Good Reasons[*]

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Abstract

This paper examines the semantics and pragmatics of the Japanese causal connective *mono*. We show that the meaning of *mono* has three components: a causal relation, an emotive attitude toward the causing proposition, and an indication that the causal relation is of high quality. Further, we show that the latter two components are not at-issue content but expressive content. A formalization is provided in terms of the analysis of mixed content in McCready (2010). Finally, the proposal is briefly compared with previous, informal, accounts of the meaning of *mono*.

Keywords: expressive meanings, causation, connectives, particles

1 Introduction

The notion of conventional implicature as a distinct class of pragmatic meanings is due to Grice (1975), in a brief discussion. He provides only a single example, that of *therefore*, which he takes to be a connective semantically like *and* but carrying an additional (conventional) implicature of contrastiveness:

(1)   That book is a bestseller. Therefore, it must be interesting..
    $\approx$ It follows from the book being a bestseller that it must be interesting.

However, Grice's characterization has been disputed by various authors in the recent upsurge of interest in conventional implicatures (e.g. Bach 1999; Potts 2005). Potts in particular argues for the existence of a class of conventionally implicated meanings, exemplified by (definite) appositives clauses and parentheticals, which share certain characteristics that *but* in part lacks.[1] Bach, even more radically, disputes that a class of conventional implicatures exists at all, though the dispute may be in part a terminological one.

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[1]These characteristics will be reviewed below, in connection with our argument that the Japanese connective *mono* which is the subject of this paper carries conventionally implicated or expressive content.

However, the observation that *but* is not conventionally implicating (assuming that Potts is correct)[2] does not mean that no connectives are. Scheffler (2005), for instance, argues that German *denn* has a conventionally implicating component. Our goal in this paper is to provide data relating to a connective in Japanese that similarly contributes expressive content.[3] This connective, *mono*, indicates a causal relation between the two propositions it connects, but also expresses an emotive attitude of the speaker toward the causing proposition, and further expresses a judgement about the quality of the causal relation in question. We provide data about this connective in section 2 and discuss some previous (informal) analyses from the Japanese-language literature in section 5. In section 3, we turn to the analysis of the three components of the meaning of *mono*: in brief, we take it to introduce a causal relation (which we state in terms of probabilities), a context-dependent emotive attitude, and to indicate that the causal relation holding between the propositions it connects is a good one. This last is cashed out in terms of quality of reasons. Section 4 shows how to implement this analysis in the resource logic proposed by McCready (2010), building on the system of Potts (2005). Section 6 concludes.

2 *Mono*: the Facts

We begin by exhibiting some known facts about *mono* from the Japanese-language linguistic literature, which will give the reader a sense of the content of *mono* and of the basic data we wish to characterize in this paper. Additional data will be introduced as the paper proceeds.

It is generally recognized that *mono* carries a meaning of causality related to an event given in the preceding context.[4] This usage can be exemplified as follows.[5]

(2)   A.   aa, mata shiken ochite-shimatta
           ah again test   failed-Antihon.Perf

           'Damn, I failed the test again ...'

     B.   omae-ga benkyoo shinai nda mon
           you-Nom study do.not NODA MONO

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[2] We do not endorse the strong claim of Bach.

[3] We will talk about 'expressive content' in this paper with the intent of using the term to cover what Potts and others have termed conventional implicature. It is not clear to us where the dividing line between these content types lies. Our use of 'expressive' here is roughly parallel to McCready's (2010) use of the term 'CIE (conventionally implicating or expressive) content'.

[4] For example, the *Shin-Meikai-Daijiten* dictionary defines *mono* as follows:

> Speaker justifies himself or blames hearers by making a claim, namely one in the form of a 'reason', about the topic raised in a discourse. (Kindaichi et al. 1991: P.1289)

[5] A reviewer asks whether this causal meaning comes from the connective or can simply be inferred from the content of the sentences, in the manner of SDRT (Asher and Lascarides, 2003). Such inferences are of course available. The presence of *mono*, like other causal connectives, makes the 'inference' a monotonic one. However, it should be noted that in Japanese the use of connectives and other particles to indicate discourse relations is highly preferred, and perhaps even obligatory to induce the correct interpretation in certain contexts. This is a difficult issue and one that we cannot address in detail here.

'That's because you don't study.'

Here, the *mono* utterance of B serves to explain the content of A's utterance, which directly precedes it in the dialogue. Hashimoto (1997) calls this usage of *mono* 'Reason-Explanation'. The following are some additional examples from the literature (Tsubone 1996).

(3)   ashita,   umi-e iku-no-o   yamechatta. ame-ga   furisooda mono.
        tomorrow sea-to go-NM-Acc cancelled   rain-Nom fall-may   MONO

        'I decided not to go to the sea. Because it will rain tomorrow.' (Tsubone 1996: T's (3a))

(4)   A: dooshite ookikunat-tara pairotto-ni naritai   no?
        why   get.big-when pilot-Acc   want.become Q

    'Why do you want to be a pilot when you grow up?'

    B: datte,   kakkoii mono.
        come.on, cool   MONO

    'Well, because it's cool.' (*Ibid.*: T's (2b))

As is obvious from the instances above, the *mono* utterances above provide the reason or cause concerning the event depicted in the preceding context, mediating two events in terms of a causal relation.

    We have translated *mono* as 'because' in the above. But does it differ in any way from that more standard causal connective? Above we suggested that it does, and that the difference is that it carries expressive content. Japanese indeed has a 'plain vanilla' causal connective, *kara*, which is intuitively quite different in quality from *mono*, to the extent that the latter has often been viewed as not being a connective at all, but rather a sentence-final modal particle like the Japanese *yo* (McCready, 2009; Davis, 2009) or English *man* (McCready, 2008).[6] We will argue below that this characterization is not correct, but for now we only note the initial impression that is given by *mono*: first, that the sentence it appears in denotes a proposition which is a (or the) cause of a proposition that is salient in the context, usually because of being the denotation of the sentence that appears immediately prior to the instance of *mono*, and, second, that the speaker takes this causal relation to be highly evident or conclusive, i.e., to form a high quality reason for whatever is at issue. This initial characterization must be supplemented slightly, however, as is made clearer by the second use of *mono* discussed in the literature.

    The second type of *mono* usage is called 'Exclamation' by Hashimoto, who defines this type as follows: "this group of *mono* utterances are used to let an addressee strongly recognize the addresser's position or emotion when the addresser thinks that the addressee does not understand thoroughly his opinion or feeling." (Hashimoto 1997: P.210) As Hashimoto mentions, this use of *mono* is usually associated with children and young women, though the association with the latter

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[6]Note that *kara*, like *mono*, can appear with only a single clausal argument.

group is far less strong, and seems to be weakening with the passage of time.[7] An example is the following:

(5)   A: ninjin-o   tabenasai!
         carrot-Acc eat-Imperative

   'Eat your carrot!'

   B: yada   mon! zettaini   tabetaku-nai mon!
      no.way MONO absolutely want.eat-Neg MONO

   'No! I don't want to eat it!'

