Evidentials: marking the source of information*

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1 Introduction

Maxim of Quality, one of the conversational maxims proposed by Grice (1975), says, "Do not say that for which you lack adequate evidence". Indeed, Japanese cannot simply express a direct experience of others since the speaker can never have direct evidence for other people's experience, e.g., *Taroo-ga samui* 'Taro feels cold' (Kuno, 1973). In everyday conversations, however, we often have to exchange information for which we might not have enough evidence. In such occasions, we can still express the information without wildly flouting the maxim of quality, since most of natural languages are equipped with a tool to indicate the source or degree of information, evidential-marking. This chapter aims to provide an overview of the analyses of some of the Japanese lexical items which bear evidentiality, namely, sentence-final auxiliaries, causal connectives and prosody.

This chapter is structured as follows: Section 2 discusses a prototypical evidential morphemes in Japanese. Japanese has a rich paradigm of sentence-final auxiliaries that encode the source of information (Aoki, 1986) and lift the person constraint of the predicates of the direct experience (Kuroda, 1973; Kuno, 1973; Aoki, 1986), e.g., *Taroo-ga samui yooda.* '(I infer from my own experience that) Taroo feels cold.' The literature of formal semantics of evidentiality center around two questions: 1. What counts as evidence? 2. What level of meaning does the evidentialized sentence contribute to, at-issue commitment,

presupposition or implicature? We will review four analyses of the Japanese evidential *youda*, McCready & Ogata (2007), Takubo (2009), Davis & Hara (2014) and Hara & Davis (2013), which address these two questions. Section 3 looks into Tenny's (2006) analysis which treats Japanese causal connectives *kara/node* as an evidential marker (see also Hara, 2008). One of Tenny's arguments is that the causal connectives can also lift the person constraint of the predicates of the direct experience. Section 4 shows that in Japanese deaccenting of adjectives in rising declarative questions gives rise to an evidential interpretation (Hara & Kawahara, 2012). While the first topic, i.e., evidential auxiliaries, definitely falls under the area of evidentiality, the last two topics, i.e., causal connectives and prosody, are not traditionally analyzed as evidential morphemes. Nonetheless, it has been proposed in the recent literature that they give rise to evidential meanings, thus this chapter provides a quick introduction to these proposals in the hope of understanding the concept of evidentiality. Section 5 concludes this chapter

2 Sentence-final auxiliaries

Japanese grammar is sensitive to how the information expressed as the propositional content of the utterance is acquired. To see this, let us start with the following contrast in personal experience or psychological predicates. Unlike English, Japanese consider the information regarding personal experience and psychological state as available only for the direct experiencer of the states. Thus, only the first person subject is allowed for those predicates, as in (1).

(1)   a.   boku-wa kanasii/uresii/samui.
           I-TOP   sad/glad/cold
           'I am sad/glad/cold.'
     b. *Taroo-wa kanasii/uresii/samui.
          Taro-TOP sad/glad/cold
          'Taro is sad/glad/cold.'   (adapted from Shibatani, 1990, p. 384)

    Then, how can Japanese speakers express other people's internal experiences like (1-b)? One way is to use sentence-final auxiliaries that indicate that the information is indirectly obtained, as in (2).

(2)   Taroo-wa kanasii-rasii/yooda/souda/mitaida.
     Taro-TOP sad-EVID
     'Taro seems/look like sad.'   (adapted from Shibatani, 1990, p. 384)

These auxiliaries *rasii/yooda/souda/mitaida* are categorized as *evidentials* in the recent literature. Evidentials are linguistic expressions that indicate the source of evidence for a statement/proposition (Aikhenvald, 2004; Peterson et al., 2010). In particular, the Japanese auxiliaries in (2) fall under a category of *indirect evidential* as they indicate that the speaker did not directly experience the described situation. Izvorski (1997) analyzes a Bulgarian present perfect as an indirect evidential.

(3)   toj izpil   vsičkoto vino včera.
        he drunk-PE all-the   wine yesterday
        'He apparently drank all the wine yesterday.'   (Bulgraian; Izvorski, 1997)

According to Izvorski (1997), indirect evidentiality is expressed as a presupposition of the utterance, where $\Box$ is a Kratzerian universal epistemic modal (Kratzer, 1991).

(4)   The Interpretation of EVID(p):
        a.   Assertion: $\Box p$ in view of the speaker's knowledge state
        b.   Presupposition: Speaker has indirect evidence for p (Izvorski, 1997)

A parallel analysis can be given to the Japanese indirect evidentials. That is, (2) can be understood as follows:

(5)   The Interpretation of (2):
        a.   Assertion: $\Box$('Taro is sad') in view of the speaker's knowledge state
        b.   Presupposition: Speaker has indirect evidence for 'Taro is sad'.

As can be seen in (5-a), this line of analysis subsumes that evidentiality is a kind of epistemic modality (see also Matthewson et al., 2006).[1] Indeed, in the recent literature of epistemic modality, canonical modals like English *must* are argued to be evidentials (von Fintel & Gillies, 2010)[2] Similarly, Northrup (2014) proposes a notion of evidential base, which "is directly analogous to the modal base of Kratzer (1981, 1987)" (p. 39), to analyse Japanese sentence-final particles *yo* and *ne*.[3] The evidential base is "the set of propositions that, when taken together, serve to underwrite a commitment" (p. 39). As will be argued below, however, treating Japanese indirect evideintials as epistemic modalities will lead

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[1]See Chapter 13 for the discussion of Japanese epistemic modals.
[2]See Lassiter (2014) who argue against von Fintel & Gillies' analysis of *must*.
[3]See Chapter ??? for the semantics of Japanese sentence-final particles.

to a problem.

