The Same Modality in Different Levels of Meaning

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1 Introduction

This paper addresses the semantic difference between two Japanese sentence-final expressions *mai* (Miyake 1995, Tagawa 2006, among others) and *mono-ka* (Oguro 2014, 2015, 2018, Goto 2018, and Asano 2020). Asano (2020) deals with the semantics of *mono-ka* and argues that *mono-ka* expresses a modal meaning as the presupposition of the sentence, rather than as an assertion. Building on this, I propose that another sentence-final expression *mai* expresses the same modal meaning as the assertion. That is, *mai* and *mono-ka* contribute the same modality to different levels of meaning. Furthermore, presenting with several new data, I point out a thus far unnoticed requirement for *mono-ka*: utterances with *mono-ka* must be those that challenge a preceding utterance.

The rest of this paper is organized as follows: Section 2 presents data that show semantic differences between *mai* and *mono-ka*. Section 3 provides an analysis and Section 4 explains the data. In Section 4, I also provide a semantic condition that must be fulfilled by challenging utterances. Section 5 summarizes the paper and presents the remaining issues and implications.

2 Data

Both *mai* and *mono-ka* convey that their prejacent (the proposition in the scope of the modals) is very unlikely to be true:[1, 2]

(1) a. John-wa kuru mai.
         John-TOP come MAI
         'John will never come.'

     b. John-ga   kuru mono-ka.
         John-NOM come MONO-KA
         'John will never come.'

The first fact to capture is that these two modals differ from ordinary inferential expressions such as *omou* 'think'. As Asano (2020) observes, *mono-ka* requires that the speaker and other conversational participants share a piece of information that supports the unlikeliness of the prejacent. The same restriction is also observed for *mai*. See below:

(2) (You and Mary are talking about John's whereabouts. You and Mary know that he is either now in a restaurant, in a gym, or in his office, and that given his schedule, it is almost certain that he is not in his office. Mary asks you "Do you think he is in his office?" You reply:)

     a. Ofisu-ni-wa   iru mai/mono-ka.
         office-in-TOP be MAI/MONO-KA
         '(He) can't be in his office .'

     b. Ofisu-ni-wa i-nai   to   omou.
         office-in-TOP be-NEG COMP think
         'I think (he) is not in his office.'

(3) (You and Mary are talking about John's whereabouts. You and Mary know that he is now either in a restaurant, in a gym, or in his office. Only you know that given his schedule, it is almost certain that he is not in his office. However, Mary knows nothing about these facts, and you know that Mary knows nothing. Mary asks you "Do you think he is in his office?" You reply:)

     a. #Ofisu-ni-wa   iru mai/mono-ka.
         office-in-TOP be MAI/MONO-KA

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[1] Besides their epistemic use, these two modals can encode bouletic modality (modality related to the speaker's desire). This point will be briefly addressed in Section 5. The analysis presented below is only for epistemic use.

[2] For some unknown reason, the subject of *mai*'s prejacent is basically marked with *wa*, while that of *mono-ka*'s prejacent is marked with *ga*. To exclude the possibility that the difference in the subject marking affects the judgments (as pointed out by Frank Sode p.c.), the subjects of the prejacents in the following data are omitted.

b.   Ofisu-ni-wa i-nai   to   omou.
     office-in-TOP be-NEG COMP think

In (2), the speaker shares with Mary knowledge about John's schedule, which supports the unlikeliness of the prejacent (*He is in his office*), while in (3), only the speaker has such knowledge. The unavailability of *mai* and *mono-ka* in (3) indicates that, unlike other inferential expressions, these two modals require that the unlikeliness of the prejacent follow from some pieces of information shared by the speaker and other participants.