Hashimoto argues that this type of *mono* utterance should be differentiated from a more standard case of providing a reason in that in this case the speaker emphasizes his feelings rather than providing an addressee with a reason. But it seems pretty clear that a reason is indeed being provided here; it is just that this reason happens to consist of the speaker's personal tastes and feelings. However, we think Hashimoto's intuition has some bite. In fact, a major difference between *mono* and *kara* (for example) is that *mono* provides an emotive quality to the reason-giving: the speaker gives the impression of having some sort of emotive reaction to the proposition that serves as cause, so that the proposition is significant to her in some way.

   One other observation about *mono* that is notable is that it does not embed. It cannot appear in the scope of negation, conditionals, modals, or other semantic operators. We show examples involving negation, an epistemic modal, and a belief operator. This has consequences for how it should be analyzed semantically; as we will argue, these facts are evidence that *mono* carries a meaning that is, in part, expressive in nature.[8]

(6)   * omae-ga benkyoo shinai mon   janai
        you-Nom study   do.not MONO Cop.Neg

   'It's not because you don't study.'

(7)   * Taro-ga   asobi-sugita   mon   kamoshirenai
        Taro-Nom play-too.much MONO might

   'It might be because Taro played too much.'

(8)   * Watashi-wa aitsu-ga warui mono   da   to omou
        I-Top   [he-Nom bad   MONO Cop] C think

   'I think it's because he's bad.'

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[7]It is interesting to speculate on why this might be. We would like to suggest that it follows from the way we characterize the particle's meaning: *mono* marks a reason which is, subjectively, of high quality. It seems plausible that taking one's feelings and attitudes as purely high quality reasons might be a childish act; and, if a particular group is allowed by a society to act childishly in some contexts (at least as a matter of social norms), it might be associated with that group too.

[8](8a) is grammatical on an irrelevant and somewhat incoherent reading on which *mono* is understood as a homophonic term meaning 'thing'. We ignore this reading here and in what follows.

Mono also cannot appear in questions or imperatives, as shown in the following examples.[9] Here, it differs from the vanilla connective *kara* and also from English *therefore*, which are grammatical in yes-no questions, though all three types are bad in imperatives.

(9) * ano sake umakatta mono   (desu) ka
       that sake tasty   MONO (Cop) Q

   'Was it because that sake was tasty?'

(10) * hayaku shiro mon!
        quickly do   MONO

   'Because hurry the hell up!'

The analysis we propose in the next section has as its parts the three components of the meaning of *mono* motivated above. We turn to specifying these now, returning to issues concerning the Japanese literature and additional data in section 5.

3   Analysis 1: Evaluating (and) Reasons

In this section we will argue that the meaning of *mono* has three components. The first is that of a causal connective like *because*. The second is an emotive component indicating that the speaker holds an emotive attitude toward the proposition which forms the first (causing) argument of the causal relation: that is, the immediate sister of *mono*, its first argument in composition.[10] The third is that the speaker regards this first argument not only as forming a cause, but as comprising a good reason for the caused proposition; we spell this out in terms of probabilities, which make it easy to compare the degree to which the truth of one proposition influences the likelihood of truth of another.[11] The choice of a probabilistic analysis of causation is made more or less for expository reasons. We indicate a possible alternative in 3.4.

3.1   Causation

Since *mono* is a causal connective, we must make use of a notion of causation in our theory. Here, we review briefly two theories of causation from the philosophical literature, the counterfactual theory and the probabilistic theory. In this paper, we will make use of a version of the probabilistic theory, only because it comes with a property necessary for our analysis already built in: a (total) ordering of degrees of causation.

Probabilistic theories of causation take it that causal dependencies should be stated in terms of probabilistic dependencies, so that A is taken to be a cause of B if the truth of A raises the

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[9]Analogues of (9) which use different question formation strategies are also ungrammatical.

[10]We will not take a position on the syntax of these elements here.

[11]As with knowledge and assertion, we must understand the notion of likelihood of truth here as one which is, while viewed as objective, ultimately a subjective judgement on the part of the speaker (Williamson, 2000). Thus, the notion of 'good reason' for us is a normative one, though what counts as a good reason may vary across speakers due to the use of subjective probabilities. We think that this is a reasonable outcome.

probability of the truth of *B*. Some prominent expositions of this general view are Skryms (1980) and Eells (1991).[12] On this view, causation by *B* of *A* is analyzed as increase in probability of *A* given that *B* as opposed to ¬*B*. The usual way of expressing this is in terms of conditional probabilities, as follows, where $\mathcal{P}$ is a probability function obeying the usual conditions (additivity, etc.; see McCready and Ogata 2007 for one formulation) and $\mathcal{P}(p|q)$ indicates the probability of *p* conditional on *q*:[13]

(11) $$\mathcal{P}(A|B) > \mathcal{P}(A|\neg B) \longleftrightarrow Cause(B, A)$$

This is extremely simple, in fact too simple: it ignores a number of complications familiar from the literature on probabilistic causation. For example, what happens in cases where there is a correlation in probabilities between *A* and *B*, but no causal connection, or in cases of 'causal transitivity'?[14] We put these problems aside for the purposes of our semantic analysis. As we will detail in the following sections, our choice to use probabilistic causation in our definition of causal connectives allows a simple definition of quality of reasons in terms of the degree to which learning the reason induces increase in the likelihood of truth of what is being explained, which can easily be put in terms of the standard Bayesian notion of conditional probability.

Another possibility would be to use a counterfactual analysis of causation. According to such theories, *B* is a cause of *A* to (roughly) the extent that sentences of the form 'If B had been the case, A would have been the case' are true.[15] Theories of this kind are certainly more well-known to the linguistic community than probabilistic analyses. However, in this paper, we will analyze *mono* as indicating quality of reasons, which makes it necessary to compare the quality of such reasons; this need, in turn, requires an ordering on degrees of causation, on the assumption that such an ordering allows comparison of reasons. These considerations lead us to make use of the probabilistic analysis in what follows.

It would also have been possible to use a sophisticated version of a counterfactual analysis of causation, which in fact makes available a notion of degree: such an analysis is given by Lewis (2004) (building on the analysis of Lewis 1973a,b), who takes an event *A* to be a cause of another event *B* to the degree that *A* influences *B*, which is the case roughly if alterations in *A* result in alterations in *B*. This relational notion translates easily to comparisons, in that one can abstract scales of similarity from it, though the result is highly multidimensional, as noted by Lewis (2004:92);

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[12]In this paper, we ignore the standard problems for such theories (e.g. spurious correlations, cases of non-causes that increase probabilities of 'effects', and so on).

[13]Here is one among many equivalent definitions of conditional probability:

$$\mathcal{P}(p|q) = \frac{\mathcal{P}(p \wedge q)}{\mathcal{P}(q)}.$$

See e.g. Jeffrey (1983) for interesting discussion of related issues.

[14]For example, my wakefulness may cause me to have a higher blood pressure than when I am sleeping; reading a book entails that I am awake; but my reading may not, intuitively, cause me to have a higher blood pressure than when I am sleeping.

[15]Such theories also have well-known problems, often reminiscent of problems with analyses of progressive aspect (Dowty, 1979; Landman, 1992; Smith, 1997), where notions of 'inertia worlds' and normality come into play. We will not consider these issues deeply here. Extensive discussion can be found in Collins et al. (2004).

this multidimensionality might not be so problematic, however, if the techniques discussed by van Rooij (2010) are applied. However, spelling all this out would take us too far afield as well as introducing technical complexity that we feel is not strictly necessary for the current application; this is one major reason we use a simple analysis in terms of conditional probability.

