Quantification into Quotations:
Evidence from Japanese wh-doublets[*]

Yasutada Sudo
Department of Linguistics and Philosophy
Massachusetts Institute of Technology

ysudo@mit.edu

Abstract

Contrary to what has been widely assumed, this paper argues that quantification into quotations is possible. In particular, it is shown that quantification over expressions, or *metalinguistic quantification*, is attested in natural language quotations. The empirical evidence comes from Japanese wh-doublets, which only appear in quotations and which are interpreted as indefinites ranging over expressions.

1   Introduction

It is a widely entertained presumption that quotation is a "sanctuary" in some respects in that certain operations applicable in ordinary contexts cannot be performed in quotations (Quine, 1960, 1966; Cappelen and LePore, 2007; Maier, 2007, among others). For instance, co-referential terms cannot be substituted for one another in quotations. Thus, even if 'Cicero' and 'Tully' denote the same individual, the truth conditions of the following sentences are different. Namely, while (1a) is true, (1b) is false. This is called *referential opacity* (or *non-indiscernability of identicals*).

(1)   a.   'Cicero' contains 6 letters.
         b.   'Tully' contains 6 letters.

Also, it is often assumed that quantification into quotations is not possible. For example, even though (2a) is true, existential generalization obtained from it does not preserve

the truth condition, and (2b) is false since 'x' contains only one letter. This is called *quantificational opacity.*

(2)   a.   "Cicero" contains 6 letters
       b. $\exists x :$ 'x' contains 6 letters

While the referential opacity of quotations seems to be undeniable, this paper claims that the quantificational opacity of quotations is too strong. In particular, it will be shown that quantification over expressions into quotations (or *metalinguistic quantification*) is permitted in natural language (see Kaplan, 1968/69, 185ff for a similar view). Thus, the above existential generalization is legitimate if (2b) is interpreted as 'for some expression x: 'x' contains 6 letters.'

Empirical evidence for this claim comes from the Japanese wh-doublets listed in (3). It will be argued that their semantics exemplifies metalinguistic quantification.[1]

(3)   a.   dare-dare   'who-who'
       b.   nani-nani   'what-what'
       c.   itsu-itsu   'when-when'
       d.   doko-doko   'where-where'
       e.   dore-dore   'which-which'
       f.   ikura-ikura   'how.much-how.much'
       g.   ikutsu-ikutsu   'how.many-how.many'

The main claims put forward in this paper are the following: (i) that wh-doublets only appear in quotations and (ii) that they are semantically indefinites over (referring) expressions, which will be discussed in §2 and §3 respectively. §4 presents a compositional Heimian-Kratzerian fragment where metalinguistic quantification together with metalinguistic predication is possible, and where the semantics of wh-doublets is formulated as generalized quantifiers over expressions. §5 looks at additional data and §6 concludes the paper.

2   Distribution

Unlike wh-singlets, wh-doublets in Japanese do not have wh-interpretations, but are interpreted as a kind of indefinite, similar to English *such-and-such* and *so-and-so*, although probably not exactly the same.[2] Syntactically too, their distribution is markedly limited in comparison to wh-singlets. For example, ordinary matrix contexts almost never license wh-doublets, and the following examples are just uninterpretable.

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[1]Some (perhaps most) dialects of Japanese have another use of wh-doublets as (distributive) plural indeterminate pronouns, probably in addition to the use reported here. The Tokyo dialect lacks this use entirely and we will ignore it throughout this paper.

[2]Note that not all wh-singlets have the corresponding wh-doublet. I will not discuss this morphological gap in this paper.

(4) a. *Bill-ga **nani-nani**-o katta.
         Bill-NOM what-what-ACC bought
     b. ***Dare-dare**-ga Bill-o aishiteiru.
         who-who-NOM Bill-ACC love

The rest of this section defends the following distributional generalization by looking at various contexts where quotations occur.

(5) Japanese wh-doublets only appear in quotations.

