Epistemic Modality and Evidentiality in Gitksan at the Semantics-Pragmatics Interface

by

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Abstract

The aim of this dissertation is to provide an empirically driven, theoretically informed investigation of how speakers of Gitksan, a Tsimshianic language spoken in the northwest coast of Canada, express knowledge about the world around them. There are three main goals that motivate this investigation, summarized below:

(1) (i.) To provide the first detailed description of the evidential and modal system in Gitksan.

(ii.) To provide a formal semantic and pragmatic account of this system that adequately explains the meanings of the modals and evidentials, as well as how they are used in discourse.

(iii.) To identify and examine the specific properties the Gitksan evidential/modal system brings to bear on current theories of semantics and pragmatics, as well as the consequences this analysis has on the study of modality and evidentiality cross-linguistically.

In addition to documenting the evidential and modal meanings in Gitksan, I test and work through a variety of theoretical tools from the literature designed to investigate evidentiality and modality in a language. This begins by determining what level of meaning the individual evidentials in Gitksan operate on. The current state of research into the connection between evidentiality and epistemic modality has identified two different types of evidentials defined by the level of meaning they operate on: *propositional* and *illocutionary* evidentials. These two types correspond to a distinction between *modal evidentials* and *non-modal evidentials* respectively. I show that Gitksan has both modal and non-evidentials. This leads to an analysis where the Gitksan modal evidentials are treated as a specialized type of *epistemic modals*, and the non-modal evidentials are *sentential force specifiers*.

I also identify various features of the evidential system that bring specific issues to bear upon current theories of the semantics and pragmatics of modality. This has four outcomes: first, I present a novel analysis of variable modal force in modals with fixed quantification: variable modal force in Gitksan modal evidentials is determined by the *ordering source*. Secondly, I discuss *Conjectural Questions*: when a modal evidential is added to a question it reduces the interrogative force of the question. This follows from the modal semantics of evidentials. Thirdly, I introduce the notion of *Pragmatic blocking*: modal and non-modal evidentials interact in discourse contexts, and implicate a speaker's attitude towards the evidence they have for a proposition. And fourthly, I develop the first formal analysis of mirativity and non-literal uses of evidentials, analyzing them both as cases of conversational implicature.

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List of Abbreviations

The abbreviations used in this dissertation are adapted from Rigsby (1986) and Tarpent (1987). Those marked with an asterisk are introduced in this dissertation:

-	suffic boundary
=	clitic boundary
1	first person
2	second person
3	third person
CAUS	causative
CND	common noun determiner*
COMP	complementizer
COND	conditional
CONJ	conjunction
DEM	demonstrative
DIST	distal
DISTAL.LOC	distal locative
EVID	evidential
GEO.LOC	fixed geographic location
FUT	future
IMPERF	imperfective
INCEPT	inceptive
INTERROG	interrogative
INTS	intensifier
IRR	irrealis
LOC	locative
MOD	modal
NEG	negation
OBL	oblique
OBL.PRO	oblique pronoun
pl	plural
POSS	possessive
PROG	progressive
PND	proper noun determiner*
REDUP	reduplication
REFL	reflexive
REL	relativizer
REP	reportative
sg	singular
S.REL	subject relativizer
TR	transitivizer

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Chapter 1

Introduction

1.1 Goals of the Investigation

The aim of this dissertation is to provide an empirically driven, theoretically informed investigation of how speakers of Gitksan, a Tsimshianic language spoken in the northwest coast of Canada, express epistemic knowledge about the world around them. There are three main goals that motivate this investigation, summarized in (1.1):

(1.1) (i.) To provide the first detailed description of the evidential and modal system in Gitksan.

(ii.) To provide a formal semantic and pragmatic account of this system that adequately explains the meanings of the modals and evidentials, as well as how they are used in discourse.

(iii.) To identify and examine the specific properties the Gitksan evidential/modal system that bear upon current theories of semantics and pragmatics, as well as the consequences this analysis has on the study of modality and evidentiality cross-linguistically.

The central assumption that drives this research is that a universal property of all languages is the ability to express notions of epistemic possibility and probability, and that language users have a variety of devices for encoding both how they acquire knowledge about the world around them, as well as their attitude towards that knowledge. One of these ways is through linguistic modality. The primary function of linguistic modality is to enable us to talk about possibilities and necessities in terms of our attitude towards a proposition. Thus, we can use a modal expression to talk about the ways the world could be – or a possible world – given what we know about a situation at the moment we utter it. For example, in the Gitksan example in (1.2), a speaker is claiming that, in some possible world consistent with what they know about August, or their experience with picking berries, the berries are ripe:

(1.2) *mugwimahl* *maay̓*
mukw=*ima*=hl maay̓
ripe=*ima*=CND berries
"The berries **might** be ripe."

This is an example of epistemic modality, and it gives us the ability to go beyond directly observable facts and events in the actual world we live in. However, some languages take into account directly or indirectly observable evidence a speaker has for making an assertion by lexically encoding the source of evidence a speaker has for the epistemic statements they make. This characterizes an evidential system. Gitksan also possesses an evidential system. In example (1.3), the morpheme *n̓akw* encodes the indirect visual evidence a speaker has for asserting that the berries are ripe; they see people returning from the picking grounds with buckets full of berries, and they infer from this visual evidence that the berries are ripe:.

(1.3) *n̓akwhl* *mukwhl* *maay̓*
n̓akw=hl mukw=hl maay̓
n̓akw=CND ripe=CND berries
"Looks like the berries are ripe."

This sets the empirical stage for this dissertation, which is an investigation of the semantics and pragmatics of epistemic knowledge in Gitksan in terms of how the language encodes specific kinds of evidence, and how these line up with the modal notions of necessity and possibility. I present evidence that Gitksan not only encodes different types of evidence, but that these evidentials are capable of expressing modal meanings such as necessity and possibility. I also show that the discourse context governs which and how these evidentials are used, distributing evidential and modal meaning across the semantics and pragmatics of the language. Thus, evidentiality and modality in Gitksan is indeed a semantics-pragmatics interface phenomenon.

There are a variety of theoretical tools that we can apply in investigating evidentiality and modality in a language. These tools are introduced in §1.3 below. In addition to determining the kinds of evidence types that are lexically encoded in Gitksan, one of the first analytical tasks is determining what level of meaning the specific evidentials operate on. This invokes a line of empirical and theoretical research which studies the connection between evidentiality and epistemic modality. Currently, we ca distinguish two different types of evidentials, defined by the level of meaning they operate on: *propositional* and *illocutionary* evidentials.[1] I take these two types to correspond to a distinction between *modal evidentials* and *non-modal evidentials*, respectively. Determining the status of an evidential in these terms will then indicate the kind of formal analysis that evidential will be amenable to. In (1.4) I outline the status of the evidentials in Gitksan in terms of these two types, and also the type of analysis that is used to explain their meanings in this dissertation:

(1.4) Gitksan has both **propositional** and **illocutionary** evidentials. This leads to the following two main claims:

(i.) Modal evidentials are treated as a specialized type of **epistemic modals** (Izvorski 1997; Matthewson et al. 2004).

(ii.) Non-modal evidentials are **sentential force specifiers** (Portner 2006).

There are four specific theoretical and analytical outcomes that follow from the claims in (1.4), outlined in (1.5):

(1.5) (i.) A novel analysis of variable modal force in modals with fixed quantification: variable modal force in Gitksan modal evidentials is determined by the *ordering source*.

(ii.) The introduction of *Conjectural Questions*: when a modal evidential is added to a question it reduces the interrogative force of the question. This follows from its modal semantics.

(iii.) The introduction of *Pragmatic blocking*: modal and non-modal evidentials interact in discourse contexts, and implicate a speaker's attitude (modal force) towards the evidence they have for a proposition.

(iv.) The first formal analysis of mirativity and non-literal uses of evidentials, which are treated as conversational implicature.

[1] Terminology adapted from Faller (2002).

This chapter introduces the specific empirical and theoretical issues involved in (1.4) and (1.5), which are addressed in detail in this dissertation. In §1.2 I place this study within an empirical context by briefly reviewing the typological/functional study of evidentiality. I also introduce the Gitksan language and the relevant features of its evidential system that are the focus of this dissertation.

In §1.3 I turn to the theoretical context, outlining the specific kinds of theoretical tools that are necessary for undertaking a study of this kind. §1.4 provides an outline of the dissertation, including a discussion of the specific theoretical and analytical outcomes in (1.4) and (1.5). Finally, §1.5 discusses the methodology I followed in investigating this data.

1.2 Empirical Context

This investigation into epistemic modality and evidentiality in Gitksan can be placed into two empirical contexts. The first context is local: this investigation contributes to both Gitksan language scholarship, and to scholarship on the Tsimshianic language family, by documenting an area of the grammar that has not been previously studied. Additionally, this dissertation is the first semantic and/or pragmatic study of a Tsimshianic language.

The other context is the study of evidentiality and epistemic modality cross-linguistically. Thus, it is hoped that this study can show how Gitksan fits in, and what it can potentially tell us about evidential meanings from a typological perspective.

In subsections 1.2.1 and 1.2.3 I introduce Gitksan and the Tsimshianic language, as well as the basic morphological and syntactic features of Gitksan. In §1.2.4 I present the empirical scope of this dissertation, and highlight the central features of the evidential system in Gitksan which are analyzed in the subsequent chapters. In §1.2.5 I discuss the typological research on evidentiality and epistemic modality.

