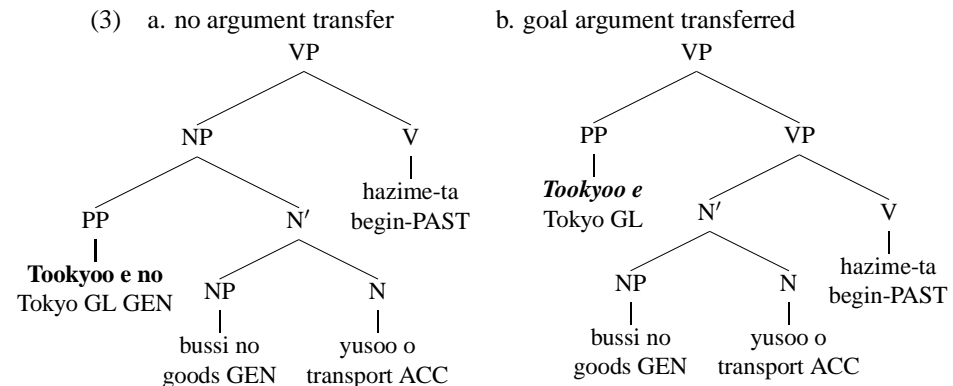
Raising

- (1) a. Karera wa **Tookyoo e** no bussu no yusoo o
They TOP Tokyo GOAL GEN goods GEN transport ACC
hazime-ta.
begin-PAST
'They began transporting goods to Tokyo.'
- b. Karera wa **Tookyoo e** bussu no yusoo o
They TOP Tokyo GOAL goods GEN transport ACC
hazime-ta.
begin-PAST
'They began transporting goods to Tokyo.'

Control

- (2) a. Karera wa **Tookyoo e** no bussu no yusoo o
They TOP Tokyo GOAL GEN goods GEN transport ACC
kokoromi-ta.
try-PAST
'They tried to transport goods to Tokyo.'
- b. Karera wa **Tookyoo e** bussu no yusoo o
They TOP Tokyo GOAL goods GEN transport ACC
kokoromi-ta.
try-PAST
'They tried to transport goods to Tokyo.'

- Raising and control verbs that subcategorize for VNs (Matsumoto 1996).
- Generally, arguments of a noun have to be marked by the genitive marker: (1a), (2a).
- But the goal argument appears without the genitive marker in (1b), (2b).
- Argument Transfer (Grimshaw and Mester 1988; Matsumoto 1996): arguments of a verbal noun (VN) can syntactically appear as arguments of the higher verb (fact originally observed for the genuine light verb *suru* 'do' by Grimshaw and Mester (1988)). In examples, transferred arguments are shown in *italics*.
- 'Quasi-light verbs' in the sense that they behave like the genuine light verb in triggering argument transfer. (Should *not* be taken to suggest that '(in a way) light' in the sense of being semantically bleached.)



- (4) more examples of quasi-light verbs (classification by Matsumoto (1996)):
- verbs with aspectual meaning
kurikaesu ‘repeat’, *tuzukeru* ‘continue’, *kaisi suru* ‘begin’, etc.
 - verbs of thinking and planning
kuwadateru ‘attempt’, *wasureru* ‘forget’, *kangaeru* ‘think’, etc.
 - verbs and nominal adjectives with possibility meaning
dekiru ‘can’, *ari-uru* ‘be possible’, etc.
 - directive and permissive verbs
meiziru ‘order’, *motomeru* ‘ask’, *yurusu* ‘allow’, etc.

2 Scope-taking elements and complex predicates

2.1 Adverb and quantifier ambiguity of causative

Scope ambiguity of causatives with adverbs and quantifiers (Shibatani 1976; Matsumoto 1996; Manning et al. 1999, inter alia).

Sublexical scope of adverbs (second reading):

- (5) Mari wa Ken ni damatte hasir-ase-ta.
Mari TOP Ken DAT silently run-cause-PAST
‘*Mari silently made Ken run.*’ (silently > cause)
‘*Mari made Ken run silently.*’ (cause > silently)

Sublexical scope of quantifiers (second reading):

- (6) Mari wa Ken ni biiru dake nom-ase-ta.
Mari TOP Ken DAT beer only drink-cause-PAST
‘*Only as for beer, did Mari make Ken drink it.*’ (only > cause)
‘*Mari made Ken drink only beer.*’ (cause > only)

2.2 Adverb and quantifier *unambiguity* of quasi-light verbs

2.2.1 Adverb scope

Narrow scope-taking is impossible with quasi-light verbs (Yokota 1999). I.e., in (7b), the adjunct cannot modify the VN alone.

