Evidentials as Epistemic Modals or Speech Act Operators: Testing the Tests

Ryan Waldie, Tyler Peterson, Hotze Rullmann, Scott Mackie
University of British Columbia

WSCLA, Purdue University, April 3, 2009

Acknowledgements

Special thanks to our speakers:
Barbara Sennot, Louise Wilson, Margaret Heit, Thelma Blackstock, Leiwa Weget, and Fern Weget. (Gitksan)
Mary Jane Dick, Katie Fraser, and Sarah Webster (Nuu-chah-nulth)

Thanks for comments and feedback:
UBC Pragmatics Research Group (Heather Bliss, Patrick Littell, Meagan Louie, John Lyon, Lisa Matthewson, Ileana Paul, and Amelia Reis Silva)

Research was made possible by:
SSHRC grants 410-2005-0875 (principal investigator Hotze Rullmann),
410-2007-1046 (principal investigator Lisa Matthewson), and a grant from The Endangered Languages Documentation Program (SOAS) awarded to Tyler Peterson.

1 Introduction

1.1 Two Analyses

Modal analysis: Evidentials are epistemic modals

SAO analysis: Evidentials are speech act operators
(Faller 2002, 2006, see also Davis et al. (to appear))

1. In the modal analysis (proposed for St’at’imcets (Salishan) by Matthewson et al. (2007))
   1. evidentials are semantic operators that contribute to the truth conditions by quantifying over possible worlds.
   2. the requirement concerning the type of evidence (visual, indirect, etc.) is encoded as a presupposition.

• In the SAO analysis (proposed for Cuzco Quechua (Quechuan) by Faller (2002))
   1. evidentials operate at the pragmatic level
   2. they specify the illocutionary force (assertion, presentation, etc.)

1.2 Goals

• Give an overview of the tests that have been proposed to decide between the two analyses.

• Apply the tests to two new languages, Gitksan (Tsimshianic) and Nuu-chah-nulth (Wakashan).

• Evaluate the usefulness and applicability of the tests.

2 The Tests

• Some Terminology
  – It’s raining is the prejacent of It must be raining.
  – The evidence type requirement of an evidential specifies whether it is direct, indirect, reported, sensory, etc.
2.1 Overview


A. Tests Regarding Truth Value

1. **Known Falsity:** Is the sentence felicitous if the prejacent is known to be false?²
2. **Assent/dissent:** Can the contribution of the evidential be agreed or disagreed with?
3. **Cancellability of type of evidence requirement:** Can the evidence type requirement be cancelled?

B. Tests Involving Scope and Embeddability

1. **Embeddability:** Can the evidential be understood as part of the propositional content of an embedded clause?
2. **Scope with respect to interrogatives:** Can the evidential take scope over a speech act?
3. **Interaction with negation:** Is the evidence type requirement affected by negation?

2.2 Tests Regarding Truth Value

(1) **The Known Falsity Test**

*If the use of the evidential is felicitous when the speaker knows the prejacent is false, the evidential cannot be a modal.*

- Epistemic modals in English cannot be used if the prejacent is known to be false.

(2) #It's not raining, but it may be.

- Faller (2002) shows that the Quechua reportative -si changes the illocutionary force of an utterance to one of ‘presenting’ rather than ‘asserting’.

(3) **Quechua**

Pay-kuna-s ñoqa-man-qa qulqi-ta muntu-ntin-pi saqiy-wa-n, (s)he-pl-rep I-ILLA-TOP money-ACC lot-INCL-LOC leave-TO-3 mana-má riki riku-sqa-yui ni un sol-ta santavo-ta-pis not-SURF right see-PP-2 not one sol-ACC cent-ACC-ADD saq-sha-wa-n-chu leave-PROG-TO-3-NEG

“They left me a lot of money, but, as you have seen, they didn't leave me one sol, not one cent.” (Faller 2002: 191)

- Quechua -si changes the illocutionary force of an utterance to one of ‘presenting’ rather than ‘asserting’.