Second, as observed by Asano (2020), *mono-ka* can only be used when the utterance or action preceding it is unexpected in terms of the body of information that the speaker assumes is shared by all conversational participants. In (2), the speaker and Mary share the knowledge about John's schedule, so Mary's question (*Is John in his office?*) is unexpected for the speaker; Mary does not have to raise such a question because she knows that John is certainly not in his office. In such cases, *mono-ka* is felicitous. However, if the preceding utterance is not unexpected, *mono-ka* sounds unnatural, while *mai* does not show such a restriction:

(4)   (You and Mary are talking about John's whereabouts. You and Mary know that he is now either in a restaurant, in a gym, or in his office, and that given his schedule, it is almost certain that he is in his office. Mary asks you "Where do you think he is?" You reply:)

    a.   Ofisu-ni-wa iru mai.
        office-in-TOP be MAI
        'He can't be in his office.'
    b.   #Ofisu-ni-wa iru mono-ka.
        office-in-TOP be MONO-KA

In this case, the speaker and Mary share information about John's schedule. Nevertheless, *mono-ka* sounds odd, because Mary's question *Where do you think he is?* is not unexpected for the speaker; John cannot be in his office, but he might be either in a restaurant or in a gym, so it is natural for Mary to question which option is true. This shows that *mono-ka*, but not *mai*, requires the unexpectedness of the preceding utterance.

In addition, I propose that utterances with *mono-ka* must challenge the preceding utterance, while those with *mai* do not have to:

(5)   (You and Mary are talking about John's whereabouts. You and Mary know that he is now either in a restaurant, in a gym, or in his office, and that given his schedule, it is almost certain that he is in his office and not in a restaurant. Mary asks you "Where do you think he is?" You reply:)

a. Resutoran-ni-wa iru-mai.
   restaurant-in-TOP be-MAI
   '(He) can't be in a restaurant.'
b. #Resutoran-ni-wa iru-mono-ka.
   restaurant-in-TOP be-MONO-KA

In (5), Mary's question about John's whereabouts is somewhat unexpected, because the speaker and Mary both know that John is certainly in his office, and both are aware that each is privy to this information. Nevertheless, *mono-ka* sounds odd.

I suggest that (5b) is infelicitous because sentences with *mono-ka* must be uttered in order to challenge the preceding utterance. In the felicitous example (2), Mary no longer has a reason to raise the question (*Is John in his office?*) if what the speaker tries to convey (i.e., *John is not in his office*, abstracting away the modality expressed by *mono-ka*) is accepted. In this case, I say that the speaker's utterance successfully challenges the preceding one. Meanwhile, in (5), even if what the speaker tries to convey (*John is not in a restaurant*) is accepted, Mary still has a reason to raise the question because that information alone does not determine whether he is in a gym or in his office, so the speaker's utterance does not challenge Mary's question in (5b).

3 Analysis

Asano (2020) argues that sentences with *mono-ka* contain no at-issue content (as in McCready's (2010) analysis of the Japanese adverb *yokumo*), and instead they encode a presupposition that the prejacent's unlikeliness follows from what is known to the speaker and contextually salient participants. Building on this, I propose that both *mai* and *mono-ka* require that the unlikeliness of the prejacent (expressed here as $\text{LOW}(\text{PROBABILITY}(p))$, where p is the prejacent) follows from the intersection of the Common Ground, i.e., the set of propositions known to all conversational participants, and that *mai* expresses this modality as assertion, whereas *mono-ka* expresses it as presuppositional content.

I depart from Asano in proposing that *mono-ka* contributes to the *speaker presupposition* (Stalnaker 2002), rather than to the standard notion of presupposition. The standard notion of presupposition is what all conversational participants take for granted in the context of utterance. Meanwhile, the speaker presupposition is what *the speaker believes* all conversational participants (including the speaker herself) take for granted. My analysis is presented schematically as follows; CG and Sp.Presup. stand for the Common Ground and speaker presupposition, respectively:[3]

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[3] The content of $\text{LOW}(\text{PROBABILITY}(p))$ can be defined more formally by using the Kratzerian-

(6) $[\![\textit{p-mai}]\!] = \begin{cases} \text{Assertion} : \cap\, \textsc{CG} \subseteq \textsc{low}(\textsc{probability}(p)) \\ \text{Sp.Presup. : empty} \end{cases}$

(7)   a. $[\![\textit{p-mono-ka}]\!] = \begin{cases} \text{Assertion : empty} \\ \text{Sp.Presup.} : \cap\, \textsc{CG} \subseteq \textsc{low}(\textsc{probability}(p)) \end{cases}$

    b.   Utterances with *mono-ka* must challenge their preceding utterance.[4]

By uttering *p-mai*, the speaker asserts that the unlikeliness of *p* follows from the current common ground. In other words, the speaker of *p-mai* conveys that the body of information shared by all conversational participants entails that *p* is very unlikely.