Another problem of the analysis like (5) pointed out by McCready (2010) is that it leaves the notion of indirect evidentiality unanalyzed. In the following, I will review four theories that scrutinize the semantics of indirect evidentials. In particular, the formal analyses reviewed here address the following two questions:

(6)   a.   What counts as indirect evidence?
       b.   Which level of meanings (e.g., at-issue commitment, presupposition, implicature, etc.) does the evidential component contribute to?

2.1   Probabilistic model (Mccready and Ogata, 2005)

McCready & Ogata (2007) provide a first concrete analysis of Japanese indirect evidentiality. In a nutshell, a piece of information e is regarded as evidence for the prejacent proposition p just in case it raises the agent a's subjective probability of p:[4]

(7)   *p-youda*, relativized to agent a, indicates that:
       a.   some information e has led a to raise the subjective probability of p
       b. a takes p to be probably but not certainly true ($.5 < P_a(p) < 1$) after learning e.

Let us take the following example:

(8)   a.   (Looking at a wet street)
       b.   Ame-ga   futteru youda.
             rain-NOM falling EVID
             'It seems to be raining.'

Here, the prejacent proposition p is 'it is raining', while e is resolved to the background information 'the street is wet'. McCready & Ogata (2007) predict that this sentence should mean something like the following:

(9)   a.   The information 'the street is wet' has led the speaker to raise her subjective probability for the proposition 'it is raining'.
       b.   The resulting subjective probability for 'it is raining' is greater than .5 but less than 1.

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[4]In addition, there are lexically specified restrictions on the means by which a has accessed the information e. See McCready & Ogata (2007) for details.

    c.   The speaker has accessed the information 'the street is wet' in a manner compatible with the lexical restrictions peculiar

Although McCready & Ogata (2007) explicitly define evidence and provide an intuitive interpretation of (8), their analysis makes wrong predictions if we switch the content of the prejacent proposition p and evidence information e, as in (10).

(10)   a.   (while looking at the falling rain)
            b.   #Michi-ga   nureteru youda.
                 street-NOM wet   EVID   'The streets seem to be wet.'
                 (cf. michi-ga nureteru nichigainai. 'The streets must be wet.')

In (10), the agent's evidence information e is now the proposition 'it is raining', while the content of the prejacent proposition p, is 'the streets are wet'. Following the McCready and Ogata's analysis, the utterance can be interpreted as follows:

(11)   a.   The information 'it is raining' has led the speaker to raise her subjective probability for the proposition 'the streets are wet'.
            b.   The resulting subjective probability for 'the streets are wet' is greater than .5 but less than 1.
            c.   The speaker has accessed the information 'it is raining' in a manner compatible with the lexical restrictions peculiar to *youda*.

(10-b) satisfies all of these requirements. Learning that it is raining should reasonably raise the probability of the proposition 'the streets are wet', though it might not raise to the high end of the scale. The speaker has accessed to the contextual information 'it is raining' in (10-b) in the same manner (i.e., visual) as in (8). Therefore, (10-b) is predicted to be as felicitous as (8). However, (10-b) is infelicitous unlike (8).

In short, in McCready and Ogata's (2007) theory, the relation between the prejacent proposition p and the evidence information e is symmetric. Leaning one of the information can plausibly raise the probability of the other. Thus, the asymmetry observed in (10-b) and (8) is unexpected by McCready & Ogata (2007).

2.2 Conditional dependence (Takubo, 2009)

Takubo (2009) provides an analysis of *youda* that captures this asymmetric relation between the information e and the prejacent proposition p. According to

Takubo (2009), a *youda*-sentence involves an abductive inference given a conditional statement $p \to e$. A minor premise e counts as evidence if the conclusion p is abductively inferred from the major premise $p \to e$:

(12)

Major premise	$p \to e$
Minor premise	e
Conclusion	p

According to Takubo (2009), *youda* can be attached to the sentence which denotes the conclusion p when there is a piece of information e that abductively derive p from a background knowledge $p \to e$. For instance, in (8), we have a major premise 'If it rains, the streets are wet' as a background knowledge. The new information 'The streets are wet' counts as evidence for the proposition of the *youda*-utterance in (8).

(13)

Major premise	If it rains, the streets are wet
Minor premise	The streets are wet
Conclusion	It rains.

Although Takubo's insight on the directionality of the inference can account for the asymmetry, using conditional dependencies as basis of the inference is not strong enough to predict the distribution of *youda*-sentences. Consider the following bi-conditional, which can reasonably be part of our background knowledge.

(14)   You have red-brown spots on the skin. ↔ You have measles.

Given the bidirectionality of (14), there are two conditionals statements which are part of our background knowledge. One is that if you have measles, you have red-brown spots on the skin. If the speaker a newly perceived that Taro has red-brown spots on the skin, a can abductively derive a conclusion that Taro has measles from the background knowledge:

(15)

Major premise	if you have measles, you have red-brown spots on the skin
Minor premise	Taro has red-brown spots on the skin
Conclusion	Taro has measles.

Thus, Takubo's analysis correctly predicts that *youda* can be attached to the conclusion as in (16).

(16)   a.   (Looking at Taro's skin)

b. Taro-wa hashika no   youda.
    Taro-TOP measles COP YOUDA
    'Taro seems to have measles.'

In contrast, the other direction of the bi-conditional is problematic for Takubo's analysis. It is a reasonable background assumption that 'if you have red-brown spots on the skin, you have measles.'

(17)	Major premise	if you have red-brown spots on the skin, you have measles.
	Minor premise	Taro has measles
	Conclusion	Taro has red-brown spots on the skin.

Thus, according to Takubo's analysis, if the speaker perceives a situation where Taro has measles, she could abductively conclude that Taro has red-brown spots. In turn, *youda* should be able to attach to this conclusion. However, this is the wrong prediction:

(18)   a. (Looking at Taro's medical certificate saying "measles")
        b. #Taro-wa akachairo-no   shisshin-ga aru   youda.
            Taro-top red-brown-gen spots-nom   exist YOUDA
            'Taro seems to have red-brown spots.'

