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Expressives in questions *

Christopher Davis
University of the Ryukyus

Eric McCready
Aoyama Gakuin University

Abstract This paper explores the interaction of expressive content with the operation of alternative generation in question denotations. We take as test cases expressive antihonorifics appearing in wh-words, wh-phrases, and verbal morphology, and show that antihonorific content within the wh-phrase applies to all alternatives, while antihonorifics outside the wh-phrase apply only to true alternatives, closing with implications for the theory of expressive meaning.

Keywords: expressives, mixed expressives, alternatives, questions, honorification

1 Introduction

Our aim in this paper is to examine the behavior of expressive items in questions. We take antihonorification as our primary test case, mainly because it is easily used to illustrate the main contrast explored in the paper: that between expressive items targeting the set of all possible substitutions for the wh-expression, and those targeting only substitutions that make the resulting proposition true. As we show below, the former interpretation tends to be associated with expressives appearing in wh-internal positions, while the latter tends to be associated with expressives in wh-external positions.

In Section 2, we introduce the two major varieties of antihonorific expression examined in this paper: the antihonorific demonstrative pronoun series and the subject-oriented antihonorific verbal suffix *yagar* in Japanese. After showing that the antihonorific content of these items behaves like other kinds of expressive meaning, we give a formal semantics for both kinds of antihonorifics. In Section 3, we examine how these antihonorific items behave in questions, and establish the existence of the two distinct readings described above. We show that the interpretation in which the antihonorific targets all possible substitutions for the wh-expression can be derived

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straightforwardly under a Hamblin question semantics, building in particular on the formalization articulated by Kratzer & Shimoyama (2002). We then sketch how we think the system might be extended to capture the second interpretation, in which WH-external antihonorifics target only substitutions making the resulting proposition true. Section 4 concludes.

2 Anti-honorifics and mixed expressives

2.1 Overview

The example in (1) illustrates two means of expressing antihonorification of the subject in Japanese. The first means is by use of an expressive nominal in subject position, such as the demonstrative pronoun *koitsu* used in casual speech, which is lexically specified for antihonorification of the referent. This pronoun belongs to a larger set of antihonorific demonstrative pronouns: *koitsu* (proximal), *soitsu* (medial), and *aitsu* (distal).[1] The series also includes the WH-pronoun *doitsu*, whose semantics will be taken up in the next section. The effect of using such antihonorific pronouns is similar to using an NP headed by an expressive noun like *kusogaki* 'little shit', although the particular expressive content is of course not identical. The second means of expressing antihonorification is by use of the verb suffix *yagar*, which attaches to the verb root and expresses antihonorification of the sentential subject (cf. Potts & Kawahara 2004).

(1) {kare / **koitsu** / kono **kusogaki**}-ga saigo-no biiru-o
{he he.ANTIHON this shit.kid}-NOM last-GEN beer-ACC
{non-da/nomi-**yagat**-ta}.
{drink-PST / drink-ANTIHON-PST}
'He drank the last beer.'
+ speaker has an informal attitude toward the referent of the subject.

Either or both of the two antihonorific strategies can be used in (1) with similar effects. Although as discussed below the expressive contribution of antihonorifics is in some sense ineffable, we provide an informal approximation to their contribution in the second line of the free translation; roughly, the use of either antihonorific strategy in (1) expresses an informal (and typically negative) attitude toward the referent of the grammatical subject. The use of *yagar* expresses in addition a negative attitude toward the proposition denoted by the entire sentence, which we describe in more detail below. In the rest of this section, we justify the claim that meaning of

1 We use the term 'antihonorific' here, but this should not be taken to imply that these pronouns are always understood in an insulting way: they can also be interpreted in a friendly manner, as is often the case with terms of an expressive character.

antihonorifics is expressive in nature, further detail the subject-orientation of *yagar*, and provide a formal semantics for antihonorifics as mixed expressives.

2.2 Anti-honorifics as expressives

The literature contains an extensive debate concerning the distinction and proper cross-classification of non-at-issue content (e.g. Potts 2005; Tonhauser, Beaver, Roberts & Simons 2013). There are a number of commonly proposed properties and tests for expressivity (Potts 2007; McCready 2010), including:

- independence: non-interaction with semantic operators
- undeniability: non-targetability by truth-oriented denial
- ineffability: unavailability of a satisfying non-expressive paraphrase

The ineffability property is not really testable via examples, but the others are. Here we show the results of these tests for the antihonorifics in (1).

The property of independence requires putative expressive items not to interact with (at-issue) semantic operators. As shown in (2) and (3), the antihonorific content introduced by *koitsu* and *yagar* does not fall in the semantic scope of negation or epistemic modality; the situation with other semantic operators is similar.

(2) koitsu-ga saigo-no biiru-o non-da kamoshirenai.
he.ANTIHON-NOM last-GEN beer-ACC drink-PST might
'That dude might have drunk the last beer.' (='he might have drunk the last beer' + 'informal', ≠ 'might(he drank last beer ∧ I regard him informally)')

(3) kare-ga saigo-no biiru-o nomi-yagat-ta kamoshirenai.
he-NOM last-GEN beer-ACC drink-ANTIHON-PST might
'He might have drunk the last fucking beer.' (='he might have drunk the last beer' + 'I am unhappy with him', ≠ 'might(he drank last beer ∧ I am unhappy with him)')

In (2), the antihonorific content of *koitsu* (glossed here as 'informal') fails to scope under the epistemic modal *kamoshirenai* 'might'; the modal cannot be interpreted as expressing a weakened commitment to this informal attitude. The same holds for the expressive content of *yagar* in (3), glossed as 'I am unhappy with him'. This attitude is not modalized along with the at-issue content, and the sentence entails a negative attitude toward the referent of the subject.

