Evidentiality and Epistemic Modality in Gitksan

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1   Introduction

This chapter presents a sketch of the grammatical evidential system and related epistemic meanings in Gitksan, a critically endangered indigenous language of the Tsimshianic language family spoken in the northwest interior of Canada. In addition to providing a description of the kinds of evidential meanings the individual evidentials encode, I apply a number of basic syntactic and semantic tests that provide a more detailed picture of the individual evidentials. A specific feature of the Gitksan evidentials, which is examined in detail, is how they can be used to express epistemic modal meanings, and how a speaker's choice of which evidential to use in a particular speech context is conditioned by her evaluation of the information acquired in that context. One of the effects of this choice is the expression of what can be translated as modal force.

1.1   The Tsimshianic Language Continuum

The Tsimshianic languages are spoken on the northwest coast of Canada, almost entirely within the province of British Columbia, adjacent areas of the interior, and the southern tip of the Alaska panhandle.

There are four linguistic and socio-cultural divisions that make up the Tsimshianic family, given in (1):[1]

(1)   The Tsimshianic Languages (Rigsby 1986; Mulder 1994; Tarpent 1997)

        COAST TSIMSHIANIC (CT)

            Coast Tsimshian (S'malgyax)
            Southern Tsimshian (Sgüüxs)

        INTERIOR TSIMSHIANIC (IT)

            Nisga'a or Nisgha'a
            Gitksan or Gitxsan

The Coast Tsimshian (S'malgyax) reside to the north and south of the Skeena River delta, and the South Tsimshian (Sgüüxs) were reported to live to the south of this area, primarily in the villages of Klemtu and Hartley Bay. The Nisga'a reside in the Nass River Valley and along Observatory Inlet, and the Gitksan reside in the easterly adjacent upper Skeena and
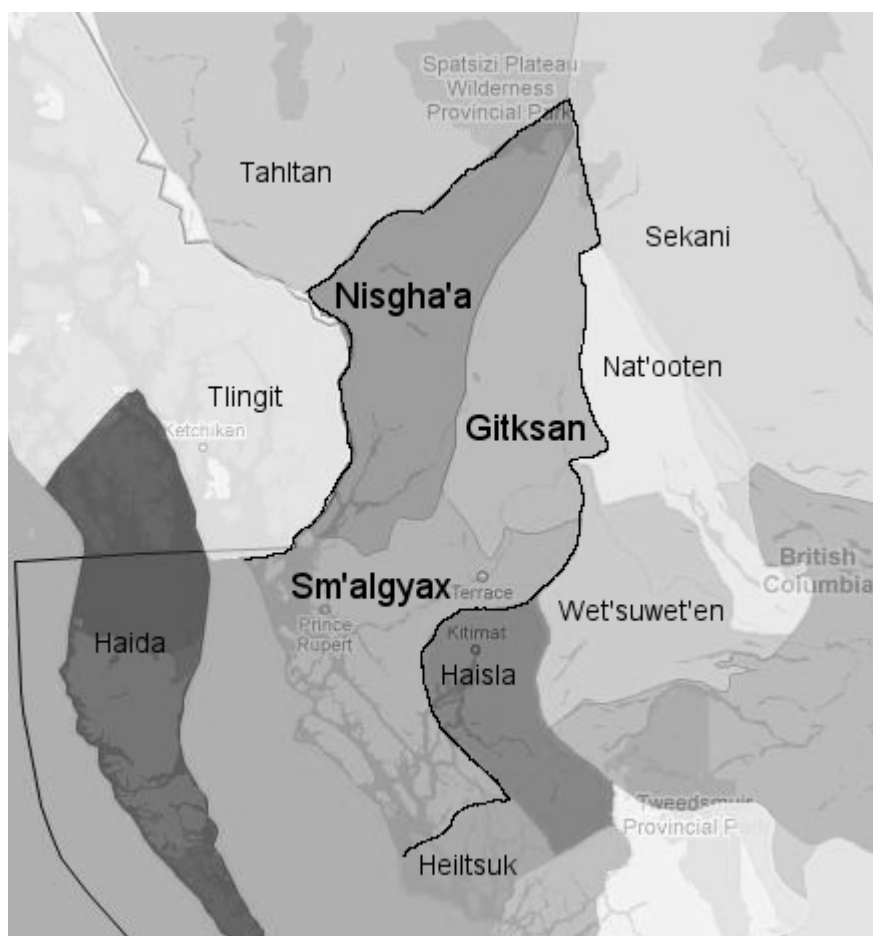
Figure 1: Map of the Three Tsimshianic Territories (and neighbouring languages): Coast Tsimshian (S'malgya̱x), Nisgha'a, and Gitksan (source: maps.fphlcc).

Kispiox valleys, and the Skeena watershed. The word *Gitksan* is morphologically complex, meaning 'people of the Skeena River' (*git-* 'people of', *xsan* '(to) gamble'; 'Skeena River'). The Gitksan often refer to their language as *si'malgax*, which means 'the real or true language' (*si'm-algax* 'true-language'). The language has been referred to as Gitxsan or Gitksan by scholars, or Gitxsanimx̱ or Gitxsanimax̱ by native speakers when distinguishing it from Nisg̱a'a (Nisg̱a'amx̱) or Coast Tsimshian (Ts'imsanimx̱). However, the Nisg̱a'a and Coast Tsimshian people also refer to their languages using *si'malgax*. This has created some confusion, as many publications on Coast Tsimshian simply refer to the language as S'malgyax̱.[2] With respect to the Interior Tsimshianic languages, the names Gitksan and Nisg̱a'a are more significant for political and socio-cultural reasons than linguistic ones: aside from some lexical and pronunciation differences, the two languages are mutually intelligible.

While there are no exact or official figures, in my own estimation, based on the reports of several community members, there are approximately between 350 – 400 speakers of Gitksan, most of whom are over the age of 50. Although there are some teaching materials (for example Powell and Stevens 1977), as well as recent efforts to introduce the Gitksan language into the public school system using materials developed by community teachers, children are no longer acquiring the language. These facts place Gitksan on the list of the world's many endangered indigenous languages.

1.2 Methodology

There are unique challenges in documenting evidential and modal meanings in languages with grammatical evidentials, where there is often no obvious lexical counterpart in a metalanguage such as English. In this chapter I adapt the semantic fieldwork methodology of Matthewson (2004), a central feature of which is the use of contexts to test both felicity and grammaticality judgments of speakers. I also show the we can further enrich our understanding of the individual grammatical evidentials by utilizing a number of standard, pre-theoretical syntactic and semantic tests. Much like we use minimal pairs to discover what a phoneme is in a language, or constituency tests to show, for example, what an noun phrase is in a language, I demonstrate how a number of simple tests can further deepen the description of the syntactic, semantic and pragmatic features of a grammatical evidential in declarative sentences. Specifically, in this chapter I examine how each of the individual evidentials in Gitksan behave with respect to negation, syntactic and semantic embeddability, and what effect the speaker's knowledge has of the proposition expressed by an evidential sentence. Additionally, I look at what effect the insertion of an evidential or modal has when inserted in into a different clause type, such as a Gitksan question.

Fortunately, there are still places in the Gitksan communities and family households where one can hear the language used on a daily basis. This afforded me the opportunity to observe the language and how it's used spontaneously and creatively in a natural setting between fluent speakers of the language. Not surprisingly, evidentials were abundant in natural conversation. Thus, with the permission of my language consultants, I mades notes of these overheard conversation fragments. Later I would identify relevant sentences containing evidentials and re-elicit them from the same speakers. Additionally, data was gathered from the transcriptions of personal narratives and stories of several of my consultants. The tests mentioned above, taken together with language observation and transcriptions all contribute different but

complementary aspects to the descriptions if the evidentials.

Data was collected from 16 speakers, representing each of the six major Gitksan speaking communities in northern BC (excluding Kitwancool), plus two urban speakers in Vancouver, and across the two main dialects of Gitksan, Western and Eastern Gitksan. I found that there is no discernible differences relevant to evidential or modal meaning between these dialects or communities.