1.2.1 Gitksan and the Tsimshianic Languages

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 (see Figures 1.1 and 1.2 on the following pages).[2]

There are four linguistic and socio-cultural divisions that make up the Tsimshianic family, given in (1.6):[3]

(1.6) The Tsimshianic Languages (Rigsby 1986, p. 25)

- Coast Tsimshianic
  - Coast Tsimshian (Sm̓algya̲x)
  - South Tsimshian (Sgüü̲xs)
- Interior Tsimshianic
  - Nisgha'a
  - Gitksan

The Coast Tsimshian (Sm̓algya̲x) reside to the north and south of the Skeena River delta, and the South Tsimshian (Sgüü̲xs) were reported to live to the south of this area, primarily in the villages of Klemtu and Hartley Bay. The Nisgha'a reside in the Nass River Valley and along Observatory Inlet, and the Gitksan reside in the easterly adjacent upper Skeena and Kispiox valleys, and the Skeena watershed.

[2] All areas are approximate. Also note the alternate spellings/pronunciations of Git̲xsan, and Nisg̲a'a.

[3] South Tsimshian (Sgüü̲xs) – now considered likely to be extinct – is not shown on this map.

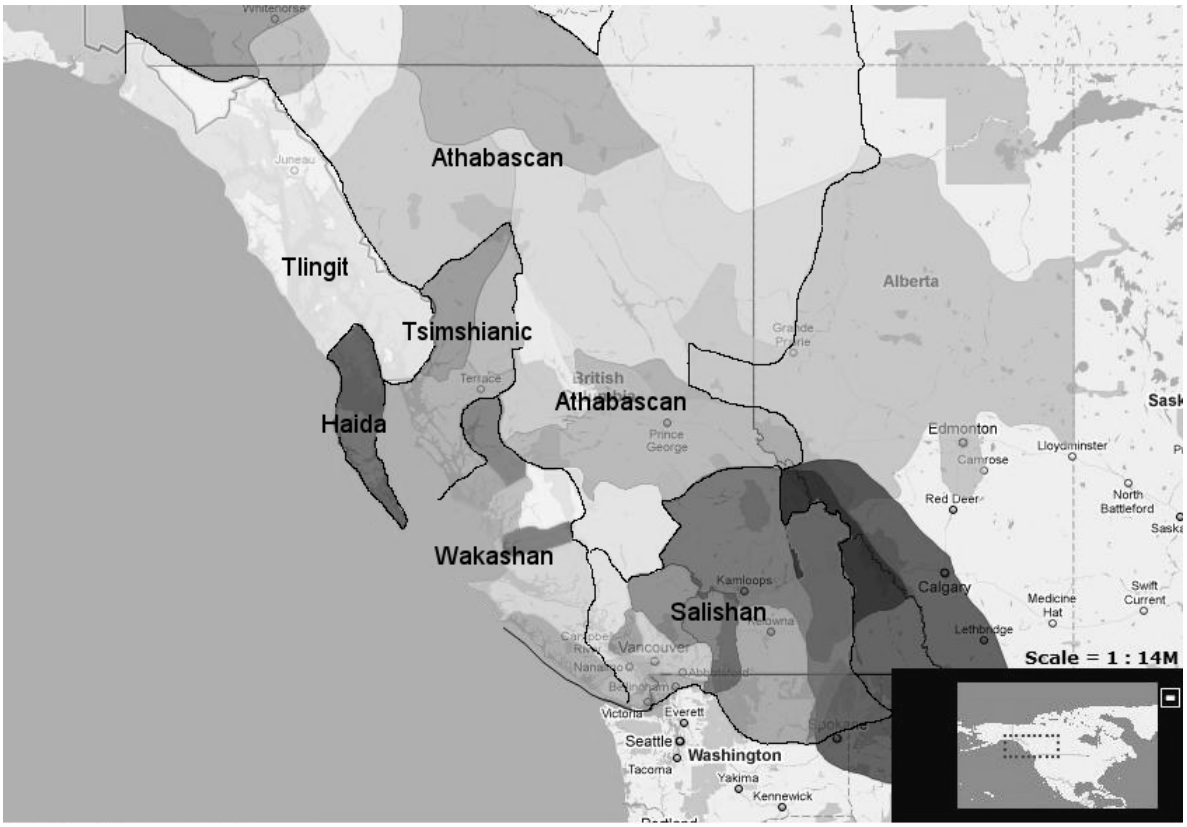

Figure 1.1: Language Families of the Pacific Northwest Coast (source: maps.fphlcc.ca).

Figure 1.2: Map of the Three Tsimshianic Territories (and neighbouring languages): Coast Tsimshian (Sm̓algyax), Nisgha'a, and Gitksan (source: maps.fphlcc).

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 *sim̓algax̲*, which means 'the real or true language' (*sim̓-algax̲* 'true-language'). The language has been referred to as Gitxsan or Gitksan by scholars, or Gitxsanimx̲ or Gitxsanimax̲ by native speakers when distinguishing it from Nisgha'a (Nisg̲a'amx̲) or Coast Tsimshian (Ts'imsanimx̲). However, the Nisgha'a and Coast Tsimshian people also refer to their languages using *sim̓algax̲*. This has created some confusion, since many published sources on Coast Tsimshian simply refer to the language as Sm̓algyax̲.[4]

Gitksan comprises of two major varieties, or dialect areas: Western Gitksan, *Geets'imx̲* ('downstream language'), and Eastern Gitksan, *Gaanimx̲* ('upstream language'). Western Gitksan is spoken in the settlements along the Skeena river, including the villages of Kitwanga (*Gitwing̲ax* 'people of the place of rabbits'), and Kitseguecla (*Gijigyukwhla* 'people of *Jigyukwhla*', also the name of a nearby mountain), and also in the village of Kitwancool (*Gitwinhlguu'l* 'people of the narrow place'), north of Kitwanga.[5] Eastern Gitksan is spoken primarily in the settlements along the Kispiox river, in villages of Kispiox (*Ansbahyaxw*, 'hiding place'), Glen Vowell (*Sigit'ox̲*, also the name of a nearby mountain), and Hazelton (*Gitan'maaxs*, 'people of the place of torchlight fishing'), at the junction of the Skeen and Kispiox rivers. There are also two other main villages in northern Gitksan territory (upper Kispiox river watershed) that are no longer inhabited: Kisgegas (*Gisg̲ag̲a'as* 'people of the place of small white gulls') and Kuldo (or *Gitg̲aldoo'o*, 'people of the wilderness or backwoods'). Variation between the two dialects is minimal, and consists mostly in phonological shifts and lexical differences (Brown 2008).

While there are no exact or official figures, it is currently estimated that there are approximately 400 speakers of Gitksan, most of whom are over the age of 50. Although there are some teaching materials (Powell and Stevens 1977), as well as recent efforts to introduce the Gitksan language into the public school system, children are no longer acquiring the language. These facts place Gitksan on the list of the world's many endangered languages.

1.2.2 Gitksan Orthography

The practical orthography developed for Gitksan by Hindle and Rigsby (1973) is used throughout this dissertation to ensure that the data here is accesible to the speakers and teachers of Gitksan. The Hindle and Rigsby orthography, along with the phonetic equivalents, is given in Appendix A.

1.2.3 The Basic Features of Gitksan Morphology and Syntax

This subsection introduces the basic features of Gitksan morphology and syntax that are relevant to this study.[6]

1.2.3.1 Morphology

Verb morphology in Gitksan is less complex than in other languages in the northwest coast linguistic area, such as in the neighbouring Wakashan and Athapaskan languages (Rigsby 1986, p. 84). For example, a verb in Gitksan may be morphologically simple, as a typical intransitive clause in (1.7) shows:

[4]Further discussion of the use of these terms can be found in Rigsby (1986), and see Brown (2008) for a detailed discussion of Gitksan and Tsimshianic relations and language scholarship.

[5]Some Gitksan speakers claim that the Gitksan spoken in Kitwancool is a third dialect.

[6]For more detailed descriptions of Gitksan clause structure and agreement see Rigsby (1986) and Hunt (1993).

(1.7) *limxt* *Margaret*
limx=t Margaret
sing=PND Margaret
"Margaret sings/sang."

However, a Gitksan verb frequently hosts a range of morphology, such as transitivity, voice, number and aspect, as well as enclitics, which include the determiners *=hl*, *=t*, *dip*, and *=s*.[7] A template for verbal morphology is given in (1.8):

(1.8) [[VERB[VERB THEMEPREVERBS[VERB STEM[VERB ROOTVERB((-CONNECTOR)-COMPOUND)]
-DERIVATIONAL SUFFIXES]]-PRONOMINAL SUFFIXES]=ENCLITICS)]

Example (1.9) is a transitive sentence which exemplifies this template, showing the typical morphological complexity of a Gitksan verb:

(1.9) *gunsixpts'axwis* *Billt* *Clara* *'as* *Gwen*
gwin-si-xpts'axw-i-(t)=s Bill=t Clara 'a=s Gwen
CAUS-CAUS-fear-TR-3=PND Bill=PND Clara OBL=PND Gwen
"Bill had Gwen frighten Clara."

1.2.3.2 Syntax and Clause Types

There are two distinct clause types in Gitksan (and also in the other Tsimshianic languages) that Rigsby (1986) calls the *Independent*, and the *Dependent* clauses. Generally speaking, Independent clauses have a canonical VSO word order: the verb is the first constituent in the clause followed by the subject and object, as example (1.10) shows. Dependent clauses are clauses where another constituent heads the clause, followed then by the verb, subject and object.