- (7) a. Jon wa **tyookikan no** to-bei o nozon-da.
John TOP long-term GEN visit-US ACC hope-PAST
‘*John hoped for a long-term visit to US.*’ (hope > long-term)
Not: ‘*For a long time, John hoped for a visit to US.*’ (~~long-term~~ > ~~hope~~)
- b. John wa **tyookikan** to-bei o nozon-da.
John TOP for a long time visit-US ACC hope-PAST
‘*For a long time, John hoped for a visit to US.*’ (long-term > hope)
Not: ‘*John hoped for a long-term visit to US.*’ (~~hope~~ > ~~long-term~~)
- (8) a. Bussyu wa Koizumi ni **tyokusetu no** hoo-bei o
Bush TOP Koizumi DAT direct GEN visit-US ACC
mitome-ta.
permit-PAST
‘*Bush permitted Koizumi to visit US directly.*’ (permit > directly)
Not: ‘*Bush permitted Koizumi to visit US in person.*’ (~~directly~~ > ~~permit~~)
- b. Bussyu wa Koizumi ni **tyokusetu** hoo-bei o
Bush TOP Koizumi DAT directly visit-US ACC
mitome-ta.
permit-PAST
‘*Bush permitted Koizumi to visit US in person.*’ (directly > permit)
Not: ‘*Bush permitted Koizumi to visit US directly.*’ (~~permit~~ > ~~directly~~)

2.2.2 Quantifier scope

Like adjuncts in the higher ‘clause’, transferred QPs can’t take scope below the quasi-LV.

- (9) a. Zeikan wa gyoosya ni Huransu kara no **wain dake**
 customs TOP trader DAT France from GEN win only
no yunyuu o mitome-ta.
 GEN import ACC permit-PAST
 ‘The customs permitted the trader to import wine alone from France.’ (permit > only)

Not: ‘Only as for wine, did the customs permit the trader to import from France.’ (~~only > permit~~)

- b. Zeikan wa gyoosya ni Huransu kara **wain dake** yunyuu
 customs TOP trader DAT France from wine only import
 o mitome-ta.
 ACC permit-PAST
 ‘Only as for wine, did the customs permit the trader to import from France.’ (only > permit)

Not: ‘The customs permitted the trader to import wine alone from France.’ (~~permit > only~~)

- (10) a. Kinzyo no syokudoo ga **raamen dake no** demae
 neighbor GEN restaurant NOM noodles only GEN delivery
 o hazime-ta.
 ACC begin-PAST
 ‘The restaurant in our neighborhood began delivery of noodles alone.’ (begin > only)

Not: ‘Only as for noodles, did the restaurant in our neighborhood begin delivery.’ (~~only > begin~~)

- b. Kinzyo no syokudoo ga **raamen dake** demae o
 neighbor GEN restaurant NOM noodles only delivery ACC
 hazime-ta.
 begin-PAST
 ‘Only as for noodles, did the restaurant in our neighborhood begin delivery.’ (only > begin)

Not: ‘The restaurant in our neighborhood began delivery of noodles alone.’ (~~begin > only~~)

3 Previous approaches

- Two major previous approaches to complex predicates in Japanese in lexicalist frameworks:
 - Manning et al. (1999) in HPSG
 - Matsumoto (1996) in LFG
- Problem common to these approaches:
 No principled explanation can be given for the parallelism of the behaviors of adverbs and quantifiers since adverb scope and quantifier scope are handled by separate mechanisms.

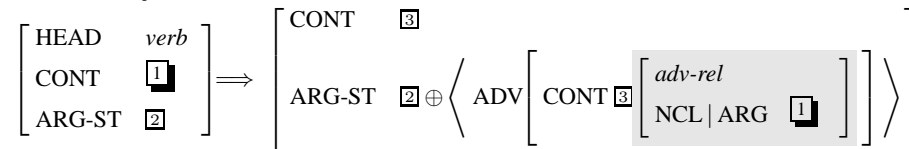
3.1 Manning et al. (1999) on causative

- analysis of Japanese causative maintaining lexical integrity
- challenge: how to produce sublexical scope of adverbs and quantifiers
- heavily lexicalized analysis: semantics of a sentence is preconfigured in the lexical entry for the head verb (in which all relevant scopal relations are resolved), from which it is simply projected higher in a tree and identified as the semantics of the whole sentence.

