

HPSG による琉球語係り結びの分析

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1. Basic data

- Sentence types in Okinawan are marked by predicate-final morphemes.

- Declarative with indicative mood:

(1) John-ga ich-u-*n*
John-NOM go-PRES-I ‘John is going.’

- *Yes-No* interrogative:

(2) John-ga ich-u-*mi*
John-NOM go-PRES-Q ‘Is John going?’

- *Wh*-interrogative:

(3) taa-ga ich-u-*ga*
who-NOM go-PRES-Q ‘Who is going?’

(Miyara 2000a: 27)

- If the dependent of the predicate is marked with an emphatic particle *-ga*, the verb-final morpheme is *-ra*.

(4) John-ga-*ga* ich-u-*ra*
John-NOM-GA go-PRES-Q ‘Is JOHN going?’

(5) taa-ga-*ga* ich-u-*ra*
who-NOM-GA go-PRES-Q ‘Who the hell is going?’

(Miyara 2000a: 27)

- If the dependent of the predicate is marked with an emphatic particle *-du*, the verb-final morpheme is *-ru*.

(6) John-ga-*du* ich-u-*ru*
John-NOM-DU go-PRES-N ‘Is JOHN going?’ (Miyara 2000a: 27)

- The element marked with the focus particles *-ga* and *-du* should be in the local relation with the predicate suffixed with *-ra* and *-ru*, respectively.

- To satisfy the locality condition, the particle *-ga* is dislocated from the host *wh*-word.

(7) [taa-ga uri yum-i]-ga s-u-ra
 who-NOM it read-NML-GA do-PRS-Q
 ‘Who the hell_i will do his_i reading this?’

(8) *[taa-ga-ga uri yum-i] s-u-ra
 who-NOM-GA it read-NML do-PRS-Q

(Miyara 2007: 191)

- When the focused word appears in a nominalised clause, *-du* attaches to both the host word and the right periphery of the nominalised clause (9); the latter *-du* satisfies the locality condition. In (10), *-du* is only with the host word so the locality requirement is not satisfied.

(9) ?yaa-ya [suba-du kam-i]-du s-u-ru
 you-TOP noodles-DU eat-NML-DU do-PRS-N
 ‘It is noodles that you eat.’

(10) *?yaa-ya [suba-du kam-i] s-u-ru
 you-TOP noodles-DU eat-NML do-PRS-N

(Miyara 2007: 192)

■ Summary

- Concord between the focus particles and the predicate: (4)–(6)
- Locality requirement: (7)–(10)
- Dislocation of *-ga* and double occurrence of *-du*: (7) and (9)

2. Syntactic analysis

- Miyara (2007); see also Miyara (2000a, 2002)

(11)

DP	
/ \	
NP D	
/ \	
taa-nkai -ga	
who-DAT -GA	

(cf. Miyara 2007: 194)

- The particle *-ga* moves out of the DP and adjoins to the position where it can meet the locality restriction.

- (12) [TP [VP taa-ga-t_i uri yum]-i]-ga_i s-u-ra
 who-NOM it read-NML-GA do-PRS-Q
 ‘Who the hell_i will do his_i reading this?’ (Miyara 2007: 191)

- The adjunction of the focus particle *-du* leaves a ‘shadow’ particle in the original position. The shadow particle is a kind of trace with its phonetic reflex.

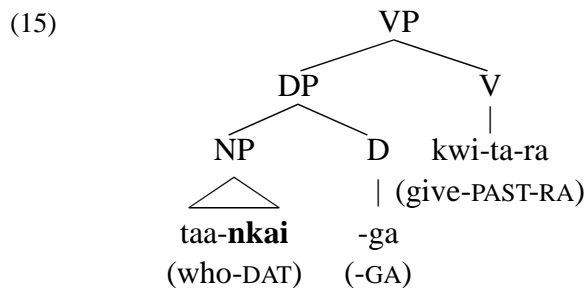
- (13) ?yaa-ya [TP [VP suba-du kam]-i]-du s-u-ru
 you-TOP noodles-DU eat-NML-DU do-PRS-N
 ‘It is noodles that you eat.’ (Miyara 2007: 192)

■ Problems

- The verb *kwi-ta-ra* ‘gave’ determines dative case on the goal argument, and it is expressed by *-nkai* ‘-DAT’ in (14).