(4) **The Assent/Dissent Test**

*One cannot disagree with the content contributed by an illocutionary operator because a speech act does not have a truth value.* (Papafragou 2000, 2006, Faller 2002, 2006, Matthewson et al. 2007).

- English illocutionary adverbs are cannot be disagreed with:

(5) (i.) A: Damn! Barbara cut my hair too short again!
    B: No! That's not true. (≠ you are not upset.)

(ii.) A: Frankly, my opinion is that Bruce should do it.
    B: No! Not true (≠ you are not being frank.)

- Likewise the evidence type cannot be disagreed with in Quechua:

(6) **Quechua**

a. Ínes-qa qaynunchay ñaña-nta-s watak-sqa
   Íñes-TOP yesterday sister-3-ACC-REP visit-PST
   \( p=p \)‘Ínes visited her sister yesterday.’
   \( ev=\) speaker was told that \( p \)

b. Mana-n chiqaq-chu. #Mana-n chay-ta willa-rqa-sunk-chu.
   not-BPG true-neg not-BPG this-ACC tell-PSTI-3S20-NEG
   ‘That's not true. You were not told this.’ (Faller 2006, 11)

- By contrast, a modal proposition can be disagreed with.
• In example (7), B’s reply does not deny the prejacent (that Jo is the thief). Instead, B denies the modal claim that Jo must be the thief:

(7) A: Jo must be the thief.
B: That’s not true. There are some other plausible suspects. Jo may be entirely innocent. (Matthewson et al. (2007), adapted from a similar example in Faller (2002, 113))

• The Cancellability Test

Can the evidence type requirement be cancelled?

Both analyses predict the same results.

– In the modal analysis, the evidence type requirement is a presupposition, so it cannot be cancelled (Izvorski 1997).

– In the SAO analysis, the evidence type requirement is a sincerity condition, so it cannot be cancelled (Faller 2002, 2006).

2.3 Tests Involving Scope and Embedding

(8) The Embeddability Test

A SAO cannot be understood as part of the propositional content of an embedded clause, but a modal can.

• We focus on indirect speech. See Matthewson et al. (2007) for some discussion of evidentials in other embedded environments.

• English modal might can be embedded and can indicate that it is the matrix subject making the inference (rather than the speaker).

(9) John said that he might’ve won = John said “I might’ve won!”

• The Quechua reportative -si is limited in its distribution in an embedded clause, and cannot indicate the subject’s evidence source, only the speaker’s.

(10) Quechua

Marya ni-wa-rqa-n Pilar chayamu-sqa-n-ta-s
Marya say-1O-PAST1-3 Pilar arrive-PP-3-ACC-si

“Marya told me that Pilar arrived.”
(i.) speaker was told by someone else that Marya told the speaker that Pilar arrived.
(ii.) speaker was told by Marya that Pilar arrived.
(iii.) ≠ Marya was told that Pilar arrived. (Faller 2002: 222)

(11) The Interrogative Scope Test

Epistemic modals cannot take scope over an illocutionary act, such as an interrogative.

• Quechua reportative -si can be used to indicate that the speaker is asking the question on someone else’s behalf.

(12) Quechua

a. Investigator to consultant’s mother-in-law:
   Imaynà-n ka-sha-nki
   how-BPG be-PROG-2
   “How are you?”

b. Consultant to mother-in-law:
   Imaynà-s ka-sha-nki
   how-REP be-PROG-2
   “(She says) How are you?” (Faller 2002, 14–15)

• The St’at’imcets reportative ku7, an epistemic modal, cannot be used to indicate the speaker is asking the question on someone else’s behalf.

(13) St’at’imcets

swat ku7 k-wa táns-ts-an
who REPORT DET-IMPF dance-CAUS-1SG.ERG

“Who did they say I was dancing with?” (Matthewson et al. 2007, 232)

• Note that Quechua -si can also be used with this meaning.
Interaction with Negation

- In the modal analysis, the evidence type requirement is a presupposition, and will therefore project through negation.\(^3\)
- In the SAO analysis, the evidence type requirement is a sincerity condition, which is not affected by negation either. Moreover, SAO should not be able to occur in the scope of negation.
- The theories therefore make very similar predictions for this test.