The crucial difference between (16-b) and (18-b) is that the conditional relation $p \rightarrow e$ employed for the inference in (16-b) is a causal relation. Although the notions of causality/causal chain are mentioned in Takubo (2009), it is not formally encoded in the lexical restriction of *youda*.

2.3   Evidentiality and Causality (Davis and Hara, 2014)

Davis & Hara (2014) explicitly argues against the evidentiality-as-modality theories and defines "indirect evidence" of *youda* as an observation of the *effect* state of the cause-effect dependency.

As mentioned above, the previous studies on evidentials (Izvorski, 1997; Matthewson et al., 2006; McCready & Ogata, 2007; von Fintel & Gillies, 2010) predominantly argue that evidentiality is a kind of epistemic modality. That is, $\text{Evid}(p)$ entails $\text{Modal}(p)$. According to this line of analysis, since $\text{Modal}(p)$ gives rise to an epistemic commitment to p, $\text{Evid}(p)$ should also give rise to a commitment to p. In (34) and (20), to illustrate, both a bare assertion p and $\text{Modal}(p)$ commit the speaker to p, thus p cannot be cancelled:

(19) #Ame-ga   futta kedo jitsu-wa futtenai.
      rain-NOM fell   but   fact-TOP fall-NEG
      '#It rained but in fact it didn't.'

(20) #Ame-ga   futta darou   kedo jitsu-wa futtenai.
      rain-NOM fell   probably but   fact-TOP fall-NEG
      '#Probably, it rained but in fact it didn't.'

Thus, if an indirect evidential like *youda* were an epistemic modality, uttering *p-youda* should give rise to a commitment to p as well. However, Davis & Hara (2014) show that this treatment cannot be maintained since the prejacent p in *p-youda* is cancellable as in (21).[5]

(21) Ame-ga   futta youda kedo, jitsu-wa futte-nai.
      rain-NOM fell   EVID but   fact-TOP fall-NEG
      'It seems that it rained, but in fact it didn't.'

In short, Davis & Hara (2014) conclude that the prejacent proposition is not an at-issue commitment of *p-youda* but a cancellable implicature.

Now as we have seen in Section 2.2, causality seems to be indispensable in defining the indirect evidentiality of *youda*. On the basis of this observation, Davis & Hara (2014) propose that for the purposes of using *youda* a piece of information e can be regarded as indirect evidence for p just in case e situations/events are typically caused by p situations/events.[6] That is, Davis & Hara (2014) define the semantics for *youda* as follows:[7]

(22) *Davis & Hara's interpretation of evidentials*
      $\mathrm{Evid}(p)$ is true at w iff $\exists q$ such that the speaker perceives a state e at w and p causes e.

Let us see how (22) derive the distributions and interpretations of *youda* sentences. First, in the first conjunct of (23), the speaker is merely asserting that she observed some state, e.g., wet streets, which is usually caused by rain. This assertion does not contradict with the second conjunct since the streets could be wet

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[5]A similar argument is made for reportative evidentials by Faller (2002); Murray (2010); AnderBois (2014).

[6] Sawada (2006) also argues that *youda* is a modality that infers a cause.

[7] Hara (2017) formalizes the notion of causality using Kaufmann's (2013) causal premise semantics. Hara et al. (To appear) report a naturalness rating study and a corpus study that support the claim.

for other reasons, e.g., someone sprayed water with a hose.

(23) Ame-ga   futta youda kedo, jitsu-wa futte-nai.
      rain-NOM fell EVID but   fact-TOP fall-NEG
      'It seems that it rained, but in fact it didn't.'

Second, (22) also explains the asymmetry of evidentiality. (24) can be paraphrased as "I observed falling rain and rain is caused by wet streets", which is false according to our world knowledge.

(24) a. (Looking at falling raindrops)
      b. #Michi-ga   nureteiru youda.
          street-NOM wet   EVID
          '#It seems that the streets are wet.'

Finally, since (22) is defined not on the basis of conditional inference but on the basis of the asymmetric cause-effect dependency, it overcomes Takubo's problem. (22) correctly rules out (25) because (25-b) is paraphrased as "I observed that Taro has measles and red-brown spots cause measles". The assertion is false because it is false that red-brown spots cause measles according to our world knowledge.

(25) a. (Looking at Taro's medical certificate saying "measles")
      b. #Taro-wa akachairo-no   shisshin-ga aru   youda.
          Taro-top red-brown-gen spots-nom exist YOUDA
          'Taro seems to have red-brown spots.'

To recapitulate, under Davis & Hara's (2014) analysis, by asserting p-*youda*, the speaker is asserting that she observes some state which is caused by p. Thus, the speaker is not epistemically committed to p itself.

2.4 OT Pragmatics (Hara and Davis, 2013)

In the previous sections, we have seen the approaches that try to describe the distribution of evidential morphemes by identifying the nature of indirect evidentiality. Hara & Davis (2013) take a slightly different approach and use Optimality Theoretic constraints to analyze the distribution of evidentials in comparison with other sentence-final auxiliaries.

As discussed above, one plausible account is treating evidential morphemes as presupposition triggers as in (5), repeated here as (26).

(26)   The Interpretation of EVID(p):

    a.   Assertion: $\Box p$ in view of the speaker's knowledge state

    b.   Presupposition: Speaker has indirect evidence for p

Hara & Davis (2013) discuss both empirical and conceptual problems of the presuppositional account. For instance, Japanese evidential morphemes are obligatory in the contexts where they fit. Normal presupposition triggers can be omitted without causing infelicity. In English, the phrase *manage to* VP presupposes that it is difficult to VP. In (27), the context satisfies the presupposition. However, the context does not require the use of *manage to* VP, as shown by the felicity of the version in which it is omitted.

(27)   Context: It was very difficult to open the door.

    a.   But, John managed to open it.

    b.   But, John opened it.

