

Quantification into Quotations: Evidence from Japanese Wh-doubelets

It has been commonly taken for granted that quotation constitutes an opaque domain with respect to quantification (Quine 1960 *inter alia*). This paper repudiates this long held presumption on an empirical basis, showing that Japanese **wh-doubelets** (such as *nani-nani* ‘(lit.) what-what’, *dare-dare* ‘(lit.) who-who’ and *doko-doko* ‘(lit.) where-where’) are interpreted as **indefinites that range over referring expressions** in quotations, and hence that their semantics instantiates existential quantification into quotations. This suggests that quotations in natural language denote *quasi-quotations* in the sense of Quine 1953.

It will first be shown that wh-doubelets only appear in *closed quotations* in the sense of Recanati 2001. Closed quotations are quotations where quoted expressions are used as singular terms referring to themselves (or *mentioned*), as opposed to *open (or mixed) quotations*, where quoted expressions do not lose their categorical status (and hence are *used* at the same time). Furthermore, closed quotations can be divided into two subtypes, *quotations of linguistic properties* and *quotations of utterances*, depending on the type of predicate involved: in the former case, a property or some properties of the quoted material are at stake and predicates such as ‘is a noun phrase’ and ‘has four syllables’ are used, while in the latter the way the quoted material is used is expressed using predicates such as ‘utter’ and ‘hear’.

The following data demonstrate that Japanese wh-doubelets appear in quotations of linguistic properties ((1)) and quotations of utterances ((2)), but not in open quotations ((3)), or in ordinary matrix contexts ((4)).

- (1) “**Dare-dare**-no ronbun”-wa meeshiku-da.
“so-and-so-GEN article”-TOP noun.phrase-is
‘“So-and-so’s article” is a noun phrase’.
- (2) John-wa saikin “Sue-ga itsumo **dare-dare**-to miteyagaru” to monku-o itteiru.
John-TOP recently “Sue-NOM always who-who-which is.gazint.at” C complaint-ACC is.saying
‘John is recently complaining, “Sue is always gazing at so-and-so”.’
- (3) * Quine-niyoruto, inyoo-wa “**nani-nani**-no seeshitsu-o motteiru”.
Quine-according.to, quotation-TOP “what-what-GEN property-ACC have”
‘According to Quine, quotation “has such-and-such property”.’
- (4) * Bill-ga kinoo **dare-dare**-o mita.
Bill-NOM yesterday who-who-ACC saw
‘Bill saw so-and-so yesterday.’

Next, wh-doubelets are shown (i) to appear replacing a referring expression (except for *nani-nani* ‘what-what’; see below), and at the same time (ii) to exhibit scope ambiguity with scope bearing elements outside of quotation. The former point is illustrated by the following examples: (6) can be reported by (5), but (7) cannot.

- (5) John-wa “Bill-ga **dare-dare**-o aishiteiru” to itta.
John-TOP “Bill-NOM who-who-ACC love” C said
‘John said “Bill loves so-and-so”.’
- (6) John: Bill-ga {**Mary/ sono onna/ kanojo**} -o aishiteiru.
Bill-NOM {Mary/ that woman/ her} -ACC love
‘John: “Bill loves Mary/that woman/her.”’
- (7) John: Bill-ga {**dareka/ takusanno onna/ minna**} -o aishiteiru.
Bill-NOM {someone/ many women/ everyone} -ACC love
‘John: “Bill loves someone/many women/everyone.”’

The second point is demonstrated by the following example, where the wh-doubelet *dare-dare* ‘who-who’ exhibits scope ambiguity with respect to the matrix subject.

- (8) Sanbunnonino hito-dake-ga [**dare-dare**-ga kuru to] itta.
2/3 person-dake-NOM [who-who-NOM come C] said
‘Only two thirds of the people said “So-and-so will come”.’
 - i. 2/3 > dare-dare
 - ii. dare-dare > 2/3

These data suggest that the semantics of wh-doulets involves existential quantification over referring expressions.

Lastly, I will propose a modeltheoretic treatment of this metalinguistic semantics couched in an extension of Heim and Kratzer's 1998 type-driven compositional semantics which allows predication and quantification over expressions in addition to the familiar application and abstraction over individuals and all orders of sets thereof. In particular, I will propose to include the set of expressions D_u in the ontology (cf. Potts (to appear)), along with the following two compositional rules in (9) and (10). Here, I am assuming the interpretation function $\llbracket \cdot \rrbracket$, which is a partial function from D_u to the set of semantic representations, to be relativized to two assignment functions, \mathcal{G} and g , where \mathcal{G} is a total function over D_u , and g is an ordinary assignment function from the set of integers \mathbb{Z} to D_e .

(9) *Metalinguistic Functional Application (MFA)*

If α has β and γ as its daughters, and $\llbracket \beta \rrbracket^{\mathcal{G},g}$ is of type $\langle u, \tau \rangle$ for some type τ , then $\llbracket \alpha \rrbracket^{\mathcal{G},g} = \llbracket \beta \rrbracket^{\mathcal{G},g}(\mathcal{G}(\gamma))$.