Truth-oriented denials are also unable to target expressive content. As expected, the antihonorific content of *koitsu* and *yagar* in (1) is unavailable for denial:

(4) B: sonna koto nai yo.
that thing not.exist PRT
'That's not true.' (= 'he didn't drink the beer', ≠ 'you don't feel negatively toward him')

We conclude that Japanese antihonorifics introduce expressive content. This conclusion is in line with the literature on honorifics, which (to our knowledge) universally takes them to be expressive (Potts & Kawahara 2004; Potts 2007; Sells & Kim 2007; McCready 2010, 2014).

2.3 Subject orientation of *yagar*

Both *koitsu* (and the other antihonorific demonstratives) and *yagar* express an informal attitude, or a negative one, with respect to an individual. For the demonstratives, the expressive attitude targets the individual picked out by the demonstrative itself (via either reference or pronominal dependency). The suffix *yagar*, on the other hand, acquires its referent compositionally: it targets the *grammatical subject*, as shown by active-passive pairs like the following.

(5) sensei-ga gakusei-o home-yagat-ta.
teacher-NOM student-ACC praise-ANTIHON-PST
'The teacher praised the student.'
+ speaker dishonors the teacher

(6) gakusei-ga sensei-ni home-rare-yagat-ta.
student-NOM teacher-DAT praise-PASS-YAGAR-PST
'The student was praised by the teacher.'
+ speaker dishonors the student

The active sentence (5) entails an antihonorific attitude on the part of the speaker toward the teacher. It is incompatible with a neutral attitude toward the teacher, but is compatible with a neutral attitude toward the student. The opposite holds of the passive version in (6), which entails an antihonorific attitude toward the student, but is compatible with a neutral attitude toward the teacher. These entailments are not contextually overridable. For example, a fellow student known to love the teacher could utter (6) but not (5) to express annoyance with their classmate while maintaining a respectful or positive posture toward the teacher.

Active-passive pairs like these show that the target of *yagar*'s antihonorific meaning is grammatically determined. It is not the agent, and it is not a contextually salient entity. As we discuss below, there is also a proposition-level expressive component to the meaning of *yagar*, which is identical for both sentences in such pairs (since both sentences denote the same proposition).

2.4 Formal proposal

We treat the antihonorifics we discuss as mixed expressives (McCready 2010). Mixed expressives are lexical items or constructions which simultaneously carry at-issue and expressive content. Commonly discussed examples include pejoratives and honorifics. McCready (2010) has developed a logical system for composition with mixed expressives, extending the system of Potts (2005); we adopt this system here. Its main feature is the separation of content into two dimensions: one for at-issue content, which contains the result of 'ordinary' composition, and one for expressive content, which contains the result of composition with expressives. The two dimensions are fed content via separate but interacting composition rules; full details can be found in McCready 2010, and some discussion in Gutzmann 2015.

Demonstratives like *koitsu* represent clear examples of mixed content. On the at-issue side, they introduce an individual of which at-issue content can be predicated; on the expressive side, they introduce an antihonorific attitude toward that individual. The semantics of the antihonorific pronoun *koitsu* is spelled out in (7), using the system of McCready 2010. Here, the content on the left-hand side of the '◆' is at-issue, and the content on the right-hand side is expressive, as reflected in the types, which are superscipted 'a' for at-issue content, and (for the case of mixed expressives) 's' for 'shunting'-typed expressive content. Shunting types are used for instances of expressive content which exhibit resource-sensitivity, which is always a property of the expressive portion of mixed-type content. (The superscript 'c' is used for other kinds of expressive content.) Mixed expressives are modeled using product types across these domains (see McCready 2010 for details and discussion of the system). Note that the left-hand side also includes a presupposition of animacy on the referent.[2] For comparison, we give a denotation for the non-expressive masculine pronoun *kare* as well; as a non-expressive pronoun, *kare* comes only with presuppositions and at-issue content; there is no mixed expressive content, and thus no '◆', in its denotation.

(7) a. $[\![koitsu_i]\!]^g = \{\textsc{anim}(g(i))\}.g(i) \blacklozenge \textsc{antihon}(g(i)) : e^a \times t^s$

2 We assume a requirement for animacy, but there are cases in which this presupposition seems to be suspended, for example where the speaker is talking about a poorly functioning car or part of a machine:

(i) koitsu-ga dame da kara ne
this.guy.ANTIHON-NOM no.good COP because PRT
'Because this guy here isn't working . . . '

Here, we take the speaker to be using the pronoun in an extended sense, treating the car/part as an animate (and, here, uncooperative) individual. In a sense, this is a metaphorical usage. We also ignore the proximal/medial/distal distinction in the antihonorific pronoun series here; these distinctions can be coded as additional presuppositions.

b. $[\![kare_i]\!]^g = \{\text{ANIM}(g(i)) \wedge \text{MASC}(g(i))\}.g(i) : e^a$

The denotation of *koitsu* uses a primitive (expressive) relation ANTIHON (cf. Potts & Kawahara 2004; Sells & Kim 2007; McCready 2010, 2015). We will return to the meaning of antihonorification shortly, treating it as a primitive in the remainder of this discussion.