Before proceeding to the discussion, it should be noted that as this section is devoted to the syntactic distribution of the wh-doublets, the English translations of the examples are left schematic and each wh-doublet is just replaced by 'X'. As suggested above, wh-doublets are semantically a kind of indefinite and the details of the semantics will be dealt with in §3.

2.1 Quotations of properties

One kind of quotation that is readily identifiable is those where some property or properties of the quoted expression are talked about. Let us call them *quotations of properties*. The following sentences are examples of quotations of this type.

(6) a. "Eat a hamburger" is a VP.
     b. "She" is nominative.

The following examples demonstrate that the wh-doublets are licensed in quotations of properties, as we expect from our generalization (5).[3]

(7) a. "**Nani-nani**-o taberu"-wa doushiku-da.
         "what-what-ACC eat"-TOP VP-is
         ' "X-o taberu" is a VP.'
     b. "**Nani-nani**-ga"-wa shukaku-o uketeiru.
         "what-what-NOM"-TOP nominative.case-ACC receives
         ' "X-ga" is marked nominative.'

2.2 Quoted questions

Quotations that appear as complement clauses of certain predicates also license the wh-doublets. In Japanese, however, embedded declarative sentences are generally am-

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[3]Any quotation containing a wh-doublets is semantically ambiguous in whether the wh-doublet is just mentioned/quoted or interpreted. When quoted, there is no distributional restriction such as (5), as quotations can contain any expression, grammatical or ungrammatical. For the moment, I ignore the quoted reading and we will come back to this in fn.9.

biguous between quotations and indirect speech, since both are accompanied by the complementizer *to* (cf. Maynard, 1984).[4]

Fortunately, unlike declaratives, quoted questions are distinguished from indirect questions on the surface. Namely, quoted questions are accompanied by *to* in addition to the question particle *ka*, while indirect questions appear without *to*. Thus, (8a) does not entail (8b) or vice versa, while if it were not for *to*, the entailments would go through.

(8) a. John-wa [Bill-to-Mary-ga   atta **ka to**] kiita.
         John-TOP [Bill-and-Mary-NOM met Q C] asked
         'John asked "Did Bill and Mary meet?".'
     b. John-wa [Mary-to-Bill-ga   atta **ka to**] kiita.
         John-TOP [Mary-and-Bill-NOM met Q C] asked
         'John asked "Did Mary and Bill meet?".'

The following example demonstrates that wh-doublets are licensed in quoted questions but not in indirect questions.

(9) John-wa [kinoo   **dare-dare**-ga kita   ka *(to)] kiita.
     John-TOP [yesterday who-who-NOM came Q C]   asked
     'John asked "Did *X* come yesterday?".'

2.3   Honorifics

Thirdly, honorific verbs can be used as a test for quotations. In Japanese, the predicate of a sentence takes the honorific form when the subject of the predicate is socially superior to the utterer. In the case of quotation, unsurprisingly, the attitude is not taken to be the actual utterer's but the original speaker's.

Imagine Lisa is Homer's daughter and Lenny is his friend.[5] While Lisa and Homer are family and hence she does not use honorifics when her father is the subject, she does use them when Lenny is, who is her father's friend and by assumption socially superior to her. In contrast, Homer and Lenny do not use honorifics for each other or for Lisa, who is socially inferior to both of them. In this context, if Homer reports Lisa's utterance with a sentence in which the subject of the embedded predicate is Lenny and the embedded predicate is in the honorific form, the embedded sentence is guarantee to be a quotation. As we expect, wh-doublets can appear in such a context, as the following examples demonstrate.

(10) a. Homer: Lisa-wa [Lenny-san-ga **doko-doko**-ni irasshatta to] itta.
                  Lisa-TOP Lenny-Mr.-NOM where-where-to was.HON C   said

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[4]It is not clear whether *to* is always a complementizer, is ambiguous between a complementizer and a quotation marker, or is a completely different morpheme from either of them. Following the tradition in the syntactic literature, I gloss it as a complementizer in this paper.

[5]This example is adapted from Potts and Kawahara (2004).