In contrast, the omission of *youda* in the following makes the utterance infelicitous.

(28)   a.   Context: My ex-girlfriend's last name on the alumni phonebook has changed.

    b.   kanojo-wa mou   kekkon-shita #(youda).
        she-TOP   already marriage-did YOUDA
        '(It seems that) she is already married.'

The presuppositional account is also conceptually problematic. Hara & Davis (2013) discuss the problem of the "presupposition" of *youda* in comparison with that of a modal particle *darou*. As discussed in Hara (2006), *darou* cannot appear when the speaker has direct/indirect evidence for the prejacent proposition. Thus, the presuppositions of *darou* and *youda* turn out to be redundant since the requirements impose that *darou* or *youda* cannot appear in the contexts where the alternative expressions should appear.

Given these problems of the presuppositional account, Hara & Davis (2013) propose that evidential particles have an expressive context-shifting semantics (Davis et al., 2007), and that the choice of particles is determined through optimality theoretic competition (Zeevat, 2004).

According to Davis et al. (2007), evidentials are used to *shift* the context for felicitous assertion. To illustrate, imagine that the speaker wants to assert *John-ga wain-o nonda* 'John drank wine', but the speaker's subjective probability for the

proposition is actually lower than the value x required by the default context, as depicted in (29-a).

(29)

a.

$$1$$
$$x$$
〚John-ga wain-o nonda〛

b.

$$1$$
$$x$$
youda: ⇓ 〚John-ga wain-o nonda〛
$$x'$$

(adapted from Hara & Davis, 2013)
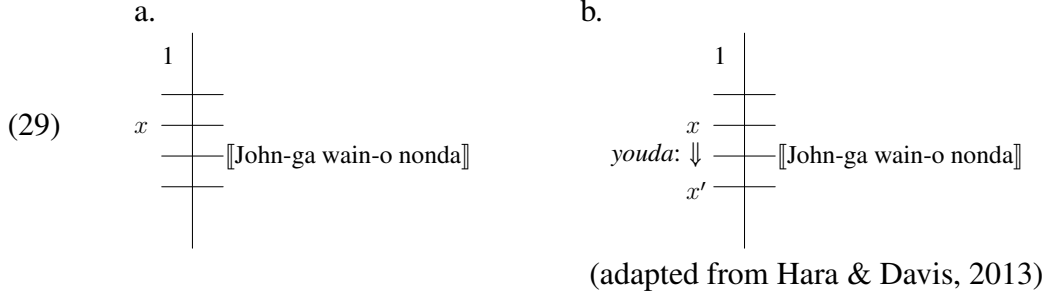
Uttering the sentence in this default context without any shifting would violate Gricean maxim of Quality:

(30) Grice's Maxim of Quality

    a.   Do not say what you believe to be false.

    b.   Do not say that for which you lack adequate evidence.

That is, the default context requires that the speaker's subjective probability for the proposition must be quite high. The evidential morpheme *youda* serves to lower this contextually required value so that the speaker can utter the sentence without violating Quality as in (29-b).

This idea of evidentials as context-shifters is implemented in the definitions as follows. In Hara & Davis (2013), the contextual threshold is defined as a 2-tuple $C_\tau = \langle ev, x \rangle$, where ev is a set of *evidential values* and $x \in [0, 1]$. In a default context, without any particle, ev is specified as direct evidence, and the value x for subjective probability is set very high. If *youda* is used, ev is set to be indirect evidence and x to $\mu_c(indirect)$, where μ_c is a function which applies to evidence kind and returns a probability threshold (Davis et al., 2007). If *darou* is used, ev is identified as the set of *all* evidence types, U, and x as $\mu_c(U)$.

(31) a. Uttering p-*youda*
        ≈ uttering p in a shifted context C where: $C_\tau = \langle indirect, \mu_c(indirect) \rangle$

    b. Uttering p-*darou*
        ≈ uttering p in a shifted context C where: $C_\tau = \langle U, \mu_c(U) \rangle$(Hara & Davis, 2013)

Hara & Davis (2013) then explain the distribution of *darou* and *youda* within

Optimality Theory Pragmatics (Blutner & Zeevat, 2004). The Gricean Maxim of Quality is formulated as an OT constraint, QUALITY, as in (32).

(32)   QUALITY:
         If a speaker S asserts a proposition p in a context where $C_\tau = \langle ev, x \rangle$, the following must hold:
         $P_s(p) \geq x$ and $E_s(p) \in ev$,
         where $P_s(p)$ is the speaker's subjective probability for p and $E_s(p)$ is the kind of evidence the speaker has for p.   (Hara & Davis, 2013)

QUALITY is ranked higher than another Gricean constraint QUANTITY (see also Blutner, 2000).[8]

(33)   QUANTITY: Make your contribution as informative as possible.

In the context of evidentiality, the informativity requirement of QUANTITY militates against relaxing the evidentiality requirement. The bare assertion of p is more informative than p-*youda* not with respect to the propositional content but with respect to the evidentiality, since *youda* relaxes the value of the probability threshold x, hence the use of *youda* violates QUANTITY. Furthermore, the use of *darou* not only loosens the probability threshold but also expands the permissible evidence kind ev, thus p-*darou* causes a more serious violation of QUANTITY.

Let us illustrate how the OT competition works with three contexts. First, in (34), the speaker has *direct* evidence, thus QUALITY rules out *youda*. The constraint QUANTITY prohibits the use of *darou*, which makes the bare declarative the winner, as shown in Tableau (35).

(34)   a.   The speaker directly witnessed him drinking a lot.
         b.   Kinou   John-wa wain-o   takusan nonda ✓∅/#darou/#youda.
              yesterday John-TOP wine-ACC many   drank ∅/DAROU/YOUDA
              'John drank a lot of wine yesterday.'