Meanwhile, *p-mono-ka* has no assertive content; therefore, it makes no contribution to the discourse if its presupposition has already been satisfied in that discourse. I propose that the only way for *p-mono-ka* to contribute to the discourse is *accommodation* (Lewis 1979, among others).[5] Accommodation is a phenomenon where, by making an utterance with a presupposition that has not been contained in the common ground, the common ground is adjusted to the one satisfying that presupposition. Sentences with *mono-ka* can be felicitously uttered only when the speaker finds that their presupposition is not satisfied in the discourse. By uttering those sentences, she tries to correct what other participants presuppose (more intuitively, she tries to remind other participants that $\cap$CG $\subseteq$ low(probability(p)) has already been contained in the common ground).[6]

The current claim, where *mai* and *mono-ka* contribute to different levels

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style of modal semantics (as Asano 2020 does):

(i)   low(probability(p)) = $\{w: \forall w'[[w' \in \cap f(w) \land w' \text{ is a most ideal world in terms of } g(w)] \rightarrow \neg p(w')]\}$, where $\cap f(w)$ corresponds to $\cap$CG, and $g(w)$ is the set of propositions that are normally true in w.

The detailed meaning of this modality is not directly relevant in this paper: what is important in the following discussion is the level of meaning at which this modality is expressed.

[4] I do not believe that (7a) and (7b) are independent of each other. As we will see below, *mono-ka* must be used correctively because of its lack of an assertive component (as stated in (7a)). It is reasonable to assume that (7b) derives from this aspect of the usage *mono-ka*.

[5] My proposal differs from Anano's (2020) in this regard: while I propose that accommodation must occur whenever *mono-ka* is felicitously used, she assumes that it triggers accommodation in some limited cases. This divergence makes no empirical difference, as far as I can see.

[6] This is in line with Stalnaker's (2002) argument about accommodation. Speaker presupposition is the speaker's belief about the common ground. Therefore, presenting speaker presupposition ϕ to other conversational participants simply adds to the common ground that the speaker believes that ϕ is a member of the common ground, rather than adding ϕ to the common ground. According to Stalnaker, however, ϕ is added to the common ground if the other participants come to believe ϕ. In this case, the speaker alters others' presuppositions by presenting her speaker presupposition,which is what utterances with *mono-ka* are argued to do in my analysis.

of meaning, is corroborated in (8). It is generally assumed that at-issue (i.e., assertive) contents, unlike not-at-issue contents including presupposition, can be followed by denial.[7] As in (8), *mai* and *mono-ka* show this distinction:

(8) (Mary asks a speaker A "Do you think John is in his office?" A replies and another speaker B immediately reacts to A's utterance:)

    a. A: Ofisu-ni-wa iru mai.
                office-in-TOP be MAI
                '(He) can't be in his office.'

         B: Uso-o tuku-na.   iru kanoosei-wa   takai.
              lie-ACC tell-NEG$_{IMP}$ be possibility-TOP high
              'Don't tell a lie. He is likely to be in his office.'

    b. A: Ofisu-ni-wa iru mono-ka.
                office-in-TOP be MONO-KA

         B: ??Uso-o tuku-na.   iru kanoosei-wa   takai.
              lie-ACC tell-NEG$_{IMP}$ be possibility-TOP high

In both cases, B's denial targets the prejacents of *mai* and *mono-ka*. The (in)felicity of the denial in (8a) and (8b) suggests that the prejacent of *mai* is an at-issue content, while that of *mono-ka* is not-at-issue.