'Homer: Lisa said "Lenny was at X".'
b.   Homer: # Lisa-wa   [Lenny-ga   **doko-doko**-ni   ita   to] itta.
                 Lisa-TOP [Lenny-NOM where-where-to was C] said
'Homer: Lisa said "Lenny was at X".'

The infelicity of (10b) is explained as follows: the wh-doublet in (10b) forces the embedded clause to be a quotation, and as a consequence it entails Lisa did not use the honorific form of the verb, which is pragmatically infelicitous given the above context.

2.4   Multi-lingual sentences

Multi-lingual sentences unambiguously involve a quotation, since foreign sentences cannot be embedded.

(11)   a.   Galileo said [that the earth moves].
        b.   *Galileo said [that eppur si muove].
        c.   Galileo said "Eppur si muove".

In accordance with our generalization in (5), wh-doublets can appear among embedded foreign words.

(12)   Galileo-wa   [**nani-nani** si muove   to] itta.
        Galileo-TOP "what-what si muove" C   said
        'Galileo said "X si muove".'

2.5   Adverbial quotations

It has been observed that quotations can be introduced by non-embedding verbs such as 'sigh', whereas indirect speech always requires a predicate that takes a clause as an argument. Our prediction is that wh-doublets can appear in a clause modifying a non-embedding verb, which is borne out.

(13)   [John-wa   watashi-dewa naku,   **dare-dare**-o   aishiteiru to], Hanako-wa
        [John-TOP me-CT   not.and, who-who-ACC love   C], Hanako-TOP
        tameikiohaita.
        sighed
        'Hanako sighed, "John loves X, not me".'

2.6   Root phenomena

There are certain phenomena in perhaps any language which are only observed in matrix contexts, or *root phenomena*. One exception of this restriction is quotations, since quotations are syntactically not embedded (cf. Shibatani, 1978). Our generalization in

(5) predicts that wh-doublets are compatible with clause-mate root phenomena. This prediction is borne out as the grammaticality of the following sentences indicates.

(14)   a.   John-wa   Bill-ni [**nani-nani**-o   **yome**   to] itta.
             John-TOP Bill-to [what-what-ACC read.IMP C] said
             'John said to Bill, "Read X!".'

        b.   Bill-wa   [John-**wa** sonogo   **doko-doko**-e   itta   to] itta.
             Bill-TOP [John-TOP after.that where-where-to went C] said
             'Bill said "John(TT/CT) went to X after that".'

        c.   Bill-wa   Mary-ni [**dare-dare**-wa kuru   **no** to] kiita.
             Bill-TOP Mary-to [who-who-TOP   come   Q   C] asked
             'Bill asked Mary, "Will X come?".'

        d.   Bill-wa   [**dare-dare**-ga hon-o   katta   **ne/sa/yo** to] itta.
             Bill-TOP [who-who-NOM book-ACC bought PRT   C] said
             'Bill said "X bought a book".'

        e.   Bill-wa   [**dare-dare**-ga hon-o   **kaimashita**   to] itta.
             Bill-TOP [who-who-NOM book-ACC bought.POLITE C] said
             'Bill said "X bought a book".'

        f.   Bill-wa   [**nani-nani**-o   kau, **John-ga**   to] itta.
             Bill-TOP [what-what-ACC buy, John-NOM C] said
             'Bill said "John buys X".'

Specifically, (14a) involves an imperative as the embedded clause, which is widely assumed to be non-embeddable (cf. Han, 1998; Schwager, 2005). Likewise, the topic phrase *John-wa* in (14b) can be interpreted as a thematic topic or as a contrastive topic, the former of which only occurs in root contexts. (14c) and (14d) use as tests particles whose occurrences restricted to root contexts, namely the question particle *no* and the declarative particles *ne, sa* and *yo*. Similarly, the polite forms of predicates are known to be limited to root clauses, and also rightward scrambling is a canonical root phenomenon. As expected, these are all compatible with clause-mate wh-doublets.

2.7   Interim summary

From the data presented in this section, we conclude that our generalization in (5) is correct, and the distribution of the wh-doublets is limited to quotational contexts. Now, we will turn to their semantics in the next section.