3.2 Causality in Discourse Connectives

In the previous section we discussed probabilistic analyses of causation, on which B is a cause of A just in case the probability of A is higher given B than given $\neg B$. This can be thought of as follows:

(12) $$\mathcal{P}(A|B) - \mathcal{P}(A|\neg B) > 0$$

This is the basic notion of causation we will assume going forward. However, (as a reviewer notes) this is an extraordinarily weak notion; even the tiniest increase in probability of A given B will be sufficient to make it true. We will therefore strengthen it in such a way that not just any increase in probability counts as a causing, but only increases that are sufficiently large. Exactly how much increase is required to count as sufficiently large is, we think, a contextually dependent notion, which we will implement by setting a degree which serves as a contextual standard for causation. The result of this change is the following:

$$\mathcal{P}(A|B) - \mathcal{P}(A|\neg B) > stnd_c,$$

where $stnd_c$ represents a contextually determined standard, also a real number $\in [0, 1]$, to which the gain in likelihood of q after conditionalization on p is compared. If the gain is greater than the standard, p can be considered a cause of q, and if the gain is not large enough, it cannot be so considered. This analysis follows the lines of Kennedy's (1999; 2007) analysis of gradable adjectives. We then amend the basic definition of causation accordingly.

(13) $$\mathcal{P}(A|B) - \mathcal{P}(A|\neg B) > stnd_c \longleftrightarrow Cause(B, A)$$

On this basis we take the basic semantics of causal connectives to be the following.

(14) $\lambda p \lambda q [Cause(p, q)]$

This formula will be the core of the semantics of *mono* we propose; indeed, the asserted or at-issue content of *mono* will be precisely the content in (14).

The reader may be wondering: in the examples we have seen of *mono*, it appeared to modify only a single sentence. Why is it being modeled as a two-place predicate? The reason is that it has a causal meaning, which necessarily involves two arguments; in the discourses we have seen, the proposition being explained is already present in the discourse at the point *mono* is used. This is a quite general characteristic of the use of this lexical item. Thus, it is a connective in the sense that it indicates a causal connection between two propositions; it is more like a sentence-final particle in that it always appears modifying only a single sentential unit. (We believe that this is the reason it has been thought of as a true particle in the literature, though we dispute this characterization, as its meaning shows other aspects not at all characteristic of true modal

particles—namely causativity.) Its semantics is therefore more like the 'anaphoric connectives' discussed by Webber et al. (2003). In this paper, we will treat it as a true causal connective, one of whose arguments is made available by context. A fuller treatment would take facts about the discourse into account, ideally in a way that made principled predictions about possible anaphoric arguments in the way done in, for example, SDRT (Asher and Lascarides, 2003). Space limitations preclude carrying out this analysis in the present paper, though a sketch might go something like the following: One would take *mono* to introduce a causal relation, namely a modified version of *Explanation*, taking the speech act associated with the proposition it modifies as argument. This speech act discourse referent would then be attached to the caused proposition via the usual sort of inference in the SDRT default logic, though in many cases a new proposition would need to be constructed, for example in cases where the first argument is a question such as *Why can't I get a job?* (an issue we have glossed over in the above). The content we ascribe to *mono* here would then be the truth-conditional effect of inferring the modified *Explanation*. The whole package is complicated, and we do not have space to work it out here; however, in the conclusion, we indicate another reason to think that this kind of analysis should be worked out in detail.

3.3 Emotivity

As we have seen, a use of *mono*(φ) carries the implication that the speaker is not neutral about the fact expressed by φ, instead finding it to be of subjective interest. Note, for example, that it is infelicitous to follow an utterance of a *mono*-sentence with a statement like (15), while it is fine to do so after an utterance including the vanilla connective *kara*; this indicates that the speaker must take the content marked by *mono* to be directly significant.

(15) doo-demo ii   kedo ne
      whatever good though PT

      'Whatever, it doesn't really matter though.'

In other words, *mono* has an evaluative component to its semantics. We characterize this component as an emotive one, taking the speaker to be judging the content of φ as good, bad, or simply emotive in a polarity-unspecific way ('wow!'). For the analysis of this part of the meaning of *mono*, we will make use of an 'emotive function' proposed for the analysis of expressive content by McCready (2004, 2008, 2010). This function derives emotive attitudes from Kaplanian contexts (Kaplan, 1989) construed as tuples of the speaker, hearer, time, world, and location of an utterance (as well as possibly many other coordinates). The idea is that these factors will determine what attitude a speaker can be taken to hold toward the proposition that the function takes as argument: propositions that describe things normally taken as negative, or taken as negative by the speaker, yield the value **bad**, and similarly for the other possible values.[16] The needed function is one which maps contexts to functions from propositions to emotional predicates (where '!' indicates emotivity unspecified for polarity):

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[16]Compare recent work on evaluativity in exclamatives, such as Rett (2008). A reviewer comments that we may be mixing up emotivity and statements about expectation, which is one way to characterize the '!' operator. Here, we intend this operator not as a statement about probabilities or unexpectedness, but as something usable when the context does not allow recovery of a particular emotion.

(16) $E : c \mapsto (\wp(W) \mapsto A)$, where $A \in \{\textbf{bad, good,!}\}$.

Here **bad, good** and **!** are of type $\langle\langle s, t\rangle, t\rangle$: functions from propositions into truth-values. Thus E maps contexts to functions from propositions into evaluative predicates of propositions. The question of which predicate exactly is returned by E is a difficult one. The function depends on context: the agent, addressee, time, and world (etc.) of the speech act determine what content is to be returned. The earlier work using this function (McCready, 2004, 2008, 2010) leaves the manner in which this is to be done highly underspecified. The intuition there was that these factors, together with the propositional content, determine an attitude; this determination, in fact, has a normative character, in that the attitude which can be expected to hold is dependent on how one would ordinarily react to the propositional content in question, though this can be overriden by other contextual factors (which, of course, is one reason for using an analysis of this kind). One possibility for full eludication of the mechanism would therefore be to use a nonmonotonic logic which makes use of a notion of normality, for instance that of Asher and Morreau (1991). A further elaboration of this analysis would be to allow the interpreter to reason about the speaker's probable attitudes, and about the speaker's probable guesses about the reasoning the hearer would likely engage in, and so put the whole into a game-theoretic context.[17] Which of these is correct is probably in part an empirical issue; here, in any case, we will not explore the issue further. This part of the analysis of *mono*, therefore, cannot be called fully complete; but it suffices to show the character of the evaluative component of the connective.

Should we conjoin the evaluative component of *mono* to the causal portion from the previous section, yielding the following formula?

(17) $\lambda p \lambda q [Cause(p, q) \wedge E^p(p)]^c$

We should not. The reason is that the evaluative component of *mono* is not part of its at-issue content.

The distinction between at-issue and expressive content is one that has sparked a good deal of recent research (Potts 2005, 2007; Amaral et al. 2008, i.a.). Here, we will not take sides on these issues or the significance they might or might not have for defining 'what is said'. Instead, we will focus on several tests for expressiveness that we think are reliable, at least when limited to certain domains.[18] The particular tests are (i) unembeddability/independence and (ii) denials. We consider each in turn.