(1.10) a. Independent

jabis *Sheilahl* *hon*
tsap-i-(t)=s Sheila=hl hon
cook-TR-3=PND Sheila=PND fish
"Sheila cooked the fish."

b. Dependent

yukwt *tsaps* *Sheilahl* *hon*
yukw=t tsap-(t)=s Sheila=hl hon
PROG-3 cook-3=PND Sheila=CND fish
"She is cooking the fish"

Independent and Dependent clauses are distinguished by a variety of morphological differences, but one of the key distinguishing features concerns the form, and distribution of the agreement markers on the verb and the consituent before the verb. In Independent clauses such as (1.10)a., the verb only bears one agreement marker (which is often silent), a suffix indexed to the ergative argument, *Sheila*. Independent clauses are used only in main clauses, and occur only when the verb is not preceded by certain material, which include certain intransitive verbs, temporal/aspectual particles, sentential conjunction, and subordinators.[8]

[7] However, the status of the *=s* has not been completely determined. It has also been analyzed as a case marker. See Hunt (1993) for a synchronic analysis of *=s*, and Peterson (2006) for a diachronic analysis.

[8] See Hunt (1993) for more details regarding the syntax and agreement in Gitksan.

In Dependent clauses such as (1.10)b. the verb is preceded by another constituent, in this case the the progressive marker (*yukw*). In Independent clause, the agreement patterns become more complex, as two agreement markers surface: the enclitic *=t* attached to the preverbal material *yukw*, which is indexed to the ergative argument (*Sheila*), and a suffix *-t* on the verb indexed to the absolutive argument (*the fish*).[9]

A more detailed discussion of the syntax and clause types in Gitksan is given in chapters 3 and 5.

1.2.4 Evidentiality and Epistemic Modality in Gitksan

Examples (1.2) and (1.3) above gave a glimpse of how Gitksan expresses epistemic and evidential knowledge. In this subsection I highlight in more detail some of the core lexical items and constructions that are examined in this dissertation.

Consider a scenario where two friends are sitting at a restaurant having coffee. Your friend just got back from John's place, where she was helping him set out the fish for smoking. You ask her what John's doing today, and she answers in (1.11):

(1.11) *sihont* *John*
si-hon=t John
CAUS-fish=PND John
"John is doing up fish." (processing, cleaning, smoking, canning)

She knows John is smoking fish because she just returned from helping him.

In a slightly different version of this scenario, you're thinking of asking John for a favour, but your friend suggests he might be busy. This time, your friend wasn't at John's place. She says (1.12):

(1.12) *sihongatit* *John*
si-hon=*k̲at*=t John
CAUS-fish=*k̲at*=PND John
"[I heard] John is doing up fish."

By inserting *=k̲at* into the sentence in (1.12), your friend is telling you that she doesn't know directly whether or not John is smoking fish, but that she overheard it, for example, at the gas station. In other words, she has *indirect evidence* in the form of a *report* for the information that John is doing up fish.

It's now August, and you and a friend need to ask John for another favour. You haven't seen John in a while, but because it's the end of summer – the time of year for smoking fish – your friend thinks he might be too busy to help because of (1.13):

(1.13) *sihonimat* *John*
si-hon=*ima*=t John
CAUS-fish=*ima*=PND John
"John might/must be doing up fish."

The insertion of *=ima* into (1.13) also encodes a kind of indirect evidence, but this time it comes from knowledge of previous experiences with the fishing season. Note the translations of *=ima* in (1.13): if a speaker is simply speculating that because it's August, it's only a possibility John is doing up fish, then *=ima* can be translated as *might*. However, a speaker may feel more certain that John is doing up fish because they know that every year he does,

[9] See Peterson (2006) for more details on the morphosyntax of ergative agreement in Gitksan and the other Tsimshianic languages.

and that there is so much fish this year others will need his help, and that he received a large quantity of fish from his brother yesterday. This is a stronger base of reasoning for the speculation, making it very probable John is doing up fish. In this scenario, *=ima* can be translated as *must*.

Now you decide to find out for yourself what John is up to, so you drive by his place: you see smoke coming out of the *wilp sihon* (smokehouse), and his truck in the driveway. Your friend exclaims (1.14):

(1.14)

ńakwhl	*sihons*	*John*
ńakw=hl	si-hon-(t)=s	John
ńakw=CND	CAUS-fish-3sg=PND	John

"John must be processing fish."
"It looks like John's doing up fish."

The use of *ńakw* in this sentence means that your friend is inferring from something they actually see – the smoke and the truck – that John is doing up fish. In addition to being translated as 'It looks like...', this kind of visual evidence corresponds with a stronger modal translation using *must*. *ńakw* is different from *=ima* because there is some kind of sensory evidence for the inference. This means that *ńakw* is infelicitous in the previous context where you and your friend are simply speculating.

The morphemes *=kat*, *=ima* and *ńakw* are used by Gitksan speakers to encode the kinds of knowledge they have for making inferences and claims about the world around them. Also note that the translations of *=ima* and *ńakw* given in (1.13) and (1.14) give us glimpse into how these evidentials interact in different contexts to implicate the expression of modal force. [10]

Previous research on modality and/or evidentiality in Gitksan or any of the Tsimshianic languages is limited: Rigsby in his grammar of Gitksan (1986) does not discuss modality nor evidentiality. Tarpent in her dissertation (1987) on Nisgha'a has some brief description of modals and evidentials in that language. In §1.4 I map out how I plan to fill this empirical gap in Gitksan by examining and analyzing in detail the complete range of meanings and uses of these morphemes.

1.2.5 Studies on Evidentiality

Studies on evidentiality from a typological or functional perspective have been largely shaped by the seminal collection of papers in the Chafe and Nichols (1986) volume *Evidentiality: The Linguistic Coding of Epistemology*, and Aikhenvald's sizeable (2006) study of evidentials in *Evidentiality*. Whereas the Chafe et al. volume presents a variety of papers looking at the functions of evidentials in a few languages (including descriptions of the extended meanigs of evidentials, such as mirativity), Aikhenvald was the first to present an encompassing typology of evidential systems based on a large number of languages.[11] From the perspective of epistemic modality, a central work is Palmer (2006), who treats evidentiality as a feature of epistemic modality cross-linguistically. The data presented in this dissertation bears upon both perspectives of evidential and modal meaning cross-linguistically, by offering a detailed study of how these meanings are manifested in a single language. This kind of focused research is needed in order to further our understanding of the range of variation in the kinds

[10] There are other expressions of epistemic modality in Gitksan, such as the attitude verbs *ha'nigoodi* 'think/believe', and *wilaa* 'know'. In this dissertation I will limit myself to examining the morphology specialized for evidentiality and epistemic modality, setting aside for another study the propositional attitude verbs and other adverbials expressing epistemic modality.

[11] See also Aikhenvald and Dixon (2003) for a collection of language specific studies on evidentiality. For a useful overview of the state of the art in evidentials research, see Speas (2008) and Rooryck (2001a;b).

of evidence sources evidentials may encode, and the network of relationships they may form with one another, and how they are used in discourse.

1.3 Theoretical Context

One of the challenges facing typological studies of evidentiality is that, because there are so many descriptive studies for evidentials in various languages, the descriptions and terminology of different studies is not always consistent or rigorously verifiable (cf. Matthewson 2004; von Fintel and Matthewson 2008). There is an emerging branch of research which approaches this problem by developing a more theoretically informed and testable methodology for investigating evidential categories (cf. Faller 2002; de Haan 1998; 1999). A result of this is that we are now better equipped with a range of tools derived in contemporary semantic and pragmatic theory that allow us to develop the kinds of field methodologies we need for both investigating and explaining evidential meaning.

This dissertation contributes to this line of research, as an empirically driven, theoretically informed investigation of modal and evidential meaning in Gitksan. One of the outcomes of this kind of undertaking is that we can see how there is a dynamic relationship between data and theory. One one hand, we can use theoretical models to make predictions about the kinds of data we are investigating. On the other hand, the kinds of data that emerge from this in turn may invoke different kinds of theories and analyses, and also require us to adjust or refine these theories in order to better explain the data. This two-way relationship can be observed when we search for the answer to the kinds of research questions such as these: *what does evidentiality look like in language X, and how can we explain it?*

In pursuing answers to these questions in Gitksan, I show that in order to explain evidentiality in Gitksan we need a theory of static semantics (the fixed meanings of an evidential), a theory of dynamic semantics (how the felicity of certain evidentials is constrained by and affects the discourse context). §1.3.2 introduces the kinds of theoretical tools needed to adequately describe and explain evidential meaning in Gitksan: in §1.3.2.1 I review the specific theoretical diagnostics that are used to determine the level of meaning a particular evidential operates on. The question here is, does a particular evidential operate on a *propositional level* (i.e. it contributes to the truth conditions of a proposition), or an *illocutionary level* (i.e. it does not contribute to the truth conditions of a proposition)?

Once we determine what level an evidential operates on, the next task is to decide on the appropriate theoretical analysis, the outcome of which will allow us to test specific predictions as to the semantics and pragmatics of a specific evidential. This directly taps into a current issue in the formal study of evidential meaning: §1.3.2.2 introduces the current approach to evidentials, which are analyzed as a specialized type of epistemic modal. This represents a *static* semantic analysis of evidentials. At this point we can now begin to distinguish *modal evidentiality* (evidentials as epistemic modals) from *non-modal evidentiality* (illocutionary evidentials).