4   Capturing Data and a Semantic Condition on Challenging

This section examines how the semantics proposed in (6) and (7) captures the data presented in Section 2. We begin with (2). In this case, CG = {q: The speaker and Mary know q} = {*John is either in a restaurant, in a gym, or in his office* ∧ *John is certainly not in his office*}. Therefore, ∩CG ⊆ LOW(PROBABILITY(p)), where p = *John is in is office*. This is what is asserted in the *mai*-sentence; the speaker asserts that LOW(PROBABILITY(p)) can follow from their shared knowledge. As for *mono-ka*, although LOW(PROBABILITY(p)) is already contained in CG, Mary raises the question that she does not have to. Therefore, the speaker has reason to correct what Mary presupposes, by challenging her question. Hence, *mono-ka* can also be used.

In (3), CG = {p: The speaker and Mary know p} = {*John is in a restaurant, in a gym, or in his office*}. Therefore, ∩CG ⊄ LOW(PROBABILITY(p)), where p = *John is in his office*, because CG does not contain any proposition about the unlikeliness of John being in his office. The *mai*-sentence is infelicitous because what it asserts contradicts the state of the common ground in the context. The use of *mono-ka* is also banned; the speaker presupposition contradicts what *mono-ka* requires.

In (4), CG = {p: The speaker and Mary know p} = {*John is either in a*

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restaurant, in a gym, or in his office ∧ *John is certainly not in his office*}.
Therefore, ∩CG ⊆ LOW(PROBABILITY(p)), where p = *John is in his office*.
This allows the utterance with *mai* as in (4a), for the same reason as in (2).
As I suggested in the previous section, *mono-ka* can only be used when the
speaker finds it necessary to correct what other participants presuppose. The
answer to Mary's question (*Where do you think John is?*) does not follow
from CG, so her question is not unexpected for the speaker. Therefore, the
speaker does not find that her presupposition is not shared by others, so she
has no reason to make accommodation. Hence, *mono-ka* is infelicitous.

In (5), CG = {p: The speaker and Mary know p} = {*John is either in a
restaurant, in a gym, or in his office* ∧ *John is certainly in his office, but not
in a restaurant*}. Therefore, ∩CG ⊆ LOW(PROBABILITY(p)), where p = *John
is in a restaurant*. Therefore, *mai* can be used. As I suggested in Section 2,
mono-ka is infelicitous because the utterance (5b) does not challenge Mary's
preceding question. I propose that an utterance with *mono-ka* must satisfy the
following condition in order to challenge the preceding utterance:

(9)   The speaker can challenge the preceding utterance *q* by saying *p-
        monoka* only when ¬*p* resolves the Question Under Discussion (QUD)
        raised by *q*.

The QUD raised by Mary's preceding utterance in (5) is *Where is John?*. ¬*p*
(*John is not in a restaurant*) does not resolve this question. Therefore, in the
context of (5), (9) is not satisfied. This defies the requirement that utterances
with *mono-ka* must be challenging utterances.

Meanwhile, in (2), the QUD raised by Mary's question is *Is John in his
office?*.[8] This question is resolved by the falsity of the prejacent (*John is not
in his office*). Hence (9) is satisfied.

It is predicted that a *mono-ka* utterance can be used felicitously in the same
context as in (5) if it fulfills (9). This prediction is borne out as follows:

(10)   (The same context as (5))

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[8] The utterance preceding the *mono-ka* sentence does not have to be a question:

(i)   (You and Mary are talking about John's whereabouts. You and Mary know that he is now
        in a restaurant, in a gym, or in his office, and that given his schedule, it is almost certain
        that John is not in his office. Mary says to you "John is in his office." You reply:)
        Ofisu-ni-wa   iru mono-ka.
        office-in-TOP be MONO-KA
        '(He) is certainly in his office .

In this case, Mary's preceding utterance is about whether John is in his office, so I assume that
the QUD raised by a declarative sentence is the same as the one raised by the polar question
based on it; that is, the QUD raised by *John is in his office* is *Is John in his office?*.

Ofisu-igai-no-basyo-ni-wa iru-mono-ka.
office-except-GEN-place-in-TOP be-MONO-KA
'(He) can't be in any places other than his office.'