The interpretation of test (i) is somewhat author-dependent. In the original formulation of Potts (2005) and in most subsequent work, independence of expressive content is understood as its invariable projection from operators in the (at-issue) semantics. For example, the following appositive is not interpreted in the scope of the external negation.

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[17]E would then be understood as the set of its possible interpretations, from which speaker and hearer would have to coordinate on a single element; the normative interpretation could then be considered (in a null context) as a focal point, possibly eclipsed by other focal points as the context becomes richer (see Schelling 1960 for some early work on focal points). This issue is interesting and ties to a large number of other problems but this is not the place to work out the details.

[18]In particular, we will avoid embeddings under propositional attitudes, as it turns out to be easy to get (mixed) quotative interpretations there (Harris and Potts, 2010).

(18)   It is not true that John, (although) a golfer, is particularly rich.

Some authors (such as Scheffler 2005) instead understand this test in a stronger way: as ungram-maticality when an expressive content-bearing expression is embedded, due to the requirement for semantic projection. This is what we find in the case of *mono*, which cannot appear in the scope of negation, in conditionals, under modals, etc., as mentioned in section 2. For space reasons, we repeat only the negation case from (6). Note the contrast with the non-expressive causal connective *kara*, which can easily be placed in the scope of negation, much like the English *because*.

(19)   a.   * omae-ga benkyoo shinainda mon   janai
              you-Nom study   do.not   MONO Cop.Neg

       'It's not because you don't study.' (+ CIE content)

       b.   omae-ga benkyoo shinai kara   janai
            you-Nom study   do.not because Cop.Neg

       'It's not because you don't study.'

Following the reasoning of Scheffler (2005), the reason for this might be the following: since the expressive part of the content projects, that content is entailed by the sentence to be true, in a sense of entailment sufficiently broad to include expressive content. Suppose (as we will argue in a moment) that the expressive content of (19a) is a) that the speaker has an emotive attitude toward the addressee's not studying, and b) that the lack of studying is a good reason for whatever is to be explained by the sentence, according to the speaker. Then it is entailed that the addressee's not studying is a good reason for whatever is to be explained. But then it must be a reason, and so a cause;[19] and so the negation is incoherent, for it is asserted that the addressee's not studying is not a cause. Similar reasoning, *pace* explanations based on Gricean Quantity instead of contradiction resulting in incoherence (explainable via an unavoidable Quality violation), applies to embeddings in conditionals, modals, attitudes, etc. The independence facts can thus be taken as an initial piece of evidence for a (partly) expressive status for *mono*.

  We now turn to test (ii). According to this test, expressive content cannot be targeted by denials, or, at least, not denials that dispute the truth of utterances. Consider the following example.

(20)   A.   John, the banker, is pretty rich.

       B.   That's not true.

We follow Potts (2005) in assuming that the appositive carries a conventional implicature with content *banker*(j). It is an open question whether these meanings can be characterized as expressive,

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[19]In the sense we use 'reason' in here, at least, which is restricted to causal phenomena. A caveat and an interpretative comment are necessary here. The caveat: *reason* is a term with broad application, and relates to topics such as practical reason/action choice ('reason to') in addition to causal notions. This sense of 'reason' is not at issue in this paper. The comment: when we talk about changes in probability, what do we refer to? For probabilistic causation to make sense, we cannot use subjective probabilities here, for, if we do, we are only talking about changes in justification for belief in this or that proposition. Since we are concerned with 'head-external' causal relations, this interpretation cannot be the right one. Consequently, we must use a frequentist (or propensity-based) interpretation of probability (though see Skryms 1980). Thanks to a reviewer for raising comments related to these issues.

but we will put these issues aside here; their behavior in composition is very similar. The at-issue content of A's utterance further has at-issue content $rich(j)$. Now: which of these propositions can be targeted by B's denial? It seems pretty clear that B's utterance can only be interpreted as denying that John is rich, not the content of the appositive. Thus, only at-issue (non-expressive) content can be targeted by (simple) truth-oriented denials which lack metalinguistic interpretations.[20]

What happens in the case of *mono*? Consider the following dialogue.

(21) A. omae-ga benkyoo shinai nda mon
          you-Nom study do.not NODA MONO

      B. sonna koto nai (yo)
          that thing Cop.Neg (PT)

          'That's not true.'

Here, B's utterance can mean only that her lack of studying is not the cause of whatever is at issue, or that it's not true that she did not study. It cannot mean that A lacks the relevant attitude toward this proposition, or that the quality of the causal relation is insufficiently high. We take this to indicate that these latter aspects of the meaning must be expressive content, a conclusion supported by the result of test (i) above. It would therefore be an error to build the emotive content directly into the semantics as an at-issue conjunction. The same holds for the reason-quality part of the content discussed in the following section. Our ultimate proposal will be that both of these things should be separated out as expressive content, making *mono* a bearer of mixed content along the lines argued for pejoratives and certain honorifics by McCready (2010).

It should be noted that the reliability of the denial test has recently been called into question by Geurts (2010), who notes that the natural language truth predicate is often applied so flexibly as to be rather unuseful as a test for what counts as at-issue content. He cites examples where statements involving what appear to be subjective judgements (e.g. Lasersohn 2005) are qualified with truth predicates, as in the following example.

(22) The coffee at that place is tasty, it's true, but the service sucks.

Geurts notes that predications like that with *tasty* most likely do not involve truth in a strict sense of word-to-world mapping, but instead make ineliminable reference to the judgements of the speaker. While we think that the jury is still out on the proper analysis of predicates like *tasty*, it can be argued that use of the truth predicate is being stretched here. However, for us, it is important to note that the speaker of (22) proffers the judgement as a truth. We believe that this is a crucial difference between expressive predications and judgement predicates. Another important difference is the primacy of the predication by *tasty*; expressive predicates, of course, cannot be used as main predicates.

(23) * John is damn.

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[20]See also Jayez and Rossari (2004) for more on the denial test.

This might suggest that truth claims require their content to be discourse-primary (cf. Simons et al. 2010), or that the content should be offered up as something for the hearer's evaluation, rather than as a side effect in some sense of sentence interpretation. We will not pursue these points further here.

3.4 Quality of Reasons

One element of the meaning of *mono* remains to be formalized. As argued above, this connective indicates not only a causal relation but that the causer represents a good reason for believing the caused proposition. The notion of a good reason is a complex one, and can be viewed in a number of ways. For instance, we might follow Searle (2001) and take reasons to be answers to (discourse-relevant) questions; on this picture, a 'good reason' would be one that provides a good answer to the relevant question, where this is defined in terms of (for example) minimization of entropy across the partition induced by the question (van Rooij, 2003; McCready, 2009). However, we will here take a simpler view. With this, it is easy to define a notion of 'good reason' in terms of the extent of the conditional probability change, as follows:

$$Good\_reason(p, q) \longleftrightarrow \mathcal{P}(q|p) - \mathcal{P}(q|\neg p) > stnd_{gr}$$

We take it to be obvious that there is no hard-and-fast standard for what counts as a good reason, which is the reason for adopting an analysis that makes use of a contextual standard.