1.3   Grammatical evidentials in Gitksan

This study of grammatical evidentials in Gitksan has its roots in Tarpent (1987), who identifies three morphemes which encode epistemic and evidential meanings in Nisg̱a'a. These are what Tarpent characterizes as the 'reportative' =k̲at, the 'dubitative' =ima, and the modal/evidential 'nakw.[3] Both =ima and =k̲at are described by Tarpent as verbal enclitics; however, the modal/evidential 'nakw has the syntactic distribution of an auxiliary verb (a feature discussed in detail in section 4). Table 1 below summarizes Tarpent's original glosses and types of information source for the Nisg̱a'a evidential system.

	Tarpent's original gloss	**Type of information source**
=k̲at	REPORTATIVE	report
=ima	DUBITATIVE	indirect/direct
'nakw	MODAL/EVIDENTIAL	direct

Table 1: The grammatical evidential system in Nisg̱a'a (Tarpent 1987)

Tarpent's descriptions of =k̲at, =ima, and 'nakw in Nisg̱a'a generally hold for their cognates in Gitksan, but in this chapter I further refine their meanings by applying the methodology outlined in section 1.2 above. In anticipation of this, I have replaced Tarpent's original glosses in Gitksan: =ima is reglossed as 'MOD' (modal), and the MODAL/EVIDENTIAL gloss for 'nakw is now 'EVID' (evidential). However, I've maintained Tarpent's original gloss for the reportative, =k̲at. The glosses used in the remainder of this chapter, and their corresponding types of information source, are given in Table 2 below:

	Gloss	**Type of information source**
=k̲at	REPORTATIVE (REP)	Reportative
=ima	MODAL (MOD)	not specific
'nakw	EVIDENTIAL (EVID)	Inferential

Table 2: The grammatical evidential system in Gitksan (Peterson 2010a)

In the following section I show that =k̲at encodes an information source in the form of a report, much like a standard reportative evidential. However, =ima requires more explanation: =ima does not encode any specific type of information. Rather, =ima expresses epistemic modal meaning that is *compatible* with a variety of information sources, hence the designation 'not specific'. This, and it's epistemic modal properties are examined in detail in section 3.

Evidential *'nakw*, on the other hand, encodes a speaker's inference based on information acquired through the senses, such as sight, smell, and touch. However, Gitksan speakers also use *'nakw* to express what is translated as modal meaning, especially in contexts where *=ima* would also be felicitous. The evidential meanings of *'nakw* and its interactions with *=ima* are examined in section 4.

2   The Reportative *=kat*

Reportative *=kat* combines the meanings of a reported evidential with inference (similar to other languages with few grammatical evidential, including the ones described for Turkic see Johanson, this volume), whether that source is known to the speaker or not. Examples (2) and (3) involve contexts where the source of the information is 'once removed' (or second-hand) from the speaker of the sentence:[4]

(2)   Context: Louise is telling her friends at the coffee shop that Mary had her long hair cut recently. Louise hasn't seen Mary's new haircut herself yet, but Louise has evidence in the form of a report, from the hairdresser who did it. Louise says

gungojigas	*Mary-hl*	*gest*
kwin-kots-i-(t)=kat=s	Mary=hl	kes-t
CAUS-cut-TR-3sg=REP=PND	Mary=CND	hair-3sg

[I heard] Mary had her hair cut.

(3)   Context: John isn't at work today. Bob asks one of his co-workers where John is. None of them have seen John, but their boss – the source of the report – told one of Bob's co-workers earlier in the morning. Bob's co-worker replies

siipxwgatit	*John*
siipxw=kat=t	John
sick=REP=PND	John

[I heard] John is sick.

Reportative *=kat* can also be used in contexts where the original source of the information isn't precisely known, as with the parent's report in (4):

(4)   Context: All of the children in the neighbourhood are excited about a new dog in the neighbourhood, which belongs to a man down the street. A parent is talking to a neighbour about the new dog after overhearing from the children call the dog Sammy; the parent responds

siwatdigathl	*gyathl*	*'os*	*'ahl*	*Sammy*
si-wat-t-i-(t)=kat=hl	gyat=hl	'os	'a=hl	Sammy
CAUS-name-T-TR-3=REP=CND	man=CND	dog	OBL=CND	Sammy

[I heard] The man named his dog Sammy. (adapted from Rigsby 1986: 291)

The grammatical reportative in many languages is often translated into English using "I hear(d)...". This is also common in Gitksan. However =*kat* is also frequently translated using a modal adverb such as *apparently*, as in (5) (see also Hunt 1993 and Tarpent 1978: 499 for other examples of epistemic modal translations of =*kat* in Gitksan and Nisg̲a'a):

(5) *'majig̲athl*   *ha'niiguy'pax̲*   *'ahl*   *lo'op*
     'mats-i-(t)=*kat*=hl   ha-'nii-k̲uy'pax̲   'a=hl   lo'op
     hit-TR-3=REP=CND   INSTR-in-light   LOC=CND rock

     (i.) I hear he hit the window with a rock (and broke it).
     (ii.) Apparently, he hit the window with a rock.

Rather than treating this simply as an effect of translation, this observation provides additional insight into the meaning of =*kat*, as speakers will choose one translation over the other depending on how reliable they perceive the source of the report to be. With translation (5i), the speaker is using the report of an adult who happened to be working across the street in their yard when they saw the window of the speaker's house being broken. The speaker judges this to be a reliable source, and this sentence receives a "I hear/heard..." translation. However, in translation (5ii), the speaker either holds a neutral attitude towards the report, or has less confidence in the report. This would be the case if the speaker uses the report from one of the children who were there but wanted to avoid punishment or blame. As such, the modal translations of =*kat* indicate that it combines meanings of inference and the speaker's assumptions about the context of the =*kat*-utterance. This contrast can also be observed in (6):

(6) *lumak̲digas*   *John=hl*   *daala*
     lumak̲t-i-(t)=*kat*=s   John=hl   daala
     donate-TR-3=REP=PND John=CND   money

     (i.) I heard John put in money (for the feast).
     (ii.) It seems John put in money. (cf. Tarpent 1987: 499)

In the context of (6) a group of people are counting up the contributions after a feast, and speculating about the different contributions people made that night. A speaker may translate (6) as (6i) if they overheard the information from one of the people who are responsible for the final accounting, thus normally a reliable source. On the other hand, if someone simply overheard from an unknown voice in a crowded room that John also contributed, the translation in (6ii) is felicitous. It is important to note that this is not necessarily an unreliable source: by using the evidential-like construction *it seems* a speaker is conveying a neutral attitude towards the proposition – maybe the report is reliable, maybe it isn't.

2.1 Knowledge of the proposition embedded under =*kat*

A speaker's use of =*kat* in a particular speech context is conditioned by two factors: (i.) the speaker's belief in – or at least the plausibility of – the reported evidence in that context, and (ii.) a lack of knowledge of the truth (or falsity) of the proposition (p) embedded under =*kat* in that context. In other words, the speaker cannot know that the proposition embedded under =*kat* is true or false. For example, (7) is felicitous in a context where the speaker was

standing outside the bingo hall having a cigarette when they overheard the announcer inside announcing John's winning. As such, (7) expresses the assertion of p, that John won at bingo last night, and that the speaker has reported evidence for p.

(7)   *xstagas*   *John go'ohl*   *bingo gaxxw*
       xsta=kat=s   John   ko'=hl   bingo kaxxw
       win=REP=PND John LOC=CND bingo last.night
       [I heard that] John won at bingo last night.
       p = John won at bingo last night

However, if a speaker knows for a fact that John won – or that John didn't win – then the use of =*kat* is infelicitous, as the minimal pair of contexts in (8) show:

(8)   #*xstagatit John go'ohl bingo gaxxw*

       Context where p is true: Louise was at bingo last night where she witnessed John win the jackpot (she saw him went up to the stage to accept the money). The next day a friend asks her who won the jackpot.

       Context where p is false: Louise is telling her friend that she heard at the coffee shop that John won at bingo last night, but Louise knows that's not true because she also there playing and witnessed the confusion about a number that was incorrectly called.