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(35)

	p, direct	QUALITY	QUANTITY
a. ☞	p		
b.	p-darou		*!*
c.	p-youda	*!	*

Second, in (36), the speaker has only indirect evidence for p. The bare declarative is ruled out by QUALITY. The use of *youda* is more optimal than that of *darou* since it causes lesser violations of QUANTITY, as depicted in (37).

(36) a. There are a lot of empty wine bottles in John's room.
  b. Kinou   John-wa wain-o   takusan nonda #∅/#darou/✓youda.
      yesterday John-TOP wine-ACC many   drank ∅/DAROU/YOUDA
      'John drank a lot of wine yesterday.'

(37)

	p, indirect	QUALITY	QUANTITY
a.	p	*!	
b.	p-darou		**!
c. ☞	p-youda		*

Finally, in context (38), QUALITY blocks the bare declarative since the speaker does not have evidence for p. QUALITY also blocks *youda* since *youda* only shifts C_τ to include indirect evidence. Since *darou* can include all evidence sources, *darou* is selected as the winner, as seen in Tableau (39).

(38) a. John likes wine very much (background knowledge).
  b. Kinou   John-wa wain-o   takusan nonda #∅/✓darou/#youda.
      yesterday John-TOP wine-ACC many   drank ∅/DAROU/YOUDA
      'John drank a lot of wine yesterday.'

(39)

	p	QUALITY	QUANTITY
a.	p	*!	
b. ☞	p-darou		**
c.	p-youda	*!	*

To summarize, Hara & Davis (2013) propose that evidential and modal auxiliaries are context shifters which loosen the contextual threshold C_τ to avoid a violation of Gricean Maxim of Quality. In combination with Optimality Theoretic constraints, the proposal accounts for the distributional pattern which cannot be captured by the presuppositional account.

2.5 Interim Summary

Japanese has a wide range of sentence-final auxiliaries that indicate source of the information, evidentiality. Predicting the exact distribution of these morphemes is not trivial. This section has looked at two issues surrounding the semantic property of evidentiality, namely the nature of indirect evidentiality and the level of meaning to which evidential morphemes contribute. As for the nature of indirect evidentiality, McCready & Ogata (2007) make use of the subjective probability to define evidencehood, which cannot account for the asymmetric nature of the evidence and prejacent propositions. Takubo (2009) instead offers a conditional dependence approach which correctly derives the asymmetry though the account makes the wrong prediction when a bi-conditional is reasonably in the background knowledge. Davis & Hara (2014) argue that an assertion of p-*youda* commits the speaker to an existence of the effect state caused by p, thus it does not commit her to the prejacent proposition p. As for the second issue, evidentials are often analyzed as presupposition triggers (Izvorski, 1997; Matthewson et al., 2007), but Hara & Davis (2013) show that treating Japanese sentence-final auxiliaries as presupposition triggers causes a number of problems. Thus, Hara & Davis (2013) propose that Japanese evidential morphemes are dynamic context shifters in the sense of Davis et al. (2007) which engage in an OT-style competition with other sentence-final morphemes.

In the following two sections, we will look at other linguistic categories that give rise to evidential meanings, causal connectives and prosody. As mentioned in Section 1, these two categories do not traditionally fall under the domain of evidentiality, compared to the sentence-final auxiliaries like *youda* discussed in this section. Nevertheless, their distributions and interpretations provide important insights on the analysis of evidentiliaty.

3 Causal connectives (Tenny 2006)

Section 2.3 presented the proposal made by Davis & Hara (2014), who argue that indirect evidence is the effect state of the cause-effect dependency. Thus, by uttering p-*youda*, the speaker is inferring the cause p from her evidence e and her background knowledge 'p causes e'. In other words, the indirect evidential *youda* is marking the cause event of a cause-effect dependency. Then, a question arises as to: Does a prototypical causal marker also give rise to an evidential meaning? Indeed, Tenny (2006) proposes that Japanese causal connective *node* bears

evidentiality.

As seen in (2), one of the characteristics of Japanese evidential morphemes is to lift the person constraint of the predicates of the direct experience. Sentence-final auxiliaries are not the only category which has this property. As shown by Tenny (2006), Japanese causal con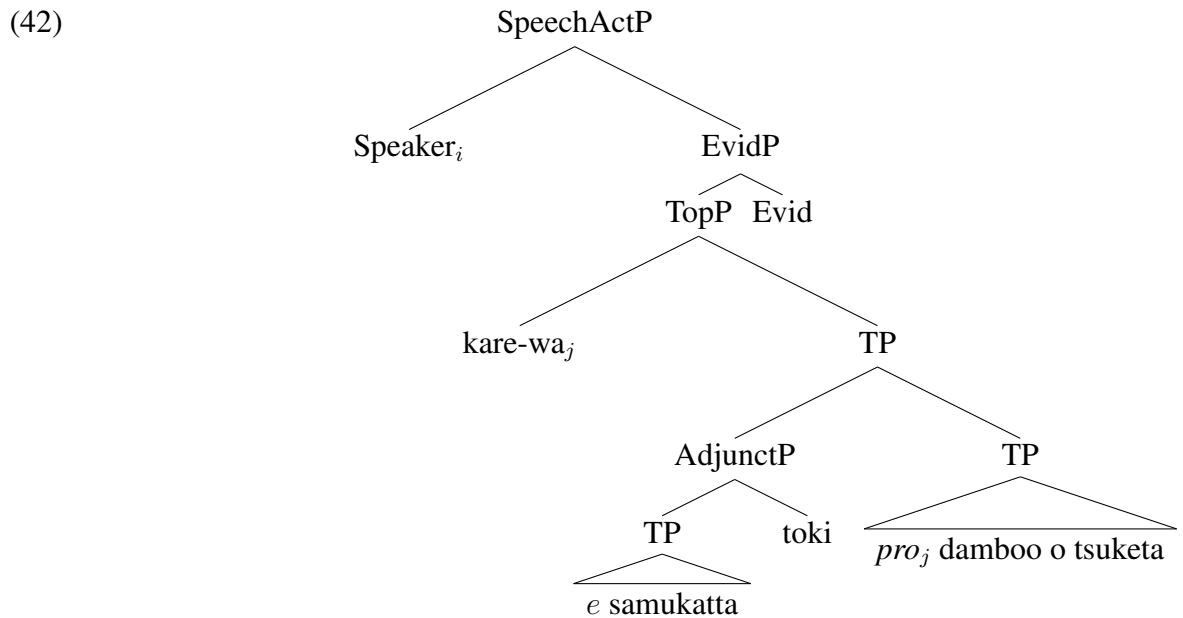nectives *kara/node* can also lift the personal constraint. Let us take the following pair of examples from Tenny (2006). In (40-a) where the adjunct clause is headed by the temporal *toki*, the predicate *samui* 'cold' can only be interpreted non-thematically, 'it was cold'. That is, the third person *kare* cannot be the experiencer. In (40-b), on the other hand, both non-thematic and thematic interpretations are possible.