- (14) Taru-ya taa-nkai-ga nuu kwi-ta-ra
 Taru-TOP who-DAT-GA what give-PAST-RA
 ‘(I wonder) who Taru gave which of the things we have in mind.’ (Sugahara 1996)

- If the emphatic marker *-ga* is a head that project a DP, what is in the local relation with the verb *kwi-ta-ra* is that phrase although the verb selects for *-nkai* inside it. This leads to violation of locality of selection (Sells 1995: 285ff).

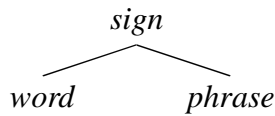


- It is not clear what a ‘shadow’ particle *-du* is.

3. HPSG

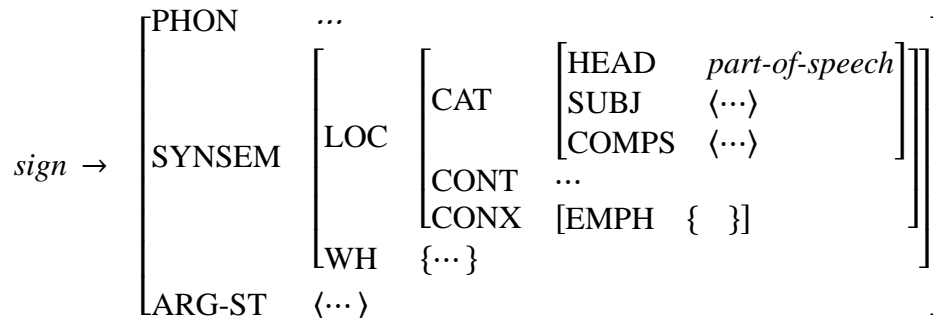
- Head-driven Phrase Structure Grammar (HPSG; Pollard and Sag 1987, 1994) is a monostratal and nonderivational grammatical framework.
- Each linguistic object belongs to certain types and those types are organised in the form of hierarchies. The type *sign*, for example, has the immediate subtypes of *word* and *phrase*.

(16) Type hierarchy for *sign*

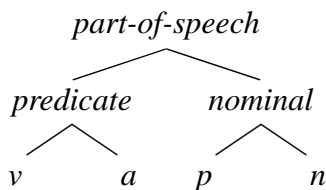


- The type hierarchies allow properties shared between different types to be spelled out just once: generalisations that hold for subtypes can be just specified for the supertype. Thus, the constraint on *sign* is also imposed on *word* and *phrase*.

(17)



(18) Type hierarchy for parts of speech



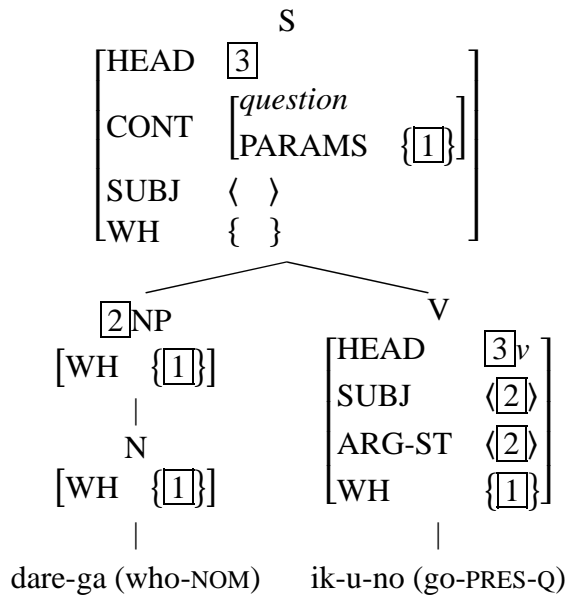
(cf. Ginzburg and Sag 2000: 360)

- In addition to the constraint inherited from the supertype, subtypes are also imposed their own constraints.

(19) $phrase \rightarrow \left[\begin{array}{l} \text{HEAD-DAUGHTER } sign\boxed{1} \\ \text{DAUGHTERS } \langle \boxed{1}, \dots \rangle \end{array} \right]$

‘Phrases are composed of the head daughter and some non-head daughters.’