To make clear that for something to count as a good reason requires more than for it to count as a cause, we introduce the following constraint:

(24) $$stnd_{gr} > stnd_c$$

Thus, the interval between the probability of *A* given *B* and the probability of *A* given ¬*B* is required to be larger for good reasons than for ordinary causation, which means that the truth of *B* must yield a larger increase in the probability of *A* in the former case, as desired. This strategy is similar to that followed by McCready (2008) for adverbial intensifiers like *very*: *very red* is taken to require for its truth a larger distance between the contextual standard for redness and the actual degree of redness of the relevant object than *red* alone does. We thus might, awkwardly, paraphrase *good reason* as *very CAUSE*.

The question now is whether to take this indication of good reason-hood to be asserted or conventionally implicated. As we saw with the data in (21), the only content that can be targeted by denial is the causal relation itself; the emotive content was not an available target, and the quality of the reason was not either. Similarly, we saw in (19) that the statement about quality cannot be negated, and that this was indeed the reason for the ungrammaticality of sentences like (19a). The result is that the quality statement must be part of the expressive content of *mono*, together with the emotive component of the meaning. In the next section, we will see how to give a semantics to the connective that is faithful to this intuition.

4 Analysis 2: Mixed Content

We have argued that *mono* is a connective that combines the semantics of a 'standard' causal connective like the English *because* with the expressive content that the causing proposition is, subjectively, a reason which explains the effect well, in addition to being something the speaker has an emotive attitude toward. This complex combination means that to analyze the function of *mono* in a compositional manner, we need a system in which a single lexical item can simultaneously carry both 'at-issue' and expressive content. This is something that is explicitly ruled out in the system proposed by Potts (2005) for the analysis of expressive content, because there are no such 'mixed types' made available by the type specification. However, an extension of this system, $\mathcal{L}_{CI}^+$, has recently been proposed (by McCready 2010) precisely to handle cases like the one we are presently concerned with. We will therefore adopt this system for our analysis. In this section, we first introduce the system,[21] in section 4.1, and then use it to give a lexical entry to *mono*, in 4.2. We finally show concretely how this lexical entry is used to derive the meanings of sentences containing *mono* in 4.3.

4.1 The system

The original system $\mathcal{L}_{CI}$ is given by adding a set of special types to the standard Montagovian type system, along with rules to interpret them, and additional rules for interpretation of the resulting logical forms. The new types are called CI types and distinguished with a superscripted '*c*'; the 'normal' types are called at-issue types and distinguished with a superscripted '*a*'. Application (etc.) of the at-issue types is standard; CI types are defined to interact with at-issue types in the way stated by the rule (R4).[22] This rule guarantees the lack of resource sensitivity of the logic for CI content: expressive operators do not 'use up' the content they take as arguments. Instead, this content is duplicated and reused in the at-issue derivation. Objects of CI type t are removed from derivations via (R5); this ensures that the content on the root node of any tree is of at-issue type t, formalizing the intuition that CIE content does not form the primary content of utterances.

(R4) $$\dfrac{\alpha : \langle \sigma^a, \tau^c \rangle, \beta : \sigma^a}{\alpha(\beta) : \tau^c \bullet \beta : \sigma^a}$$

(R5) $$\dfrac{\alpha : t^c \bullet \beta : \tau^a}{\beta : \tau^a}$$

This system is highly constrained and only admits the creation of lexical objects of certain types. In particular, all lexical items are required to introduce only at-issue or expressive content, never both. For mixed-type objects like *mono*, $\mathcal{L}_{CI}$ is thus too restricted. However, the simple expedient of 'mixing' content of CI type and at-issue type will not work for reasons related to

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[21]For reasons of space, this introduction is of necessity somewhat telegraphic. The interested reader is directed to McCready (2010) for full details.

[22]This formulation is taken from McCready (2010); the rule numberings follow those in that paper, where the full system is defined.

the non-resource-sensitivity of the logic; full details are in McCready (2010), where a solution is proposed which involves adding types for resource-sensitive expressive content to $\mathcal{L}_{CI}$. The resulting system is called $\mathcal{L}_{CI}^+$. The new types are called shunting types and distinguished with a superscripted 's'. They are interpreted via the following rule, (R7). Note that this rule is distinct from ordinary functional application in that it involves objects of different type classes: the higher-typed object is a shunting type, and its argument is an ordinary at-issue type. The result is a transmutation of the at-issue typed argument into the result of functional application, which is of shunting type.

(R7) $$\frac{\alpha : \langle \sigma^a, \tau^s \rangle, \beta : \sigma^a}{\alpha(\beta) : \tau^s}$$

In this system, interpretation is performed in terms of entire derivations via a rule which collects all objects of type t which are of shunting or CI types and pairs them with the denotation of the root node. The result is taken to be always a pair of the form $\langle \; [\![\alpha : \sigma^a]\!], \{ \; [\![\beta_1 : t^{\{c,s\}}]\!], \ldots, [\![\beta_n : t^{\{c,s\}}]\!]\} \rangle$, where $\sigma^{a,b}$ indicates that σ is of either the form σ^a or σ^b.[23] Here, the first element of the pair represents the at-issue meaning of the sentence (utterance), its standard meaning, and the second element is a set containing any expressive content of propositional type associated with the sentence.

As might be clear, with the addition of shunting types it becomes possible to avoid problems associated with non-resource sensitivity and model mixed types. McCready (2010) adds a new rule for type creation which produces types of the following form:[24]

(25) $\langle \sigma, \tau \rangle^a \times \langle \zeta, \upsilon \rangle^s$.

This object is a product type where the conjoined types are an at-issue type and a shunting type. In practice, the inputs to both conjoined elements must be of the same type, though this is not required by the type creation rule itself. Mixed types like these are paired with λ-terms of the form $\alpha \blacklozenge \beta$; '$\blacklozenge$' (hereafter 'diamond') signifies a semantic object of mixed type. Such objects act as follows in composition.

(R8) $$\frac{\alpha \blacklozenge \beta : \langle \sigma^a, \tau^a \rangle \times \langle \sigma^a, \upsilon^s \rangle, \gamma : \sigma^a}{\alpha(\gamma) \blacklozenge \beta(\gamma) : \tau^a \times \upsilon^s}$$

The rule (R8) performs pointwise application of mixed-type objects on their inputs. As a reviewer notes, (R8) only allows for situations where both 'sides' of the mixed type take an argument of the same type. This is intentional. As far as is known at present, there are no mixed types which take arguments of different types. The reviewer suggests that the flexibility to allow for this case should be built into the system; but it seems to us preferable to restrict the available types as much as possible, insofar as the resulting system is able to characterize the operations available in natural

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[23]In fact, this represents an error in the McCready (2010) system: since shunting types are resource-sensitive, the possibility arises that the root node can be of type t^s, which is not allowed for in the official $\mathcal{L}_{CI}^+$ system. This problem is easily solved by allowing the root node to be of type $t^{\{a,s\}}$.

[24]The clause of the type specification is as follows: 'If σ, τ and ζ are at-issue types for $\mathcal{L}_{CI}^+$ and υ is a shunting type for $\mathcal{L}_{CI}^+$, then $\langle \sigma, \tau \rangle \times \langle \zeta, \upsilon \rangle$ is a mixed type for $\mathcal{L}_{CI}^+$.'

language. In this, we follow the general strategy of Potts (2005). In any case, it is easy to loosen the rule to allow for such cases if it proves to be necessary.