In this case, the prejacent is *John is in any place other than his office*, so its negation (*John is in his office*) resolves the raised QUD *Where is John?*, making *mono-ka* felicitous.[9]

The constraint in (9) is not proposed solely for *mono-ka*; it is a notational variant of a general constraint on challenging. I propose that, at least in Japanese, challenging is subject to almost the same constraint as (9), which can be stated as follows:

(11)   The speaker can challenge the preceding utterance *q* by saying *p* only when *p* resolves the QUD raised by *q*.[10]

To see that (11) is at work, consider the following example:

(12)   Nani-o   it-teiru.   Ofisu-ni-wa i-nai.
        what-ACC say-PROG office-in-TOP be-NEG
        'What are you saying? He is not in his office.'

Here, I assume that the first sentence is a marker that signals that the following sentence is intended to challenge the addressee's utterance, and that the second sentence corresponds to *p* in (11). (12) is acceptable under the context of (2), but not under the context of (4). This is explained by (11); the truth of *p* (*John is not in his office*) resolves the QUD in (2) (*Is John in his office?*) but not the QUD in (4) (*Where is John?*). The same discussion applies to (13):

(13)   (The same context as (5))

        a. #Nani-o   it-teiru.   Resutoran-ni-wa i-nai.
            what-ACC say-PROG restaurant-in-TOP be-NEG
            'What are you saying? He is not in a restaurant.'
        b. Nani-o   it-teiru.   Ofisu-igai-no-basyo-ni-wa   i-nai.
            what-ACC say-PROG office-except-GEN-place-in-TOP be-NEG
            'What are you saying? He is not in places other than his office.'

(11) explains these data; in (13a), the truth of the second sentence (*John is not in his office*) does not resolve the QUD in (5) (*Where is John?*), while the truth of the second sentence in (13b), which amounts to *John is in his office*, does. The correlation between the (un)acceptability of (12)-(13) and that of

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[9] Note that (3) is a case where (9) is fulfilled but the requirement on the speaker presupposition (7a) is not.

[10] Here, the truth of *p* must resolve the QUD while in (9), ¬*p* is required to do so. The presence of negation in (9) comes from the built-in negation in the semantics of *mono-ka*.

mono-ka examples indicates that (9) is a variant of (11), which is a general constraint on challenging.[11]

5   Conclusion, a Remaining Issue, and an Implication

This paper argued that the difference between *mai* and *mono-ka* can be attributed to the difference in the levels of meaning to which they contribute. While *mai* asserts that the unlikeliness of the prejacent follows from the common ground, *mono-ka* expresses this modality as the speaker presupposition. Because sentences with *mono-ka* possess no assertive content, they can be used only when accommodation is required, that is, when the speaker finds it necessary to correct what other participants presuppose. This is done by challenging the addressee's preceding utterance. The challenging is subject to a semantic condition: the falsity of the *mono-ka*'s prejacent must resolve the QUD raised by the preceding utterance.

A remaining issue is the possibility of extending the current analysis. Although the focus of this paper has been on their epistemic meaning, these two modals can express bouletic modality (a modality related to the speaker's desire):

(14)   Nidoto annna koto-o   iu   mai / mono-ka.
        again   that   thing-ACC say MAI / MONO-KA
        'I will never say that thing again.'

It remains to be explored whether the proposed analysis can be applied to this bouletic use.

Finally, modals have traditionally been classified according to their modal force and modal flavor, as shown in Table 1. My proposal differentiates *mai* and *mono-ka* in terms of the semantic dimension they contribute. This raises a possibility of this dimensional difference being a third parameter of the modal typology, as shown in Table 2.[12]

	force	flavor
must	necessity	free
can	possibility	free
k'a (St'át'imcets)	free	epistemic

TABLE 1 The traditional typology of modals (cf. Matthewson et al. 2007)

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[11] Interestingly, (12), under the context of (4), and (13a) become acceptable if uttered without the first sentence (the sentence signaling that the whole sequence is a challenging utterance). This indicates that (11) is a constraint solely on challenging, not on assertion in general.

[12] Davis and Matthewson (in press) deals with the St'át'imcets frustrative marker *séna7* and

	force	flavor	dimension
-mai	necessity	epistemic or bouletic	assertion
mono-ka	necessity	epistemic or bouletic	presupposition

TABLE 2 A new typology of modals with the parameter of *dimension*

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argue that it introduces a modal meaning to the not-at-issue content. This might support the current claim that some modals express their modality at the not-at-issue level.