(20) *Wh*-question in Japanese



$$(21) \textit{word} \Rightarrow \left[\begin{array}{l} \text{WH } \boxed{\Sigma_1} \cup \dots \cup \boxed{\Sigma_n} \\ \text{ARG-ST } \langle [\text{WH } \boxed{\Sigma_1}], \dots, [\text{WH } \boxed{\Sigma_n}] \rangle \end{array} \right]$$

‘The WH value of a word is a union of the WH values of that word’s argument.’

$$(22) \textit{phrase} \Rightarrow \left[\begin{array}{l} \text{WH } \{\boxed{1}\} \\ \text{DTRS } \langle \dots, [\text{WH } \{\boxed{1}\}], \dots \rangle \end{array} \right]$$

‘The WH value is propagated up to the mother node of phrasal signs.’

4. A lexical analysis in HPSG

In this section we will look at how HPSG deals with the data observed in section 1.

4.1 Non-dislocated *-ga*

(23) John-*ga-ga* ich-*u-ra*
John-NOM-GA go-PRES-Q ‘Is JOHN going?’ [= (4)]

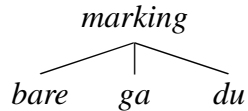
(24) taa-*ga-ga* ich-*u-ra*
who-NOM-GA go-PRES-Q ‘Who the hell is going?’ [= (5)]

- The principle of strict lexicalism prohibits the manipulation of bound morphemes as independent items in syntactic combinations and requires affixation to take place at the lexical level (Tseng 2003, Samvelian 2007).

(25) *Ga*-suffixation lexical rule 1

$$\left[\begin{array}{l} \text{word} \\ \text{MARKING } bare \\ \text{CONT } \boxed{2} \\ \text{EMPH } \{ \} \end{array} \right] \rightarrow \left[\begin{array}{l} \text{word} \\ \text{MARKING } ga \\ \text{EMPH } \{\boxed{2}\} \end{array} \right]$$

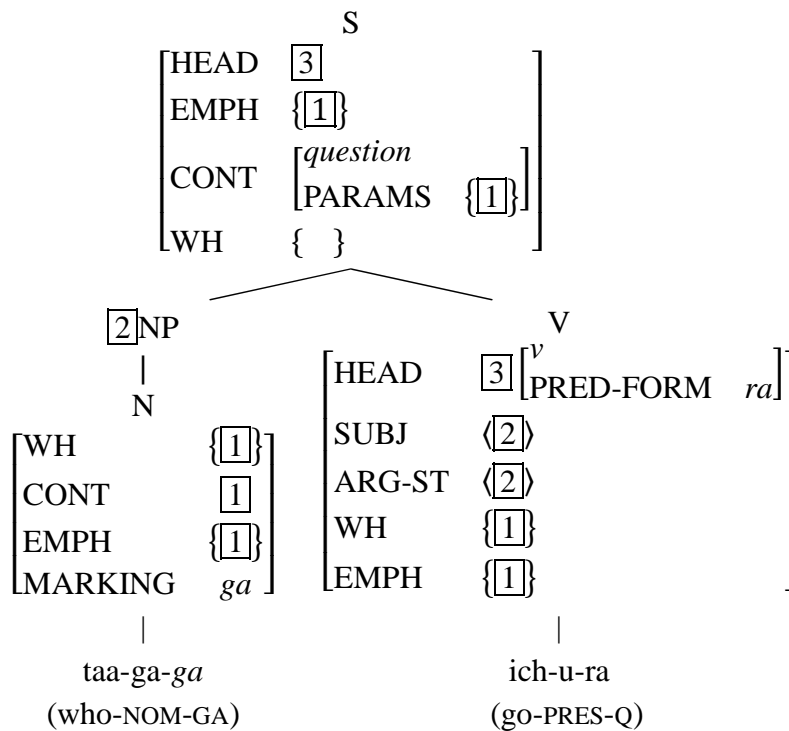
(26) Type hierarchy for *marking*



$$(27) \left[\begin{array}{l} \text{word} \\ \text{HEAD } [predicate \\ \text{PRED-FORM } ra] \end{array} \right] \Rightarrow \left[\begin{array}{l} \text{CONT } question \\ \text{ARG-ST } \langle \dots, NP \vee CP \vee PP [EMPH \{ \dots \}], \dots \rangle \end{array} \right]$$

‘The *ra*-suffixed predicates are interrogative predicates and take at least one dependent NP, PP or CP that contains an emphatic word.’