Within the semantic system described above, the meaning of an example like (8) can be derived as in (9) (again, details of the system are in McCready 2010). The mixed content is separated into at-issue and expressive parts, which are demarcated by the metalinguistic '•' connective. The expressive content is then 'pulled out' of the derivation via a proof rule, and the rest of the composition proceeds as usual.

(8) koitsu-ga ki-ta.
this.guy.ANTIHON-NOM come-PST
'This guy came' + 'I can't stand him'

(9)
$$\dfrac{\dfrac{\dfrac{\{\text{ANIM}(g(i))\}.g(i) \blacklozenge \text{ANTIHON}(g(i)) : e^a \times t^s}{\{\text{ANIM}(g(i))\}.g(i) : e^a \bullet \text{ANTIHON}(g(i)) : t^s}}{g(i) : e^a} \qquad \lambda x.came(x) : \langle e,t\rangle^a}{came(g(i)) : t^a}$$

To get the final denotation, the entire tree/derivation is interpreted, with the at-issue content the first member of the meaning tuple, and a set containing the collected expressive content of the sentence as the second member of the tuple (Potts 2005; McCready 2010):

(10) $\langle came(g(i)), \{\text{ANTIHON}(g(i))\}\rangle$

There are also compositional ways of denigrating the referent of a noun phrase, e.g. by adding the determiner *kono* 'this' to an expressive nominal, such as *kusogaki*, lit. 'shit kid', which we also treat as a mixed expressive. We omit the derivation of the nominal itself for reasons of space.

(11) $[\![kusogaki]\!] = \lambda x.\text{child}(x) \blacklozenge \lambda x.\text{bad}_s(x) : \langle e,t\rangle^a \times \langle e,t\rangle^s$

The other kind of antihonorific we consider is the suffix *yagar*. As described earlier, the use of this suffix expresses a subject-oriented antihonorific attitude similar (if not identical) to that encoded by antihonorific pronouns like *koitsu*. In addition, the use of *yagar* expresses the speaker's negative sentiment toward the entire proposition denoted by the sentence. These two meaning components are given rough paraphrases in the example in (12): a subject-oriented expressive component similar to the one contributed by the expressive pronoun in (8), along with a proposition-oriented expressive component unique to *yagar*:

(12) kare-ga ki-yagat-ta.
he-NOM come-ANTIHON-PST
'This guy came' + 'I can't stand him' + 'I'm upset that he came'

We analyze *yagar* as denoting a function from at-issue to mixed type predicates (improving on the proposal of Potts & Kawahara 2004). It combines with a predicate meaning of type $\langle e,t\rangle^a$ and yields an object of mixed type $\langle e,t\rangle^a \blacklozenge \langle e,t\rangle^s$. The resulting verbal predicate applies to the subject argument to return a predicate which expresses antihonorification of the subject and an emotive attitude of the speaker toward the proposition denoted by the sentence, modeled using attitudinal semantics.[3]

(13) $[\![yagar]\!] = \lambda P\lambda x.P(x) \blacklozenge \lambda P\lambda x.\textsc{antihon}(x) \wedge \text{bad}_s(P(x)) :$
$\langle\langle e,t\rangle,\langle e,t\rangle\rangle^a \times \langle\langle e,t\rangle,\langle e,t\rangle\rangle^s$

The compositional semantics of a sentence with *yagar* like that in (12) is shown in (14) (the presuppositions of the subject pronoun are suppressed for simplicity, and the types for reasons of space):

(14)
$$\dfrac{\dfrac{\dfrac{g(i) \qquad \dfrac{\lambda P\lambda x.P(x) \blacklozenge \lambda P\lambda x.\textsc{antihon}(x) \wedge \text{bad}_s(P(x)) \qquad \lambda x.came(x)}{\lambda x.came(x) \blacklozenge \lambda x.\textsc{antihon}(x) \wedge \text{bad}_s(came(x))}}{came(g(i)) \blacklozenge \textsc{antihon}(g(i)) \wedge \text{bad}_s(came(g(i)))}}{came(g(i)) \bullet \textsc{antihon}(g(i)) \wedge \text{bad}_s(came(g(i)))}}{came(g(i))}$$

This example differs from the case of *koitsu* in that the mixed expressive is doing some work in composition by taking a type $\langle e,t\rangle$ predicate in both at-issue and expressive dimensions: the latter, after further composition with the type e subject yields a(n expressive) proposition which can be 'shunted' into the expressive dimension. After interpretation of the parsetree/derivation, the following multi-dimensional denotation for the sentence is obtained:

(15) $\langle came(g(i)), \{\textsc{antihon}(g(i)), \text{bad}_s(came(g(i))\}\rangle$

3 One caveat about the above representation: in forthcoming work we argue that the proposition-targeting emotive attitude ($\text{bad}_s(P(x))$) is actually a defeasible implication of the rest of the content, which can be overridden or modified in particular contexts. However, these aspects of the meaning of *yagar* introduce complications concerning both composition and how the relevant implication is derived which are somewhat orthogonal to the main point of this paper; consequently, we leave them for another occasion and stick to the denotation above, where both subject and proposition oriented attitudes are part of the conventional semantics.