Non-modal evidentials require a different kind of semantics, since their meanings operate above the propositional level, at the sentence level. There are currently several competing theoretical approaches to non-modal evidentials. §1.3.2.3 introduces a theory of *dynamic* semantics, which analyzes evidential meaning in terms of the way in which an evidential changes/updates a discourse context.

Evidentials, whether modal or non-modal, are used in discourse. They not only enter into relationships with each other, but also acquire and implicate other meanings when used by speakers in certain contexts. We saw this in the examples involving *=ima* and *ńakw* in (1.13) and (1.14) and how they implicate modal force. However there are also meanings associated with *ńakw* that are directly tied to the context it's used in, specifically in how *ńakw* can be used to express surprise (mirativity) or metaphor. Thus, we need a theory of conversational

meaning that can handle the kinds of meanings that can be implicated by both modal and non-modal evidentials.

These different analytic components are not mutually exclusive: evidentials which have a static semantics (e.g. they are epistemic modals) also have a dynamic semantics and can implicate other kinds of meaning in conversation. However, this does not necessarily work the other way: an evidential that operates on an illocutionary level does not necessarily have a static meaning. Thus, we begin to see how evidential systems are not uniformly semantic or pragmatic, but rather truly an interface phenomenon.

As a point of entry into these topics, it is useful to introduce one of the central issues in investigating the concept of evidentiality, which is done in §1.3.1: to what extent are epistemic modality and evidentiality conceptually related to one another.

1.3.1 The Relations Between Evidentiality and Epistemic Modality

Probing the conceptual relationship between epistemic modality and evidentiality can be facilitated by identifying four specific relations between the two, outlined in (1.15) (adapted from Schenner 2010):

(1.15) (i.) **Conceptual relation:** What is the relation between the concept of evidentiality and the concept of epistemic modality?

(ii.) **Encoding relation:** What is the relation between the encoding of evidential concepts and the encoding of modal concepts in a language?

(iii.) **Formal semantic relation:** Can evidentials in language be analyzed parallel to epistemic modals in formal semantics (i.e. quantification over possible worlds) or do evidentials require a different, independent kind of analysis?

(iv.) **Formal pragmatic relation:** What kinds of meanings to evidentials acquire or implicate in conversation? How are these implicated meanings related to their core evidential or modal meanings?

Two overlapping conceptions of evidentiality can be identified: under a narrow conception, evidentials are linguistic markers that encode the speaker's type of evidence or source of information for an assertion (de Haan 2001; Lazard 2001; Faller 2002; Aikhenvald 2006; and others). As such, evidentiality and epistemic modality are treated (in principle) as independent categories. A wider conception views evidentials as linguistic markers that indicate the speaker's type of evidence for her claim and/or the degree of its reliability, probability or certainty (Palmer 2006; Ifantidou 2001; Rooryck 2001a;b; and others). Under this conception, evidentials are essentially a sub-species of epistemic modals.

At the conceptual level evidentiality (understood as a person's type of source of information) and epistemic modality (understood as the person's judgment regarding the necessity or possibility of a proposition expressing the relevant piece of information) are different but related: The type of source influences the strength of belief in the truth of the proposition (see Davis et al. 2007; Speas 2008). However, the two concepts are not always entirely interchangeable because other contextual factors are at play. If a person asserts a proposition necessary, this by itself does not overtly communicate the type of evidence the person has for making that assertion. For example, the fact that a person has reportative evidence for the truth of a proposition does not determine a certain strength of belief in this proposition.

This link between evidentiality and epistemic modality has been the focus of much recent research, where many researchers claim that some evidentials in some languages are a specialized subtype of epistemic modality (Willett 1988, p. 52; Izvorski 1997; Palmer 2006; Matthewson et al. 2004; Rullmann et al. 2008; Peterson 2008). Within epistemic modality itself there are two basic construals: according to the first, epistemic modals indicate the

degree of commitment of the speaker to the embedded proposition, or the *prejacent*. Palmer (2006, p. 54) argues that evidentials are epistemic modals, because "their whole purpose is to provide an indication of the degree of commitment of the speaker: he offers a piece of information, but qualifies its validity for him in terms of the type of evidence he has". According to the second, epistemic modals mark the necessity or possibility of the prejacent relative to some body of evidence or knowledge (von Fintel and Gillies 2007; von Fintel and Iatridou 2009).

Indeed, cross-linguistic research has shown that languages differ in this respect. On the one hand there are languages that possess clearly distinct systems for evidentiality and epistemic modality. For example Pawnee, Wintu and Makah have distinct sets of morphemes for coding modal and evidential meanings (cf. Mithun 1999; Aikhenvald and Dixon 2003). On the other hand there are languages that use a single set of markers to denote evidential source and epistemic strength, as we will see in Gitksan. In general, epistemic modals often acquire evidential meanings (see von Fintel and Gillies (2007) for a discussion of the evidential properties of epistemic modals in English), and evidentials may be extended to epistemic modal meanings (cf. Faller 2002). What this suggests is that evidentials and epistemic modals combine expressions in various ways encoding evidential and epistemic meaning components. In §1.3.2 I introduce the specific tools for exploring these two relations.

1.3.2 The Theoretical Tools

A recently emerging generalization in the theoretical literature on evidentials is that evidential interpretations can arise on different levels of meaning. This has led to the discovery that in some languages, evidentials are a specialized type of epistemic modal: they are semantic operators that contribute to truth conditions; while in other languages evidential meanings are not a semantic phenomenon (i.e. they are not propositional operators), rather, they operate at the pragmatic level, and thus are characterized as illocutionary operators ((Izvorski 1997; Faller 2002; 2003; Davis, Potts, and Speas 2007; Matthewson, Rullmann, and Davis 2004; McCready and Ogata 2007; Davis, Matthewson, and Rullmann 2009; Rullmann, Matthewson, and Davis 2008)). The evidential system of Gitksan provides evidence that this theoretical generalization is not only cross-linguistically viable, but that the semantics-pragmatics 'split' in the distribution of evidentials can occur within the same language (see also Faller 2002).

1.3.2.1 Determining Levels of Meaning

Much recent literature has been devoted to developing various tests and diagnostics to determine whether a given evidential marker operates at the illocutionary or propositional level (Lyons 1977; Papafragou 2000; 2006; Garrett 2001; Faller 2002; 2003; Matthewson et al. 2004). Based on these studies, Waldie et al. (2009) classify these diagnostics into two broad categories: tests which are sensitive to the truth value of the prejacent in (1.16), and tests which are sensitive to scope and embeddability in (1.17):

(1.16) Tests involving Truth Values

- (i.) **Known Truth/Falsity:** Is the sentence felicitous if the prejacent is known to be true or false?
- (ii.) **Assent/Dissent:** Can the contribution of the evidential be agreed or disagreed with?
- (iii.) **Cancellability of type of evidence requirement:** Can the evidence type requirement be cancelled?

(1.17) Tests involving Scope and Embedability

(i.) **Embeddability:** Can the evidential be understood as part of the propositional content of an embedded clause (i.e. the antecedent of a conditional, under a factive attitude verb, under a verb of saying)?

(ii.) **Scope with respect to interrogatives:** Can the evidential take scope over a speech act?

(iii.) **Interaction with negation:** Is the evidence type requirement affected by negation?

It is important to note that these tests are only the foundations of a theoretical explanation of the behaviour of evidentials. Another way to view them is by drawing an analogy between these tests and the kinds of tests one applies in determining syntactic constituency. For example, it is well known that before one can develop a theoretical analysis of the syntax of nominals in a language (i.e. *wh*-movement), it is necessary to determine the constituency of potential noun phrases (i.e. DPs) in that language. Tests for constituency include, movement, deletion, substitution, and coordination etc. The results of these tests are only part of the analysis, and provide a foundation for the next step in the analysis.

Thus, the diagnostic tests in (1.16) and (1.17) provide a theoretical foundation for determining whether the evidentials in a language should be formally treated as illocutionary operators or semantic operators. In chapter 3 I work through the definition of these tests in detail as they are applied in two unrelated languages, St'át'imcets and Cuzco Quechua. Following this, I evaluate their applicability to the Gitksan data.

1.3.2.2 Static Semantics: Evidentials as Epistemic Modals

If these tests determine that an evidential is a semantic operator, we are in a position to approach the question in (1.15) (iii.): Can evidentials in a language be analyzed parallel to epistemic modals in formal semantics, or do evidentials require a different kind of analysis? There is a growing amount of research confirming the former option: propositional evidentials are analyzed as a type of epistemic modal, and do not require their own formal analysis.

The most prominent analysis of natural language modality involves the application of possible world semantics, which treats modal expressions as quantifiers over possible worlds (Kratzer 1981; 1991; and others). Quantification encodes what we interpret as *might* and *must*: necessity modals are treated as universal quantifiers, and possibility modals as existential. The actual interpretations of a modal (i.e. epistemic, circumstantial and deontic) are determined by the kinds of possible worlds that are quantified over. Two independent, contextually-determined functions, or CONVERSATIONAL BACKGROUNDS – a MODAL BASE and an ORDERING SOURCE – determine a set of possible worlds. Different conversational backgrounds correspond to the kinds of things we know about the actual world, be it the particular facts of some circumstance (circumstantial), the evidence available to us (i.e. epistemic), or the laws that are in place (i.e. deontic) etc. Thus, in English (and many other languages) we interpret the meaning of a modal by the context it's used in. An epistemic conversational background is the set of premises it represents *in view of* the facts known in the actual world. For example, *in view of* the available evidence to us, such as the fact that his livingroom lights are on, a sentence as "John must be at home" is true iff John is home in all the possible worlds w' that are compatible with the available evidence in w, such as those worlds in which his livingroom lights are on.