(28) Structure for (24)



$$(29) \text{ word} \Rightarrow \left[\begin{array}{l} \text{EMPH } \boxed{\Sigma_1} \cup \dots \cup \boxed{\Sigma_n} \\ \text{ARG-ST } \langle [EMPH \boxed{\Sigma_1}], \dots, [EMPH \boxed{\Sigma_n}] \rangle \end{array} \right]$$

‘The EMPH value of a word is a union of the EMPH values of that word’s argument.’

$$(30) \textit{phrase} \Rightarrow \left[\begin{array}{l} \text{EMPH} \quad \{\boxed{1}\} \\ \text{DTRS} \quad \langle \dots, [\text{EMPH} \quad \{\boxed{1}\}], \dots \rangle \end{array} \right]$$

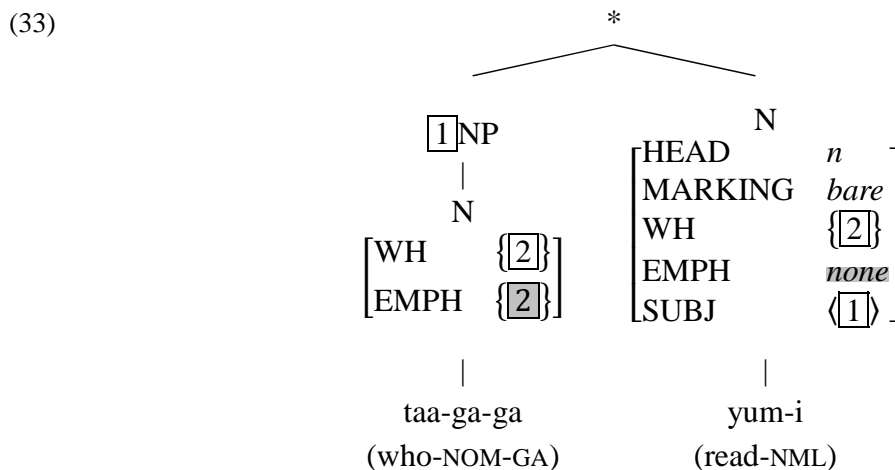
‘The EMPH value is propagated up to the mother node of phrasal signs.’

- Constraint (27) requires that the *ga*-marked element should be in the local relation with the *ra*-suffixed predicate.

$$(31) \begin{array}{l} *[\textit{taa-ga-ga} \quad \textit{uri} \quad \textit{yum-i}] \quad \textit{s-u-ra} \\ \text{who-NOM-GA} \quad \textit{it} \quad \text{read-NML} \quad \text{do-PRS-Q} \\ \text{‘Who the hell}_i \text{ will do his}_i \text{ reading this?’} \end{array} \quad [= (8)]$$

$$(32) \left[\begin{array}{l} \textit{word} \\ \text{HEAD} \quad \textit{nominal} \\ \text{MARKING} \quad \textit{bare} \end{array} \right] \Rightarrow [\text{EMPH} \quad \textit{none}]$$

- In (31), the HEAD value of the nominalised verb *yum-i* is *nominal* and its MARKING value is *bare* since it is not marked with neither *-ga* nor *-du*. Constraint (32) requires that it should be [EMPH *none*]. However, constraint (29) requires that the EMPH value should be token-identical with that of its argument *taa-ga-ga* (who-NOM-GA), which has a non-empty EMPH value.



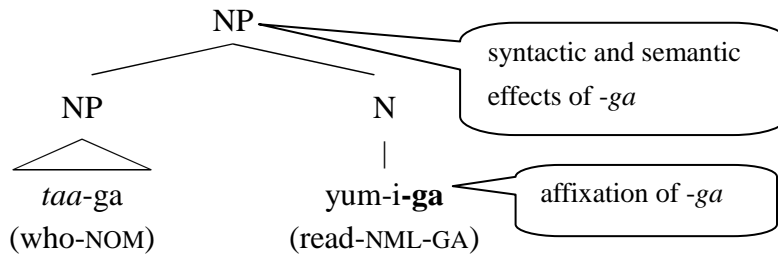
4.2 Dislocated *-ga*

- In (7), repeated in the following, the elements morphologically marked with *-ga* is not the right kind of element that is emphasised.

$$(34) \begin{array}{l} [\textit{taa-ga} \quad \textit{uri} \quad \textit{yum-i-ga}] \quad \textit{s-u-ra} \\ \text{who-NOM} \quad \textit{it} \quad \text{read-NML-GA} \quad \text{do-PRS-Q} \\ \text{‘Who the hell}_i \text{ will do his}_i \text{ reading this?’} \end{array} \quad [= (7)]$$

- The syntactic and semantic effects of the *ga*-affix can only be realised once it combines with the phrase containing a *wh*-word.