3.1.1 Adverb scope ambiguity

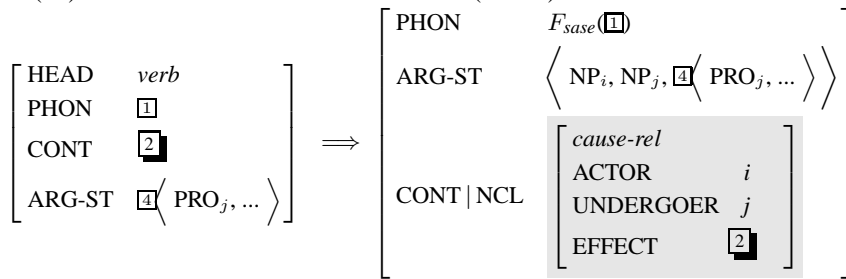
- adjunct-as-argument analysis of van Noord and Bouma (1994).
- two lexical rules:
 - Adjunct Addition Lexical Rule
 - Causative Formation Lexical Rule

(11) Adjunct Addition Lexical Rule (AALR)



- inserts an adjunct into the ARG-ST list of a verb
- the inserted adjunct immediately scope over the input verb (i.e. the meaning of the output verb is specified as the result of applying the meaning of the adverb to the meaning of the input verb).

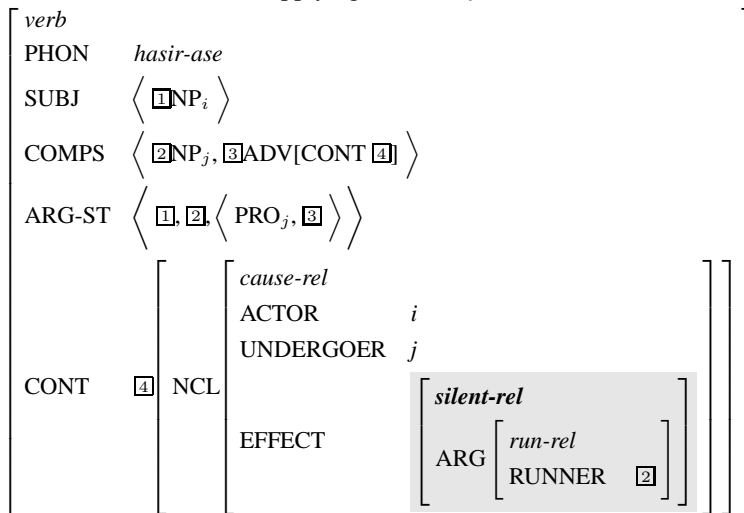
(12) Causative Formation Lexical Rule (CFLR)



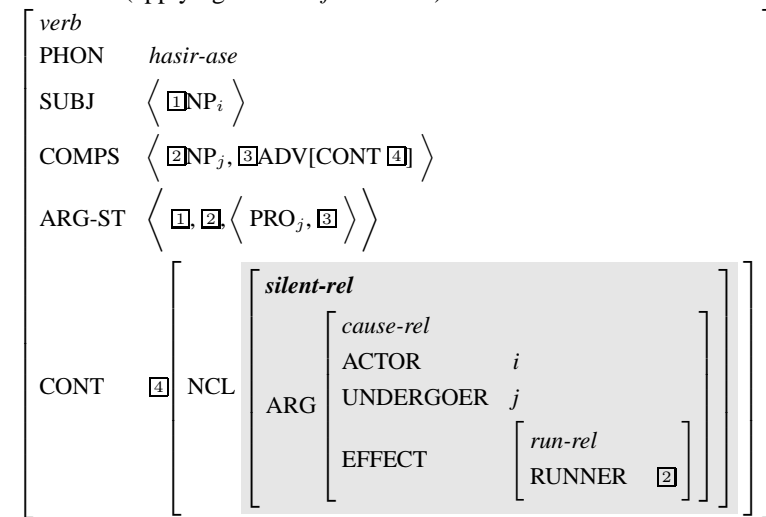
- creates a lexical entry for a causative complex verb from the lexical entry for the verb root
 - argument structure change (adds an external argument: NP_i)
 - meaning change: the meaning of the output causative verb is specified as the result of applying the causative meaning to the meaning of the input verb

Depending on the order of application of AALR and CFLR, we get two lexical entries for a causative verb that represent distinct adverb scope:

(13) a. *hasir-ase* 'cause to run' (applying AALR *before* CFLR)