2.4 Summary

<table>
<thead>
<tr>
<th>Meaning of the Test Results</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felicitous if ( p ) is known to be false?</td>
<td>SAO</td>
<td>Modal (unless...)</td>
</tr>
<tr>
<td>Pass assent/dissent test?</td>
<td>Modal</td>
<td>SAO (unless...)</td>
</tr>
<tr>
<td>Evidence type cancellable?</td>
<td>neither</td>
<td>SAO (unless...)</td>
</tr>
<tr>
<td>Semantically embeddable?</td>
<td>Modal</td>
<td>SAO (unless...)</td>
</tr>
<tr>
<td>Able to Scope outside interrogatives?</td>
<td>SAO</td>
<td>either</td>
</tr>
<tr>
<td>Evidence req. affected by negation?</td>
<td>neither</td>
<td>either</td>
</tr>
</tbody>
</table>

3 Gitksan

- This section is based on work in Peterson (to appear a,b,c).

3.1 Background

- Gitksan has three evidentials
  1. \( =\text{ima} \) indirect evidence
  2. \( =\text{kat} \) reported evidence
  3. \( \text{nakw} \) sensory evidence

\(^3\)The asserted content of the modal, i.e., the quantifier, should in principle be able to take wide or narrow scope with respect to negation. However, it is difficult to test this because of the variable quantificational force of the modal, as well as the fact that scopal interaction is often restricted for independent reasons (see Matthewson et al. 2007)

3.2 Tests Regarding Truth Values

★ Known Falsity: \( =\text{ima} \) and \( =\text{kat} \) pattern with modals, while \( \text{nakw} \) patterns with SAOs.

- The speaker cannot use \( =\text{ima} \) or \( =\text{kat} \) if he or she knows the prejacent is false.

(16) a. #yukw=\text{ima}=hl \text{ tim maatim prog=modal=cnf det fut snow}
   “It might/must be snowing.”
   Context: It’s August.

   b. #alu=\text{kat} t’aa=hl ’ayuuk ’a=s ‘nit visible=rep sit=cnf det traditional law obl-pndet 3sg
   “[I heard] He understands the (traditional) law.”
   Context: You know that John always insists in sitting at a different position in the feast hall, contrary to the customary seating arrangement by \( \text{wilp} \) (house).

- However, \( \text{nakw} \) is felicitous when the prejacent is known to be false.

(17) \( \text{nakw}=hl \text{ sins-t evid}=\text{cnf det blind-3}
   “He must be blind!”
   “Is he blind or something?”
   “Looks like he’s blind!”
   Context: You’re watching a baseball game. The star batter on the speaker’s favourite team keeps missing the ball and striking out, jeopardizing the outcome of the game.

★ Assent/dissent: \( =\text{ima} \) and \( =\text{kat} \) pattern with modals, while \( \text{nakw} \) patterns as a SAO.

- You can disagree with the modal proposition of a sentence containing \( =\text{ima} \).

(18) a. tsi da yukw=hl wis go’o=hl Kispiox ii hoti irrealis cond prog=cnf det rain loc=cnf det Kispiox conj?
   yukw=\text{ima}=hl wis go’o=hl gitwangak
   prog=dub=cnf det rain loc=cnf det Kitwanga
   “If it’s raining in Kispiox, then it might/must be raining in Kitwanga.”
b. needii=hl ha’nigood-y tsi hugwax-n
    NEG=CNDET think-1sg IRR correct-2sg
“I don’t think you’re right.”
B’s statement ≠ “It’s not raining in Kitwanga.”
B’s statement = “It’s not true that it must/might be raining in
Kitwanga.”

★ Assent/dissent: Challenging  nakw statements as in (19), is uncommon
and unnatural, much like the frankly sentences in (5) above.