2.5 Side note on the status of antihonorifics

Before moving on to the data about questions, let us briefly address the semantics we assume for (anti)honorification. Honorification is often left as a primitive in the formal semantics literature, perhaps because most work on the topic has focused on how composition with honorifics works as opposed to the semantics and pragmatics of the honorifics themselves (e.g. Watanabe, McCready & Bekki 2014). In the denotations described above, we make use of an expressive relation ANTIHON (cf. Potts & Kawahara 2004; Sells & Kim 2007; McCready 2010). McCready (2014, 2015) provides a foundation for this and other (anti)honorific relations, according to which honorifics make reference to politeness registers, modeled as subintervals of the real number interval $[0,1]$.[4] The more formal the expression, the higher the subinterval. Within this system, antihonorifics can be taken to indicate an informal register and also to introduce denigration of an individual. For instance, the antihonorific second person Japanese pronoun *teme* can be analyzed as follows:

(16) $[\![\text{teme}]\!] = a_c \blacklozenge (Hon = [0,.1] \wedge bad_{s_c}(a_c)) : e^a \times t^s$

On the basis of this sort of analysis, we can define the antihonorific relation ANTIHON as follows:

(17) $[\![\text{ANTIHON}]\!] = \lambda x.Hon = [0,.1] \wedge bad_{s_c}(a_c) : \langle e, t^s \rangle$

We will continue to use the primitive ANTIHON in the denotations for convenience.

Finally, it should be noted that *yagar* and other honorifics pattern differently. Honorifics should generally be used in every sentence where appropriate, as with the Japanese politeness markers *desu/masu*, which can be analyzed as expressing addressee-oriented honorific meaning (McCready 2015). By contrast, *yagar* need not be used in every context where it would be licensed, and indeed sounds extremely unnatural if appended to every verb in a sequence. The primary function of honorifics is ordinarily to indicate something about social relationships; *yagar* may do so, but it does other things too. In particular, given the semantics of ANTIHON above, it describes a negative emotive attitude toward both the grammatical subject and to the proposition denoted by the sentence. By contrast, we suggest that pure honorifics simply index a politeness register, and contain no additional emotive content.

4 This is related to the work of Potts & Kawahara (2004), although for them the relevant intervals represent emotive attitudes.

3 Questions and expressives

3.1 Basic data

The examples in (18) are subject WH-questions corresponding to the declarative in (1). As with the non-WH pronouns in (1), there are plain and antihonorific variants of the WH-pronoun in (18a). In addition to the default WH-word *dare* 'who', Japanese also has an antihonorific WH-word *doitsu* 'who'. These two forms are clearly related to the non-WH pronouns *kare* and *koitsu*, and share the same presuppositions, except that *kare* is masculine whereas *dare* is gender-neutral. The only difference between the two WH-pronouns is the antihonorific content of *doitsu*. We can also build an antihonorific-like WH-expression compositionally, by combining the WH-determiner *dono* 'which' with an expressive nominal like *kusogaki*. In (18b), the subject-oriented antihonorific *yagar* is added to the predicate. The two strategies can also be combined, but as we show below they exhibit different pragmatic effects, and so they are kept separate here.

(18) Context: A teacher is at a restaurant with his students. Returning from the bathroom, he finds his beer glass, and all the remaining beer bottles, empty.

a. [{**doitsu** / dono **kusogaki**}-ga] saigo-no biiru-o non-da nda.
[{who.ANTIHON / which shit.kid}-NOM] last-GEN beer-ACC drink-PST PRT
'Which of you fuckers drank the last beer?'

b. [dare-ga] saigo-no biiru-o nomi-**yagat**-ta nda.
[who-NOM] last-GEN beer-ACC drink-ANTIHON-PST PRT
'Who fucking drank the last beer?'

Now we reach the main issue of this paper: what is the semantic contribution of the subject-oriented expressive in sentences like these? In the case of the pronominal subjects in (1), the answer was simple: the referent of the pronoun is the target of the expressive content. But for wh-expressions, there is no obvious reference; what then is being denigrated in these sentences? Given an alternative semantics for questions, there are at least two obvious possibilities: (i) the individual(s) corresponding to the *true* answer(s) to the question (Karttunen 1977), and (ii) the individuals corresponding to the set of all (contextually salient) *possible* answers, i.e. the full set of contextually salient alternatives (Hamblin 1973).

We argue that both of these possibilities are realized, and that the choice correlates with the syntactic position of the expressive. The examples in (18) show a contrast in the behavior of WH-phrase-internal (*doitsu*, *kusogaki*) and WH-phrase-external (*yagar*) subject-oriented antihonorifics (WH-phrases are demarcated by square brackets). The use of either variant in (18a) is felt by native speakers to convey a negative attitude on the part of the speaker toward *all* the students at the

table, regardless of which one drank the last of the beer.[5] By contrast, the use of (18b) seems only to target the student who actually did the drinking. Although the sentence in (18b) is *compatible* with a context in which the teacher is upset with all of the students, it doesn't require such an interpretation.