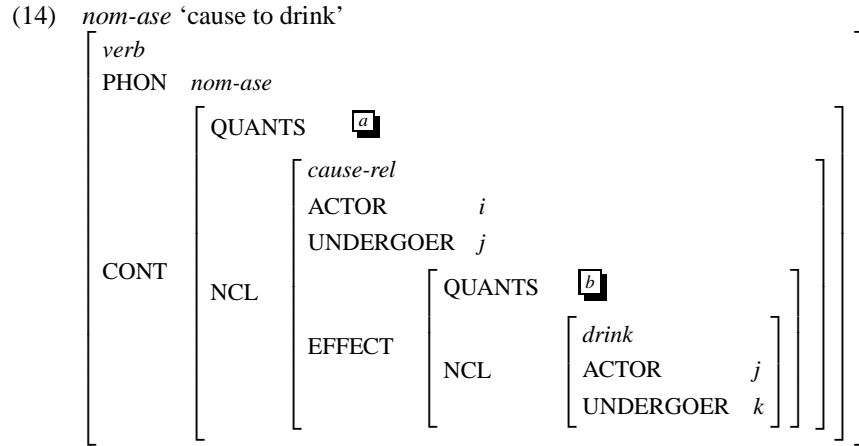


b. *hasir-ase* (applying AALR *after* CFLR)



3.1.2 Quantifier scope ambiguity

- Lexicalized Cooper storage mechanism.
- A head collects the quantifiers from its arguments. Then it either
 - retrieves the quantifiers collected, or
 - passes them up to a higher head.
- If a verb root to be a part of a causative compound verb subcategorizes for a quantifier, two possible places of quantifier retrieval:
 - verb root (\Rightarrow narrow scope reading)
 - causative suffix (\Rightarrow wide scope reading)



where $\boxed{a} \oplus \boxed{b} = \langle \textit{only-beer} \rangle$ (via interaction of relevant constraints)

3.2 Problems of extending Manning et al.'s (1999) approach to the quasi-LV construction

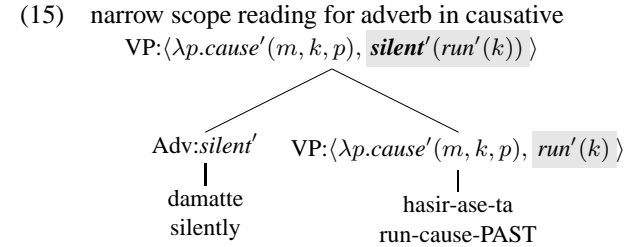
- Empirical problem: overgeneration
Narrow scope readings for adverbs and quantifiers are wrongly predicted for quasi-LVs.
Reason: the relevant lexical mechanisms are (*ceteris paribus*) equally applicable in this construction. (For details, see Appendix B.)
- Theoretical problem: missing generalization
No systematic way to prevent the unwanted readings for adverbs and quantifiers.
(I.e. separate stipulation needed to block each.)
Reason: adverb scope mechanism and quantifier scope mechanism are completely separate from each other.
⇒ Parallelism of the behaviors of adverbs and quantifiers not captured.

4 Proposal

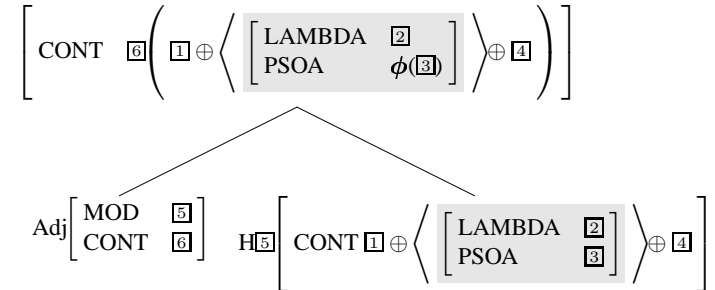
4.1 Cipollone's (2001) analysis of causative

- Follows Manning et al. (1999) for the most part. But
- Accounts for adverb scope ambiguity by introducing slight noncompositionality in semantics, rather than by a lexical operation on the head verb.

- (5) Mari wa Ken ni damatte hasir-ase-ta.
Mari TOP Ken DAT silently run-cause-PAST
'Mari silently made Ken run.' (silently > cause)
'Mari made Ken run silently.' (cause > silently)



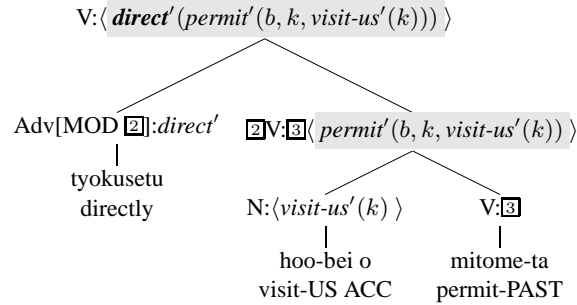
(16) Head-Adjunct Schema



This approach can be extended to the case of the quasi-LV construction by giving nontransparent semantic representation for this construction, thereby blocking the narrow scope readings.