(40)   a.   Kare wa samukatta toki, dambou o   ireta.
              He   TOP cold-PAST when, heater   ACC put.on-PAST
              'When it was cold, he put on the heat.'
              '*When he felt cold, he put on the heat.'
    b.   Kare wa samukatta node,   dambou o   ireta.
              He   TOP cold-PAST because, heater   ACC put.on-PAST
              'Because it was cold, he put on the heat.'
              'Because he felt cold, he put on the heat.' · Shinko Tamura, p.c. to Tenny 2006)

Given this contrast, Tenny (2006) argues that the semantics and syntax of *node* involves evidentiality. In particular, Tenny (2006) argues for grammaticized speech acts in the sense of Speas & Tenny (2003). Let us see the following trees for illustration. The direct experience predicate *samui* requires its subject to be identified with a seat-of-knowledge argument x. The hearsay evidential morpheme *souda* projects an Evidential Phrase (EvidP) of which Spec position is filled with a seat-of-knowledge argument x, which is different from the speaker, i.e., $i \neq j$. In tree (a), the subject is co-indexed with the seat-of-knowledge argument and indeed the sentence is correctly predicted to be grammatical. In contrast, in tree (b), there is no evidential morpheme, thus the seat-of-knowledge argument is bound by the speech act agent, i.e., the speaker. Now, the subject of the predicate *Taro* cannot be co-indexed with the speaker since they do not refer to the same individual, thus the sentence is predicted to be ungrammatical.

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(41) a.

```
              SpeechActP
             /          \
       Speaker_i        EvidP
                       /     \
                     x_j     Evid'
                            /     \
                          TP      Evid
                         /  \      |
                 Taro-ga_j samui  souda
```

b. *

```
              SpeechActP
             /          \
       Speaker_i        EvidP
                       /     \
                     x_i     Evid'
                            /     \
                          TP      Evid
                         /  \      |
                  Taro-ga samui    ∅
```
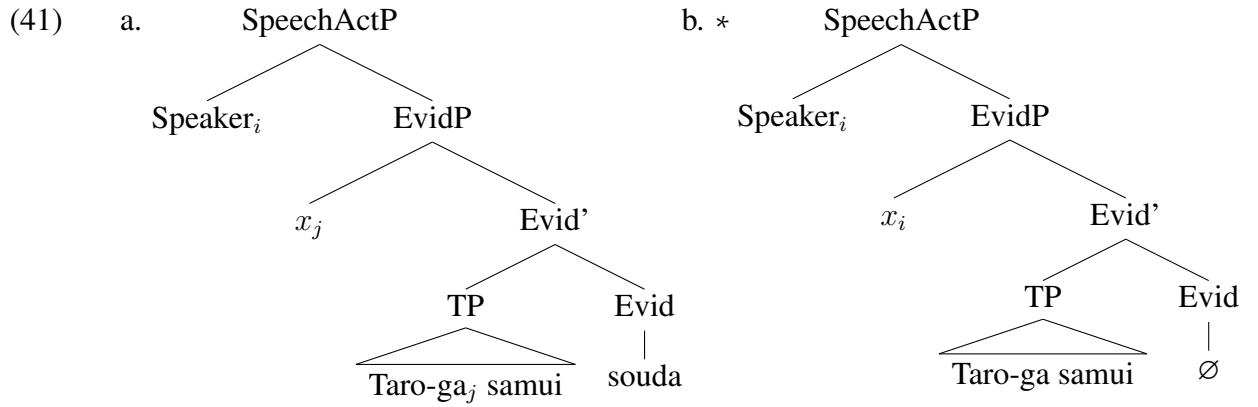
Tenny (2006) proposes that the causal connective *node* is also an evidential morpheme which projects an EvidP. To illustrate, let us compare the tree structures of the two adjunct clauses in (40). In (42), where the AdjunctP is headed by a temporal and non-evidential *toki*, there is no evidential argument that can bind the subject of *samukatta*. Since the subject cannot find a local seat-of-knowledge argument, the predicate cannot be interpreted thematically.
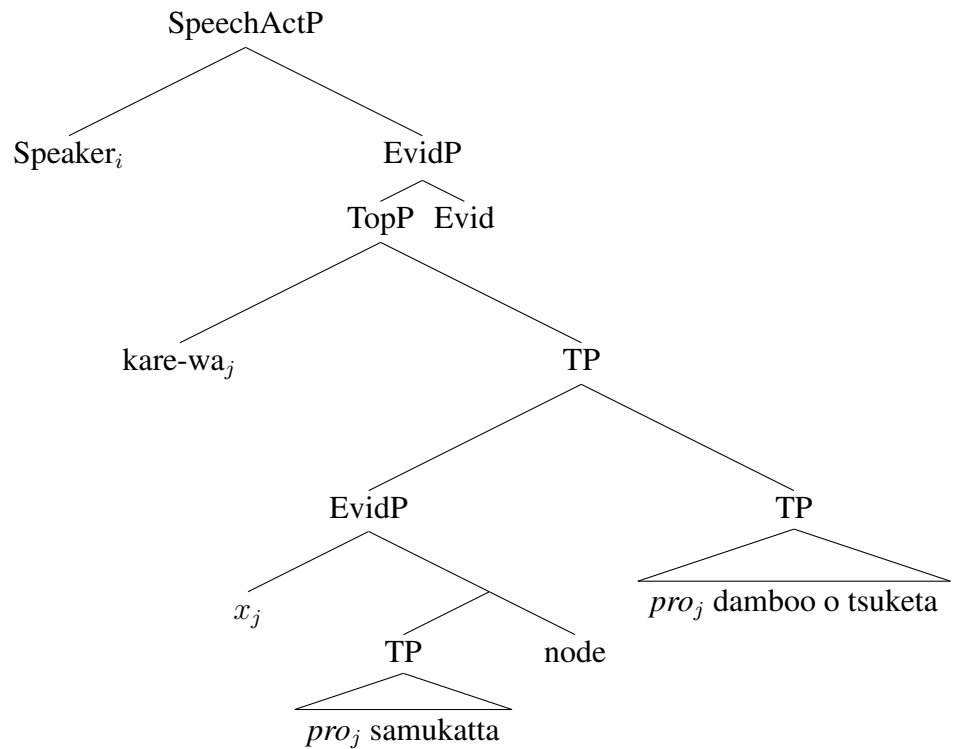
(42)

```
                          SpeechActP
                        /            \
                   Speaker_i         EvidP
                                    /    \
                                 TopP    Evid
                                /    \
                          kare-wa_j    TP
                                     /    \
                              AdjunctP      TP
                             /    \        /    \
                           TP     toki  pro_j damboo o tsuketa
                          /  \
                   e samukatta
```