(35) Schematic analysis of the NP in (34)



- We treat the emphatic particle *-ga* as an ‘edge feature’ (Tseng 2003, Samvelian 2007, etc.), its grammatical information propagates along the right edge of phrases.

(36) *Ga*-suffixation lexical rule 2

$$\left[\begin{array}{l} \text{word} \\ \text{MARKING} \text{ bare} \\ \text{EDGE} \text{ none} \end{array} \right] \rightarrow \left[\begin{array}{l} \text{word} \\ \text{MARKING} \text{ ga} \\ \text{EDGE} \left[\begin{array}{l} \text{ga-affix} \\ \text{IN NP} \vee \text{CP} \vee \text{PP} [\text{WH } \{2\}] \\ \text{OUT NP} \vee \text{CP} \vee \text{PP} [\text{EMPH } \{2\}] \end{array} \right] \end{array} \right]$$

- The type *ga-affix* introduces two features, IN and OUT that encode the potential grammatical effects of the affix.
- The IN value provides the sort of constituent which is marked with *-ga*, which is NP, CP or PP whose WH value is nonempty.
- The OUT value provides the sort of constituent which results from this marking; i.e., a constituent whose EMPH value is the same as the WH value.

- The information about *-ga* marking is represented as a value of the EDGE feature and it propagates to the NP node, allowing it to combine with the *ra*-suffixed predicate.

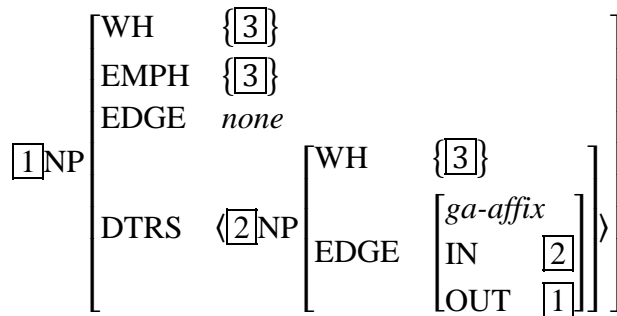
(37) Edge Feature Principle (Tseng 2003, Samvelian 2007, etc.)

$$\left[\begin{array}{l} \text{phrase} \\ \text{DTRS } \langle [], [], \dots \rangle \end{array} \right] \Rightarrow \left[\begin{array}{l} \text{EDGE } \boxed{1} \\ \text{DTRS } \langle \dots, [\text{EDGE } \boxed{1}] \rangle \end{array} \right]$$

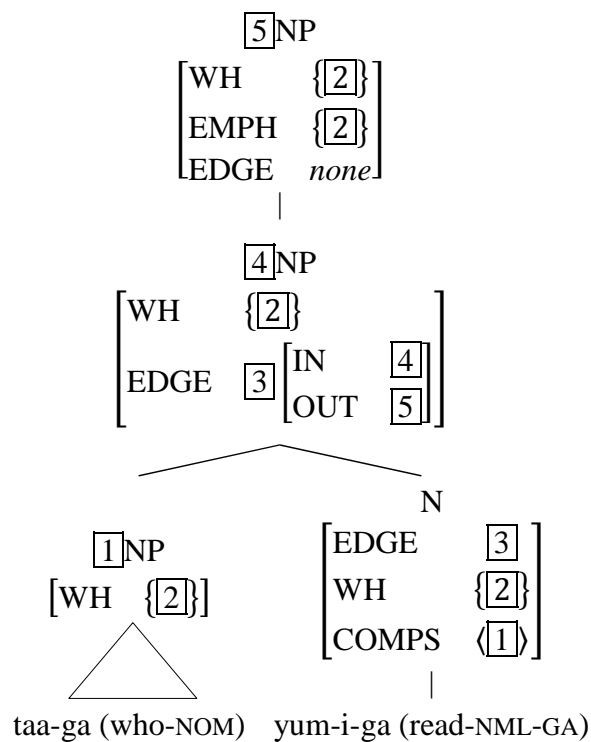
‘In any branching syntactic structure, the EDGE feature of the right-most daughter is shared with the dominating node.’