The interpretation of WH-internal antihonorific content, which targets all possible alternatives, corresponds intuitively to a Hamblin (1958, 1973) semantics of WH-questions, in which the WH-word itself denotes a set of alternatives. If the expressive meaning applies to each of these alternatives, then we predict that antihonorification in examples like (18) should apply to all possible alternatives; in this example, antihonorification should apply to all contextually salient children. This seems to be the correct prediction for the WH-phrase internal antihonorifics in (18a), but not for wh-phrase external *yagar* in (18b), which seems to only target whoever actually drank the beer. This interpretation corresponds intuitively with a semantics like that of Karttunen (1977), under which a question denotes only *true* alternative proposition(s). Based on such contrasts, we propose the tentative generalization in (19):

(19) Expressives **within** the WH-phrase (tend to) apply to **all** alternatives, while expressives **outside** the WH-phrase (tend to) apply only to **true** alternatives.

Cross-linguistic support for this generalization comes from the behavior of the Cantonese expressive *gwai2*, literally 'ghost', which functions to express the speaker's negative attitude in the following examples.[6] As shown in the following pair of WH-questions, *gwai2* can appear either within the WH-word *bin1go3* 'who' itself, or within the verbal predicate.[7]

(20) a. bin1**gwai2**go3 jam2-zo2 ngo5 ge3 be1zau2?
Who.GHOST drink-PFV my/me LP beer

b. bin1go3 jam2-**gwai2**-zo2 ngo5 ge3 be1zau2?
Who drink-GHOST-PFV my/me LP beer
'Who drank my beer?'

The choice of position generates a contrast in interpretation parallel to the one described above for Japanese:[8] WH-word-internal *gwai2* in (20a) targets everyone,

5 While the contrast described here has been confirmed by the native speakers whom we have consulted, it is also possible to interpret the WH-internal expressive as targeting only the true answer. We focus on the more salient interpretation in what follows.

6 See Lee & Chin (2007) for an overview of research on this morpheme, and descriptions of its various uses. The parallel with Japanese honorifics was originally suggested to us by Regine Lai, Zoe Luk, and Grégoire Winterstein (p.c.).

7 Thanks to Regine Lai and Grégoire Winterstein for providing the glossed Cantonese sentences.

8 Intuitions courtesy of Regine Lai and Zoe Luk.

whether they drank or not, while WH-external *gwai2* in (20b) targets whoever actually drank the beer.[9]

3.2 Deriving the 'Hamblin' interpretation

As just seen, WH-phrase-internal expressives in Japanese (and Cantonese) seem to target the entire set of contextually salient alternatives, regardless of what the true answer to the question is. Call this the 'Hamblin' interpretation. As we now show, this interpretation can be derived straightforwardly within a Hamblin-style alternative question semantics. For concreteness, we adopt the Hamblin semantic system outlined in Kratzer & Shimoyama 2002. In this system, all denotations are lifted to a set of regular denotations. Non-WH-words denote singleton sets of regular denotations, as in (21), while WH-words denote non-singleton sets, as in (22):

(21) $[\![\text{Bill}]\!] = \{\text{Bill}\}$
$[\![\text{ate}]\!] = \{\lambda x \lambda y.\, \text{ate}(x)(y)\}$

(22) $[\![\text{who}]\!] = \{x \mid x \text{ is human}\} = \{\text{Bill, Sue, John, } \dots\}$
$[\![\text{what}]\!] = \{x \mid x \text{ is not human}\} = \{\text{beans, cheese, } \dots\}$

Composition proceeds by point-wise function application:

(23) If α is a set whose elements are of type $\langle \sigma, \tau \rangle$, and β is a set whose elements are of type σ, then:
$[\![\alpha\, \beta]\!] = \{\gamma \mid \exists f \in \alpha, g \in \beta :\ \gamma = f(g)\}$

To the expressively neutral WH-pronoun *dare* 'who' we assign the Hamblin semantics below, based on that of Kratzer & Shimoyama, but with contextual restriction built into the denotation. This means that *dare* denotes not the entire set of humans, but the set of contextually salient humans (those found in the contextually specified set C):

(24) $[\![\textit{dare}]\!] = \{x \mid \text{human}(x) \wedge x \in C\}$

The antihonorific *doitsu* is similar to *dare*, but with a different presupposition restricting the alternative set, and the addition of expressive antihonorification targeting each individual in the resulting set. This is spelled out by the following denotation, which says that *doitsu* denotes a set of mixed expressives. The set is constrained to contextually salient animate objects, and for each element of the set, there is an associated expressive meaning:

(25) $[\![\textit{doitsu}]\!] = \{x \blacklozenge \textsc{antihon}(x) \mid \text{animate}(x) \wedge x \in C\}$

9 As noted to us by Regine Lai, a ruder version of such sentences uses *lan2* 'penis' instead of *gwai2* and tends to make the judgments clearer.

According to the Hamblin semantics of Kratzer & Shimoyama (2002), the denotation of the entire question is itself a set of propositions, derived by combining the wh-phrase with the rest of the sentence by point-wise function application. The only additional complication here is that we now have sets of mixed expressive meanings, and a rule is needed to indicate how they are to be treated in the composition. This is defined in (26). Here only the type of $\beta(\alpha)$ is specified, as only type t objects should be available for separation.