(19) #nee=dii  nakw=hl kahahlal’st-tiit=hl haanak]
    NEG=CONTR. EVID=CNDET REDUP.PL WORK-3PL=CNDET women.pl
“The women must not be working.”
B’s statement ≠ “The women must not be working.”
B’s statement ≠ “It’s not true that you don’t have sensory
evidence that the women are not working.”

★ Cancellability: The reported evidence requirement of =kat cannot be
cancelled.

(20) #ye’e=kat=hl wan a-sun, ii gya’a-y loo-t a=hl
    walk=REP=CNDET deer LOC=here CONJ see-1sg OBL-3 LOC=CNDET
spagaytgan
forest
/=“I heard a deer walked around here, and I see it in the forest.”

3.3 Tests Involving Scope and Embeddability

★ Embeddability: =ima and =kat pattern with modals, while  nakw
patterns as a SAO.

=ima and =kat can be embedded under a verb of saying.

(21) mahl-i-t=(t)=s Louise loo-y  nakw wil-t
    say-TR-3SG=PNDET Louise OBL-1SG EVID COMP=3SG
hlo’oxs-i-(t)=ima=s John=hl hlit ’a=s Tony
kick-TR-3SG=MODAL=CNDET John=CNDET ball OBL=PNDET Tony
“Louise told/said to her husband that Bill showed his house to John.”
(22) mahl-t-i-(t)=s Gwen ’a=hl naks-t [wil
tell-TR-3=PNDET Gwen OBL=CNDET husband-3 COMP
kwin-gya’a-t-i-(t)=kat=s Bill=hl wip-t ’a=s John]
caus-see-TR-3=REP=PNDET Bill=CNDET house-3 OBL=PNDET John
“Gwen told/said to her husband that Bill showed his house to John.”

• However, the sensory evidential  nakw cannot be embedded:

(23) #mahl-i-(t)=s Louise loo-y  nakw wil-t
    say-TR-3SG=PNDET Louise OBL-1SG EVID COMP=3SG
hlo’oxs-i-(t)=ima=s John=hl hlit ’a=s Tony
kick-TR-3SG=MODAL=CNDET John=CNDET ball OBL=PNDET Tony
“≠Louise told me John must’ve kicked the ball to Tony. [Because
she saw the ball being kicked across the field]”

★ Interrogatives: =ima and =kat pattern with modals, while  nakw
patterns as a SAO.

• =ima and =kat are possible in questions, but cannot take scope over the
interrogative speech act.

• A question which contains the modal =ima is frequently translated using
wonder

(24) wilaa-i-(t)=ima=s nipip-y=a
    know-TR-3=MODAL=PNDET mother’s.brother-1SG=INT
“I wonder if my uncle knows them.”

• A question which contains =kat assumes the answer will also contain =kat:

(25) a. taxgwi tim bakw-m
    when FUT arrive.pl-1PL
“When is it we’ll get there?”
b. taxgwi=kat tim bakw-m
    when=REP FUT arrive.pl-1PL
“When is it (did they say/did you hear) we’ll get there?”
c. silkwsax t’aahlakw=kat
    noon tomorrow=REP
“(I heard/They said) at noon tomorrow.”
• ‘nakw in questions tends to be simply unintelligible to Gitksan speakers:

(26) ? nakw=t wilaa-i-(t)=s nipip-ya=a
  EVID=3 know-TR-3=PNDET mother’s.brother-1sg=INT

★ Negation: The reported evidence requirement of =kat projects through negation.

(27) nee=kat=tii=t stil-i-(t)=s Leiwa=t Fern
  NEG=REP=CONTR=3sg go.with-TR=3=PNDET Leiwa=PNDET Fern
  “[I have reported evidence that] It wasn’t Leiwa who went with Fern.”
  ≠ “It’s not the case that I have indirect evidence that Leiwa who went with Fern.”