There are languages which lexically encode specific kinds of evidential meaning, but in which the evidentials have a modal semantics. Matthewson et al. (2004), Davis et al. (2009), and Rullmann et al. (2008) claim that the individual evidentials in St'át'imcets are in fact epistemic modals. Consider the St'át'imcets inferential evidential *k'a* in (1.18), which means that the speaker came to believe the sentence by means of inference based on perceived evidence, or general facts about the world:

(1.18) *plan* ***k'a*** *tu7* *wa7* *tsu7c* *na* *máq7-a*
already INFER then IMPF melt(INCH) DET snow-DET
"The snow must've already melted."

For Matthewson et al, *k'a* has a modal semantics, and its evidential meaning is encoded by presupposition, which restricts the modal base to only those worlds that are compatible with some actual-world indirect evidence. In the inferential case in (1.18), this means that the modal *k'a* quantifies over worlds in which (for example) people walk in the house with muddy boots instead of snowy boots. The sentence in (1.18) then asserts that in all worlds in which the proposition "people walk in the house with muddy boots instead of snowy boots" is true, the snow already melted. Because the actual world is presupposed to be a world in which there are people walking in with muddy boots instead of snowy boots, the sentence makes a claim about the actual world: the snow has melted in the actual world.

Under this approach, evidentials have basically the same denotation as an epistemic modal: their meaning operates at the level of the proposition, and determine the truth conditions of that proposition.

1.3.2.3 Dynamic Semantics: Evidentials as Sentential Force Specifiers

A *static* semantics equates the meaning of a sentence with its truth conditions: the conditions in which a sentence is true or false. This is the kind of semantics that is used to account for the meaning of modal evidentials such as *k'a* in St'át'imcets above. However, if the tests in (1.17) show that an evidential is an illocutionary operator, a different analysis is required. Whereas propositional evidentials are amenable to a modal analysis, there are (at least) two competing analyses of non-modal evidentials: (i.) an illocutionary analysis, which treats evidentials as speech act operators (Faller 2002), and (ii.) an analysis of evidentials within a dynamic semantics (Portner 2006; Davis et al. 2007).[12]

Faller (2002) argues that some evidentials in Quechua do not contribute to the propositional content of an utterance. Rather, they modify the sincerity conditions of a speech act. In essence, illocutionary evidentials have the effect of introducing additional content into the set of preconditions of an assertion. Within a *dynamic* semantics, the meaning of a sentence is its *context change potential*, or the way in which it changes/updates a (discourse) context (Heim 1982; 1990). In other words, the interpretation of an utterance (with or without an evidential) is both dependent on context, and changes the context.

I argue in chapter 5 that the theory of dynamic semantics provides an effective way of explaining the use of non-modal evidentials, where an evidential is defined in terms of its context change potential. Just as in a static semantics, presupposition is also crucial in determining the felicity of a non-modal evidential in a discourse context. Whereas modal evidentials have semantic presuppositions (definedness conditions on a proposition) that restrict the modal base worlds, non-modal evidentials carry a *pragmatic* presupposition which places a condition on their use in a conversation. For example, the felicitous use of a *ƛ̓akw*(p) sentence in Gitksan, given in (1.19), requires that the utterance context contains sensory evidence for p:

(1.19) Context: You drive by John's place and you see smoke coming out of the *wilp sihon*.

ƛ̓akwhl	*sihons*	*John*
ƛ̓akw=hl	si-hon-(t)=s	John
ƛ̓akw=CND	CAUS-fish-3sg=PND	John

[12]There is another recent theoretical approach whereby evidentials are analyzed as contributors of not-at-issue assertions (Murray to appear a). I won't be discussing this approach here as it was not available at the time of writing.

"John must be processing fish."
"It looks like John's doing up fish."

This condition is satisfied by the context, and so uttering (1.19) is felicitous in that context.

Portner (2006) adapts the theory of conversational update and introduces two modifications to the classical model: first is that the common ground is only one of potentially numerous sets of propositions in the context. These other sets represent propositions that encode cognitively or communicatively important categories, such as the different subtypes of evidentiality. Evidentials under this approach are sentential force operators that specify a kind of conversational update: they can function to conversationally update the common ground, the set of mutually believed propositions, or other specialized sets of propositions. The evidential meanings are the result of the different lexical evidentials that specify which specialized set of propositions to update in the discourse.

Under Portner's (2006) analysis, evidentials are not really illocutionary modifiers, but rather 'sentential force specifiers': they are grammaticized elements which specify precisely which kind of conversation update is to be performed. However, we will see in chapter 5, that *ṅakw*(p) statements are not added to the common ground – they are not asserted. This is based on Faller's insight, where there is a type of speech act with fewer commitments than assertion described as PUTTING which can be modified in various ways to represent the different kinds of evidentials meanings in a language.

Davis et al. (2007) develop a different approach using dynamic semantics, where the meanings of evidentials shift a particular contextual parameter, specifically, the degree of certainty a speaker must have in a proposition before they can utter it. Under this approach, evidentials form a hierarchy that is context dependent. Built into the theory is the notion that the effect an evidential sentence has on the context depends upon how reliable that evidential sentence is in the context.

1.4 Structure of the Thesis

This dissertation is structured around the application of these empirical and theoretical tools, the outcome of which is five proposals concerning the semantics and pragmatics of evidentiality in Gitksan. This structure is outlined in the following subsections.

1.4.1 A Description of Evidentials in Gitksan

Chapter 2 describes the inventory of evidentials in Gitksan, where I show that Gitksan has three morphemes that uniquely encode information about the speaker's evidence for a sentence. These meanings are summarized in (1.20):

(1.20) (i.) **Reportative =*kat***
The speaker came to believe a sentence by means of **a report** (whether that report is first-hand, second-hand, or folklore).

(ii.) **Inferential =*ima***
The speaker came to believe a sentence by means of **inference** (whether that inference is based on perceived evidence, general facts, or previous experience with similar situations).

(iii.) **Sensory (Direct physical) *ṅakw***
The speaker came to believe a sentence by means of **inference from sensory evidence** (whether that sensory evidence is visual, tactile, auditory, or olfactory).

This is framed within Aikhenvald's (2006) study of evidentials, and Gitksan is placed within this typology.

Along with these descriptions, the morphosyntactic properties of the evidentials in (1.20) are also discussed, as are the co-occurrence restrictions between them.

1.4.2 Modal Evidentials

Having established the kinds of evidence the evidentials in Gitksan encode, Chapter 3 applies the diagnostics in (1.16) and (1.17) to test what level of meaning the individual evidentials operate on. The outcome of these tests show that the evidentials *=ima* and *=k̲at* are propositional operators. The results for *n̓akw* are exactly the opposite: *n̓akw* cannot be an epistemic modal, but is a non-modal evidential. .

In Chapter 4 I argue that both *=ima* and *=k̲at* semantically belong to the category of modal evidentials. In analyzing *=ima* and *=k̲at* as epistemic modals, I generally follow the modal analysis of evidentials in Bulgarian and St'át'imcets (Izvorski 1997; Rullmann et al. 2008): Both *=ima* and *=k̲at* introduce quantification over possible worlds; their evidential interpretations are the result of a presupposition that restricts the modal base to epistemically accessible worlds where evidence of some specific type holds. In the case of modal *=ima*, this presupposition places a condition on the modal base such that it contain worlds in which some general kind of inferential evidence holds. The presupposition attached to *=k̲at* restricts the modal base to worlds in which a report was made. Despite the fact that the tests show that *n̓akw* is not a propositional operator unlike *=ima* and *=k̲at*, the evidential meaning of *n̓akw* is also achieved by the same mechanism as for *=ima* and *=k̲at*: there is a *sensory* evidence presupposition associated with *n̓akw*

Using a modal analysis of *=ima* and *=k̲at* as a base, in chapter 4 I also identify and analyze two properties these modals have that bear on both empirical and theoretical treatments of epistemic modals: the variable modal force of *=ima* and *=k̲at*, and the effect *=ima* has when inserted into a question in creating a *conjectural question.*

1.4.2.1 A Challenge: Variable Modal Force

In Chapter 4 I also analyze in detail a challenge modal *=ima* and *=k̲at* present to the standard analysis of modality. Both *=ima* and *=k̲at* differ from modal auxiliaries *might* and *must* in English in two respects: first, whereas the modal base of a modal in English is determined by the context (e.g. epistemic, deontic, or circumstantial), *=ima* and *=k̲at* lexically encode their epistemic meanings (e.g. *=ima* cannot have a circumstantial or deontic meaning). Secondly, unlike modals in English, *=ima* and *=k̲at* do not lexically encode modal force, rather, it is determined by the context. This feature can be observed in the translations in (1.21):

(1.21)

yugwimahl	*dim*	*iixwt*
yukw=*ima*=hl	tim	iixw-t
PROG=MOD=CND	FUT	fish-3

"He might be going fishing."
"He must be going fishing."
"He's probably going fishing."
"He's likely going fishing."
"He could be going fishing."
"Maybe/perhaps he's going fishing."