3   Semantics of Wh-doublets

In the previous section, we have established that the Japanese wh-doublets only appear in quotations. Quite interestingly, however, they semantically behave as if they are not quoted. Rather, they are interpreted as a 'place holder' for some other expression.

Then, instead of what do they appear? The following examples demonstrate that wh-doublets can only appear in place of referring expressions (except for *nani-nani* 'what-what'. see §5.1). That is, the sentence in (15) can report John's utterances in (16), but not those in (17).

(15) John-wa "Bill-ga   **dare-dare**-o aishiteiru" to itta.
      John-TOP "Bill-NOM who-who-ACC love"   C said
      'John said "Bill loves X".'

(16) a. John: Bill-ga **Mary**-o   aishiteiru.
              Bill-NOM Mary-ACC love
          'John: Bill loves Mary.'
      b. John: Bill-ga **sono onna**-o   aishiteiru.
              Bill-NOM that woman-ACC love
          'John: Bill loves that woman.'
      c. John: Bill-ga **bokuno imooto**-o aishiteiru.
              Bill-NOM my   sister-ACC love
          'John: Bill loves my sister.'

(17) a. John: Bill-ga **dareka**-o   aishiteiru.
              Bill-NOM someone-ACC love
          'John: Bill loves someone.'
      b. John: Bill-ga **takusanno onna**-o   aishiteiru.
              Bill-NOM many   women-ACC love
          'John: Bill loves many women.'
      c. John: Bill-ga **minna**-o   aishiteiru.
              Bill-NOM everyone-ACC love
          'John: Bill loves everyone.'

To make the situation more complicated, although they appear in place of referring expressions, wh-doublets themselves behave like indefinites in that they show scope ambiguity with scope bearing elements in the non-quotational portion of the sentence. This is demonstrated by the following examples.

(18) a. Sanbunnoichi-no hito-dake-ga   **Bill**-o   aishiteiru.
          1/3-GEN   person-only-NOM Bill-ACC love
          'Only one third of the people love Bill.'
      b. Sanbunnoichi-no hito-dake-ga   **dareka**-o   aishiteriu.
          1/3-GEN   person-only-NOM someone-ACC love
          'Only one third of the people love someone.'
          (i)   only 1/3 > someone
          (ii) someone > only 1/3
      c. Sanbunnoichi-no hito-dake-ga   "**dare-dare**-ga kuru" to itta.
          1/3-GEN   person-only-NOM "who-who-NOM come" C said
          'Only one third of the people said "X will come".'
          (i)   only 1/3 > dare-dare

(ii)   dare-dare > only 1/3

The referring expression *Bill* in (18a) does not show scope ambiguity, while the indefinite *dareka* 'someone' in (18b) does with respect to the subject *sanbunnoichi-no hito-dake-ga* 'only 1/3 of the people'. Just like the latter, the wh-doublet *dare-dare* 'who-who' in (18c) exhibits scope ambiguity. Namely, in the narrow scope interpretation of the subject, the one third of the people uttered the same sentence and the rest of the people could have uttered something else or possibly did not utter anything, whereas in the wide scope interpretation of the subject, the sentence is interpreted as saying that one third of the people uttered sentences of the form *X-ga kuru* where the part indicated by *X* can differ among them. In this respect, wh-doublets themselves are similar to indefinites.

In order to account for this dual semantic nature of wh-doublets, I propose that they are indefinites over referring expressions and thus, their semantics involves existential quantification over expressions. More concretely, (15), for instance, would be interpreted as follows.

(19)   ⟦John said "Bill loves WHO-WHO"⟧=
        $\exists X$: X refers to a person & John uttered ⌜Bill loves X⌝.

This type of quantification is, however, not possible in the standard ontology of model theoretic semantics. Most notably, in our semantics of wh-doublets, model theoretic entities that the existential quantifier ranges over have to be something that itself has an interpretation. The next section proposes a new theory in which this is made possible.