When no more arguments can be taken by the expressive part of the mixed type element, (R9) applies.

(R9) $\dfrac{\alpha \blacklozenge \beta : \sigma^a \times t^s}{\alpha : \sigma^a \bullet \beta : t^s}$

With this rule, the status of the expressive element of type t^s is changed: it is no longer actively involved in the derivation. (Note, again, that this rule predicts that derivations involving shunting types always result in an object of type t^s. As far as is presently known, this is indeed the case.) The result is that it can be stripped off by rule (R5), just as with other CIE content.[25] With this background, we are ready to consider the semantics of *mono* in full compositional detail.

4.2 Applying the system to *mono*

In this system, it is entirely straightforward to provide a lexical entry for *mono* that will have the required characteristics of providing an appropriate separation of at-issue and CIE content, while still allowing composition with multiple arguments. The desired semantics is the following one.[26]

(26) $[\![mono]\!] = \lambda p \lambda q [Cause(p, q)] \blacklozenge \lambda p \lambda q [E^p(p) \wedge Good\_reason(p, q)] : \langle t, \langle t, t \rangle \rangle^a \times \langle t, \langle t, t \rangle \rangle^s$

Here, *mono* is analyzed as having a denotation which is of the type of propositional connectives in both at-issue and CIE 'dimensions.' (We use an extensional system for simplicity here.) It has as at-issue content that the two propositions it takes stand in a causal relation, and as CIE content that the causal relation is a 'high-quality' one, and that the speaker has some emotive attitude toward the causing proposition. On the CIE side, it denotes an object of shunting type: the reason is the need to compose with two distinct propositions, which is difficult for the original Potts system $\mathcal{L}_{CI}$ to deal with, as discussed in the previous section. Let us now see how this analysis works in an actual derivation.

4.3 A derivation

We take the following, by now familiar discourse as our basic test case.

(27) A. aa, mata shiken ochite-shimatta
          ah again test   failed-Antihon.Perf
          'Damn, I failed the test again ...'

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[25] As a reviewer notes, this is not technically correct. (R5) applies only to CI-typed objects, terms of type t^c, while here we are dealing with terms of type t^s. There are two possible solutions to this problem. The first is to allow (R5) to apply to terms of type t^s as well (which means changing t^c to $t^{\{c,s\}}$). The second is to allow (R9) to alter the type of the expressive part of its mixed-type input to t^c so that (R5) is able to apply. The first solution is less radical, but the second is closer to the intuitive idea behind the rule application sequence.

[26] Note that this typing is not, strictly speaking, compatible with the requirements of E, which looks for an argument of type $\langle s, t \rangle$, and neither with the emotive predicates that it delivers, which require the same. We are using an extensional semantics for simplicity of exposition, but nothing serious hangs on this decision.

B. omae-ga benkyoo shinainda mon
you-Nom study do.not MONO

Plainly, B is responding to A's statement about failing the test, and indicating A's lack of study as the cause. We take B's utterance to have the following (highly simplified) logical form, where $[p]$ is a proposition made available by context.[27]

(28) $[failed\_test(h)]$

$$
\begin{array}{c}
S \\
\diagup \diagdown \\
S \qquad \text{MONO} \\
| \\
\neg study(h)
\end{array}
$$
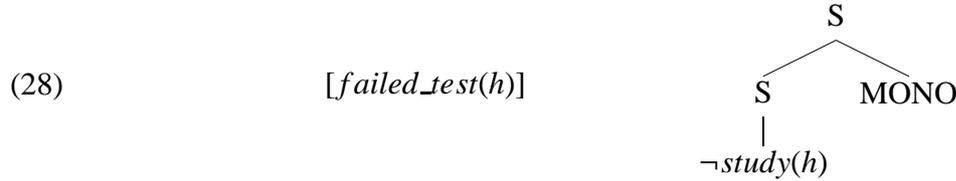
The meaning of this tree can be computed in the following manner, given the lexical entry for *mono* from the previous section and the rules of $\mathcal{L}_{CI}^+$:

$$
\text{R5} \cfrac{
\text{R9} \cfrac{
\text{R8} \cfrac{
failed\_test(h) : t^a \qquad
\text{R8} \cfrac{
\neg study(h) : t^a \qquad \lambda p \lambda q[Cause(p,q)] \blacklozenge \lambda p \lambda q[E^q(q) \wedge Good\_reason(q,p)] : \langle t, \langle t,t \rangle \rangle^a \times \langle t, \langle t,t \rangle \rangle^s
}{
\lambda q[Cause(\neg study(h), q)] \blacklozenge \lambda q[Good\_reason(\neg study(h), q) \wedge E^q(q)] : \langle t,t \rangle^a \times \langle t,t \rangle^s
}
}{
Cause(\neg study(h), failed\_test(h)) \blacklozenge Good\_reason(\neg study(h), failed\_test(h)) \wedge E^{failed\_test(h)}(failed\_test(h)) : t^a \times t^s
}
}{
Cause(\neg study(h), failed\_test(h)) : t^a \bullet Good\_reason(\neg study(h), failed\_test(h)) \wedge E^{failed\_test(h)}(failed\_test(h)) : t^s
}
}{
Cause(\neg study(h), failed\_test(h)) : t^a
}
$$

As desired, then, on the proposed analysis, we get a split in content between the at-issue statement that a causal relation holds between the two arguments to *mono*, and the two judgements made by the speaker of the *mono*-sentence: that the cause is emotively significant, and that the cause represents a good quality reason for the effect. The behavior discussed earlier with respect to the independence test and the denial test is thus predicted, and the lexical content of *mono* is successfully accounted for.

5 Comparison with previous accounts

To our knowledge, there is no other formal account of *mono* in the literature. However, substantial attention has been given to this connective in the informal Japanese literature (*nihongogaku*). In this section, we will compare our formal account to the informal analyses that have been offered there. In this literature, it is often the case that researchers offer a great deal of puzzling and heterogeneous data, which is then analyzed in a rather impressionistic way. The literature on *mono* is no exception. We have already considered some of the data from the literature; our focus in this section will therefore be on the adequacy of the analyses that have been proposed. The reader might not be surprised to find that our formal account comes out of the comparison looking pretty good.

In the recent literature, it seems that there have not been many discussions centering individually on the discourse function of *mono* in spite of the fact that many researchers regard *mono* as

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[27] Again, this really should be made to follow from a computation of discourse structure in the SDRT style.

a sentence-final particle (e.g. Teramura 1992; Noda 2002), and such particles are a major focus of the informal Japanese linguistic tradition. As far as we know, the works that primarily focus on *mono* are confined to a series of papers by Tsubone (1994, 1996) and Hashimoto (1997). We consider the accounts proposed by these two authors in turn.

5.1 Tsubone (1994; 1996)

Tsubone argues that the propositional content carried by *-mono* includes the meaning of a 'general concept' associated with the topic given in the preceding context. Essentially, the idea is that we are to identify a causal relation based on generic properties of objects: if in general Ps are Qs, then an object being a P can be taken to be evidence that it is also a Q.[28] Tsubone (1994) argues that the general property originally is observed from an abstract noun *mono* (in Japanese linguistics, it is called *keishiki-meishi*):

(29) dentoo to iu mono-wa, nihon-no dokodedemo kantan-ni mi-rareru mono janai.
    tradition C call MONO-Top Japan-Gen everywhere easily see-can MONO Cop.Neg.