- If a non-empty EDGE value is present on a phrase that the *-ga* suffix can scope over, the following unary syntactic rule modifies the phrase by incorporating the effects of the suffix.

(38) *Ga*-interpretation rule



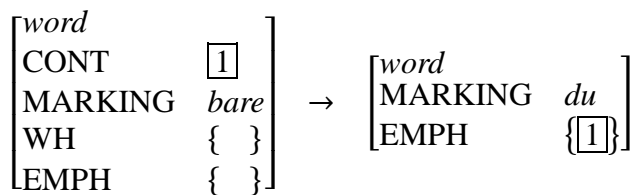
(39) A more detailed structure for the NP in (34)



4.3 Single occurrence of *-du*

(40) John-ga-du ich-u-ru
 John-NOM-DU go-PRES-N ‘Is JOHN going?’ [= (6)]

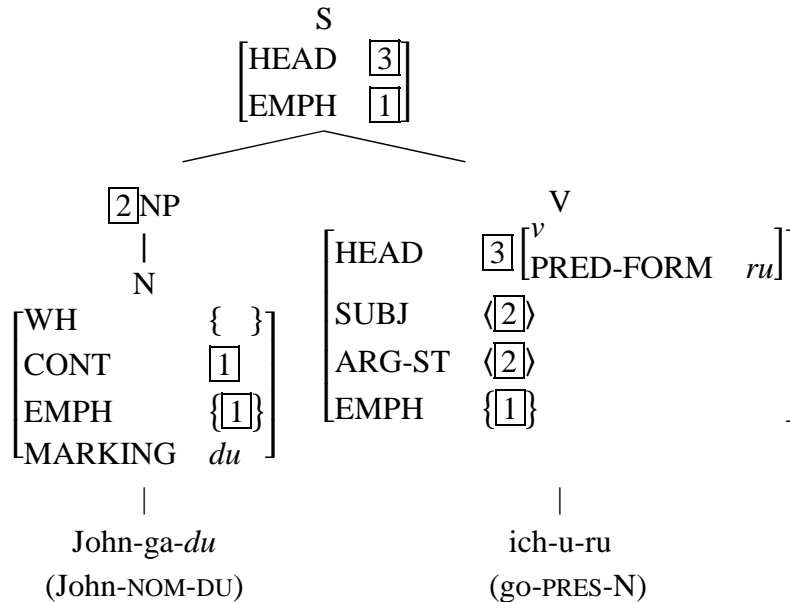
(41) *Du*-suffixation lexical rule



$$(42) \left[\begin{array}{l} \text{word} \\ \text{HEAD} \left[\begin{array}{l} \text{predicate} \\ \text{PRED-FORM } ru \end{array} \right] \end{array} \right] \Rightarrow \left[\begin{array}{l} \text{CONT } \textit{austinian} \\ \text{ARG-ST } \langle \dots, NP \vee CP \vee PP [\text{EMPH } \{ \dots \}], \dots \rangle \end{array} \right]$$

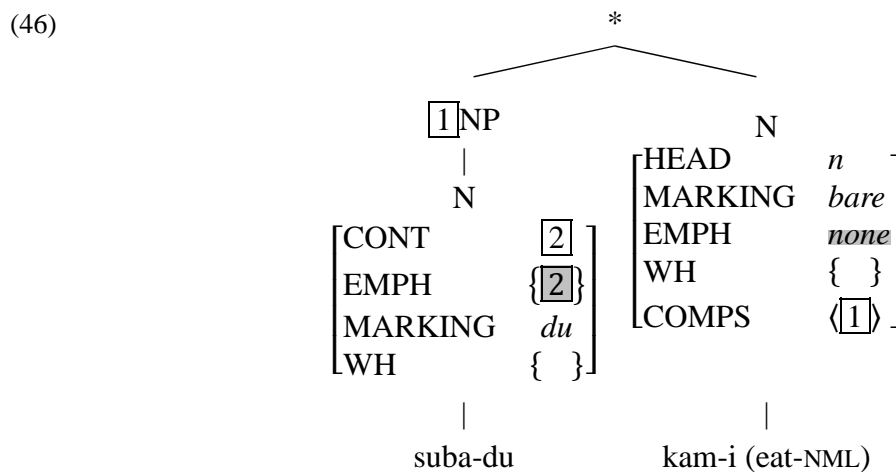
‘The *ru*-suffixed predicates are non-interrogative predicates and take at least one dependent NP, PP or CP that contains an emphatic word.’