When a speaker witnesses an event first hand, or they know the truth of a proposition, a simple evidentially neutral assertion is made. The strategy to report something a speaker believes or knows is false is to use the embedding sensory verb *lax* 'hear', as in (9):

(9)   *lax'ni'y wil*   *xstas*   *John go'ohl*   *bingo gaxxw*   *ii*   *'ap*
       lax'ni-'y wil   xsta=s   John   go'o=hl   bingo gaxxw   ii   'ap
       hear-1sg COMP win=PND John LOC=CND bingo last.night CONJ ASSERT
       wilaa'y   *wil*   *needii xstat*
       wilaa-'y   wil   needii xsta-t
       know-1sg COMP NEG   win-3
       I heard that John won at bingo last night, but I know he didn't win (because I was there too).

These tests show that =*kat* is a reportative evidential. However, these facts, combined with observed modal translations of =*kat* in (5) and (6), show that =*kat* combines the meanings of speech report with assumption and inference, which give it modal-like overtones. Note that the same infelicity arises if a modal auxiliary in English such as *might* or *must* is used either of the contexts in (8), as in #*John must've won*. I elaborate on this claim in section 3.1.

A comment about evidentially neutral assertions in Gitksan is necessary at this point: in many languages with grammatical evidentials sentences that do not have an evidential can be analyzed as a zero exponent of firsthand evidentiality (Aikhenvald 2004: 72-78 and Aikhenvald, this volume). However, sentences in Gitksan – at least synchronically – that do not have an evidential do not express that the speaker witnessed first-hand, for example, the ripeness of the berries in (10):

(10) *mukwhl   maa'y*
    mukw=hl   maa'y
    ripe=CND   berries
    The berries are ripe.

Evidence for this claim comes from the fact that a speaker can know the berries are ripe based on knowledge that is not the result of direct visual (or other sensory) evidence (i.e. seeing the ripe berries): the assertion of (10) may be based on witnessing the ripe berries, but it could also be expressing the belief that the berries are ripe because of the speaker's past experiences in berry-picking.

2.2   Embeddability

In more complex sentences the attachment of =*kat* to either the matrix or embedded clause corresponds to whether the speaker of the sentence has reportative evidence, or the subject of the matrix clause is reporting what someone else said. In (11), which does not contain =*kat*, the speaker was present when Mark made the statement, and the speaker is directly reporting what Mark said, that John would leave for the coast:[5]

(11) *mahldis   Mark 'ahl   gimxdit dim wil   saa   daa'whls   John*
    mahl-T-i-(t)=s   Mark 'a=hl   kimxt-t tim wil   saa   taa'whl=s John
    tell-t-TR-3=PND Mark OBL=CND sister-3 FUT COMP away leave=PND John
    go'ohl   laxmo'on
    ḵo'=hl   lax-mo'n
    LOC=CND   GEO.LOC-coast
    Mark told/said to his sister that John is leaving for the coast. (Rigsby 1986: 324)

In example (12) =*kat* attaches to the verb within the matrix clause, and the speaker is now reporting that she heard about Mark telling his sister that John would leave for the coast. In this case, the reportative evidence is oriented towards the speaker: she heard from Mark's co-worker that Mark told his sister that John would leave for the coast.

(12) REPORT: The speaker is asserting, based on evidence in the form of a report, that Mark told his sister John would leave for the coast.

    Context: Louise heard from Mark's co-worker that John was going to be away for the weekend, and the co-worker overheard Mark talking to his sister on the phone about John going to the coast.

    mahldigas   Mark 'ahl   gimxdit   dim wil   saa
    mahl-t-i-(t)=kat=s   Mark 'a=hl   gimxt-t   tim wil   saa
    tell-t-TR-3sg=REP=PND Mark OBL=CND sister-3sg FUT COMP away
    daa'whls   John go'ohl   laxmo'on
    taa'whl=s   John ḵo'=hl   lax-mu'n
    leave=PND John LOC=CND   GEO.LOC-coast
    Reportedly, Mark told/said to his sister that John is leaving for the coast. (adapted from Rigsby 1986: 324)

However, if =_kat_ is attached to the verb in the embedded clause, as in example (13), the reportative evidence is now re-oriented to the subject of the matrix clause, Mark, and not to the speaker of the sentence: in other words, it is Mark who has reported evidence that John will leave for the coast, not the speaker of the sentence. In (13) the speaker is simply reporting what Mark said, which includes Mark's reportative evidence:

(13)   REPORT: John is leaving for the coast (as a report heard by Mark).

Context: Louise had lunch with Mark. While at lunch his sister came up and Mark told her that he heard John would leave for the coast.

mahldis	*Mark*	*'ahl*	*gimxdit*	*dim*	*wil*	*saa*
mahl-T-i-(t)=s	Mark	'a=hl	kimxt-t	tim	wil	saa
tell-t-TR-3sg-PND	Mark	OBL=CND	sister-3sg	FUT	COMP	away

daa'whltgatit	*John*	*go'ohl*	*laxmo'on*
taa'whl=t=_kat_=t	John	ḵo'=hl	laẖ-mo'n
leave=3sg=REP=PND	John	LOC=CND	GEO.LOC-coast

Mark told/said to his sister that he was told that John is leaving for the coast.

It is generally understood that we can test a word to determine whether its contribution is to the illocutionary force of an utterance or its propositional content (Faller 2002). First, if a word contributes only to the illocutionary force of an utterance, then in an indirect speech context that word cannot be understood as part of the propositional content of the indirectly described speech act. In other words, we do not expect illocutionary operators to be embeddable. This effect can be observed with illocutionary adverbials such as *frankly*, *honestly*, and with attitudinal adverbials such as *unfortunately*, *sadly* (Ifantidou-Trouki 1993). However, what tests in (12) show is that =_kat_ can be both syntactically and semantically embedded. An expression is semantically embedded if it is interpreted in the scope of some other semantic operator, in this case the matrix verb: the embedding of =_kat_ orients the reported evidence to the matrix subject. As such, =_kat_ contributes to the propositional content of an utterance.

2.3   Negation

In a majority of the world's languages that have grammatical evidentials evidential meaning is not within the scope of negation (see Aikhenvald 2004: 256-7 for details). This is also the case in Gitksan. Negation in Gitksan is the sentence-initial word *nee=tii*, which is composed of the negation particle *nee* and what is glossed in the Gitksan literature as the contrastive enclitic =_tii_. Although at the moment we do not have a complete picture of the relative orderings of the numerous clitics in Gitksan, a robust observation is that the negation particle *nee* serves as a host for =_kat_, which is followed by the contrastive enclitic =_tii_ (and then, depending on the transitivity of the clause, an agreement enclitic such as the third person enclitic =_t_). As such, morphosyntactically =_kat_ displays all of the hallmarks typical of a second-position clitic. However, negation also reveals an important semantic feature of =_kat_: the insertion of negation into a =_kat_-sentence does not negate the reported evidence; rather, negation only negates the asserted content of the utterance – despite the fact the negation precedes =_kat_ morphosyntactically:

(14)   *neegatdiit*   *sdilis*   *Leiwat*   *Fern*
       nee=<u>k</u>at=tii=t   stil-i-(t)=s   Leiwa=t   Fern
       NEG=REP=CONTR=3sg   go.with-TR-3sg=PND   Leiwa=PND   Fern
       [I have reported evidence that] It **wasn't** Leiwa who went with Fern.
       ≠ [**It's not the case that** I have reported evidence that] Leiwa who went with Fern.

(15)   *neegatdii*   *hliskwhl*   *gahahlal'stdiithl*   *haana<u>k</u>*
       nee=<u>k</u>at=tii   hliskw=hl   <u>k</u>ahahlal'st-tiit=hl   haana<u>k</u>
       NEG=REP=CONTR   IMPERF.=CND   REDUP.pl-work-3pl=CND   woman.pl
       [I have reported evidence that] The women are **not** finished working.
       ≠ [**It's not the case that** I have reported evidence that] The women are finished working.

The reason why this observation is significant is that negation is a standard test for presupposed meaning: in examples (14) and (15) the reported evidence projects through negation, as thus cannot be a part of the asserted content. As such, the evidential meaning of =<u>k</u>at is presupposed, and not asserted.