   'It is generally recognized that we cannot easily observe traditional practices everywhere in Japan' (Tsubone 1994: T's (1a))

Tsubone then argues that this general interpretation to abstract noun *mono* can be observed in other lexical items with the same morphological shape, such as the causal connective we are concerned with. Indeed, when *mono* is used, it does seem that the causal relation it expresses holds quite generally in many cases: in most cases, if the causing proposition holds, the caused proposition's probability should rise, given a causal relation between the two. But is this always the case? That is, must the causing proposition *always* be a cause of the (potential) effect? It seems pretty clear that it need not be, any more than it is the case that causation itself is not influenced by contextual factors (cf. Swanson 2010) or dependent on the facts of a given case . Consider, for an arbitrarily chosen example, the following dialogue, produced in a situation where A has inherited a chicken farm and means to ruin it to collect the insurance, but has some qualms of conscience about the method of ruination she has agreed on with B, namely the release of a virus fatal to chickens.

(30) A: kuso! bokujo-o tsubusu keikaku-wa daishippai-da!
        Damn farm-Acc destroy plan-Top totally-spoil.

   'Damn! Our plan to ruin the farm was totally spoiled!'

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[28]Tsubone defines the concept of generality as follows:

 (i) When we look at a certain point of a time-scale, we can find a uniformity or similarity between individuals belonging to a given group.

 (ii) When we look at each of the individuals, we can find that they share a trait across the times in the time-scale. (Tsubone 1996: PP.37-38)

Thus, Tsubone wants to make use of properties shared by the individuals of a group that persist across times in order to define causal relations.

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B: omae-ga kin-no   sanpu-o   ore-ni makasenaindamono!
   you-Nom virus-Gen spread-Acc I-Dat did-not-let-*mono*

'It's because you didn't let me spread the virus!'

Clearly, a causal relation does indeed hold here; but it seems difficult to say that there is a general correlation between releasing deadly viruses and ruining chicken farms. Examples like this one make us believe that Tsubone has gone astray by focusing on the wrong elements of the causal relation, i.e. its generality or lack thereof, which we take not to be truly necessary for causation, much less for the relation denoted by *mono* in particular. We take the what is special about *mono* to be, instead, the emotive quality and strength of reason indicated by its CIE content.

5.2   Explanation via 'Speaker's Logic'

The other account we will consider here is that of Hashimoto (1997), who takes the function of *mono* to be what she calls 'explanation under the speaker's logic', defined roughly as the subjective views of the speaker; Hashimoto claims that, for explanations based on speaker logic to be accepted by a hearer (since they are, by definition, explanations that are not truly objective), the hearer must have a close and positive relationship with the speaker. The function of *mono* is then claimed to be "...to explain the speaker's recognition to a hearer that shares a sense of closeness[29] with the speaker based on the speaker's logic."

Hashimoto claims that the content of *mono* has to do with the speaker's subjective opinion based on his own logic or knowledge, which *mono* indicates to be a subjective explanation for some contextually relevant proposition (in our terms; we doubt Hashimoto would have put it quite this way). Hashimoto argues that this analysis explains a well-known aspect of sentences with *mono*, that they frequently convey a sense of blame (when other-directed) or self-justification (when speaking about one's own actions); this effect, according to Hashimoto, arises because *mono* provides an explanation from the viewpoint of speaker's logic. If the preceding objective context is consistent with the speaker's opinions, then, Hashimoto has it, the utterance is expected to sound affirmative or friendly, but on the other hand, if the context is inconsistent with these opinions, then the utterance is expected to sound frustrated or reproachful.

We think there is something to Hashimoto's view; indeed, parts of our analysis can be understood as a formalization of it. In particular, our use of subjective probabilities is something we take to realize Hashimoto's notion of speaker logic. Again, there are two possibilities: that the objective facts match the subjective assessment of them by the speaker, or not. If they do match, then a relatively positive impression may well arise (though not necessarily: as far as we can see, it could just as well be perfectly neutral). If they do not match, it is easy to see that a sense of self-justification could appear: if the speaker is explaining her actions with her subjective assessment, clearly she is justifying them, particularly if her assessment differs from the objective facts. The sense of blame that sometimes arises we think comes from a different source, which for us is the emotive component of *mono*'s meaning: if the speaker thinks that the cause is a negative thing,

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[29]Hashimoto's term is *miuchi-ishiki*, roughly translatable as feeling as if one is part of the same societal (in)group.

clearly an impression of blame will be given if that cause was brought about by some agent (e.g., as is often the case in uses of *mono*, the hearer).

While we are sympathetic with her general intuition, we do not think Hashimoto's (1997) analysis is faultless. First, the notion of speaker's logic is not completely clear, and (because of lack of formalization) it is hard to tell exactly what she has in mind. For this reason we are not absolutely sure that our reconstruction of her reasoning above is faithful to her original idea. This vagueness is a serious weak point of her analysis. Second, there are empirical difficulties with the assumption that use of *mono* requires and indeed induces familiarity and even friendliness. We agree that an impression of familiarity can arise, but we think that this is simply due to the expression of emotive attitude conveyed by the connective: if one expresses strong emotions, some degree of familiarity is to be expected, for otherwise it would not be appropriate to do so, especially in Japanese society as traditionally construed. We doubt, however, that actual familiarity is required. Compare formal and informal pronouns in European (and other) languages: use of informal pronouns generally indicates familiarity or closeness, but a speaker can use them unilaterally even when it is not appropriate. Familiarity, then, cannot be taken to be a hard condition.

Let us back this argument up with an example. If the argument that presumes the *mono* speaker to have a friendly feeling with a hearer is adopted, the following utterance should induce a feeling of closeness or even of belonging to the same in-group between speaker and hearer.

(31) A: saiyoo-shite-itadake-tara takusan kinmu-ni   tsuite hayaku shigoto-o oboe-tai   desu.
          adopt-do-Hon-if   many   service-Dat attach quickly work-Acc learn-want Cop

'If you hire me, I want to go on duty a lot and learn all aspects of the operation immediately.'

B: demo, anata-wa unten-menkyo-o   motteinai nda   mono. kore-wa ookina
   but   you-Top driving-license-Acc have-not NODA *mono* this-Top big
furi   da yo.
disadvantage Cop PT

'I know what you're saying, but you don't have a driver's license. This is a big disadvantage for you.'