(26) $$\frac{\{\alpha \blacklozenge \beta(\alpha) : t^s \mid \gamma(\alpha)\}}{\{\alpha \mid \gamma(\alpha)\} \bullet \beta(\rho) \text{ for all } \rho \text{ s.t. } \gamma(\rho)}$$

According to this rule, given a set of mixed expressive meanings, the expressive part should be first separated from the at-issue content and placed on the right hand side of the '•' metalogical connective, for each element of the set, from where it can be stripped off and placed in the expressive dimension, as usual in this type of system. The result is treated analogously with other expressives in this system. For the example at hand, γ in (26) = $[\lambda x.\,\text{animate}(x) \wedge x \in C]$. For example (18a), application of (26) results in the following denotation at the root node:

(27) [[18a]] =
$\Big\langle \{x \text{ drank the last beer} \mid \textsc{anim}(x) \;\&\; x \in C\},\ \{\textsc{antihon}(x) \mid \textsc{anim}(x) \;\&\; x \in C\} \Big\rangle$

This predicts that the use of an expressive wh-word/phrase will end up with the expressive content applied to all contextually salient alternatives. This prediction accords with the intuition reported above for wh-phrase-internal expressives.

The denotation in (25) illustrates a crucial difference, we argue, in the contribution of presuppositional and expressive features of wh-words. The presuppositional feature [+human] is used to restrict the set of alternatives, and appears 'to the right' of the |, while the expressive feature applies to each alternative in the set, and appears 'to the left' of the |. Stated as a principle:

(28) Presuppositional features on wh-words are used to narrow down the set of alternatives denoted, while expressive features are applied to each alternative in the resulting set.

If expressives behaved like presuppositions, *doitsu* would restrict the set to those contextually salient people that the speaker dishonors, in the same way that the [+human] presupposition of these wh-words restrict the set to the contextually salient humans. This prediction is wrong, as can be seen from the interpretation of (29) in the context described below:

(29) doitsu-ga suki na no?
who.ANTIHON-NOM like COP Q
'Who do you like?'

Consider the above sentence uttered by the host of a television dating game in which three candidates are vying for the affections of the addressee. Imagine that the host despises two of the contestants, but likes the other. If the antihonorific feature were presuppositional, an utterance of (29) would give rise to a meaning in which only the two despised contestants were under consideration, with the host asking which of these the addressee likes. This is not, however, the interpretation. The host is instead interpreted as denigrating *all* contextually salient alternatives, despite what we were led to believe about his feelings from the prior context.[10]

Compositional antihonorific wh-phrases work in a similar way. We don't go into the compositional details of *which*-phrases here, but the following denotation is an approximation of what we get by combining *dono* 'which' with the pejorative mixed expressive *kusogaki* 'shit kid':

(30) $[\![\textit{dono kusogaki}]\!] = \{x \blacklozenge \textit{bad}_s(x) \mid \text{child}(x) \wedge x \in C\}$

Note that at-issue content in the wh-phrase serves to restrict the resulting Hamblin set, while expressive content targets all elements of the set, similar to what we saw above with presuppositional versus expressive features of wh-words.

3.3 Deriving the 'Karttunen' interpretation

We showed above how the 'Hamblin' interpretation of antihonorific content can be derived straightforwardly. Attempting to account for the 'Karttunen' interpretation, in which expressive content targets only substitutions leading to true answers to the question, is more difficult. In the rest of this section, we sketch one way we think the contrast and its structural dependence can be captured, but as will be seen there are technical difficulties involving cross-dimensional binding of variables occurring in both at-issue and expressive dimensions.

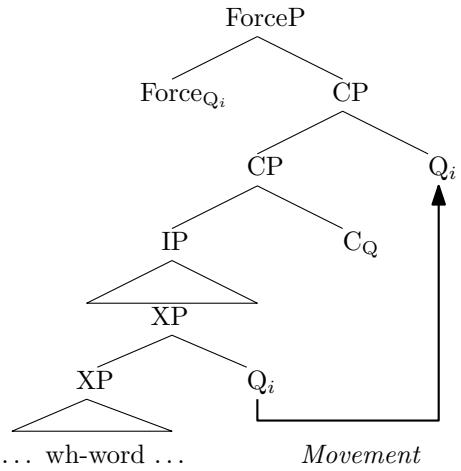
In order to derive the Karttunen interpretation of wh-phrase external expressives like *yagar*, while at the same time preserving the Hamblin interpretation of wh-phrase internal expressives derived above, we adopt a theory of question meanings along the lines of Hagstrom 1998 and Cable 2008, 2010, in which the Hamblin alternatives denoted by the wh-phrase are closed off by a Q-particle denoting a choice function variable, which is then bound by a higher question operator. For the purposes of this paper, we present a simple system that is close to the one given in Cable 2008. The two major differences are (i) that we follow Kratzer & Shimoyama (2002) in placing wh-alternatives in the regular semantic dimension, while Cable

10 It may be possible for this sentence to receive the 'Karttunen' interpretation as well, in which case the host would only be expressing displeasure toward whichever contestant the addressee actually likes. We return to such interpretations below.

follows Beck (2006) in giving WH-words only a focus-semantic value, and (ii) that the question operator returns the true answer(s) to the question, per Karttunen.