4   A Metalinguistic Fragment

This section presents a modeltheoretic treatment of the metalinguistic semantics of wh-doublets proposed in the previous section. The model theoretic fragment in which this semantics is formulated is an extension of the type-driven compositional semantics advocated by Heim and Kratzer (1998). Specifically, it allows predication and quantification over expressions in addition to the familiar application and abstraction over individuals and their sets of all orders.

Firstly, the type of expressions u is added to the ontology (cf. Maier, 2007; Potts, 2005, 2007). Throughout the paper, intensionality is ignored to simplify the exposition.

(20)   *The set of types:* $\mathcal{T}$
        a. $e, t, u \in \mathcal{T}$ (basic types)
        b. $\sigma, \tau \in \mathcal{T} \vdash (\sigma\tau) \in \mathcal{T}$ (functional types)
        c.   Nothing else is a type.

(21)   *Domains*
        a. D_e is the set of individuals

     b. D_t is the set of truth values, $\{0, 1\}$
     c. D_u is the set of expressions
     d. $D_{(\sigma\tau)} = D_\tau^{D_\sigma}$

I assume that D_u contains any "expression", simplex or complex, interpretable or un-interpretable, linearly ordered strings of symbols or hierarchically structured objects, etc.[6] In this setting, the interpretation function $[\![\ ]\!]$ can be conceived of as a partial function from D_u to $\bigcup_{\tau \in \mathcal{T}} D_\tau$. This is a partial function since there are uninterpretable expressions in D_u which can still be quoted.

Furthermore, I assume that $[\![\ ]\!]$ is relativized to two functions, $\mathcal{Q}$ and g, where $\mathcal{Q}$ is a total function over D_u, and g is an ordinary assignment function from indices to $\bigcup_{\tau \in \mathcal{T}} D_\tau$.

Now, let us introduce a new compositional rule to allow metalinguistic predication first.

(22)   *Metalinguistic Functional Application (MFA)*
       If α has β and γ as its daughters, and $[\![\beta]\!]^{\mathcal{Q},g}$ is of type $(u\tau)$ for some type τ, then $[\![\alpha]\!]^{\mathcal{Q},g} = [\![\beta]\!]^{\mathcal{Q},g}(\mathcal{Q}(\gamma))$.

This rule states that when there is a predicate that takes an expression, the sister node of that predicate will not be interpreted (ignore $\mathcal{Q}$ for the moment). Thus, MFA comes into play when there is a predicate such as 'is a noun phrase' or 'say', whose lexical entries are given below. Note that I am assuming a separate lexical entry for the following quotational 'say' from the one for the familiar propositional 'say' (cf. Potts, 2007; Seymour, 1994).[7]

(23)   a. $[\![\text{is a noun phrase}]\!]^{\mathcal{Q},g} = \lambda X_u.\ X$ is a noun phrase.
       b. $[\![\text{say}]\!]^{\mathcal{Q},g} = \lambda X_u.\lambda y_e.\ y$ utters X.

The following is the rule that together with MFA allows quantification over expressions.

(24)   *Metalinguistic Predicate Abstraction (MPA)*
       If α has an index $\langle i, u \rangle$ for some integer i and β as its daughters, then $[\![\alpha]\!]^{\mathcal{Q},g} = \lambda X_u.[\![\beta]\!]^{\mathcal{Q}^{X/\langle i,u \rangle},g}$.

What this rule does is to modify the function $\mathcal{Q}$. I assume complex indices represented as ordered pairs of an integer and a type (cf. Heim and Kratzer 1998, 213). $\mathcal{Q}^{X/\langle i,u \rangle}$ denotes that function possibly different from $\mathcal{Q}$ at most in that it assigns X to $\langle i, u \rangle$.

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[6]I abstract away from the complications this assumption brings into the theory. See Cappelen and LePore (2007, §3.4, fn.10), Postal (2004) for discussions.