- (8b) Bussyu wa Koizumi ni *tyokusetu* hoo-bei o mitome-ta.
Bush TOP Koizumi DAT directly visit-US ACC permit-PAST
'Bush permitted Koizumi to visit US in person.' (directly > permit)
Not: 'Bush permitted Koizumi to visit US directly.' (~~permit > directly~~)

(17) quasi-LV only allows wide scope reading



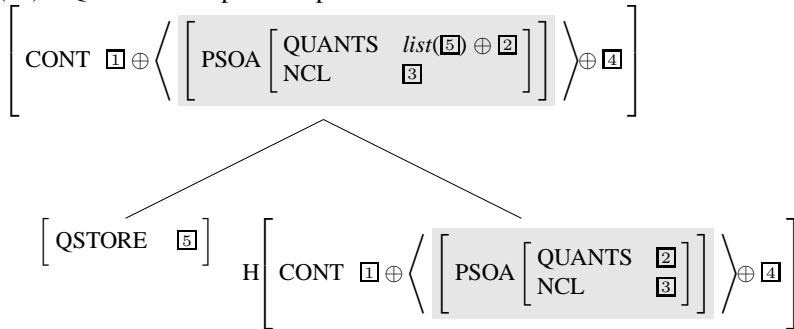
Problem:

- Still overgenerates the narrow scope readings of quantifiers with quasi-LVs.
- This is because quantifier scope is accounted for by the same mechanism as Manning et al. (1999).
- The generalization is not yet captured.

4.2 Generalizing the analysis of Cipollone: toward a unified account of adverb and quantifier scope

The parallelism of adverbs and quantifiers can be captured by reformulating the quantifier scope mechanism in Cipollone’s (2001) analysis.

(18) Quantifier Scope Principle



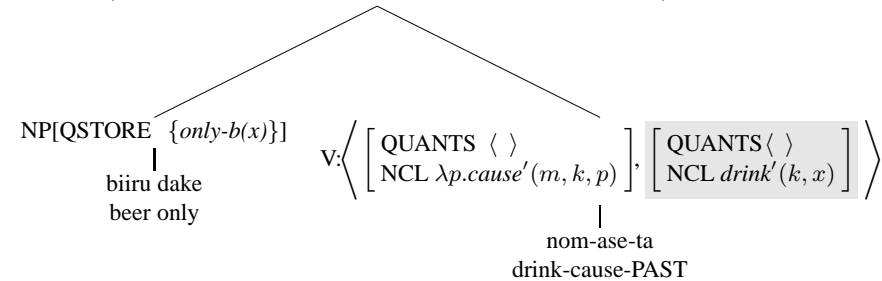
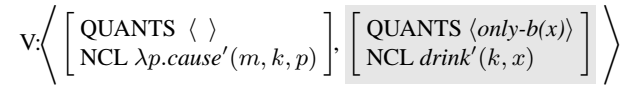
- Syntactic scope resolution at the node at which the quantifier attaches to the head.
- Quantifier scope is determined in crucial reference to the structure of the semantic representation of the head.

- if the internal structure is visible, narrow scope reading becomes possible – causative
- if the internal structure is *not* visible, narrow scope reading is not available – quasi-LVs

- Close resemblance to the nondeterministic adverb scope mechanism (16).

(6) Mari wa Ken ni biiru dake nom-ase-ta.
 Mari TOP Ken DAT beer only drink-cause-PAST
 ‘Only as for beer, did Mari make Ken drink it.’ (only > cause)
 ‘Mari made Ken drink only beer.’ (cause > only)

(19) narrow scope reading for quantifier in causative



Narrow scope readings for quantifiers are now automatically ruled out in the case of the quasi-LV construction, since the internal semantic structure is made invisible in this construction.

Summary:

- Uniform account of the parallelism of adverb scope and quantifier scope for complex predicates in Japanese.
- The form of the semantic representation (whether or not it is made visible from outside) crucially determines the availability of narrow scope readings for both adverbs and quantifiers.

5 Conclusion

- Japanese complex predicates exhibit a striking parallelism of scope interpretation possibilities for adverbs and quantifiers.
- None of the previous analyses can give a principled account of this empirical generalization.
- The present analysis, which is a generalization of the approach proposed by Cipollone (2001), captures the relevant generalization precisely and succinctly.

References

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A Syntax of causative compound and quasi-LVs

A.1 Evidence for the wordhood of causative complex predicate

Manning et al. (1999) give several pieces of evidence to argue for the lexical integrity of the causative complex predicate. Some of them are reproduced here.