In sum, the tests regarding a speaker's lack of knowledge of the proposition in (7) and (8), taken together with the embeddability tests in (12) and (13), support the claim that =<u>k</u>at is a kind of epistemic modal. The negation tests show that the reported evidence is presupposed, and not a part of the asserted content. We can now draw these together into a unified analysis of =<u>k</u>at: a speaker's use of a =<u>k</u>at-sentence presupposes evidence in the form of a report and asserts the possibility of p. Using (2) as an example, repeated in (16), we can represent this analysis in the following way, using the the logical symbol '◇' to represent the weak, *might*-like modal force =<u>k</u>at-sentences are often translated with:

(16)   *gungojigas*   *Mary-hl*   *gest*
       kwin-<u>k</u>ots-i-(t)=<u>k</u>at=s   Mary=hl   <u>k</u>es-t
       CAUS-cut-TR-3sg=REP=PND   Mary=CND   hair-3sg
       [I hear that] Mary had her hair cut.
       p = Mary had her hair cut
       The speaker presupposes evidence for p in the form of a report
       The speaker asserts ◇p

3   Modal =*ima*

The uncertain or dubitative nature of =*ima* that Tarpent describes in Nisg̲a'a can be observed in Gitksan when someone is speculating about future events, as in (17), or in the spontaneous exchange between family members in (18):

(17)   Context: Feeling lucky, Leiwa is thinking about going to bingo tonight. She remarks to her daughter

       <u>x</u>stayima   *'nii'y*
       <u>x</u>sta=*ima*   'nii'y
       win=MOD   1sg

I might win. I'll probably win.

(18) Alvin makes regular trips to Smithers in the morning. He's almost always back from these trips in time for lunch.

GS: *gaxguhl*   *witxws*   *Alvin?*
      kaxkwi=hl   witxw=s   Alvin?
      when=CND   arrive=PND Alvin
      When is Alvin arriving?

LW: *witxwima*   *'nit* *silkwsax*
      witxw=ima   'nit   silkwsax
      arrive=MOD 3sg   noon.time
      He'll probably arrive around noon.

The speculative nature of the assertions in response to the contexts in (17) and (18) show how a speaker is likely relying on general knowledge (that winning money is possible if you play bingo), or LW's experience with similar situations (I've won at bingo before, or the fact that Alvin is usually returns in time for lunch whenever he goes to Smithers). These examples indicate that =*ima* does not encode any specific information source; rather, it displays many of the characteristics of an epistemic modal and not an evidential. This section argues that =*ima* is indeed a epistemic modal which combines reference to inference (based on a variety of information sources), and assumption (based on similar experiences or general knowledge).

An important feature of =*ima*-sentences in Gitksan is that they are usually translated into English using a variety of modal-like words, such as *must*, *might*, *maybe*, *probably*, etc. Paying closer attention to these translations we find that these modal-like words include the range of modal forces, from weak end of the scale *might/maybe*, to the stronger *must/probably*. The type of information available to a speaker and what they can infer from it naturally influences the strength of belief in the truth of the proposition, and this exercise in translating a grammatical evidential into an (epistemic) modal shows this. This is important for another reason: =*ima* is also compatible with sensory evidence, but in sensory evidence contexts =*ima* is usually translated as having only a weaker modal force. For example, in Context 1 of (19) and (20) the speaker is inferring from past experience from similar situations or general knowledge. However, Context 2 involves an inference based on sensory evidence, in both cases, observable evidence. When faced with the task of translating an =*ima*-sentence involving sensory evidence, the Gitksan speaker will almost always use a weaker modal word:

(19) **Context 1:** *Inference from a speaker's experience with similar situations:* You need to ask John for a favour. You're sitting at John's friend's place and you ask her if she knows if John is back from work yet. She says that he is always back from work by 5pm, so John'll be home by now.

Context 2: *Inference from observable evidence:* You need to ask John for a favour. You drive by his place with a friend and notice the lights are on and his truck is in the driveway.

t'ayimat   *John*
t'a=*ima*=t   John
at.home=MOD=PND   John

Translations in Context 1: John **may/must** be at home. John's **probably** at home.
Translations in Context 2: Maybe John's at home. John **might** be at home.

(20) **Context 1:** *Inference from general knowledge:* You're sitting at home talking about going berry-picking. It's August, and the berries are usually ripe this time of year on the Suskwa.

    Context 2: *Inference from observable evidence:* People are arriving home after a day of berry picking up in the Suskwa. They're carrying buckets of berries, and their hands are all purple.

    mugwimahl   *maa'y*
    mukw=*ima*=hl   maa'y
    ripe=MOD=CND   berries

    Translations in Context 1: The berries **might be/are likely** ripe.
    Translations in Context 2: Perhaps the berries are ripe. The berries **could** be ripe.

This is a robust generalization in the translations of =*ima*-sentences, and I return to examine more closely the significance of the variable modal of =*ima* in section 4, which is easier to make sense of when =*ima* is compared with evidential *'nakw*.

3.1 Knowledge of the proposition embedded under *=ima*

As with reportative =*kat*, a crucial property of =*ima* is that it cannot be used if the speaker knows that the proposition expressed by the sentence is either true or false. It is perhaps a little odd under most circumstances for speaker to make a statement, evidential or not, that she knows to be false (except perhaps in cases involving lying or deception). Nonetheless, example (21) shows the infelicity of an =*ima*-sentence in a context where the speaker knows the proposition embedded under =*ima* to be false, just as it is in English:

(21)   John is in Vancouver visiting his sister; L knows this because she just spoke to him on the phone. As such, L knows John is in Vancouver and not at home in Kispiox:

    #t'ayimat   *John*
    t'a=*ima*=t   John
    at.home=MOD=PND   John
    #John may/must be at home.

Cases where the speaker knows the proposition is true are somewhat more complicated. Example (22) shows the infelicity of an =*ima*-sentence where the speaker knows the proposition embedded under =*ima* is true; in this case the speaker actually sees the deer in the forest:

(22) *#ye'eyimathl   wan asun,   ii   gya'a'y loot   'ahl   spagaytgan*
      ye'e=*ima*=hl   wan a-sun,   ii   kya'a-'y loo-t 'a=hl   spakaytkan
      walk=MOD=CND deer LOC-here CONJ see-1sg OBL-3 LOC=CND forest
      #A deer might be around here, and I see it in the forest.
      Consultant's comment: 'There's no point saying *it might be around here* if you can see the deer yourself.'

The infelicity of (22) arises from the modal semantics of =*ima*, just as it did with =*kat*. A clue to this can be found in the modal translation of (22) in English, which is also infelicitous in this context: '#A deer *might* be around here...'. This is because English epistemic modals are subject to the restriction again asserting $\Diamond p$ if the speaker knows that p is true.

Let us examine this claim a little more closely: example (23) involves speculation about a future possibility, based on previous experiences in the past:

(23)   Context: L has won something every time she went to bingo this month; F suggests that L is on a winning streak, and that she should go again to bingo tonight because

        xstayima   'niin
        xsta=*ima*   'niin
        win=MOD 2sg
        You might win. Maybe you'll win.

Recall that =*ima* can be used in speculative contexts such as these. The =*ima*-sentence in (23) asserts that a 'you *might* win' – a modal assertion of the form $\Diamond p$. I claim that this is not just an effect of translation. Evidence for claiming that =*ima* has a modal semantics comes from coordination, a standard test for modality: if a sentence expressing a proposition is coordinated with a sentence expressing the negation of that proposition, we expect a logical *contradiction*. This is sketched out in (24a) using the proposition *the horse ran away*. However, when a modal with weak force takes wide scope over negation, the resulting coordinated sentences are logically *contingent*, as in (24b)

(24)   a. #The horse ran away and the horse didn't run away. $p \wedge \neg p$

        b. Maybe the horse ran away and maybe the horse didn't run away. $\Diamond p \wedge \Diamond \neg p$

The Gitksan sentence in (24a) is a contradiction, just as it is in English. However, if =*ima* did not have a modal semantics, then we would expect (25) to also be a contradiction; however, it is contingent:

(25) *guxwimahl   gyuwadan, ii   neeyimahl*
      kuxw=*ima*=hl   kyuwatan, ii   nee=*ima*=hl
      run.away=MOD=CND horse   CONJ NEG=MOD=CND
      guxwimahl   gyuwadan
      kuxw-(t)=*ima*=hl   kyuwatan
      run.away-3sg=MOD=CND horse
      Maybe the horse ran away, and maybe the horse didn't run away. $\Diamond p \wedge \Diamond \neg p$

This shows that a speaker using an =*ima*-sentence asserts $\Diamond p$, and not simply p, just as we observed with reportative =*kat*.

