

A Generalized Quantifier Approach to Embedded Interrogative Clauses

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1. Introduction: This study proposes a new semantic analysis on the embedded interrogative, encompassing not only the regular embedded interrogative found in English, but also the Agent-Oriented Adjoined Interrogative (AOAI) found in Japanese and Korean, as given in (1) below. It claims that this latter somehow surprising construction is analyzed in the same way as the regular embedded interrogative, in the sense they both involve quantification of the possible world with the only difference being the selectional property of the $\llbracket +wh \rrbracket$ feature.

- (1) [*d-are-ga* *kur-u-ka*] *nozoi-ter-u.* [Agent-Oriented Adjoined Interrogative]
wh-person-NOM come-PRS-ka peep-PRG-PRS
'I am peeping (in order to know) who comes.'

This idea is different from Tomoika's (2015, 2016) view of "Existential Disclosure Approach," which hypothesizes that the *wh*-clause is post-lexically selected at the complex predicate level, by making what has been existentially bounded term disclosed.

2. Generalized Quantifier Analysis: The $\llbracket +wh \rrbracket$ feature in the interrogative functions as a quantifier, with its scope the main clause and its restrictor the embedded clause, analogized with the generalized quantifier proposed for the DP domain. This $\llbracket +wh \rrbracket$ specifies the relation between the sets but imposes a restriction on its scope, bringing about the typological difference among languages.

Let us see this mechanism more specifically. First, this analysis differentiates the $\llbracket +wh \rrbracket$ feature and the personal information in "*wh- -o*" and "*d- -are*" and endows a quantificational interpretation to the former element (= [2]c). Second, the morpheme "*-ka*" is considered to exist in the Head, CP, contributing to the set creation process; existentially closing the lambda terms off if it is a type *e* term and making a set based on the lambda term of type *s* (= [2]b). Third, the entire interrogative clause is moved to a higher position to have a configuration of $\llbracket \llbracket \text{Quantifier - Restrictor} \rrbracket \text{Scope} \rrbracket$ (*i.e.*, $\llbracket \llbracket \text{wh-} \rrbracket_{\text{quantifier}} \llbracket \text{-o comes} \rrbracket_{\text{restrictor}} \rrbracket_i \llbracket \text{I know } t_i \rrbracket_{\text{scope}} \rrbracket$) --- a structure similar to the QP configuration in the DP domain (*e.g.*, $\llbracket \llbracket \text{every man} \rrbracket_i \llbracket \text{he likes } t_i \rrbracket \rrbracket$), with the only difference being the type of the set (= [2]f); in the DP domain, the restrictor is a set of entities, while in the case of interrogative, it is a set of worlds. In the case of the regular interrogative, it starts from the complement of the verb, while AOAI originates in the adjunction (the purpose phrase adjoined). Fourth, the $\llbracket +wh \rrbracket$ feature has a restriction on its scope (*i.e.*, main clause); in English, propositions in the Epistemic Modal Base the only propositions selected by the $\llbracket +wh \rrbracket$ (= [2]e), while Japanese embedded interrogative is more generous to accept other type of set of propositions (= [2]e, g). In this way, the typological difference between the English-type embedded interrogative and the Japanese-type embedded interrogative is attributed to the difference of the type of selectional property

of the $\llbracket +wh \rrbracket$ feature.

- (2) a. $\llbracket [-o \text{ comes}] \rrbracket = \llbracket [-are-ga \text{ kur-u}] \rrbracket = \lambda x. \lambda w. [come'(x, w) \wedge human'(x, w)]$
 b. $\llbracket [\phi -o \text{ comes}] \rrbracket = \llbracket [-are-ga \text{ kur-u-ka}] \rrbracket = \{p: p = \lambda w. \exists x. [come'(x, w) \wedge human'(x, w)]\}$
 (\rightarrow FA of $\llbracket [-ka] \rrbracket$ and (2)a)
 c. $\llbracket [wh-] \rrbracket = \llbracket [d-] \rrbracket = \lambda E. \lambda M. \forall p \in E. \exists t \in D_t. \forall w \in \cap M. p(w) = t.$
 d. $\llbracket [wh- \phi -o \text{ comes}] \rrbracket = \llbracket [d- -are-ga \text{ kur-u-ka}] \rrbracket = \lambda M. \forall p \in \{p: p = \lambda w. \exists x. [come'(x, w) \wedge human'(x, w)]\}. \exists t \in D_t. \forall w \in \cap M. p(w) = t.$
 (\rightarrow FA of (2)b and (2)c)
 e. $\llbracket [I \text{ know } t] \rrbracket = EP$ (=Epistemic Modal Base: a set of propositions that I know)
 f. $\llbracket [wh- \phi -o \text{ comes}]_i; [I \text{ know } t_i] \rrbracket = \llbracket [d- -are-ga \text{ kur-u-ka}]_i; [t_i \text{ sit-ter-u}] \rrbracket = \lambda M. \forall p \in \{p: p = \lambda w. \exists x. [come'(x, w) \wedge human'(x, w)]\}. \exists t \in D_t. \forall w \in \cap EP. p(w) = t.$
 (\rightarrow FA of (2)d and (2)e)
 g. $\llbracket [t \text{ nozoi-ter-u}] \rrbracket = TEL$ (= Teleological Modal Base: a set of propositions expressing the goals in the event of “peeping”)
 h. $\llbracket [d- -are-ga \text{ kur-u-ka}]_i; [t_i \text{ nozoi-ter-u}] \rrbracket = \lambda M. \forall p \in \{p: p = \lambda w. \exists x. [come'(x, w) \wedge human'(x, w)]\}. \exists t \in D_t. \forall w \in \cap TEL. p(w) = t.$
 (\rightarrow FA of (2)d and (2)g)

3. Conclusion and Future Direction: This presentation provides a view that the embedded interrogative clause selects the main clause, contrary to the common view that the predicate in the main clause is responsible for the embedded CP selection: *d-* ‘wh-’ specifies the relation between the two sets and one of them is created with the aid of *-ka*.

As acknowledged by previous researchers, this latter element, *-ka*, is found a lot of different expressions: the existential quantifier (Kratzer and Shimoyama 2002), epistemic modality (*i.e.*, *mosi-ka-sur-u-to* and *ka-mo-sir-e-nai*; notice that the latter periphrastic modal expression has almost the same syntactic configuration as the regular embedded interrogative), disjunct (Tonoike 2015) and archaic *kakari-musubi* construction. All of them are used to mark a particular kind of *uncertainty*. It is desired that the future study should properly reveal how the set-creating ability of this morpheme serves in these constructions.

4. References: Tomioka, Satoshi (2015) *Purposeful Questions: Agent-Oriented Embedded Questions in Japanese and Korean*. Handout at the talk at NINJAL, on Dec. 20th, 2015. Tomioka, Satoshi (2016) *Purposeful Questions in Japanese and Korean: A New Embedding Strategy*. Handout at Friday Speaker Series at Georgetown University. Feb, 26th 2016. Jooyoung Kim and Tomioka, Satoshi (2014) *Two Types of Unselected Embedded Questions*. In Robert E. Santana-LaBarge (ed.) *Proceedings of the 31st West Coast Conference on Formal Linguistics*, 276-284.