(10) *Metalinguistic Predicate Abstraction (MPA)*

If α has an index $\langle i, u \rangle$ for some integer i and β as its daughters, then $\llbracket \alpha \rrbracket^{\mathcal{G},g} = \lambda X_u. \llbracket \beta \rrbracket^{\mathcal{G}^{X/(i,u)},g}$.

MFA comes into play when there is a predicate such as 'is a noun phrase' or 'say' which selects an expression as its argument. I am assuming a separate lexical entry for the following quotational 'say' from the one for the familiar propositional 'say' (cf. Potts (to appear)).

- (11) a. $\llbracket \text{is a noun phrase} \rrbracket^{\mathcal{G},g} = \lambda X_u. X \text{ is a noun phrase.}$
 b. $\llbracket \text{say} \rrbracket^{\mathcal{G},g} = \lambda X_u. \lambda y_e. y \text{ utters } X.$

As in (10), complex indices represented as ordered pairs of an integer and a type are assumed here (cf. Heim and Kratzer 1998). Also, $\mathcal{G}^{X/(i,u)}$ denotes that function possibly different from \mathcal{G} at most in that it assigns X to $\langle i, u \rangle$. The function \mathcal{G} is defined as follows.

- (12) If $\mathcal{G} = [i \rightarrow x, j \rightarrow y, k \rightarrow z, \dots]$ where i, j, k, \dots are indices, then
 $\mathcal{G}(\alpha) = \alpha[x/t_i, y/t_j, z/t_k, \dots]$

where $\alpha[x/t_i, y/t_j, z/t_k, \dots]$ is read 'the expression obtained from α by replacing every occurrence of t_i, t_j, t_k, \dots in α by x, y, z, \dots respectively'. Note that under the present analysis, the quotation marks "" can be construed as indicating an application of \mathcal{G} .

In this system, the denotation of wh-doulets can be represented as a generalized quantifier over type u elements with existential force.

- (13) $\llbracket \text{wh-wh} \rrbracket^{\mathcal{G},g} = \lambda P_{\langle u,t \rangle}. \exists X_u, \mathcal{G}', g' : \llbracket X \rrbracket^{\mathcal{G}',g'} \in D_e \wedge Q(\llbracket X \rrbracket^{\mathcal{G}',g'}) = 1 \wedge P(X) = 1.$

' $\llbracket X \rrbracket^{\mathcal{G}',g'} \in D_e$ ' ensures that X is a referring term. Q here is an inherent restriction of the wh-doublet (e.g. *person*' in the case of *dare-dare* 'who-who'). I assume that the first argument P of type $\langle u, t \rangle$ is derived by covert Quantifier Raising of the wh-doublet which leaves a trace $\langle i, u \rangle$ for some integer i . For example, (5) above is to be interpreted as follows (simplified and partially converted to English for readability's sake):

- (5') $\llbracket (5) \rrbracket^{\mathcal{G},g} = \llbracket \text{who-who} \langle 6, u \rangle \text{ John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"} \rrbracket^{\mathcal{G},g}$
 $= \llbracket \text{who-who} \rrbracket^{\mathcal{G},g}(\llbracket \langle 6, u \rangle \text{ John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"} \rrbracket^{\mathcal{G},g})$
 $= \llbracket \text{who-who} \rrbracket^{\mathcal{G},g}(\lambda X_u. \llbracket \text{John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"} \rrbracket^{\mathcal{G}^{X/(6,u)},g}) = \dots$
 $= \exists X_u, \mathcal{G}', g' : \llbracket X \rrbracket^{\mathcal{G}',g'} \in D_e \wedge \textit{person}'(\llbracket X \rrbracket^{\mathcal{G}',g'}) = 1 \wedge \textit{john uttered} \lceil \text{Bill-ga } X\text{-o aishiteiru} \rceil$

It is also shown that among the wh-doulets, *nani-nani* 'what-what' shows a broader usage in that it can range over any expressions regardless of their semantic types, which is captured by assigning it the following denotation without restriction on the variable X .

- (14) $\llbracket \text{nani-nani} \rrbracket^{\mathcal{G},g} = \lambda P_{\langle u,t \rangle}. \exists X_u : P(X) = 1.$

References: Heim, Irene and Angelika Kratzer. (1998) *Semantics in Generative Grammar*. Oxford: Blackwell Publishers; Potts, Christopher. (to appear) "The dimensions of quotation." In C. Baker and P. Jacobson (eds.), *Direct Compositionality*. Oxford: Oxford University Press; Quine, Willard van Orman. (1953) *From a Logical Point of View: Nine Logico-Philosophical Essays*. Cambridge, MA: Harvard University Press; Quine, Willard van Orman. (1960) *Word and Object*. Cambridge, MA: MIT Press; Recanati, François. (2001) *Oratio Obliqua, Oratio Recta*. Cambridge, MA: MIT Press.