3.2 Embeddability

Example (26) shows that the same results found with =*kat* obtain with =*ima* when it is attached to the embedding verb *mahl*: the indirect evidence is now oriented towards the speaker, and not the subject of the matrix clause, Granny. In (26) the speaker was learning how to can berries with Granny, and in this context she can infer from the fact she had this learning experience, that it's possible Granny told her that a certain berry will taste better once it's left until autumn:

(26) Context: You learned from your aunt how to can berries last autumn. Several people were also there, including Granny, who also has experience in canning berries.

mahliyimas	*nits'iits'*	*loo'y*	*dim*	*ixs'ta*	*ji*	*hla*	*xwsit*
mahl-i-(t)=*ima*=s	nits'iits'	loo-'y	tim	ixs'ta	tsi	hla	xwsit
say-TR-3sg=MOD=PND	grandmother	OBL-1sg	FUT	taste	IRR	INCEPT	autumn

Granny might've said to me that it will taste better in the autumn.

By contrast, when =*ima* is embedded in the complement of a verb, it has the same effect as it does with =*kat*: the evidence is related to the matrix subject, and not to the speaker. In example (27), a speaker is asserting that Granny has indirect evidence, based on her experience in canning berries, that the berries might taste good in the autumn:

(27) Context: You're learning how to can berries, and you're telling a friend that Granny suggested that the particular berry you were canning might taste better the longer it's left to sit, maybe by the autumn.

mahlis	*nits'iits'*	*loo'y*	*dim*	*ixs'tayima*	*ji*	*hla*	*xwsit*
mahl-i-(t)=s	nits'iits'	loo-'y	tim	ixs'ta=*ima*	tsi	hla	xwsit
say-TR-3sg=PND	grandmother	OBL-1sg	FUT	taste=MOD	IRR	INCEPT	autumn

Granny told me it might taste better in the autumn.

What these examples show is that =*ima*, like reportative =*kat*, can be both syntactically and semantically embedded: =*ima* contributes its modal semantics to the propositional content of the utterance.

3.3 Negation

The exact same results found with =*kat* with respect to negation obtain with =*ima*: when negation is inserted into an =*ima*-sentence the evidential meaning takes wide scope, as (28) shows:

(28) *neeyimahl*   *mukwhl*   *maa'y*
    nee=*ima*=hl   mukw=hl   maa'y
    NEG=MOD=CND   ripe=CND   berries
    [I have indirect evidence that] The berries might **not** be ripe.
    $\neq$ [**It's not the case that** I have indirect evidence that] The berries might be ripe.

As with =<u>k</u>at, this test shows that the evidential meanings of =*ima* are presupposed, and not a part of the asserted content. I return to examine in more detail the negation facts with =*ima* in section 3.3.

The tests regarding a speaker's lack of knowledge of the proposition in (7) and (8), taken together with the embeddability tests in (12) and (13), support the claim that =*ima* is a kind of epistemic modal. The negation tests show that the indirect evidence is presupposed, and not a part of the asserted content. We can now draw these together into a unified analysis of =*ima*: a speaker's use of a =*ima*-sentence presupposes information (including speculative and sensory evidence), and asserts the possibility or probability of p. Using (17) as an example, repeated in (29), we can represent this analysis in the following way:

(29)   *mugwimahl*   *maa'y*
       mukw=*ima*=hl   maa'y
       ripe=MOD=CND   berries
       The berries might/must be ripe.
       p = The berries are ripe
       The speaker presupposes indirect evidence for p
       The speaker asserts $\diamond p$ or $\Box p$ (where '$\Box$' symbolizes modal necessity)

Note that the proposition in (29) is *the berries are ripe* and not *the berries might/must be ripe*. This is precisely what the semantic contribution of =*ima* is: as a semantic operator it inserts modality into the assertion of that proposition, with evidential overtones – analyzed as presupposition – based on assumptions, experience with previous situations, and general knowledge.

The presupposition analysis also accounts for the minimal pair in (30), which shows how the modal meanings of =*ima* are restricted to epistemic contexts:

(30)   Context: You're up in the Suskwa and notice a burnt patch of forest. You know that huckleberries typically take seed in burnt alpine areas.

     a. *#lim<u>x</u>simahl*   *maa'y*   *go'osun*
        lim<u>x</u>s=*ima*=hl   maa'y   go'osun
        grow=MOD=CND   berries   LOC.here
        Berries might/must be growing here.

     b. *da'a<u>k</u>hlxwihl*   *maa'y*   *dim*   *lim<u>x</u>st*   *go'osun*
        da'a<u>k</u>hlxw=hl   maa'y   dim   lim<u>x</u>s-t   go'osun
        CIRC=CND   berries   FUT   grow-3   here
        Berries might/must be growing here.

The context in (30) involves facts about alpine climates and soil conditions; this is not an evidential nor epistemic context. As such, the circumstantial modal *da'a<u>k</u>hlxw* grammatically encodes this kind of modal meaning.

4   Inferential evidential *'nakw*

Tarpent (1987, p. 354) describes *'nakw* in Nisg̱a'a as an evidential-modal that turns a sentence into 'a highly probable statement based on direct evidence'. Tarpent translates *'nakw* as the epistemic modal *must*, but does not include with her examples contexts which illustrate how its evidential meaning encodes 'direct evidence'. Nonetheless, Gitksan consultants corroborate this translation of *'nakw* in Gitksan. One consultant provided a typical evidential-like context for its use, given in (31):

(31)   Context: After being put to bed, Baby kept crying most of the evening. However, it has been quiet for the past little while.

'nakwhl	*wok̲s*	*beebii*
'nakw=hl	wok̲-(t)=s	peepii
EVID=CND	sleep-3sg=PND	Baby

Baby must be sleeping. It sounds like Baby is sleeping. (BS)

In (31) the speaker is making an inference based on audible information specific to that speech context (the silence). In this section I claim that *'nakw* is an inferential evidential that encodes a speaker's inference based on information acquired through the senses, which includes audition (31), vision (32), touch (33), and olfaction (34) (see chapter 1 of this volume for more details).

(32)   Context: Bob needs to ask John a favour, so Bob and a friend drive by John's place to see if he's home. John's light are on and his truck is in the driveway. Bob's friend says

'nakwhl	*ta'as*	*John*
'nakw=hl	ta'a-(t)=s	John
EVID=CND	at.home-3=PND	John

John must be home.
Looks like John's home.

(33)   Context: You touch your daughter's forehead and it's very hot.

'nakwhl	*siipxwin*
'nakw=hl	siipxw-n
EVID=CND	sick-2sg

You must be sick!

(34)   Context: You're chopping wood out by the smokehouse, and you smell smoke and fish.

'nakwhl	*sihons*	*Bob*
'nakw=hl	si-hon-(t)=s	Bob
EVID=CND	CAUS-fish-3sg=CND	Bob

Bob must be smoking/preparing/doing up fish.

in fact, *'nakw* is felicitous only in contexts where a speaker can make an inference based on the sensory acquired information in the context, such as those in (31) – (34). Given the lack of observable evidence in (35) and (36), both of which involve speculation based on speculation or a speaker's experience with similar situations, *'nakw* is infelicitous:

(35) Q. *gax̱guhl   witxws   Alvin?*
         kax̱wi=hl   witxw=s   Alvin?
         when=CND   arrive=PND Alvin
         When is Alvin arriving?

      A1. *witxwima   'nit t'aahlakw*
          witxw=*ima*   'nit t'aahlakw
          arrive=MOD   3   tomorrow
          He might arrive tomorrow.