On the other hand, the causal connective *node* projects and EvidP as in (43), thus there is a seat-of-knowledge argument which can bind the local subject. If this seat-of-knowledge argument is co-indexed with the matrix subject, the predicate

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can be interpreted thematically.

(43)

```
                        SpeechActP
                       /          \
                 Speaker_i        EvidP
                                 /     \
                            TopP      Evid
                           /    \
                    kare-wa_j     TP
                              /        \
                         EvidP          TP
                        /     \        /    \
                     x_j       \    pro_j damboo o tsuketa
                          TP    node
                         /   \
                    pro_j samukatta
```

Hara (2008) observes a similar asymmetry between the temporal and causal connectives with respect to the distribution of the contrastive topic *wa*.

(44) a. Itsumo uchi-ni KODOMO-wa kuru node   oyatsu-o
          always house-Dat children-Con come because, sweets-Acc
          yooi-su-ru
          prepare-do-Present
          ˜ Because (at least) children come to our house, I always prepare
          sweets. ·
      b. *Itsumo uchi-ni   KODOMO-wa kuru toki, inu-ga
          always house-Dat children-Con come when, tea-Acc
          hoe-ru.
          offer-Present
          ˜ When (at least) children come to our house, the dog always barks.'

As discussed by Hara (2008), the crucial semantic difference between the tem-

poral adjuncts and causal adjuncts is that the sentence with a temporal adjunct expresses a quantification over event properties while the sentence with a causal adjunct is a relation between closed propositions (see also Johnston, 1994). In other words, unlike temporal quantification, a causal relation is established when a cognitive agent perceives a particular event described in the complement sentence and causally connects the event to another event. That is, the cognitive agent relates two particular instantiated events, i.e., saturated propositions. Thus, the complement of the *because*-clause is a closed proposition. This introduction of a cognitive agent by the causal connective *node* which relates two propositions gives rise to the evidential meaning. The introduced cognitive agent *is* the seat-of-knowledge/evidence source.

Hara (2008) argues that the same reasoning explains the (un)availability of *wa* in the two adjunct clauses. Simply put, the use of *wa* gives rise to the conventional implicature that the speaker thinks that it is possible that an alternative proposition is false. For instance, when uttering *Ame-wa futta* 'It rained', the speaker conventionally implicates that she thinks that it is possible that it didn't snow. In an embedded context, "the speaker" can be shifted to another attitude holder. Therefore, just like the direct experience predicates, the interpretation of a *wa*-utterance requires an information source and a closed proposition in order to calculate the conventional implicature. While the causal connective *node* can provide both, the temporal connective *toki* cannot. Therefore, the asymmetry obtains.[9]

In summary, the Japanese causal connectives *kara/node* can be regarded as evidential morphemes which introduce an attitude holder who is the source of information denoted by the complement clause. The evidential analysis of the causal connectives explains the asymmetries between the adjunct clauses with respect to the interpretation of the direct experience predicates and the contrastive particle.

---

[9]As discussed in Davidson (1967); Kratzer (1998), there are two kind of causal relations, a singular causal statement (transparent *because*) and a causal explanation (opaque *because*).

(i)   a.   I fell because the principal did.   (transparent)
        b.   I went to the pageant because the principal did.   (opaque)
                                                                        (Kratzer, 1998)

Hara (2008) shows that all the examples with the causal connective as an evidential are instances of opaque *because*. A transparent *because* expresses a physical and temporally-ordered relation between events, hence there is no attitude holder or cognitive agent involved in the interpretation. Therefore, it is predicted that *wa* is not available inside a transparent *because*-clause, which is indeed correct. Hara et al. (2013) also reveal that two kinds of causal relations are linguistically manifested by observing the distribution of the *koto*-nominalized cause.

Note however that the presented analysis is primarily syntactic and how this syntactic structure feeds the semantic composition is yet to be seen. In particular, it is unclear how the prejacent proposition p is inferred from the source.