(43) Structure for (40)



(44) *ʔyaa-ya [suba-du kam-i] s-u-ru
 you-TOP noodles-DU eat-NML do-PRS-N
 ‘It is noodles that you eat.’ [= (10)]

$$(45) \left[\begin{array}{l} \text{word} \\ \text{HEAD } \textit{nominal} \\ \text{MARKING } \textit{bare} \end{array} \right] \Rightarrow [\text{EMPH } \textit{none}] \quad \text{[= (32)]}$$

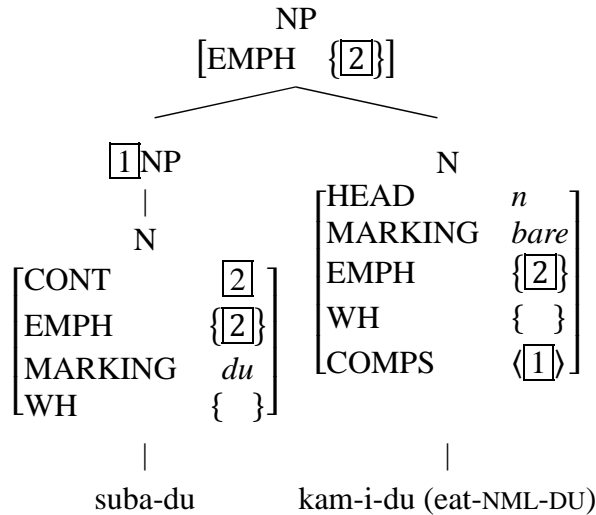


4.4 Two occurrences of *-du*

- (47) ʔyaa-ya [suba-*du* kam-i]-*du* s-u-*ru*
 you-TOP noodles-DU eat-NML-DU do-PRS-N
 ‘It is noodles that you eat.’

[= (9)]

(48)



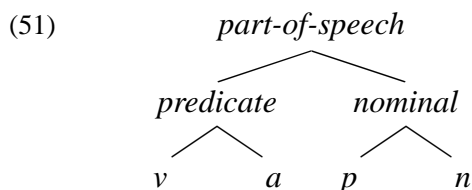
5. Further data

- When the *wh*-word appears in a complement clause, *-ga* either attaches to the right periphery of the complement clause (49) or attaches to the *wh*-word (50).

- (49) Taru-ya [taa-ga ringo kam-ta-n-di]-*ga* umu-too-ra
 Taru-TOP who-NOM apple eat-PAST-I-COMP-GA think-PROG-RA
 ‘(I wonder) who Taru is thinking that *e* ate the apple.’

- (50) Taru-ya [taa-ga-ga ringo kam-ta-n-di] umu-too-ra
 Taru-TOP who-NOM-GA apple eat-PAST-I-COMP think-PROG-RA
 ‘(I wonder) who Taru is thinking that *e* ate the apple.’ (Sugahara 1996: 240)

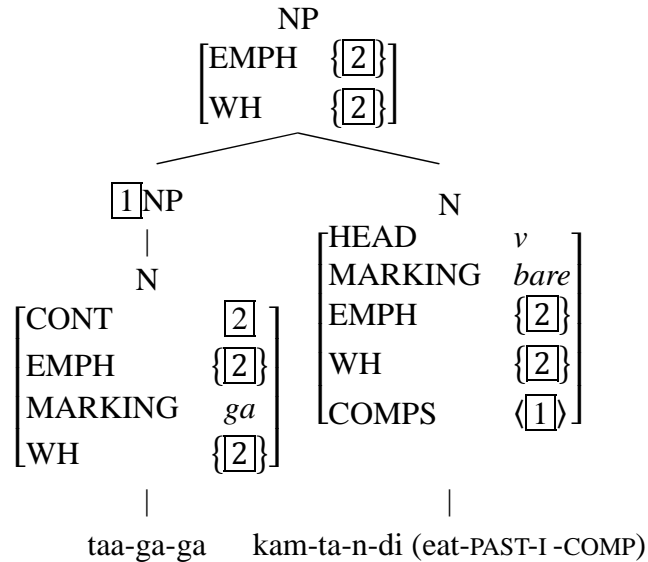
- As shown in (18), repeated in (51), a verb (*v*) is not [HEAD *nominal*], so the constraint in (32), repeated in (52), does not apply: its EMPH value can be nonempty even though its MARKING value is *bare*.