      A2. *#'nakwhl   witxwt   t'aahlakw*
          'nakw=hl   witxw-t t'aahlakw
          EVID=CND   arrive-3 tomorrow
          He must arrive tomorrow.

(36) *Inference from a speaker's experience with similar situations:* There was a terrible storm earlier in the day, which can spook the horse. Alvin knows that the horse is prone to escaping from the field whenever it gets startled by the weather; he speculates

      a. *guxwimahl   gyuwatan*
         kuxw=*ima*=hl   kyuwatan
         run.away=MOD=CND   horse
         The horse might've/must've run away.

      b. *#'nakwhl   guxwhl   gyuwadan*
         'nakw=hl   kuxw-(t)=hl   kyuwatan
         EVID=CND   run.away-3sg=CND horse
         The horse must've ran away.

Recall from section section 3 that modal =*ima* is compatible with a range of information sources, including contexts that provide sensory evidence as in (31) – (34). One of the effects of this is what is translated as variable modal force. This creates a kind of overlap, where in sensory evidence contexts both =*ima* and *'nakw* can be used. In order to uncover what conditions both the variable modal force of =*ima*, and the choice a speaker makes in using either =*ima* or *'nakw* in these sensory evidence contexts, an alternative elicitation strategy was used: =*ima* was directly contrasted with *'nakw* by constructing minimal pair sentences that express the same proposition. The, the consultants were asked to differentiate between them by constructing the appropriate contexts that match the sentences. This was done in (37) and (38):

(37) *mugwimahl   maa'y*
     mukw=*ima*=hl   maa'y
     ripe=MOD=CND   berries

The berries might/must be ripe.
Consultant's comments: 'When you say *mugwimahl maa'y* to someone it's like you're sitting at home talking about it, trying to decide if you go picking or not.' (BS; LW)

(38) *'nakwhl   mukwhl   maa'y*
     'nakw=hl   mukw=hl   maa'y
     EVID=CND   ripe=CND   berries
     The berries must/#might be ripe.
     Consultant's comments: 'When you say *'nakwhl mukwhl maa'y* you see people running through the forest with buckets all happy, or people coming home from the Suskwa with buckets full of berries. Not really good when you're just thinking about it.' (BS; LW)

Consultants consistently comment that this sensory evidence makes *'nakw* carry more 'force', which is why they frequently translate *'nakw*-sentences using stronger modals such as *must* and *probably*. Thus, the translation in (38), "The berries *might* be ripe", is not typically an acceptable translation of a *'nakw*-sentence.

Notice how in example (37) =*ima* expresses variable epistemic modal force, as discussed in section 3 above. By adjusting the context to include visually acquired information that supports an inference that the horse must've run away, as in (39), *'nakw* is felicitous. In these visual information contexts, the modal strength interpretations are 'split' between =*ima* and *'nakw*, where =*ima* expresses *might*, and *'nakw* expresses *must*:

(39) *Inference from observable evidence:* You see there are tracks in the snow that lead through a hole in the fence.

    a. *guxwimahl*   *gyuwatan*
       kuxw=*ima*=hl   kyuwatan
       run.away=MOD=CND   horse
       The horse **might've** run away.

    b. *'nakwhl*   *guxwhl*   *gyuwatan*
       'nakw=hl   kuxw-(t)=hl   kyuwatan
       EVID=CND   run.away-3sg=CND   horse
       The horse **must've** ran away.

This effect on the translation of =*ima* is corroborated by the Gitksan consultants, where they describe how the choice of =*ima* over *'nakw* in these contexts is meant to express how they evaluate the information their inference is based on. Example (40) shows this effect:

(40) Context: You and a friend are going fishing. You notice blood on the rocks ahead of you where your friend is walking.

    a. *k'ojinimahl*   *'o'nin*
       k'ots-i-n=*ima*=hl   'o'n-n
       cut-TR-2sg=MOD=CND   hand-2sg
       You **may've** cut your hand.

b. *’nagwimi* *g’otshl*   *’o’nin*
’nakw=mi <u>k</u>’ots=hl ’o’n-n
EVID=2sg cut=CND hand-2sg
You **must’ve** cut your hand.

> Consultant’s comments (paraphrased): When you say <u>k</u>*’otsinimahl ’o’nin* you might’ve cut your hand, or I think you cut your hand. When you say *’nagwimi g’otshl ’o’nin* it looks like you cut your hand, you must’ve because there’s blood on the rocks.

In (40a), a speaker is expressing that it’s not necessarily the case that the blood on the rocks is from your friend’s hand – it could be blood from the bait you were cutting up, whereas in (40b) the speaker is committing to the claim that blood they observe on the rocks is indeed from your hand.

In sensory evidence contexts, where both evidentials are felicitous, =*ima* can only express a *might*-like modal, whereas *’nakw* can only express *must*-like force. Peterson (2009, 2010a, 2012) analyzes this as a case of *lexical blocking*: the function of expressing *must*-like force is fulfilled by *’nakw* because it is more specialized than =*ima* for this function. The effect is that the use of =*ima* in sensory evidence contexts can only express weak modal force. This approach can be connected to the notion of *preferred evidentials*. Aikhenvald (2004: 307-9) discusses the primary importance of visual evidence (and other kinds of firsthand evidence) and how this is preferred over information that is reported or assumed. This preference is manifested in the choice of an evidential a speaker makes in a language that has grammatical evidentials encoding these kinds of information sources, which are placed on a hierarchy of preference: the speaker will use the evidential highest on the hierarchy that is supported in that context (see also Barnes 1984; Oswalt 1986 for a description and analysis of similar phenomena). This would predict that a speaker evaluating the visual information in the context in (39) (tracks in the snow that lead through a hole in the fence) would prefer the use of *’nakw* over the modal =*ima*, as the latter only involves assumption or the speaker’s previous experiences with similar situations that is *compatible* with the visual evidence. However, the use of =*ima* in this context still fills an expressive space: to implicate that the speaker does *not* believe the visual (or other kinds of sensory acquired) information in that context supports the stronger claim made by *’nakw*.

4.1   Knowledge of the proposition embedded under *’nakw*

Evidential *’nakw* is also quite different than =*ima* or =<u>k</u>*at* with regards to knowledge of the proposition embedded under it. First, when a speaker uses *’nakw* knowing the embedded proposition is false, a non-literal (metaphorical) use is intended, or an expression similar to a *must*-type rhetorical question/statement in English, as in (41a). Conversely, when a speaker uses *’nakw* knowing a proposition is true a *mirative* meaning is expressed, as in (41b). Mirativity is the marking of a proposition that represents information which is new and possibly surprising to the speaker (DeLancey 1997; Aikhenvald 2012, and see Peterson 2010b, 2015 for more details on mirativity and the non-literal uses of *’nakw*):

(41)   a. *’nakwhl*   *sinst*
          ’nakw=hl   sins-t
          EVID=CND blind-3

He must be blind! Is he blind or something? Looks like he's blind!

Context A – Sensory evidence: You see a man walking down the street with a white cane.

C**ontext B – The proposition is known to be false (non-literal):** 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.

b. *'nakwhl   bagwdiit*
   'nakw=hl   pakw=tiit
   EVID=CND   arrive.pl=3pl

   They're here! Looks like they made it!

   Context A – Sensory evidence: You see a pickup in the driveway.
   Context B – The proposition is known to be true (mirative): You see your friends standing in the doorway.