Cable (2008), following Hagstrom (1998) and Kishimoto (2005), assumes the following structure for Japanese wh-questions:

(31)



In this analysis, an indexed Q-particle adjoins to the in-situ WH-phrase. In Japanese, this particle is spelled out as *ka*. The Q particle is then bound by C_Q. The Q-particle undergoes movement to the right periphery under agreement with C_Q, which we take to have no impact on the semantics (see Cable 2008 for discussion of how the semantic effects of this movement are handled compositionally). At the top layer is a matrix Force head that is co-indexed with the Q-particle.

Semantically, Cable takes the Q-particle (ka_i in Japanese) to denote a choice-function variable, following Hagstrom (1998) and Yatsushiro (2001):

(32) $[\![Q_i]\!]^g = [\![ka_i]\!]^g = g(i) \in D_{\text{cf}}$

As a choice function, the Q-particle chooses one of the elements in the set denoted by its sister. For Cable, this set is determined by the focus semantic value of its sister, while for us it is the regular semantic value. Since we do *not* want Q_i to apply to each element of the set denoted by its sister, we need a special syncategorematic rule that allows the Q-particle to see the entire set denoted by its sister, rather than applying point-wise to each of its elements (note that, since we are still working within the Hamblin semantics of Kratzer & Shimoyama, the rule is defined to return a singleton set):

(33) $[\![Q_i\ \text{XP}]\!] = \{[\![Q_i]\!]([\![\text{XP}]\!])\}$

The final ingredient in Cable's analysis is an interrogative Force head Force_{Q_i} that binds the Q-particle. Cable defines the semantics of Force_{Q_i} with the following syncategorematic rule:

(34) $[\![\text{Force}_{Q_i}\ \text{XP}]\!]^g = \lambda p\,[\,\exists f.\, p = [\![\text{XP}]\!]^{g(i/f)}\,]$

Since it is co-indexed with the Q-particle, the resulting denotation is the characteristic function of the set of propositions that would have been derived under the Hamblin semantics described earlier. Since we are interested here in the true answer(s) to the question, we suggest the alternative 'Karttunen' version of the operator, $\text{Force}^K_{Q_i}$, which restricts us to true propositions as follows (again, the denotation is defined to return a singleton set, in keeping with the semantic system of Kratzer & Shimoyama; we also set p to the unique proposition denoted by XP, rather than to the singleton set containing that proposition, which XP denotes under the semantics we are working with here):

(35) $[\![\text{Force}^K_{Q_i}\ \text{XP}]\!]^g = \{\,\lambda p\,[\,\exists f.\, p = \iota q[q \in [\![\text{XP}]\!]^{g(i/f)}]\ \wedge\ p(w^*) = 1\,]\,\}$

Consider again the example in (18a), with the antihonorific WH-pronoun *doitsu*. Note that the antihonorific component applies to each of the alternatives, before the alternatives have been closed off by Q_i. Completed expressive meanings are 'stripped' from the computation, as discussed previously, and thus the subsequent application of the choice function denoted by Q_i and the restriction to true alternatives by $\text{Force}^K_{Q_i}$ does not affect the expressive contribution of *doitsu*, which has already applied to every contextually salient entity compatible with the presuppositions of the WH-pronoun.

Now consider what happens in (18b), where the subject-oriented antihonorific meaning is contributed by the WH-external verbal suffix *yagar*. At the point where *yagar* applies, the WH-phrase will have already been bound by Q_i, and thus denote some element from the original set denoted by the WH-phrase, determined by the assignment function g. At the CP node, before $\text{Force}^K_{Q_i}$ applies, we have the following simplified denotation, where $[\![dare]\!]$ is the set of contextually salient humans as before, and $g(i)$ is the choice function variable selecting from this set:

(36) $\{\text{drank-the-last-beer}(g(i)([\![dare]\!]))\ \blacklozenge\ \textsc{antihon}(g(i)([\![dare]\!]))\}$

Since we are still working within Kratzer and Shimoyama's semantic system, the denotation is a singleton set. The element of this set is a mixed expressive, as before. Now, however, we have the assignment-dependent term $g(i)([\![dare]\!])$ in both the regular and expressive dimensions, on both sides of the $\blacklozenge$.

At the final step of the computation we feed this denotation to $\text{Force}^K_{Q_i}$. Intuitively, what we would like to happen is for the $\exists f$ component of the denotation in (34) to bind both the at-issue and the expressive content of the denotation in (36). However, currently there is no proviso in systems of the kind in Potts 2005 and McCready 2010 for simultaneous binding of elements in multiple dimensions. In principle, though, there doesn't seem to be any reason why there couldn't be, at least not for

cases like this; Potts avoided 'binding into' the expressive dimension, but did not consider cases of mixed content.

