An Analysis of an Example by the Theory (Koga 2000: 95-98, and 99)

For example, the complement-head phrase rule identifies /kodomo ga/ ‘child-NOM’ as a complement-head phrase, as represented in the Feature Value Structure below. Since a MOD value is a head-feature value, the MOD value of the complement-head phrase /kodomo ga/ ‘child NOM’ structure-shares with that of the head daughter /ga/ ‘NOM’. The nominative morpheme /ga/ has the MOD value containing [HD-ARG-ST [REL^{NOM} {Y | {x | child’(x)} ∩ Y ≠ ∅}]] since the REL^{NOM} value structure-shares with the content of the complement phrase, which is computed from [[ARG **child’(x^{QUAN})**] [REL^{QUAN} **{(X, Y) | X ∩ Y ≠ ∅}**]], as will be made clear later. The complement-head phrase /kodomo ga/ ‘child NOM’ has the MOD value that contains [HD-ARG-ST [REL^{NOM} **{X | {x | child’(x)} ∩ X ≠ ∅}**]].

(1) *kodomo ga*

⌈HEAD [1] ⌉
|COMPS [2] |
|CONTENT [3] |
|NON-HD-DTR |
| *kodomo* |
| [4] ⌈HEAD *n* ⌉ |
	COMPS *end*	
	HD-ARG-ST [5]	
	CONTENT	
	[5] ⌈ARG **child’(x^{QUAN})** ⌉	
⌊ ⌊REL^{QUAN} **{(X, Y)	X ∩ Y ≠ ∅}** ⌋⌋
HD-DTR
ga
⌈**HEAD [1] *k*** ⌉
	⌈**KFORM *nom*** ⌉	
	MOD ⌈**HEAD *v* [VFORM *finite*]** ⌉		
	⌊ ⌊**HD-ARG-ST [REL^{NOM} [5]]** ⌋⌋	
	COMPS	
	⌈FIRST [4] ⌉	
||⌈HEAD *n* ⌉|	
||⌊CONTENT [5]⌋|	
	⌊REST [2] *end* ⌋	
⌊⌊CONTENT [3] *no* ⌋ ⌋

The case phrase /zyon ga/ ‘John-NOM’, adjoining to a finite verb constituent, structure-shares the content of the noun complement, i.e., **{X | {x | child’(x)} ∩ X ≠ ∅}**, with the REL^{NOM} value of the head argument structure of the head daughter.

The argument/adjunct phrase rule identifies, e.g., /kodomo ga neru/ ‘a child sleeps’,

as an argument/adjunct-head phrase, as shown in the Feature Value Structure below. The content of the phrase, i.e., a sentence, structure-shares with that of the head daughter /neru/ ‘sleeps’. Since the phrase /kodomo ga/ ‘child-NOM’, adjoining to a finite verb constituent, structure-shares the content of the complement phrase of the nominative morpheme, i.e., **{X | {x_q | child’(x_q)} ∩ X ≠ ∅}**, with the REL^{NOM} value of the head argument structure of the head daughter, the head argument structure of /neru/ ‘sleeps’ has [REL^{NOM} **{X | {x | child’(x^{NOM})} ∩ X ≠ ∅}**], and [ARG **sleep’(x^{NOM})**]. That is, the content of the head daughter /neru/ ‘sleeps’ consists of [ARG **sleep’(x^{NOM})**] and [REL^{NOM} **{X | {x | child’(x^{NOM})} ∩ X ≠ ∅}**].

(2) kodomo ga neru

⌈HEAD [6] ⌉
| COMPS [7] |
| HD-ARG-ST [8] |
| CONTENT [8] |
| NON-HD-DTR |
| *kodomo ga* |
| ⌈HEAD *k* ⌉|
	⌈KFORM *nom* ⌉
		MOD **[9]**	
		⌈HEAD [6] *v* [VFORM *finite*] ⌉	
	⌊⌊**HD-ARG-ST [8] [REL^{NOM} [4]{X	{x	child’(x)} ∩ X ≠ ∅}]** ⌋⌋
	COMPS *end*
	CONTENT *no*
	NON-HD-DTR
	kodomo -
	HD-DTR
⌊ *ga* - ⌋
HD-DTR
neru
[9]
⌈HEAD [6] *v* [VFORM *finite*] ⌉
	COMPS [7] *end*	
	HD-ARG-ST [8]	
⌊⌊**CONTENT [8] [ARG sleep’(x^{NOM})]** ⌋ ⌋

Since the content of an argument/adjunct head phrase structure-shares with that of the head daughter, the content of the sentence structure-shares with the feature value structure of [ARG **sleep’(x^{NOM})**] and [REL^{NOM} **{X | {x | child’(x^{NOM})} ∩ X ≠ ∅}**], as represented immediately below.

(3) kodomo ga neru

CONTENT

$$\begin{bmatrix} \mathbf{REL}^{\mathbf{NOM}}\ \mathbf{\{X \mid \{x \mid child'(x)\} \cap X \neq \varnothing\}} \\ \mathbf{ARG\ sleep'(x^{NOM})} \end{bmatrix}$$

Thus, the theory as a whole together with the Interpretation of Semantic Representations predicts that the content of the string is:

(4) $\mathbf{\{x \mid sleep'(x)\} \in \{X \mid \{x \mid child'(x)\} \cap X\} \neq \varnothing}$

$\mathbf{= \{x \mid child'(x)\} \cap \{x \mid sleep'(x)\} \neq \varnothing}$

$\mathbf{= \exists x[child'(x)\ \&\ sleep'(x)]}$