(20) reduplication

- gohan o tabe tabe
rice ACC eat eat
'eating rice repeatedly'
- gohan o tabe-sase tabe-sase
rice ACC eat-cause eat-cause
'causing someone to eat rice repeatedly'
- *gohan o tabe-sase sase
rice ACC eat-cause cause
intended: 'causing someone to eat rice repeatedly'

(21) nominalization

- hon no yom-ase-kata
book GEN read-cause-way
'the way to make someone read books'
- *hon no yon-de morai-kata
book GEN read-GER BENEF-way
intended: 'the way to get someone to read books (for the benefit of the speaker)'

(22) question-answer pairs

- Jon o ik-ase ta ka? – Ik-ase-ta (yo) /
John ACC go-cause PAST Q go-cause-PAST
*Sase-ta (yo).
cause-PAST
'Did you make John go? – Yes, I did.'
- Jon ni [it-te kure-ru yoo ni] tanon-da ka? –
John DAT go-GER BENEF-PRES COMP ask-PAST Q
Tanon-da (yo).
ask-PAST

'Did you ask John to go? – Yes, I did.'

A.2 The syntax of quasi-LVs

Unlike in the case of compound verbs including causatives, embedding predicated + embedded predicate (VN+LV) is not a morphological unit in the quasi-LV construction.

(23) *reduplication*

hoobei o mitome mitome
visit-US ACC permit permit

'permitting visits to US repeatedly'

(24) *nominalization*

*hoobei o mitome kata
visit-US ACC permit way

intended: *'the way to permit someone to visit US'*

(25) *question-answer pair*

hoobei o mitome-ta? – mitome-ta (yo).
visit-US ACC permit-PAST permit-PAST

'Did you permit him to visit US? – Yes, I did.'

(26) *intervening phrases*

a. hoobei o kinkyuu-ni mitome-ta.
visit-US ACC urgently permit-PAST
'I gave an urgent permission to visit US.'

b. hoobei o Koizumi ni mitome-ta.
visit-US ACC Koizumi DAT permit-PAST
'I permitted Koizumi to visit US.'

c. hoobei o mo mitome-ta.
visit-US ACC also permit-PAST
'I also permitted him to visit US.'

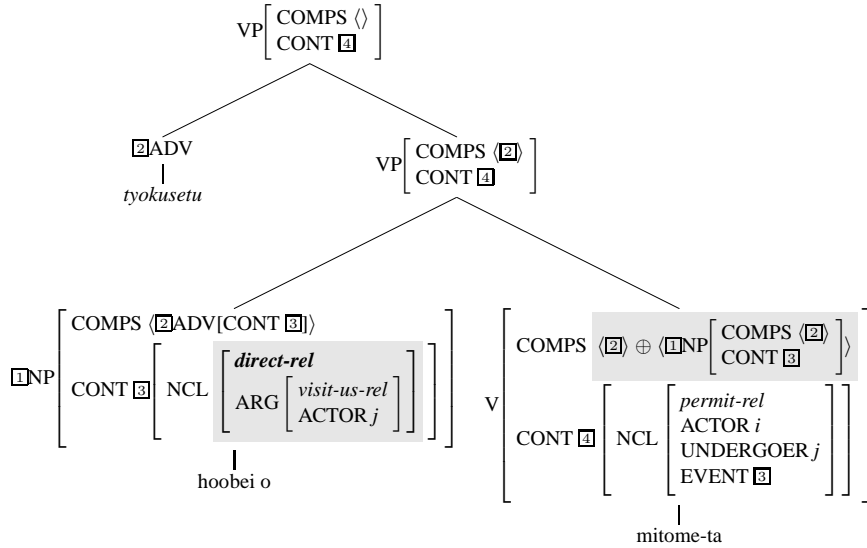
B Problems of extending Manning et al.'s (1999) approach to the quasi-LV construction

By extending Manning et al.'s (1999) approach to the quasi-LV construction, narrow scope readings for adverbs and quantifiers are wrongly predicted.

B.1 Adverb scope

Argument raising (Hinrichs and Nakazawa 1994; Ryu 1993) + adjunct as argument analysis would wrongly predict narrow scope readings for adverbs.

(27) illicit narrow scope reading for (8b)

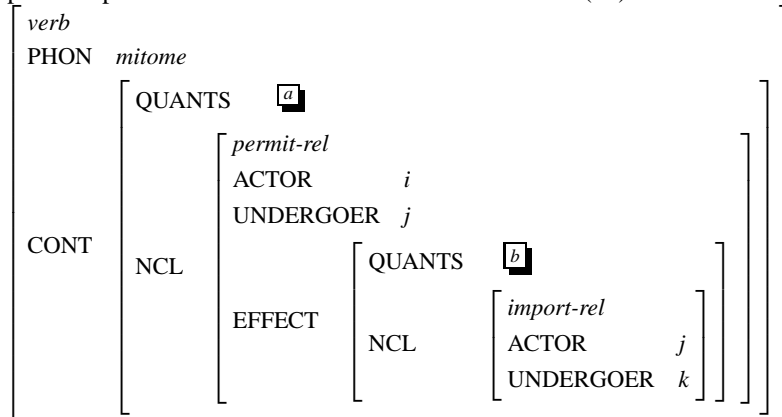


- An adjunct is first inserted to the lexical entry of the embedded VN.
- Then, it is inherited to the higher quasi-LV by argument composition and discharged by this higher verb.