Gitksan shares this property with St'át'imcets, where the evidential modals in that language also have variable force. This 'reversed' arrangement between English, Gitksan and St'át'imcets is summarized in Table 1.1 below (see also Rullmann et al. 2008):

	Modal Meaning	**Modal force**
English	CONTEXT (epistemic, deontic etc.)	LEXICAL (*might*, *must*)
Gitksan	LEXICAL	CONTEXT
St'át'imcets	LEXICAL	CONTEXT

Table 1.1: Lexically vs. contextually determined modal meaning and force

This presents a challenge to the standard denotations of modals, where *must* and *might* lexically encode quantificational force. The modals *=ima* and *=k̲at* differ from English modal auxiliaries in that they do not lexically encode modal force. In chapter 4 I claim that these various degrees of modal force correspond to (at least) two different types of ordering sources in Gitksan (cf. §1.3.2.2). The ordering source is a contextually-determined function which imposes a particular evaluative ordering of the worlds in the modal base (Kratzer 1981). Whereas the modal base contains propositions representing facts or knowledge about the world as assessed by the speaker in a given scenario, the ordering source contains propositions representing beliefs, ideals, norms, intentions, and universally-held assumptions about normal courses of events in the world. These two conversational backgrounds interact: the propositions that comprise the ordering source impose an ideal ordering on the modal base worlds. Specifically, I will argue that the weak/strong interpretations of *=ima* and *=k̲at* correspond to empty/non-empty ordering sources which order an existentially quantified epistemic modal base. This analysis predicts the opposite effect in languages that have a universally quantified modal base. I show how this prediction is borne out in the evidential modals in St'át'imcets.

1.4.2.2 Conjectural Questions

Continuing in Chapter 4, I focus on an additional property of *=ima*: the insertion of the modal *=ima* into a question creates a non-interrogative utterance, roughly translatable using 'I wonder.' Examples of *=ima* added to both a yes-no and *wh*-question are given (1.22)a. and b., respectively. Both are translated as a statement of uncertainty:

(1.22) a.

neeyimahl	*sdinhl*	*x̲biist*	*tusta*
nee=*ima*=hl	stin-(t)=hl	x̲biist	tust=a
NEG=MOD=CND	be.heavy-3sg=CND	box	DEM=INTERROG

"I wonder if that box isn't heavy."

b.

naayima	*'ant*	*giṅamhl*	*xhlaẃsxw*	*'as*	*John*
naa=*ima*	'an-t	kiṅam-(t)=hl	xhlaẃsxw	'a=s	John
who=MOD	S.REL-3sg	give-3sg=CND	shirt	OBL=PND	John

"I wonder who gave this shirt to John."

Following Littell et al. (2010), these constructions are called *conjectural questions*. A central featue of conjectural questions is that they are statements that can invite, but don't require an answer in order to be felicitous in conversation. Additionally, an answer can be offered by either speaker. The central claim pursued at the end of chapter 4 is that conjectural questions have the semantics of ordinary questions: they denote sets of propositions. The presupposition analysis of *=ima* is then applied to the question: the presuppositions carried by each proposition in the question denotation conjoin, so that the conjectural question as a

whole presupposes everything presupposed by each of its members. The resulting conjoined presupposition entails that there is mixed evidence, and therefore it implicates that the speaker does not expect the hearer to be able to provide an answer to the question. The outcome is a reduced interrogative force for conjectural questions: not only is the hearer not required to answer, the speaker is encoding that the hearer is probably not able to answer.

1.4.3 Non-Modal Evidentials

As mentioned above, the tests from (1.16) show that *ńakw* has very different characteristics from *=ima* and *=kat*: what these tests show is that *ńakw* is a non-modal evidential. Following Portner (2006), in chapter 5 I present the claim that *ńakw* clauses have their own sentential force, or what I call an 'evidential sentential force'. The function of evidential sentential force is to add the prejacent to the set of discourse propositions that a speaker has inferential evidence for. *ńakw* sentences do not have the illocutionary force of assertion – they do not add a proposition to the common ground – but are similar to other sentential forces: their illocutionary force is determined by the context of use. This is reflected in the variety of translations of *ńakw*, as something question-like, rhetorical statements, and occasionally warnings.

I proceed in two steps: First, we can use a dynamic semantics to examine the context change potential of sentences of the form *ńakw*(p) in Gitksan. Here I claim that by making a statement *ńakw*(p), a speaker pragmatically presupposes that he or she has sensory evidence for p. More specifically, because of the sensory evidence lexically encoded by *ńakw*, the addition of *ńakw*(p) to a Context Set C requires that C contain only worlds where the sensory evidence proposition is true, which happens because the proposition is in the common ground.

Secondly, while this explains the use of *ńakw* in conversation in terms of its context change potential, we still require an account of *ńakw* in terms of its sentential force. If *ńakw*(p) sentences are not assertions, then what exactly do they contribute to the conversation? In §5.3 I develop a dynamic semantics of *ńakw* by proposing that *ńakw* is a novel sentential force operator. Under this analysis, the sentential force of *ńakw* is to add a proposition to the inferential set: the set of propositions a speaker has inferential evidence for.

1.4.4 Evidentiality and Modality at the Semantics-Pragmatics Interface

The picture that emerges at this point is that evidentiality in Gitksan is an interface phenomenon *par excellence*. Not only is the evidential system in Gitksan split between modal and non-modal evidentials, these modals often interact with each other in certain contexts. Specifically, both *=ima* and *ńakw* are felicitous in contexts where there is sensory evidence for an inference. This means that *=ima* and *ńakw* compete at some level in these contexts, and they express different attitudes of the speaker towards the sensory evidence: *=ima* expresses a weaker confidence in the proposition than *ńakw*. Because *=ima* and *ńakw* operate on different levels of meaning, in chapter 5 I claim this requires a semantics-pragmatics interface principle which I call *pragmatic blocking*.

The other robust features of *ńakw*, its mirative and non-literal meanings, are also rooted in the use of *ńakw* in conversation: when a speaker uses *ńakw*(p) statement when they know or believe the proposition embedded under it to be true, a mirative interpretation is conveyed; when they believe that proposition to be false, a metaphorical interpretation arises. Chapter 5 also presents a novel analysis of the mirative and metaphorical uses of *ńakw* as conversational implicature.

1.4.4.1 Pragmatic Blocking

Example (1.23) shows that when there is sensory evidence available in the context, *n̓akw* takes over the interpretation of *must*, and *=ima* is relegated to meaning only *might*:

(1.23) Context: You see scratch marks on the outside wall of your friend's house that weren't there last night.

a. *hlak̲hlak̲stiidimahl* *as'oshl* *haahlx̲an*
hlak̲-hlak̲s-tiit=*ima*=hl as-'os=hl haahlx̲an
pl-scratch-3pl=MOD=CND pl-dog=CND wall
"The dogs **might've** scratched the wall."

b. *n̓akwt* *hlak̲hlak̲stiithl* *as'oshl* *haahlx̲an*
n̓akw=t hlak̲-hlak̲s-tiit=hl as-'os=hl haahlx̲an
EVID=3pl pl-scratch-3pl=CND pl-dog=CND wall
"The dogs **must've** scratched the wall."

Chapter 5 provides an analysis of the modal force alternations found in sensory evidence contexts of the kind exemplified in (1.23): the evidence presuppositions attached to *=ima* and *n̓akw* stand in a blocking relation to one another mediated by the application of *Maximize Presupposition*, which requires that the strongest possible presupposition be used in any given context (Heim 1991; Sauerland 2003; Schlenker 2006). *n̓akw* has a more specified presupposition – one that presupposes the speaker has sensory evidence for an epistemic claim – and therefore blocks *=ima*, which lacks this specification, in sensory evidence contexts. The effect this has when translated into English is that *n̓akw* will typically be translated as *must*. However, *=ima* is also felicitous in these contexts, but it indicates that a speaker does not believe the sensory evidence to be suitable for a strong, *must*-like claim. In formal terms, *=ima* 'implicates' the negated sensory evidence presupposition of *n̓akw*, thus conveying what is interpreted as *might* (Sauerland 2003).

1.4.4.2 Mirativity and Metaphor

Chapter 5 concludes by analyzing two more properties of *n̓akw*: its mirative and non-literal (metaphorical) uses in discourse. Mirativity refers to the grammatical marking of a proposition as representing information which is surprising to the speaker (DeLancey 1997, 2001). A mirative interpretation is associated with the evidential *n̓akw*, as the translations in (1.24) show:

(1.24) a. *bagw* *n̓idiit*
pakw n̓idiit
arrive.pl 3pl
"They've arrived."

b. *n̓akwhl* *bagwdiit*
n̓akw=hl pakw=tiit
EVID=CND arrive.pl=3pl
"They must've arrived!"
"Looks like they've arrived!"

Under its evidential reading, the use of *n̓akw* means the speaker has indirect sensory evidence for a proposition, such as a truck parked in the driveway, or noise in the hallway. When a speaker witnesses an event, *n̓akw* can be used to express surprise at a situation, such as the unexpected arrival of guests at a party.

This basic analysis presented in chapter 5 is as follows: with a statement of the form EVID(p), a speaker cannot know for certain p is in fact true. If a speaker knows p is true, then we expect Gricean considerations to ensure that a speaker assert p, and not EVID(p). A mirative statement results when a speaker knows p is in fact true. Under this view, a mirative statement doesn't assert something new because p is already a part of the common ground, and this is what results in implicature.

There is another pragmatic feature associated with *ṅakw*: in addition to its evidential and mirative uses, *ṅakw* has a metaphorical use. Consider a context where the speaker is 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. Out of exasperation, the speaker exclaims (1.25):

(1.25) *ṅakwhl* *sinst*
ṅakw=hl sins-t
EVID=CND blind-3sg
"He must be blind!"
"Is he blind or something?"
"Looks like he's blind!"