Plugging (36) into the rule in (35) gives the following:

(37) $\{\lambda p\,[\exists f.\, p = \text{drank.last.beer}(f([\![dare]\!])) \blacklozenge \textsc{antihon}(f([\![dare]\!])) \wedge p(w^*) = 1]\}$

The result is a singleton set containing a characteristic function of a set of Karttunen (true-answer) propositions, with the expressive content of *yagar* applying to those substitutions for the WH-word that make the resulting proposition true. While intuitively on the right track, there are technical issues with this denotation that go beyond the scope of this paper. In particular, by using the syncategorematic rule in (35), we end up sticking a mixed expressive meaning 'into' the at-issue content of the sentence, a situation that is not countenanced by the logic of mixed expressive content. Moreover, as mentioned above, the system we are working with here does not countenance cross-dimensional binding of the sort that seems to be at play here. We leave these issues for future research, stressing only that the very existence of the Karttunen reading seems to lead to issues of cross-dimensional binding, again pointing up a need for a solution to this puzzle.

Before concluding the paper, we briefly discuss quantificational structures in which similar issues arise. WH-words in Japanese are used in the formation of universal and existential quantificational expressions (Kuroda 1965; Shimoyama 2001, 2006; Kratzer & Shimoyama 2002). Universal quantification can be expressed by combining the WH-expression with the particle *mo* (glossed below as UNIV), while existential quantification can be expressed by combining the WH-expression with the particle *ka* (glossed below as EXIST). As seen in the following examples, combining *yagar* with a universally-quantified subject results in an interpretation similar to the Hamblin reading of WH-subject questions, while combining it with an existentially-quantified subject results in an interpretation similar to the Karttunen reading, namely one that targets whichever alternative makes the resulting proposition true:

(38) a. **dare-mo**-ga biiru-o nomi-**yagat**-ta.
who-UNIV-NOM beer-ACC drink-ANTIHON-PST
'Everyone drank beer.'
+ speaker has a negative attitude toward everyone who drank beer.

b. **dare-ka**-ga biiru-o nomi-**yagat**-ta.
who-EXIST-NOM beer-ACC drink-ANTIHON-PST
'Someone drank beer.'
+ speaker has a negative attitude toward whoever it was that drank beer.

In fact, the interpretation of the example with a universally quantified subject could also be due to the Karttunen interpretation, since with a universal quantifier the

set of true alternatives is the same as the set of all contextually salient alternatives. Thus, the Karttunen interpretation associated with *yagar* can derive both of the interpretations above.

The problem posed by universally quantified sentences like that in (38a) is noted by Gutzmann & McCready (2016), who argue that an at-issue quantifier can be type-shifted to a mixed quantifier that applies in the expressive dimension as well. We don't go into the details here for reasons of space, but the type-shifting rule they define is too weak for examples with existential quantification like the one in (38b), since it does not require that the target of antihonorification be identical to whoever satisfies the verbal predicate. Again, the problem here is one that intuitively boils down to cross-dimensional binding. As in the case of WH-questions, we need to have existential quantifier binding into both at-issue and expressive dimensions simultaneously.

4 Conclusion

This paper has considered the behavior of expressive items in questions. We began by arguing for an expressive view of the content associated with antihonorific demonstrative pronouns and the antihonorific suffix *yagar*, and proceeded to give them a semantics in terms of mixed content. We then turned to questions, and provided data showing that expressive content behaves differently when introduced within the WH-phrase and when introduced outside it; when introduced inside, it tends to apply to all WH-alternatives, and when introduced outside, to only the true alternative(s). The former interpretation was modeled with a Hamblin semantics with a version of pointwise functional application modified to account for mixed expressive items. The second interpretation we modeled with a modified version of the WH-question semantics of Cable 2008, 2010. We closed with some observations about the interaction of this analysis with cases of expressive quantification.

There are many directions for future research. One is to more closely examine the generalization in (19): what is the nature of this tendency? It may be that it connects to D-linking: if there is a sufficiently salient set of individuals, it is possible to interpret the expressive as applying to all of them, but in the absence of such a set, the universal interpretation ends up as a pragmatically extremely implausible one, even when the expressive content is introduced WH-internally. In such cases, what is the mechanism whereby WH-phrase internal expressives get the Karttunen interpretation? More attention to the mechanics of this operation are needed. A second direction is to bring more cross-linguistic evidence bear on the generalization in (19). We have given data from Japanese and Cantonese in its support, but it would be interesting to see whether it holds for other languages as well. Finally, the facts we adduce here seem highly amenable to experimental study, particularly for the

question raised above about D-linking; one might experimentally manipulate D-linked and non-D-linked contexts to determine whether Hamblin or Karttunen-style interpretations are prominent.

The issues explored in this paper also raise questions for how expressive content behaves with respect to alternative-generating content more generally. With respect to WH-questions, we hope to have shown that there are two distinct interpretations available for expressive content, and that these two interpretations correspond broadly to two major approaches to the semantics of questions. We have also shown that expressive content interacts in a non-trivial way with quantification, which itself has been given a formal treatment in terms of alternative semantics by Kratzer & Shimoyama (2002). What happens when expressives appear in other kinds of alternative-generating constructions? In particular, how do expressives interact with focus alternatives? We hope this paper provides a first step in answering these questions.

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Christopher Davis
Faculty of Law and Letters
University of the Ryukyus
1 Senbaru, Nishihara
Okinawa, JAPAN 903-0213
cmdavis@ll.u-ryukyu.ac.jp
cmdavis.linguist@gmail.com
http://cmdavis.org

Eric McCready
Department of English
Aoyama Gakuin University
4-4-25 Shibuya, Shibuya-ku
Tokyo, JAPAN 150-8366
mccready@cl.aoyama.ac.jp