3.4 Summary
• Gitksan has both modal and SOA evidentials.
  – =ima and =kat are modals.
  – ‘nakw is a SAO.

4 Nuuchahnulth
4.1 Overview
• Evidentials are morphosyntactically heterogeneous (Jacobsen 1986).
• Eight Nuuchahnulth evidentials were tested:

(28) | Position          | Form | Evidence | Additional Restriction |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lexical suffix</td>
<td>-kuk</td>
<td>visual</td>
<td></td>
</tr>
<tr>
<td>MODE suffix</td>
<td>-matak</td>
<td>indirect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-c̠k̠a;̠i̠</td>
<td>indirect</td>
<td>past</td>
</tr>
<tr>
<td>MOOD paradigm</td>
<td>-qa’cía</td>
<td>indirect</td>
<td>main clause</td>
</tr>
<tr>
<td></td>
<td>-wa’i;š</td>
<td>reported</td>
<td>main clause</td>
</tr>
<tr>
<td></td>
<td>-hça;č</td>
<td>reported</td>
<td>interrogative</td>
</tr>
<tr>
<td></td>
<td>-č</td>
<td>indirect</td>
<td>embedded clause</td>
</tr>
<tr>
<td>particle</td>
<td>na’aat</td>
<td>auditory</td>
<td>realis clauses</td>
</tr>
</tbody>
</table>

• Mood suffixes in general indicate clause type (e.g., assertion, interrogative, imperative, etc.) and subject agreement.

(29) a. mīžaawaʔiš
     mīž-(y)a’-waʔiš
     rain-CONT-3.QUOT
     “I heard it was raining.” (f.w. 19 Feb 2008)

b. mīžaaqaca
     mīž-(y)a’-qa’ča
     rain-CONT-3.REP.INTER
     “Did you hear it raining?” (f.w. 19 Feb 2008)

• Given their involvement in marking clause types, it might be expected that evidential MOODs are SAOs.
• However, all evidentials pattern as modals for the tests.
• I focus on two evidentials, the MODE suffix -matak and the MOOD -qa’ča, both indicating indirect evidence.

4.2 Tests Regarding Truth Value
★ Known Falsity: All evidentials pattern with modals, none are felicitous when the prejacent is known to be false.

(30) a. mīžaamatakš
     mīž-(y)a’-matakš
     rain-CONT-might.be-3.IND
     “I guess it’s raining.” (f.w. 3 Nov 2008)

b. mīžaaqača
     mīž-(y)a’-qa’ča
     rain-CONT-3.DUB
     “I guess it’s raining.” (f.w. 2 Nov 2008)

Felicitous: The blinds are closed, but I can hear the drips.
Infelicitous: The blinds are open and I can see it’s actually a sprinkler.
Assent/dissent: The results so far are unclear.

- Disagreeing with the modal force has not been tested.
- Disagreeing with the evidence type has been tested, and seems to to be possible (not predicted by either analysis).
- A little boy, Ken, was over playing with Kay when he wasn't supposed to be, and Elaine saw him over there. Later when he's talking to his mother, he wants to hide the fact that he was over there, so uses an indirect evidential. Elaine can respond with (32)

(31) a. wałyuumatakʔis Kay
wałyuː-ːmatakʔi Kay
home-might.be-3.IND Kay
“Kay must be home.” (f.w. 5 Dec 2008)
b. wałyuuqača Kay
wałyuː-ːqača Kay
home-3.DUB Kay
“Kay must be home.” (f.w. 5 Dec 2008)

(32) wikt/ik ñaquq̱hiʔ in ñaacsamitsa suwa
wikt/ik ñaquq̱hiʔ in ñaacsamitsa suwa
neg-2SG.IND truth-tell COMP see-PAST-1SG.ABS 2SG.PRO
wałaak
waɬ-ʔa kʷ
go-DUR
“You’re not telling the truth, I saw you go over there.” (f.w. 5 Dec 2008)

Perhaps in Nuu-chah-nulth presuppositional content is disagreed with the same way asserted content is. More research is needed.

Cancellability: All evidentials pattern with modals (and SAOs): the evidence type requirements cannot be cancelled for any evidentials.