[7]Usually, when one utters some expression, she stands in a certain relation (saying, demanding etc.) with the meaning of that expression. For example, that John said "Bill loves Mary" seems to entail that John said that Bill loves Mary. However, this does not always hold (see the examples in von Fintel, 2004, where foreign words or non-words are involved). Following von Fintel (2004), I leave this inference entirely to pragmatics. I thank Michela Ippolito for a discussion on this, although we did not fully agree with each other.

The function $\mathcal{Q} : D_u \to D_u$ is a substitution function that replaces traces marked with indices with expressions and is defined as follows.

(25)   If $\mathcal{Q} = [i \to x, j \to y, k \to z, ...]$ where $i, j, k, ...$ are indices with type u, then
$\mathcal{Q}(\alpha) = \alpha[x/t_i, y/t_j, z/t_k, ...]$

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

In this system, the denotations of the wh-doublets can be represented as generalized quantifiers over type u elements with existential force.[8] Schematically, it looks as follows.

(26) $[\![\text{wh-wh}]\!]^{\mathcal{Q},g} = \lambda P_{(ut)}.\exists X_u, \mathcal{Q}', g' : [\![X]\!]^{\mathcal{Q}',g'} \in D_e \land R([\![X]\!]^{\mathcal{Q}',g'}) = 1 \land P(X) = 1.$

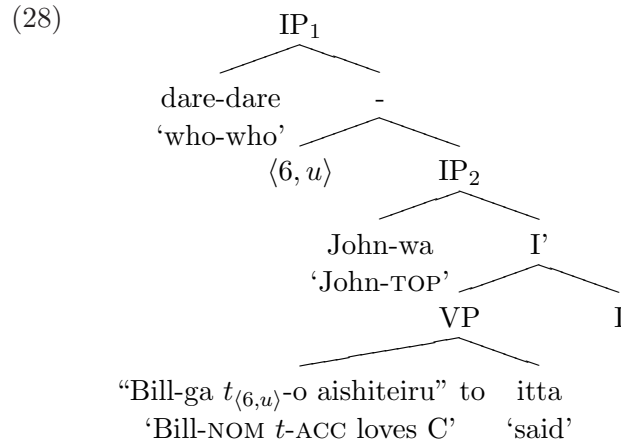'$[\![X]\!]^{\mathcal{Q}',g'} \in D_e$' in this representation ensures that X is a referring term. R here is an inherent restriction of the wh-doublet (e.g. *person'* for *dare-dare* 'who-who', and *place'* for *doko-doko* 'where-where'). I assume that the first argument P of type (ut) is derived by covert Quantifier Raising (QR) of the wh-doublet which leaves a trace with an index $\langle i, u \rangle$ for some integer i.[9]

As an illustration, let us look at the sentence in (15) repeated here with a more accurate translation. The LF representation with the wh-doublet QR'd looks like (28) and this structure is interpreted as in (29).

(27)   John-wa   "Bill-ga   **dare-dare**-o aishitieru" to itta.
        John-TOP "Bill-NOM who-who-ACC love"   C said
        'For some expression X such that X denotes a person, John said "Bill loves X".'

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[8]This way of treating indefinites is probably too simple given the issues such as quantificational variability and specificity, but I believe that implementing it in other approaches (e.g., choice functions, generalized Skolem functions, $\exists$-closure, etc.) is not particularly difficult using the ingredients given here.

[9]Recall that a quotation containing a wh-doublet is ambiguous in that the wh-doublet is used as a metalinguistic indefinite or just quoted, as noted in fn.3. The quoted interpretation can be captured by assuming that the relevant QR is optional. In order for this to work, furthermore, it is crucial to assume that QR is not triggered in semantics (e.g. by type-mismatch), but is a purely syntactic operation. However, I must defer the discussion of possible ramifications of this assumption to another occasion.