Suppose that this discourse takes place in the following scenario. A applied for a job, for which this is the job interview. B is an interviewer. B read A's resume and noticed that A did not have a driver's license, which is almost necessary to perform the job. At the moment when B noticed A's lack of a license, B essentially decided not to hire A, but still had to interview A. B's purpose with the utterance above is thus to show A that he is not getting the job. B's use of *mono* here actually sounds rather cold and chilling. But this is precisely the opposite of what is expected if Hashimoto is correct. For us, the incorrect implication does not arise: B simply holds a negative attitude (**bad**) toward the chance of A's being hired; he feels comfortable using *mono* here because of power imbalances in this context. We take this to be a welcome non-consequence of our analysis.[30]

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[30]It should be noted that this example is somewhat special in that it is not clear precisely what is being explained by *mono*. This is a case in which the content of some immediately preceding assertion is not available as argument for the

5.3 Summary

Summing up, we take it that our analysis captures the facts better than previous proposals. Neither of Tsubone's and Hashimoto's analyses are formalized, so it can be difficult to see exactly what their proposals amount to; this problem is resolved in our treatment due to our use of formal semantic and pragmatic techniques. Both of these authors also make wrong empirical predictions. Tsubone claims that *mono* can only be used with causal relations that are fully general across cases ('generic causes'); as we showed, this view is too strong, a problem we diagnosed as following from a wrong view of causation. Hashimoto's analysis, on the other hand, we found fairly close to the mark in its focus on subjectivity. However, her view suffers from incorrect assumptions about requirements on the relative social position and closeness of speaker and hearer. We showed that our analysis is not subject to these problems.[31]

6   Conclusion

In this paper, we have given a formal semantics for the Japanese causal connective *mono*. We argued that *mono* has three meaning components: first, the indication of a causal connection between two propositions, which is its at-issue meaning, second, the expression of a speaker attitude toward the causing proposition, and third, the indication that the causal relation is a 'high-quality' one, which latter two meaning components are conventionally implicated or expressive. This analysis was implemented using subjective probabilities together with a contextual standard for quality of reasons, and the whole was expressed in $\mathcal{L}_{CI}^+$, a logic for lexical terms which introduce mixed expressive and at-issue content. Finally, we compared this analysis with existing analyses in the informal Japanese-language literature on the topic, showing that our analysis retains many of the insights from that literature, while improving on them.

One interesting point which we have not touched on much here is the classification of *mono* as sentential connective or sentence-final particle. As we indicated, both Tsubone and Hashimoto take *mono* to be—in general—a particle; but we have analyzed it uniformly as a connective, albeit a peculiar one which is intrinsically discourse-functional.[32] Which of these characterizations is correct? More generally, what criteria can we give to distinguish between particles and connectives?

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connective. Here, a special mechanism is needed. We suggest that what is required is a topic formation operator which is able to take into account the intentions of speakers in their linguistic acts; a possibility would be the ⇑ operator of SDRT, or a variant thereof. This issue connects directly to the final use of *mono* which we have left unanalyzed, discussed in section 6.

[31] A reviewer suggests that we are being a bit unfair to these authors in expecting them to give meanings for *mono* that satisfy a high standard of precision, given that our own analysis is underspecified in some respects: namely, we do not give a full treatment of how the emotive content of *mono* is determined, and we do not commit to a particular analysis of causation, although we do give full details of how composition with *mono* works at the sentence level and of the meaning types its semantics involves. This is a fair point, but we nonetheless feel that our analysis is an improvement on previous attempts. Our formalization, while not fully complete, clarifies a number of issues related to the meaning of *mono*, and also highlights the areas where more work needs to be done, and further is not subject to the wrong predictions of the earlier analyses.

[32] Though not at all unique: a comparable connective without expressive content is the English *therefore*.

The answer which has guided us here is this one: particles take only a single propositional argument, while connectives are necessarily two-place at a semantic level. To our knowledge, all lexical items that are universally agreed to qualify as particles are modifiers of single sentences (Noda 2002; McCready 2008; Davis 2009; Zimmermann to appear, i.a.). Since *mono* is clearly semantically two-place, we believe it is inappropriate to classify it as a particle. A second point is the possibility of paraphrase: more or less universally, it has proven difficult or impossible to characterize the meaning of discourse particles via paraphrase, or even to say exactly what they do, as can be seen from the wide range of positions adopted in the literature.[33] But the meaning of *mono* is plainly a causal one, a point which is not in any doubt. We take this solidity to be a second reason to classify *mono* as a connective. However, the expressive part of *mono* is indeed quite similar to the content of some particles, which makes it natural that analyses of this kind can be found in the literature. It seems fair to say that *mono* is, truly, an object of mixed type.

We must leave one issue related to *mono* unsettled in this paper. There are instances of *mono* that provide explanations at a sort of metalevel, not at the level of content; Hashimoto characterizes these as explaining "the event that an addressee does not recognize or the ground of why an addresser thinks so" (1997, P.209). Hashimoto names this type of mono utterance 'Detailed Description', some instances of which are provided below.

(32) A: Yamada-ga   rikon-shitarashiina.
          Yamada-Nom divorce-did-likely

      'I heard Yamada got divorced'

      B: aa. shikamo   kodomo-to bekkyo-da mono.   sainan-dayona
          yes furthermore child-with separation MONO misfortune-is

      'I know. To make the matter worse, he will live separately from his child. How awful it is!'

(33) A: ashita-wa   yasumi-de ureshiina.
          tomorrow-Top holiday-so glad

      'I'm glad since tomorrow is holiday.'

      B: soreni   tenki-mo   hare-mitaidesu mon(o) ne.
          furthermore weather-also sunny-likely-is MONO NE.

      'Furthermore, it will be sunny tomorrow.'

In this type of *mono* utterance, the speaker of the *mono* sentence picks up the event introduced in the preceding context and then provides new information about the event. Hashimoto says that this type of *mono* utterance is used in order to supplement the hearer's (or even the speaker's) lack of understanding of some area related to the contextually salient proposition with respect to which the *mono* sentence is stated, which we think is broadly the right characterization. But this

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[33]See especially Gutzmann (2008) for a summary of some analyses that have been proposed for German particles together with an insightful approach in terms of expressive meanings.

is, canonically, an elaboration relation rather than a causal one, in the usual sense of theories of discourse relations like SDRT. Does this mean that *mono* is ambiguous? We think that it does not. In fact, this usage can be thought of as a way to provide additional evidence for what drives the addressee to have his judgment or opinion about the given topic, rather than a way to indicate the cause of the topical proposition. Thus, what we are dealing with is causation at a discourse level, or at the level of intention: 'my use of *mono* indicates additional reasons for making the utterance that you made, as opposed to its propositional content'.[34] If this is right, then we continue to have, in a general sense, a causal meaning for *mono*; but capturing this sense formally requires reasoning about speaker intentions in communication, and then modifying them; this is a complex operation which needs a great deal of machinery that we cannot introduce here for space reasons. Together with clarifying the way in which *mono* interacts with the previous context at the level of discourse structure, we think that characterizing this use of *mono* is the most pressing task facing our theory.

One place we think our proposal here might be useful is in application to the German *denn*, which was mentioned in the introduction, as well as other German connectives with expressive meanings such as *weil*. Scheffler (2005) provides an interesting analysis of this connective in terms of conventional implicature, but does not give a compositional implementation of the idea: in fact, in the original system of Potts (2005), such an analysis cannot be provided because of the way the resource logic behaves (as shown by McCready 2010). However, as we have shown here, $\mathcal{L}_{CI}^{+}$ is well suited for analyzing connectives with mixed expressive and asserted content, and indeed for mixed content expressions in general. We think an analysis of *denn* might well be available along the lines of what we have proposed here for *mono*, though space limitations prevent a full exploration of the idea. We therefore leave it too for future work.

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[34]A reviewer notes that the expressive use of German *weil* can have a similar meaning. This connection seems an interesting avenue for future work.

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