In contrast, =*ima* in example (42) is also felicitous in the context in (41), but it cannot have this pragmatic effect: =*ima* must express that the batter is literally blind, or indirect evidence of the arrival of people:

(42)   a. *sinsima   'nit*
           sins=*ima*   'nit
           blind=MOD   3

           He might/must be blind. (always literal)

        b. *bagwima   'nidiit*
           bakw=*ima*   'ni-tiit
           arrive.pl=MOD   DET-3pl

           They might be here. (always non-mirative)

4.2   Embeddability

The embedding facts of *'nakw* are also markedly different from =*k̲at* and =*ima*. Recall from above that both =*k̲at* and =*ima* can be embed in a complement clause, where the evidence is oriented to the subject of the matrix clause and not the speaker of the sentence. However, (43) shows that *'nakw* cannot embed in a complement clause – even if the sensory evidence predicts felicity:

(43)   Context: You're talking with your friends about the soccer game that morning. You weren't there yourself, but you were talking earlier with Louise, who was there. Louise knew that Tony made the winning goal, but she wasn't sure if he was assisted by John – who is the striker on the team – or another player.

       mahlis Louise loo'y wilt ['**nakw**hl hlo'oxsis John-hl hlit 'as Tony*]*ₑₘᵦₑₐₐₑₐ ₓₗₐᵤₛₑ*

In order to better understand the significance of this observation, we need to delve a little deeper into the basic morphosyntax of a Gitksan clause and the syntactic properties of *'nakw*. Peterson (2010b) claims that *'nakw* has the same morphosyntactic distribution as the Gitksan

auxiliary verbs *yukw* (progressive), and *hliskw* (imperfective).[6] When auxiliary verbs such as *yukw* and *hliskw* are inserted into an intransitive sentence they appear sentence-initially, before the verb, and also serving as a host for the common noun enclitic determiner =*hl*. This is sketched out in (44):

(44) a. *yukwhl* *gahahlal'stdiithl* *haanaḵ*
          [yukw]$_{aux}$[=hl ḵahahlal'st-tiit=hl haanaḵ]
          PROG=CND REDUP.pl-work-3pl=CND women.pl
          The women are working.

   b. *hliskwhl* *gahahlal'stdiithl* *haanaḵ*
          [hliskw]$_{aux}$[=hl ḵahahlal'st-tiit=hl haanaḵ]
          IMPERF.=CND REDUP.pl-work-3pl=CND women.pl
          The women finished working.

   c. *'nakwhl* *gahahlal'stdiithl* *haanaḵ*
          ['nakw]$_{aux}$[=hl ḵahahlal'st-tiit=hl haanaḵ]
          EVID=CND REDUP.pl-work-3pl=CND women.pl
          The women must be working.

As *yukw* and *hliskw* are propositional operators (encoding progressive and imperfect meanings respectively), we expect them to be able to be semantically and syntactically embedded within, for example, a conditional. Example (45a) shows the basic structure of a conditional in Gitksan, and the embeddability of the progressive *yukw*. (45b) shows that =*ima* – which was also shown to be a propositional operator – can also embed in the consequent, while (45c) shows that *'nakw* cannot appear in this same embedded position:

(45) a. *ji* *da* *yukwhl* *wis* *go'ohl* *ansbayaxw* *ii* *hodi*
          tsi ta yukw=hl wis ḵo'=hl ansbayaxw ii hoti
          IRR COND PROG=CND rain LOC=CND Kispiox CONJ COMP
          yukw*hl* *wis* *go'ohl* *gitwangaḵ*
          yukw=hl wis ḵo'=hl kitwangaḵ
          PROG=CND rain LOC=CND Kitwanga
          If it's raining in Kispiox, then it's raining in Kitwanga.

   b. *ji* *da* *yukwhl* *wis* *go'ohl* *ansbayaxw* *ii* *hodi*
          tsi ta yukw=hl wis ḵo'=hl anspayaxw ii hoti
          IRR COND PROG=CND rain LOC=CND Kispiox CONJ COMP
          *yugw***ima***hl* *wis* *go'ohl* *gitwangaḵ*
          yukw=**ima**=hl wis ḵo'=hl kitwangaḵ
          PROG=MOD=CND rain LOC=CND Kitwanga
          If it's raining in Kispiox, then it might/must be raining in Kitwanga.

   c. *... ii hoti **'nakw** yukw=hl wis ḵo'=hl kitwangaḵ

The embedding test shows that, unlike =*ḵat* and =*ima*, which contribute their modal meanings to the asserted content, *'nakw* cannot be a propositional operator. This also entails that *'nakw* cannot be a modal, and suggests that *'nakw* contributes its evidential meaning at the illocutionary level.

4.3 Negation and dissent

'nakw also diverges from other the auxiliaries and other propositional operators with respect to negation: *'nakw* and negation cannot occur in the same sentence. Example (44) shows the basic (and well documented) sentence-initial position of *nee=tii*, which is then followed either by the auxiliaries *yukw* or, in this example, *hliskw*:

(46) *needii   hliskwhl   gahahlal'stdiithl   haanak̲*
     nee=tii   hliskw=hl   k̲ahahlal'st-tiit=hl   haanak̲
     NEG=CONTR IMPERF.=CND   REDUP.pl-work-3pl=CND woman.pl
     The women are not finished working.

Unlike *yukw* and *hliskw*, *'nakw* cannot appear under negation, as shown in (47a). Example b. shows that placing *'nakw* before negation also does not rescue the grammaticality of the sentence:

(47)   a. *needii *'nakw*hl g̲ahahlal'stdiithl haanak̲

        b. **'nakw*hl needii g̲ahahlal'stdiithl haanak̲

These restrictions taken together are interesting because they suggest the possibility of an expressive gap: why would a language that has evidentials not provide a grammatical strategy for negating evidential meaning, or at least negating the propositional content of a sentence containing the evidential? I suggest that this may not be so much about grammatical negation, but more of a question of *dissent*. In order to observe the effects of dissent, suppose someone looks out of their kitchen window in Kispiox and makes the following claim with *=ima* in the matrix clause of the conditional in (48) (see also Faller 2002: 130-133):

(48) *ji   da   yukwhl   wis   go'ohl   Kispiox ii   hoti*
     tsi   ta   yukw=hl   wis   k̲o'=hl   Kispiox ii   hoti
     IRREALIS COND PROG=CND rain LOC=CND Kispiox CONJ COMP
     yugwimahl   wis   go'ohl   gitwangak̲
     yukw=*ima*=hl   wis   k̲o'=hl   kitwangak̲
     PROG=MOD=CND   rain LOC=CND   Kitwanga
     If it's raining in Kispiox, then it might/must be raining in Kitwanga.

The antecedent of the conditional sets up a premise for the modal claim made in the consequent. In Gitksan a listener may agree with the modal claim as in (49a), or disagree as in b. using *=ima*, or challenge it as in c., which is the Gitksan equivalent to a "That is (not) true" dissent, or "I don't think you're right":

(49)   a. *'nidima*
           'nit=*ima*
           3sg=MOD
           Maybe.
           Consultant's comment: True, it's possibly raining because those are the usual
           weather patterns.

b. *neeyima*
   nee=*ima*
   NEG=MOD
   Maybe not.
   Consultant's comment: You don't really know for sure - I was there once, and while it was raining in Kispiox it wasn't raining in Kitwanga.

c. *neediihl*   *ha'nig̲ood'y*   *ji*   *hugwax̲n*
   nee=tii=hl   ha'nig̲ood-'y   tsi   hugwax̲-n
   NEG=CONTR=CND   think-1sg   IRR   correct-2sg
   I don't think you're right (it's not true that it *must/might* be raining in Kitwanga).

Recall that the evidential and epistemic meanings of =*k̲at* and =*ima* take wide scope over negation: the insertion of negation into a =*k̲at*- or =*ima*-sentence negates the epistemic modal claim expressed by the sentence, and not the evidential meaning encoded. (49) shows that a modal claim (as expressed by =*ima*) can either be assented to or dissented from, the latter of which involves negation. Statements involving any kind of dissent and *'nakw* are judged by speakers to sound, at best, odd and unnatural, and at worst ungrammatical. In example (50), a speaker is making a *'nakw* statement based on the visual and auditory evidence of someone sneezing. While not technically ungrammatical, the response in (50a) with *'nakw* cannot be used to assent to the claim in (50). A stronger effect is observed in another response in (50b) using negation. The negative response used in (50c) cannot be used to dissent from the meaning of *'nakw*:

(50)   *'nakw=hl*   *siipxw-t*
      EVID=CND   sick-3sg
      He must be sick.

      a. *#ee'e, 'nakw=hl*   *ap*   *wil-t*
        No,   EVID=CND   ?   do.something-3sg
        ≠ Yes, this must be what's happening. (I agree because his face is all red.)

      b. **nee=tii*   *'nakw=hl*   *siipxw-t*
        NEG=CONTR   EVID=CND   sick-3sg
        ≠ No, he can't be sick. (I saw him at work today and he looked fine.)

      c. *#nee=tii=hl*   *ha'nig̲ood-'y*   *tsi*   *hugwax̲-n*
        NEG=CONTR=CND   think-1sg   IRR   correct-2sg
        ≠ I don't think you're right. (cf. 49c)

Peterson (2010b) explains the divergent embedding and negation/dissent properties of *'nakw* by analyzing it as an *evidential sentential force specifier*. It is beyond the scope of this paper to further evaluate the details of this analysis, but in a nutshell, Peterson claims that *'nakw* has clause-typing properties that prevent it from syntactically and semantically embedding.