4 Deaccented adjectives (Hara and Kawahara 2012)

Evidentiality is also investigated in the domain of prosody. Hara & Kawahara (2012) show that in Japanese, deaccenting of adjectives in rising declarative questions gives rise to an evidential interpretation.

Rising negative questions like (45) express bias meanings which parallel English preposed negative questions (Romero & Han, 2004) or tag questions (Reese, 2007). That is, the question accompanies an implicature that the speaker has a bias toward the positive answer ('Japanese vegetables are expensive.'). The rising intonation for this construction has two variants. In (45-a) and Figure 1, the lexical accent of *taka'ku* (H*+L) is retained.[10] In (45-b) and Figure 2, the lexical accent is deleted (i.e., deaccented).

(45)   nihon-no yasai,   takaku-nai?
        Japan-GEN vegetables expensive-NEG
        'Aren't Japanese vegetables expensive?'

      a.   taka'ku   nai↑
          L%H*+L L%H%

      b.   takaku nai↑
          %LH- H%

                                  (Hara & Kawahara, 2012)

Both introspection-based and experimental data suggest that the use of deaccentuation seems to correlate with the evidentiality associated with the proposition embedded in the utterance (e.g., Hara & Kawahara, 2008).[11] To illustrate, let us see the following negative question whose predicate is an adjective. The deaccentuation is felicitous only when the conversation participants have public evidence for the positive answer as in (46).

(46)   Public Evidence Context
     A and B just went to a Japanese supermarket and realized that Japanese

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[10]In this chapter, the J_ToBI system for tonal transcription (Venditti, 2005) is used.

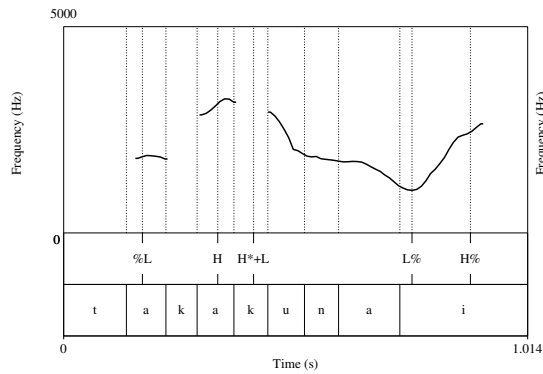[11]See Hara & Kawahara (2012) for the experimental justification of the grammatical judgement.
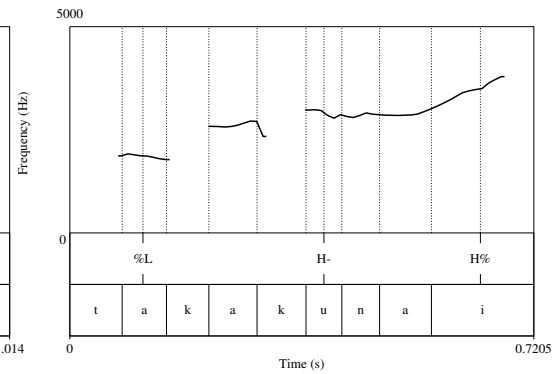
Figure 1: Accented

Figure 2: Deaccented

vegetables are twice as expensive as local ones. A asks B:

    a.   #taka'ku nai↑ (Accented)

    b.   ✓ takaku nai↑ (Deaccented)

<div align="right">Hara & Kawahara (2012)</div>

In contrast, when there is no public evidence available, the accented adjective is preferred.

(47)   No Public Evidence Context

     A has just arrived Hong Kong and B told A that she can get Japanese vegetables from a Japanese supermarket. A asks B.

    a.   ✓taka'ku nai↑ (Accented)

    b.   #takaku nai↑ (Deaccented)   Hara & Kawahara (2012)

Given the introspection-based and experimental observations, Hara & Kawahara (2012) propose that deaccentuation marks the utterance as EVID, which requires a context where the interlocutors have evidence for the embedded proposition (i.e., the positive answer). This means that when the speaker utters a rising declarative with a deaccented adjective, the speaker asks a question even though the evidence is already available. As a result, the question is interpreted as a meta-discourse question. That is, the speaker does not ask about the truth value of the proposition p, rather ask about the reliability of the evidence available for p. Hara & Kawahara (2012) formalize this intuitive characterization of deaccentuation using Barker's (Barker, 2009) notion of *standard of clarity*. See Hara & Kawahara (2012) for

details.

5   Conclusion

Evidential meanings can be expressed in various linguistic categories in Japanese. This chapter has looked at the sentence-final auxiliaries, causal connectives, and deaccented prosody on adjectives. As can be seen, evidential expressions have a great influence on all areas of linguistics. In the realm of semantics and pragmatics, evidential morphemes indicate a cognitive agent or evidence source and modify the performance of the speech acts accordingly. For instance, when making an assertion, an evidential morpheme can lift the person constraint of the direct experience predicates as well as the Gricean Quality constraint by lowering the contextual threshold as discussed by Davis et al. (2007) and Hara & Davis (2013). Evidentiality also affects the act of questioning as seen in Section 4. The question is rendered from an information-seeking one into a meta-discourse one by way of deaccentuation. Syntactically, Tenny (2006) argues that evidential morphemes project EvidP, which contains an evidential argument in Spec EvidP. The analysis accounts for a number of asymmetries observed among adjunct clauses. Last but not least, Hara and Kawahara's (2012) work on the deaccentuation revealed a strong connection between evidentiality and prosody, while it also raises a number of interesting questions. For example, Japanese also have adjectives which are lexically deaccented. With these adjectives, the semantic contrast is of course lost despite the strong correlation empirically justified in Hara & Kawahara (2012). Investigating whether it is possible to mark evidentiality with these adjectives prosodically or non-prosodically will reveal another nature of evidentiality and (de)accentuation. Thus, the investigation of the Japanese evidential phenomena should be entertained in all areas of linguistics.

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