(28)

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                    IP₁
                  /    \
          dare-dare      -
          'who-who'    /   \
                  ⟨6, u⟩    IP₂
                          /    \
                    John-wa    I'
                   'John-TOP'  /  \
                            VP     I
                          /    \
        "Bill-ga t⟨6,u⟩-o aishiteiru" to   itta
          'Bill-NOM t-ACC loves C'      'said'
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(29) $[\![(15)]\!]^{\mathcal{Q},g} = [\![\text{who-who } \langle 6, u \rangle \text{ John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"}]\!]^{\mathcal{Q},g}$
    $= [\![\text{who-who}]\!]^{\mathcal{Q},g}([\![\langle 6, u \rangle \text{ John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"}]\!]^{\mathcal{Q},g})$
    $= [\![\text{who-who}]\!]^{\mathcal{Q},g}(\lambda X_u.[\![\text{John said "Bill-ga } t_{\langle 6,u \rangle}\text{-o aishiteiru"}]\!]^{\mathcal{Q}^{X/\langle 6,u \rangle},g}) = ...$
    $= [\![\text{who-who}]\!]^{\mathcal{Q},g}(\lambda X_u.\text{john uttered }\ulcorner\text{Bill-ga } X\text{-o aishiteiru}\urcorner)$
    $= \exists X_u, \mathcal{Q}', g' : [\![X]\!]^{\mathcal{Q}',g'} \in D_e \wedge person'([\![X]\!]^{\mathcal{Q}',g'}) = 1 \wedge \text{john uttered }\ulcorner\text{Bill-ga } X\text{-o aishiteiru}\urcorner$

In this calculation, the predicate *itta* 'said' induces MFA and the quoted expression is fed into $\mathcal{Q}$, which has been modified by MPA triggered by the index $\langle 6, u \rangle$.

Note that by assuming $[\![t_{\langle i,u \rangle}]\!]^{\mathcal{Q},g}$ is undefined for any $i, \mathcal{Q}, g$, the wh-doublets are correctly prohibited to appear in non-quotational contexts.[10]

5   Further Data

This section looks at further data of wh-doublets and related expressions.

5.1   'Nani-nani'

Among the wh-doublets in (3), *nani-nani* 'what-what' has a wider range of distribution in that it can replace any expression.

(30)   John-ga   "Bill-ga   **nani-nani**" to itta.
    John-NOM "Bill-NOM what-what" C said
    'John said "Bill blah-blah-blah".'

Thus, John's actual utterance reported by this sentence could contain, an adjective (e.g. *kashikoi* 'smart'), a verb phrase (e.g. *keeki-o tabeta* 'ate the cake'), a noun phrase and the

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[10]I am indebted to Irene Heim for pointing out an inadequacy of my earlier formalization regarding this point.

copula (e.g. *sinyuu-da* 'is my best friend') etc, in the place of *nani-nani.* I propose that the semantics of *nani-nani* simply does not impose any restriction on the expressions that it ranges over, which looks as follows.

(31) $[\![\text{nani-nani}]\!]^{Q,g} = \lambda P_{\langle u,t \rangle}.\exists X_u : P(X) = 1.$

In fact, *nani-nani* is always employed in multi-lingual sentences like (11)[11], and generally can be used in place of the other wh-doublets.

5.2 Generic readings

Just like ordinary indefinites, wh-doulets show generic readings. This is especially prominent in quotations of properties.

(32)   a.   "**Nani-nani**-o   taberu"-wa dooshiku-da.
                "what-what-ACC eat"-TOP   VP-is
                'For X in general, "X-o taberu" is a VP'.
           b.   "**Nani-nani**-ga"-wa   shukaku-o   uketeiru.
                "what-what-NOM"-TOP nominative.case-ACC receives
                'For X in general, "X-ga" is marked nominative."

Of course, generic readings are not obligatory even in quotations of properties at least in certain pragmatic contexts.

(33)   John-ga sonotoki itta "**dare-dare**"-wa ni-onsetsu-datta.
           John-NON then said "who-who"-TOP two-syllable-was
           'The expression X referring to a person which John uttered then was disyllabic.'