5 Gitksan evidentials and modals in questions

Both =*ima* and the reportative =*kat* have a productive use in questions. When =*kat* is used in a question, a speaker is not reporting a question, but is asking the addressee what she knows about something on the basis of reported evidence. In other words, a speaker asking a question with a reportative is targeting an answer that the addressee may know, or may only have reportative evidence for. This can be observed in example (51), where a speaker is enquiring about when the bus will arrive in Prince George. By using =*kat* in the question, the speaker implies that the answer to this question, given in c., is going to be second hand, since they know their companion is not the one who determines the bus schedule:

(51) Context: You and a friend are taking the overnight bus to Prince George. You can't remember what time you arrive, but your friend who was the one who booked the tickets and she might know.

    a. *gaxgwi   dim bagwi'm*
       kaxgwi   tim   pakw-'m
       when   FUT   arrive.pl-1pl
       When is it we'll get there?

    b. *gaxgwigat   dim bagwi'm*
       kaxgwi=*kat* tim   pakw-'m
       when=REP   FUT arrive.pl-1pl
       When is it (did they say) we'll get there?
       When is it (did you hear) we'll get there?

    c. *silkwsax t'aahlagwigat*
       silkwsax t'aahlakw=*kat*
       noon   tomorrow=REP
       (I heard/They said) at noon tomorrow.

In questions, =*kat* is oriented towards the addressee's knowledge: the speaker is enquiring about the reported evidence the speaker assumes the addressee has for an answer (i.e. from the ticket agent).

The insertion of the modal =*ima* into a question has a different effect from that of =*kat*: it takes an interrogative clause type, which has the speech act of requesting information, and creates a non-interrogative utterance, roughly translatable using 'I wonder...', as in (52):

(52) Context: You're sitting around with friends discussing life. You know that you need to find another job, but you also have the possibility of going back to college.

    gwiyimahl   dim jab'y   jox'kuuhl
    kwi=*ima*=hl   tim tsap-'y   tsox'kuuhl
    what=MOD=CND FUT do/make-1sg next.year
    I'm wondering what to do next year.

(53) Context: Someone unfamiliar pulls into the driveway to talk to your uncle.

    a. *naa   tun*
       naa   t=xwin
       who   PND=this.one
       Who is this person?

    b. *naayima   tun*
       naa=ima   t=xwin
       who=MOD   PND=this.one
       I wonder who this this person is.

The use of modal =*ima* in questions and the effect it has in reducing the interrogative force of a question to something akin to a rhetorical question (Littell et al. 2010).

As we've seen with the other tests, *'nakw* diverges significantly from =*ima* and =*k̲at*: *'nakw* cannot be inserted into an interrogative clause. Example (54) is a yes/no question, formed by adding the sentential interrogative enclitic =*a* to the sentence. Even with not having to compete with a sentence-initial wh-word occupying the clause-initial position (cf. (44)) *'nakw* is ungrammatical:

(54) **'nakwhl   x̲'miyeenis   Jasona*
     'nakw=hl   x̲-'miyeen-(t)=s   Jason=a
     EVID=CND   consume-smoke-3sg=PND   Jason=INTERROG
     ≠ Must Jason be smoking?

Comparing (55a) with b. shows how the progressive auxiliary verb *yukw* can occur within a question; *'nakw*, despite having the same syntactic behaviour in declarative clauses as *yukw*, cannot. Example (55c) shows how moving *'nakw* to the first position of a wh-question is also ungrammatical:

(55)   a. *nayukw   'ant   sdils   Clara*
         na=yukw   'an-t   sdil=s   Clara
         who=PROG   S.REL-3sg   go.with=PND   Clara
         Who is going with Clara?

       b. *na=*'nakw* 'an-t sdil=s Clara

       c. **'nakw*=na 'an-t sdil=s Clara

This test provides further support that both =*ima* and =*k̲at* are propositional operators, while *'nakw* is incompatible with interrogative speech acts of any syntactic kind. Peterson (2010b) uses this observation to support an analysis of *'nakw* as typing its own clause (an evidential sentential force specifier): a clause typing analysis predicts that *'nakw*-sentences should not be able to co-occur with other clause types, such as interrogatives.

6 Discussion and Summary

This chapter presented a semantic and morphosyntactic description of the three grammatical elements that encode evidential and epistemic meanings in Gitksan. Some discussion of the translations of these elements into English is in order, especially as =*kat*, =*ima*, and *'nakw* are frequently translated into English using the modal auxiliaries *might* and *must*. A plausible criticism of these translations is that they might simply be an effect of translating from an object language that lacks grammatical elements that encode modal force distinctions (i.e. *must* and *might*) into a metalanguage that does, like English. However, I argue that this is not simply an effect of translation; rather, the modal translations of =*kat*, =*ima*, and *'nakw* provide a view on how reliable a speaker views the evidence they are using to base their inference on. With =*kat*, a more reliable source is translated with 'I hear(d)...' while less reliable source is translated as a weak epistemic modal such as *might*.

One of the other aims of this chapter was to demonstrate how the application of basic syntactic and semantic tests can enrich our descriptions of a grammatical evidential. The effectiveness of these tests can be measured not only in the generalizations they produce, but also in the further questions they lead us to. For example, the coordination test applied to =*ima*-sentences in section 3.1 showed that =*ima* introduces an epistemic modal into the proposition content of a sentence. However, what does this test predict when applied to the reportative =*kat*? Are coordinated =*kat* sentences logically contingent in the same way? This also generates another related question: if the evidential meaning of =*kat* and =*ima* is presupposed and not asserted (as shown by the negation test), then what happens to this presupposition in an embedded context, such as (13): does the presupposition attached to =*kat* project through the matrix clause? The results so far are inconclusive and require further study. Nonetheless, we have an independently motivated guide – the coordination, negation, and embedding tests – that leads to new insights.

Finally, these tests also provide an independently motivated methodology for connecting languages that have grammatical evidentials, thus widening the scope cross-linguistic generalizations. For example, we now have a way of testing whether a grammatical evidential contributes to the illocutionary or the propositional content of an utterance (Waldie et al. 2009). This has proven to be a fruitful strategy that has generated new insights into the semantic and pragmatic properties of evidentials, as well as providing an additional empirical foundation for theoretical analyses of evidentiality. This is not to suggest that these tests replace time tested and proven methods of working with texts and language observation (both of which were used in this chapter); rather, they complement each other.

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Notes

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[2]Further discussion of the use of these terms can be found in Rigsby (1986), and see Brown (2010) for a detailed discussion of Gitksan and Tsimshianic relations and language scholarship.

[3]Tarpent alternates between glossing *'nakw* as a modal and evidential in her grammar. Additionally, Tarpent includes =*ima* and =*k̲at* as part of a system of 'evidential postclitics' (1987, p. 489). See also Brown et al. (2016) for details on the other postclitics in this paradigm.

[4]The edges of the enclitic =*k̲at* are subject to the phonological rules of obstruent voicing and deletion. This results in the various allomorphs =*g̲at*, =*k̲a*, and =*g̲a*, which are often written at the orthographic level.

[5]There is a class of verbs called 'T'-class verbs in Nisg̲a'a and Gitksan. The meaning or function of the morpheme *-t-* has not been determined (although see Tarpent 1987 for details on its morphosyntactic distribution); thus, I follow the convention in the Gitksan/Nisg̲a'a literature and maintain the 'T' glossing.

[6]See also Tarpent 1987, p. 350, who describes *'nakw* as an auxiliary verb, along with *yukw* and *hliskw*