The flipside of mirativity with regards to the truth value of p is the use of an evidential in a metaphorical statement, which arises when a speaker knows p is false. For example, upon uttering (1.25), the speaker is saying that 'he must be blind', something he knows is is false. Thus, the speaker is flouting the maxim of Quality ("do not say what you believe to be false"). What the speaker is doing is asserting (1.25) in order to implicate that the batter is performing counter to expectations, or that the batter has the attributes of blindness. This forms a three-way formal system for the pragmatic use of an evidential, as given in (1.26):

(1.26) (i.) In asserting EV(p), the Speaker does not know it's part of the common ground that either p or not p: *Evidential without any implicated meaning*
(ii.) In asserting EV(p), the Speaker knows it's part of the common ground that p: *mirativity as Quantity implicature*
(iii.) In asserting EV(p), the Speaker knows it's part of the common ground that not p: *metaphor as Quality implicature*

This bears directly on the status of mirativity as a natural linguistic class, and the debate within the literature as to whether or not mirativity is a separate semantic category, or simply an extension of evidentiality (cf. DeLancey 1997; 2001). There are two outcomes of this analysis. First, this gives us a way to derive mirativity from other components of the grammar in a predictable way through implicature. This analysis also predicts a relation between mirativity and metaphor based on the speaker's knowledge of the truth or falsity of p.

1.5 Methodology

There are many unique challenges in the elicitation of meaning, and how those meanings are used in context. This is particularly the case when eliciting evidential and modal meanings in languages with evidentials, where there is no obvious correspondence with how a meta-language such as English encodes these meanings. Throughout the data elicitation phase of this research, I followed the semantic fieldwork methodology of Matthewson (2004), where I aim to establish facts about the meaning of utterances that contain evidentials. I also develop new ways to explore specialized meanings involving evidentials, such as mirativity and metaphor. These methodological principles are highlighted below.

Coverage. 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. There were no discernible differences relevant to evidential or modal meaning between these dialects or communities.

Presenting contexts. The primary elicitation method was the presentation of contexts that target specific kinds of evidential meanings, and then asking speakers what kind of sentence in Gitksan would adequately describe that scenario. When it was possible, culturally relevant objects and situations were used in constructing a scenario, for example, smoking fish or berry picking.

Presenting sentences. This technique complements the above one. Here, I would present an evidential sentence to a speaker and then ask them to create a story or scenario where that evidential sentence would be appropriate. Sometimes this was done out-of-the blue in isolation, and other times sentences with different kinds of evidentials were presented in a sequence, and the speaker was asked to make the appropriate adjustment to the scenario in order to isolate the evidential meaning.

Conversation analysis. Fortunately, there are still households in the Gitksan communities where one can hear the language used on a daily basis between members of a family. This afforded me the opportunity to *observe* the language and how it's used without any interference from the researcher. Not surprisingly, evidentials were abundant in natural conversation. Thus, with the permission of the speakers, I made note of these overheard conversation fragments. Often I would re-elicit them from the same speakers later.

Additionally, throughout the course of fieldwork, many personal anecdotes and traditional stories were shared by the speakers. Perhaps not surprisingly, evidentials were less used in these contexts, but there were some relevant data, especially involving the difference between the reportative and quotative, and how the former cannot co-occur with the other evidentials, but the latter can.

Speaker introspection. A crucial aspect of this kind of data collection is including a speaker's intuitions about the meaning of the individual evidentials, not just in terms of when they are (in)felicitous in a context, but as a way to really define what an evidential can mean and how it can be used in a conversation. This last aspect is especially important, as natural conversation cannot always be easily constructed in a field situation.

Testing infelicity and ungrammaticality. In addition to testing felicity, it is also important to test for ungrammaticality. This is especially relevant when examining embeddability, which involves the syntax, semantics and pragmatics of evidentials. Given that syntactic research on Gitksan is still in its early stages, one goal of this research was to shed some light into the morphosyntax of constructions involving evidentials, particularly second position clitics. This is necessary in order to check for the co-occurrence restrictions of evidentials and whether their syntactic position affected their interpretation.

Technical notes. Throughout this dissertation I follow the tradition in Tsimshianic linguistic study by using four lines in each language example. The top example is the language data using the Gitksan practical orthography (cf. Appendix A), and usually represents the typical spellings used by speakers. The second line contains the morphological analysis, including the underlying forms of the morphemes before obstruent voicing applies. The third

line is the morpheme gloss, and the fourth line is the translation. Immediately above a language example is a paraphrase of the context that was presented to the speaker. All examples are from fieldwork, unless otherwise cited.

Chapter 2

Epistemic Modality and Evidentiality in Gitksan

In chapter 1 I suggested that all languages have ways of linguistically encoding the source and/or reliability of knowledge speakers have for making claims and observations about the world around them. This chapter applies that assumption to Gitksan, and the goal is to provide a systematic and detailed semantic and morphosyntactic description of how speakers of Gitksan linguistically encode their epistemic notions. As mentioned in the previous chapter, there are no descriptions of epistemic modality nor evidentiality in the Gitksan literature. Thus, in addition to providing the first description of this system, the data presented in this chapter will allow us to see how Gitksan can enrich our understanding of evidentiality from a typological perspective, as well as a first glimpse at the issues that the Gitksan system brings to bear on current theories of modality and evidentiality.

2.1 The Issues

Given the assumption that all languages have the means to express the source and/or reliability of knowledge, we cannot assume that languages encode these notions in the same way. Chapter 1 (cf. §1.3.1) discussed how languages have the possibility of dividing the labour of expressing epistemic knowledge either through a system of modals (usually encoding reliability of some knowledge), or evidentials (encoding the source of some knowledge), or both. Thus, an investigation of this in Gitksan bears on the first two relations between epistemic modals and evidentials developed in (1.15), and reformulated for Gitksan in (2.1):

(2.1) (i.) **Conceptual relation:** To what extent does Gitksan manifest a relation between the concept of evidentiality and the concept of epistemic modality?

(ii.) **Encoding relation:** To what extent is there a relation between the encoding of evidential concepts and the encoding of modal concepts in Gitksan?

The data from Gitksan presented in this chapter and analyzed in chapters 3 and 4 show that not only are epistemic modality and evidentiality not mutually exclusive, but that Gitksan possesses both modal and non-modal evidentials.

2.2 The Plan

In order to investigate the status of evidentiality in Gitksan or any language, it is necessary to have in place a set of categorized evidential meanings. In §2.3 I introduce Aikhenvald's (2006) system of categorizing evidential meanings, which I use in §2.4 to give a preliminary description of the evidential system in Gitksan. I also look across to evidentiality in Nisgha'a, a mutually intelligible language, for some indication of how evidentials might manifest themselves in Gitksan. §2.4 looks at the cognates of the evidentials in Gitksan, and uses Tarpent's (1987) description of Nisgha'a evidentials as a point of departure in examining the three morphemes in Gitksan that encode modal and evidential meaning. Sections 2.5 and 2.6

investigation the semantic properties of the reportative =*k̲at* and the inferential evidential =*ima*, while §2.7 looks at their morphosyntactic properties. The semantic and morphosyntactic properties of the sensory evidential *ṅakw* are examined in §2.8, and §2.9 looks at how all three of these morphemes interact. §2.10 summarizes.

2.3 Describing Evidentiality

Under a typical interpretation, a claim that a language possesses an 'evidential system' means that that language has a paradigm of linguistic markers, where each member of that paradigm uniquely encodes something about the speaker's type of evidence or source of information for their claim. More specifically, the members of this evidential paradigm would correspond to a systematic arrangement of evidential meanings, such as those found in the systems developed by, for example, Palmer (2006), Aikhenvald (2006), Willett (1988) or Speas (2008). Aikhenvald's (2006) typology is arranged around the *source* and *type* of verification that evidential markers provide in making an evidential statement. The source indicates who the statement is attributed to (first hand or second hand), the type indicates how the speaker obtained the information (visually, by inference, through belief, by hearsay, by quoting). Aikhenvald creates a ranked list of evidential systems based on the number of different markers in the language. These kinds of evidential meanings are divided by Aikhenvald into the categories given in (2.2):

(2.2) (i.) Witness vs. Nonwitness
- (ii.) Firsthand vs. Secondhand vs. Thirdhand
- (iii.) Sensory
  - a. Visual
  - b. Nonvisual (i.e. auditory, olfactory, etc.)
- (iv.) Inferential
  - a. Direct physical
  - b. General knowledge
  - c. Experience
  - d. Past deferred realization
- (v.) Reportative
  - a. Hearsay
  - b. Quotative
- (vi.) Assumed

These categorizations form contrasts with each other, while implicating or including the meanings of others. For example, Aikhenvald generalizes that a language which has a witness evidential usually contrasts it with a nonwitness evidential which indicates that the information was not witnessed personally, but was obtained through a secondhand source or was inferred by the speaker. However, a witness evidential can also include finer ranges of meaning, perhaps indicating that the information source was obtained through direct observation by the speaker. Usually this is from visual observation (eyewitness), but some languages also mark information directly heard together with information directly seen.

Another cross-linguistically important evidential category is the reportative. Even within this category grammatical distinctions can be made between a general reportative evidential (i.e. hearsay), and the quotative.