- The sentences in (30), repeated in (33) below, are infelicitous if the blinds are open and I can see it’s raining.

(33) a. míxaamatakʔis
“I guess it’s raining.” (f.w. 3 Nov 2008)

b. míxaqača
“I guess it’s raining.” (f.w. 2 Nov 2008)

4.3 Tests Involving Scope and Embeddability

Embedding: All evidentials except moods pattern with modals: all evidentials except moods can be embedded.

(34) Context: The speaker knows that the shoes are Ken’s, but Kay just told her she they probably belong to John.

wawaamitʔis Kay ?in ?uucmatak John śuuswisʔi
wawaː-ːmjitʔiʔ Kay ?in ?uuc-ːmatak John śuuswisʔ̓-i
say-PAST-3.IND Kay COMP own-might.be John shoes-DEF

“Kay said that the shoes probably belong to John.” (f.w. 17 Nov 2008)

(35) *wawaamitʔis Kay ?in wałyuuqača Ken
wawaː-ːmjitʔiʔ Kay ?in wałyuː-ːqača Ken
say-PAST-3.IND Kay COMP home-3.DUB Ken
Intended: “Kay said Ken must be home.” (f.w. 17 Nov 2008)

Interrogatives: All evidentials pattern with modals: no evidentials can scope outside of interrogatives.

- Of evidential moods, only reported interrogative -ʔač is possible in a question.

- Both -matak and -ʔač indicate that the addressee is expected to have indirect or reported evidence for the answer to the question.

(36) a. hitiɬmatah
hit-a-ːɬ-matah-ʔ loc-in.the.house-might.be-3.INTER
“Do you think he/she is in?” (f.w. 1 Aug 2008)

b. Context: Ken came in from outside and was talking to you, but I was in the next room and couldn’t hear what he said.
Negation: All evidentials pattern with modals (and SAOs): the evidence type requirement cannot be negated for any evidential.

(37) Neither allows the reading “It is not the case that I have indirect evidence that it belongs to Kay.”

a. wikmatakɔ́s ʔuwc Kay
   wik-mata̰-kɔ́s ʔuwc Kay
   neg-might.be-3IND own Kay
   “It must not belong to Kay.” (f.w. 16 Nov 2008)

b. wikqa̰c̱a ʔuwc Kay
   wik-qa̰c̱a ʔuwc Kay
   neg-3DUB own Kay
   “It must not belong to Kay.” (f.w. 16 Nov 2008)

4.4 Summary

• Why do moods behave differently from the other evidentials in the embeddability test?
  • All moods have clause-type restrictions. Of the evidential moods:
    – -q̱a̰ča, -wa̰?iš and -ха̰č – matrix clause only
    – -č – conditional and relative clauses only
  • Thus, for independent morphosyntactic reasons, evidential moods cannot be embedded, and their semantics cannot be tested.

5 Conclusion

• Within one and the same language, some evidentials can be modals and others speech act operators, as Gitksan shows.
  • We conclude that all the tests are only a one-way test: illocutionary operators cannot be embedded (with some possible exceptions), whereas modals should in principle be embeddable, but in some cases they may not be for independent reasons.

  • The tests are useful but we must take caution in interpreting the results.

References


FALLER, MARTINA (2006), Evidentiality below and above speech acts, unpublished MS.


PETERSON, TYLER (to appear a), Pragmatic blocking in Gitksan evidential expressions, in Proceedings of the 38th Meeting of the North East Linguistic Society, GLSA Publications, Amherst, MA.


PETERSON, TYLER (to appear c), The ordering source and graded modality in Gitksan epistemic modals”, in Arndt Riester and Torgrim Solstad (eds.) Proceedings of Sinn und Beteutung 13.

RULLMANN, HOTZE, LISA MATTHEWS, and HENRY DAVIS (2008), Modals as distributive indefinites, Natural Language Semantics 16: 317–357.

VON FINTEL, KAI and ANTHONY GILLIES (2008), Must . . . stay . . . strong!, unpublished MS.