B.2 Quantifier scope

Argument raising + lexical quantifier scope mechanism: again, overgeneration for quantifier scope.

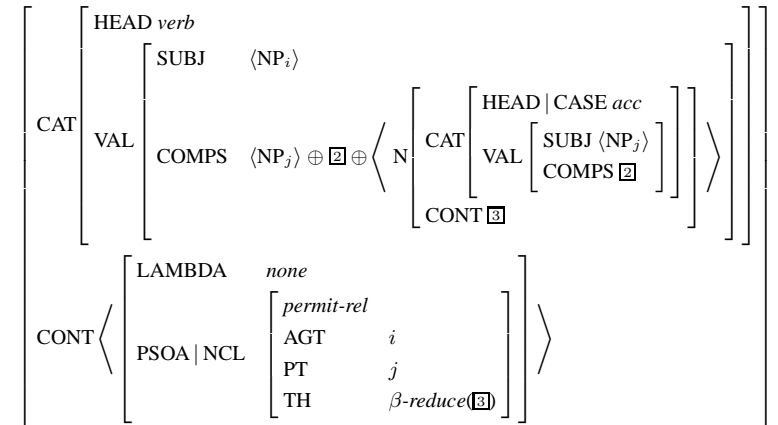
(28) partial representation for *mitome* ‘allow’ to be used in (9b)



- Quantifiers can in principle be retrieved by any of its *lexical* heads. I.e. $[2] \oplus [1] = \langle \text{only-}w \rangle$.
- Thus, it can be retrieved by the lower VN even if it is transferred to the higher quasi-LV.
→ Narrow scope reading is wrongly predicted to be possible.

C Fragment of the syntax and semantics of the quasi-LV construction

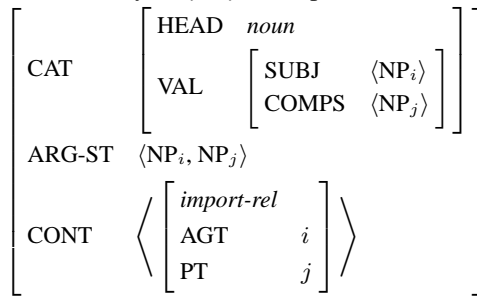
(29) Lexical entry for *mitomeru* ‘permit’ (following Ryu’s (1993) proposal to model the effect of Argument Transfer (Grimshaw and Mester 1988) by the mechanism of Argument Composition (Hinrichs and Nakazawa 1994)):¹



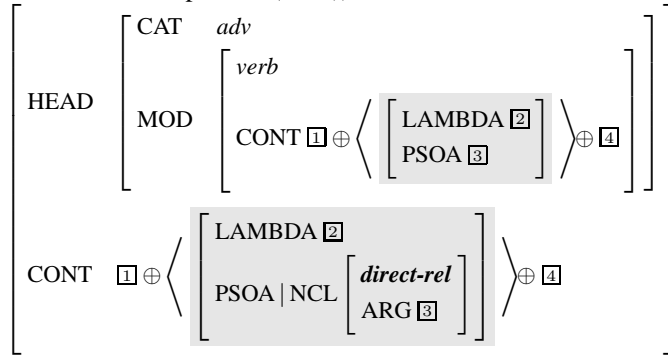
¹The function β -reduce is defined as follows:

- β -reduce $\left(\left\langle \left[\begin{array}{l} \text{LAMBDA } \text{none} \\ \text{PSOA } [1] \end{array} \right] \right\rangle \right) = [2]$
- β -reduce $\left(\left\langle \left[\begin{array}{l} \text{LAMBDA } [1] \\ \text{PSOA} | \text{NCL} | \text{ARG}_x [1] \end{array} \right] \mid [2] \text{list}(\text{psoa_abstract}) \right\rangle \right) = \left[\begin{array}{l} \text{LAMBDA } \text{none} \\ \text{PSOA} | \text{NCL} | \text{ARG}_x \beta\text{-reduce}([2]) \end{array} \right]$

(30) Lexical entry for *yunyuu* ‘import’:

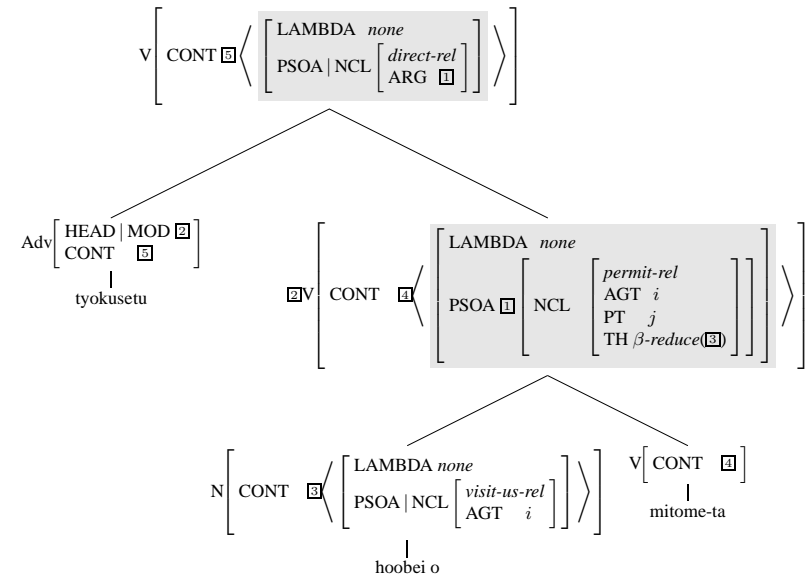


(31) Lexical entry for *tyokusetu* ‘directly’ (following the general schema for adverbs in Cipollone (2001)):

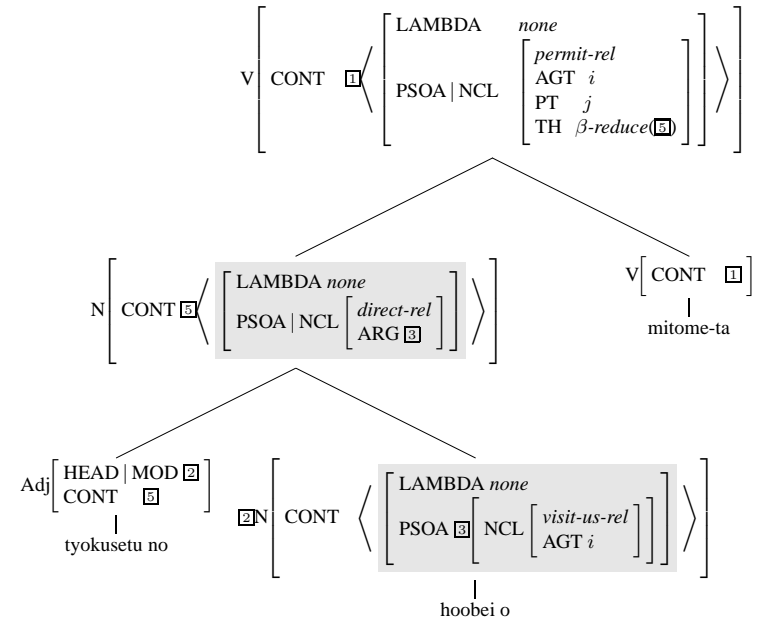


C.1 Adverb Scope

(32) Tree for (8b)

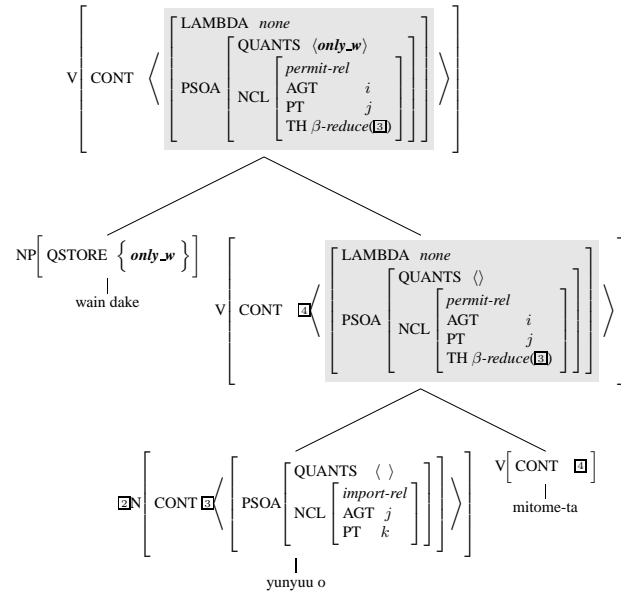


(33) Tree for (8a)



C.2 Quantifier Scope

(34) Tree for (9b)



(35) Tree for (9a)