[= (18)]

(52) $\left[\begin{array}{l} \text{word} \\ \text{HEAD} \quad \textit{nominal} \\ \text{MARKING} \quad \textit{bare} \end{array} \right] \Rightarrow [\text{EMPH} \quad \textit{none}]$ [= (32)]

(53)



- When the focused word appears in a complement clause, *-du* either attaches to both the host word and the right periphery of the complement clause (53) or attaches to only the host word (54).

(54) [Kamaruu-ga-*du* ich-u-n-di]-*du* umu-too-ru
 Kamaruu-NOM-DU go-PRES-I-COMP-DU think-PROG-RU
 ‘I think that it is Kamuruu who will go.’

(55) [Kamaruu-ga-*du* ich-u-n-di] umu-too-ru
 Kamaruu-NOM-DU go-PRES-I-COMP think-PROG-RU

(Miyara 2007: 198)

- When the *wh*-word appears in a complement clause, the emphatic *-ga* either attaches to the *wh*-word (50) or attaches to the right periphery of the complement clause (49). However, the particle *-ga* cannot attach to the complementiser of the most embedded clause, as (57) shows.

(56) [Mary-ga [taa-ga-**ga** suba ka-da-n-di] i-cha-n-di] John-oo
 Mary-NOM who-NOM-GA noodles eat-PAST-I-C say-PAST-I-C John-TOP
 umu-too-ra
 think-PROG-RA
 ‘Who the hell_i does John think Mary said t_i ate the noodles?’

(57) [Mary-ga [taa-ga suba ka-da-n-di] i-cha-n-di-**ga**] John-oo
 Mary-NOM who-NOM noodles eat-PAST-I-C say-PAST-I-C-GA John-TOP
 umu-too-ra
 think-PROG-RA

(58) *[Mary-ga [taa-ga suba ka-da-n-di-**ga**] i-cha-n-di] John-oo
 Mary-NOM who-NOM noodles eat-PAST-I-C-GA say-PAST-I-C John-TOP
 umu-too-ra
 think-PROG-RA

(Miyara 2001: 40)

➤ In (57), *-ga* is not on the right edge of the outer embedded clause.

(59) $\left[\begin{array}{l} \textit{phrase} \\ \text{DTRS} \end{array} \langle [\] , [\] , \dots \rangle \right] \Rightarrow \left[\begin{array}{l} \text{EDGE} \quad \boxed{1} \\ \text{DTRS} \quad \langle \dots , [\text{EDGE} \quad \boxed{1}] \rangle \end{array} \right] \quad [= (29)]$

■ If *-du* is only on the nominalised clause as in (59), the scope of focus is the nominalised clause.

(60) ?yaa-ya [suba-*du* kam-i]-*du* s-u-*ru*
 you-TOP noodles-DU eat-NML-DU do-PRS-N
 ‘It is noodles that you eat.’ [= (9), (47)]

(61) *?yaa-ya [suba-*du* kam-i] s-u-*ru*
 you-TOP noodles-DU eat-NML do-PRS-N [= (10), (44)]

(62) ?yaa-ya [suba kam-i]-*du* s-u-*ru*
 you-TOP noodles eat-NML-DU do-PRS-N
 ‘It is that you eat noodles.’ (Miyara 2007: 193)

(63) *Du*-suffixation lexical rule

$$\left[\begin{array}{l} \textit{word} \\ \text{CONT} \quad \boxed{1} \\ \text{MARKING} \quad \textit{bare} \\ \text{WH} \quad \{ \} \\ \text{EMPH} \quad \{ \} \end{array} \right] \rightarrow \left[\begin{array}{l} \textit{word} \\ \text{MARKING} \quad \textit{du} \\ \text{EMPH} \quad \{ \boxed{1} \} \end{array} \right] \quad [= (41)]$$

6. Conclusion

A lexical analysis in HPSG can provide a straightforward account of *kakarimusubi* in Okinawan.

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