5.3 Wh-singlets

For most of the people I consulted, all the wh-singlets can be used in exactly the same way as the wh-doublets, which suggests that wh-singlets are lexically ambiguous between the metalingusitic interpretation and the ordinary interpretation as indeterminate pronouns. Note that the paradigm of wh-doublets is defective in that not all wh-singlets have the corresponding wh-doublets, such as *naze* 'why', and in such a case, the metalinguistic use of wh-singlets is particularly felicitous, as in the following sentence.

(34)   John-wa   "Mary-ga   **naze** kita"   to shuchooshi tsuzuketa.
           John-TOP "Mar-NOM why came" C claim.INF   continued

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[11]Unless the speaker understands the foreign language. In that case, foreign expressions are in the domain of $[\![\ ]\!]^{Q,g}$ and the restrictions of the other wh-doublets can apply. What is assumed here is an internalist view of semantics in which the interpretation function $[\![\ ]\!]^{Q,g}$ is relativized to each speaker/I-language. I thank Kai von Fintel for pointing this issue out to me.

'John insisted "Mary came for such-and-such reason".'

5.4   Metalinguistic demonstrative expressions

As pointed out to me by Makoto Kanazawa (p.c.), expressions such as *kore-kore* 'this-this', *dore-sore* 'which-that', *kore-kore-kouiu* 'this-this-like.this', etc. have the same distribution and a similar semantics as the wh-doublets.

(35)   a.   Sensei-wa   "**kore-kore**-o shinasai" to seito-ni   itta.
            teacher-TOP "this-this-ACC do.IMP"   C student-to said
            'For some expression X, the teacher said to the students "Do X".'
       b.   Sensei-wa   "**dore-sore**-o   tabenasai" to itta.
            doctor-TOP "which-that-ACC eat.IMP"   C said
            'For some expression X, the doctor said "Eat X (among these)".'
       c.   Setsumeisho-ni "**kore-kore-kouiu** koto-ga   dekiru"   to kaitearu.
            instruction-in   "this-this-like.this   thing-NOM possible" C written.down
            'For some expression, the instruction says "things like X are possible".'

Mamoru Saito (p.c.) suggested to me the possibility that these items prefer the specific interpretations. In fact, they have certain additional meanings indicated in the translations in (35). I leave the precise characterizations of their semantics/pragmatics for future research.

5.5   Closed vs. open quotations

Lastly, it should be pointed out that the examples we have looked at so far only involve what Recanati (2000) calls *closed quotation*, which is contrasted with *open quotation* (aka *mixed quotation*). He claims they have basically different properties:[12]

(36)   a.   *Closed Quotation:*
            A closed quotation is used as a singular term that refers to the expression
            enclosed by the quotation marks, and is entirely ignorant of the syntactic
            and semantic properties of the quoted expression. The entire sentence ex-
            presses that the quoted expression has such-and-such property or is used in
            such-and-such way.
       b.   *Open Quotation:*
            The quoted material in an open quotation is used syntactically and seman-
            tically in an ordinary way, though it carries a certain connotation.

Interestingly, open quotations disallow wh-doublets.

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[12]For similar ideas, see Abbott (2003); Geurts and Maier (2005); Partee (1973); Potts (2007); Stainton (1999).

(37)   a.   *Quine-niyoruto,   inyoo-wa   "**nani-nani**-no   seishitsu-o
               Quine-according.to quotation-TOP "what-what-GEN property-ACC
               motteiru".
               have"

    b.   *Kono mondai-wa   "**nani-nani**-no   mondai"-no   ichirei-da
               this   problem-TOP "what-what-GEN problem"-GEN example-is

    c.   *Kare-koso tenkeitekina "**doko-doko**-kara   kita   hito"-da.
               he-FOC   typical   "where-where-from came person"-is

Thus, wh-doublets empirically support the distinction between the two types of quotation.

6   Conclusion

To briefly conclude, we have seen that the Japanese wh-doublets only appear in quotational contexts and that they are interpreted as indefinites that range over (referring) expressions, which suggests that their semantics exemplifies metalinguistic quantification. A theoretical implication of this is that quantification into quotations is not in fact prohibited in natural language, contrary to what has been widely believed, and at least metalinguistic quantification is attested in quotations.

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