A sample typology of how the different evidential categories can combine and cross cut each other is given in Table 2.1 (adapted from Schenner 2010):

Evidential distinctions	Languages
Firsthand, Non-firsthand	Jarawara, Yukaghir
Direct/Visual, Inferred, Reported	Quechua, Qiang, Shasta
Visual, Non-visual sensory, Inferred	Washo, Siona
Visual, Non-visual sensory, Inferred, Reported	Tucano, Eastern Pomo
Direct/Visual, Inferred, Assumed, Reported	Tsafiki, Shipibo-Konibo

Table 2.1: A sample typology in Aikhenvald's categorization of evidential meanings

Although there are alternatives to Aikhenvald's evidential categories (i.e. Willett 1988; Palmer 2006), the organization of evidential meanings in (2.2) represents a robust range of the evidential meanings which are found cross-linguistically. I adopt Aikhenvald's typology of evidentials in (2.2) as a useful heuristic move at this point in terms of organizing the detailed descriptions of the three morphemes in Gitksan dedicated to expressing epistemic and evidential meanings. Additionally, these evidential features can be used to build a more finely-grained definition of the properties of the Gitksan evidential system, and will allow us to identity how Gitksan fits into a typology of evidential systems cross-linguistically.

2.4 Describing Evidentiality in Gitksan

A first, practical step in examining evidentiality in Gitksan is to begin with Tarpent's (1987) description of evidentials in the mutually intelligible language, Nisgha'a, and then test plausible cognates of them in Gitksan. Tarpent identifies three morphemes which encode epistemic and evidential meanings in Nisgha'a, each of which turn out to have identical cognates in Gitksan. These are what Tarpent characterizes as the 'reportative' =*k̲at*, the 'dubitative' =*ima*, and the modal/evidential *n̓akw*.[13] Both =*ima* and =*k̲at* are described by Tarpent as verbal enclitics; however, the modal/evidential *n̓akw* has the syntactic distribution of a full verb which takes a complement clause. Table 2.2 below summarizes Tarpent's original labels and evidence types for the Nisgha'a evidential system.

	Original gloss	Evidence type
=*k̲at*	REPORTATIVE	report
=*ima*	DUBITATIVE	indirect/direct
n̓akw	MODAL/EVIDENTIAL	direct

Table 2.2: The evidential system in Nisgha'a (Tarpent 1987)

The following subsections show that Tarpent's descriptions of the cognates of =*k̲at*, =*ima*, and *n̓akw* in Nisgha'a are generally accurate, but we can further sharpen their meanings considerably. For example, what is immediately noticeable about Tarpent's descriptions in Table 2.2 is how they only broadly correspond to the categories found in Aikhenvald's typology. Also, there is an overlap in the evidential meanings between =*ima* and *n̓akw* (which was also originally defined as a modal by Tarpent). Thus, a finer-grained characterization

[13]Tarpent alternates between glossing *n̓akw* as a modal and evidential. Additionally, Tarpent includes =*ima* and =*k̲at* as part of a system of 'evidential postclitics' (1987, p. 489). The other postclitics in the Nisgha'a system could not be verified in Gitksan.

is needed in order to distinguish =*ima* from *ʼnakw*, and to verify the empirical difference between what she described as an evidential and a modal.

In anticipation of doing this, I have replaced Tarpent's original glosses by adopting Aikhenvald's typology in (2.2): the 'DUBITATIVE'=*ima* is reglossed as 'MOD' (modal), and the MODAL/EVIDENTIAL gloss for *ʼnakw* is now 'EVID' (evidential). However, I've maintained Tarpent's original gloss for the reportative, =*k̲at*. Thus, the glosses used in the remainder of this dissertation, and the Aikhenvald evidence type that is eventually ascribed to them, are given in Table 2.3 below:

	Gloss	**Aikhenvald Evidence type**
=*k̲at*	REPORTATIVE (REP)	Reportative – Hearsay
=*ima*	MODAL (MOD)	Inferential (all senses a. – d.)
ʼnakw	EVIDENTIAL (EVID)	Inferential – Direct physical

Table 2.3: A description of the evidential system in Gitksan

By way of introduction to the meanings of these evidentials, example (2.3) is a minimal set using a typical stative/intransitive verb. (2.3) also gives a snapshot of the typical translations of these evidentials given by consultants:

(2.3) a. *mukwhl* *maaẏ̓*
mukw=hl maaẏ̓
ripe=CND berries
"The berries are ripe."

b. *mugwi̲gathl* *maaẏ̓*
mukw=*k̲at*=hl maaẏ̓
ripe=REP=CND berries
"[I heard] the berries are ripe."

c. *mugwimahl* *maaẏ̓*
mukw=*ima*=hl maaẏ̓
ripe=MOD=CND berries
"The berries might/must be ripe."
"Maybe the berries are ripe."

d. *ʼnakwhl* *mukwhl* *maaẏ̓*
ʼnakw=hl mukw=hl maaẏ̓
EVID=CND ripe=CND berries
"The berries must be ripe."
"Looks like the berries are ripe."

The meaning of =*k̲at* supports the standard definition of a reportative: in example (2.3)b., a speaker has come to believe that the berries are ripe through a report from another source. That source could be anonymous or unknown (perhaps over the radio scanner), or from someone who was actually out berry picking (e.g. a family member who was there earlier) (cf. Aikhenvald's *hearsay* evidence).

From the consultants' translations and Tarpent's descriptions, =*ima* and *ʼnakw* appear at face value to make epistemic claims of varying force about the ripeness of the berries rather than tell us anything about the type of evidence a speaker has for asserting that the berries are ripe. However, there are five semantic and pragmatic features that distinguish =*ima* and *ʼnakw*. The first involves what can be interpreted as modal force: =*ima* can

express either epistemic possibility or necessity (commonly translated by consultants as *must* or *might*), while *n̓akw* can only express necessity (often translated as *must* and very rarely as *might*). The second difference regards evidence: *=ima* is compatible with any type of indirect evidence, including a simple speculative judgment about the present or future with little or no observable evidence, or a recollection of a past event where the details are no longer clear. The distribution of *n̓akw* is more restricted: its interpretation requires the speaker to have some type of perceptual evidence for the assertion. The context in (2.4) brings out this difference:

(2.4) Context: 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 (a traditional picking grounds).

This context involves inferential evidence from speculation, general knowledge or experience. Example (2.3)c. using *=ima* is felicitous with this type of evidence, while *n̓akw* in (2.3)d. is infelicitous – it cannot be used when the speaker is only speculating or inferring from general knowledge. In a related context, given in (2.5), where there is some kind of physical evidence available to the speaker – in this case, purple hands – both *n̓akw* and *=ima* are felicitous:

(2.5) Context: People are arriving home after a day of berrypicking up in the Suskwa. They're carrying buckets of berries, and their hands are all purple.

This physical evidence interpretation is supported by the frequent translation of *n̓akw* as "It looks like ...", and corresponds to Aikhenvald's inferential evidence from some type of direct, perceptible, physical results. Thus, *n̓akw* is felicitous with a specific subset of the inferential evidence types that *=ima* is. Or in other words, *=ima* is felicitous in both inferring from physical and reasoning contexts, while *n̓akw* is felicitous only when inference is from physical evidence.

The third difference between *=ima* and *n̓akw* involves a pragmatic distinction: *=ima* can appear in any type of clause, including assertions, questions, negation, or conditionals. However, *n̓akw* cannot be used in questions, nor in the antecedent of a conditional, nor can *n̓akw* be negated or otherwise embedded in any way. This is discussed in more detail in §2.8, but an example illustrating this difference using negation is given in (2.6):[14]

(2.6) a. *neeyimahl* *mukwhl* *maay̓*
nee=*ima*=hl mukw=hl maay̓
NEG=MOD=CND ripe=CND berries
"The berries might not be ripe."

b. *nee=*n̓akw*=hl mukw=hl maay̓

The fourth distinguishing feature between *=ima* and *n̓akw* also involves pragmatics: *n̓akw* can be used to express mirativity. Example (2.7)a. shows how *n̓akw* can be used to mark a proposition that represents information which is surprising to the speaker (DeLancey 1997; 2001). This effect is restricted to *n̓akw*: *=ima* does not have this mirative effect in b.:

(2.7) Context: You're sitting around with friends playing cards, and a couple more friends unexpectedly walk through the door wanting to join the game.

[14]This is also characterized as a (morpho)syntactic difference: *n̓akw* is a full-fledged verb, while *=ima* is a predicate enclitic. This is also discussed in more detail in §2.8.

a. *n̓akwhl* *bagw=diit*
n̓akw=hl pakw=tiit
EVID=CND arrive.pl=3pl
"They're here!" "Looks like they made it!"

b. # *bagwima* *n̓idiit*
bakw=*ima* n̓idiit
arrive.pl 3pl
"They might be here."

Finally, *n̓akw* has a non-literal/metaphorical use, rendering an expression similar to a rhetorical question in English in example (2.8):

(2.8) 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.

n̓akwhl	*sinst*
n̓akw=hl	sins-t
EVID=CND	blind-3

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

In both its mirative and non-literal uses, *n̓akw* maintains its evidential function: the speaker is making an assertion based on what they infer from the physical results they perceive – in (2.8) the fact that the batter keeps missing the ball, and in (2.7) the fact that they can see people coming through their front door. The mirative and metaphorical uses of *n̓akw* are examined in detail in Chapter 5.

In contrast, =*ima* in example (2.9) below is also felicitous in the baseball context in (2.8), but it cannot have this non-literal effect: =*ima* must express that the batter may be literally blind, as suggested in the accompanying context:

(2.9) Context: You're walking down the street and notice a man walking along with a white cane and dark sunglasses (Felicitous context offered by consultant).

sinsima	*n̓it*
sins=*ima*	n̓it
blind=MOD	3sg

"He might/must be blind."

In the following sections, I examine in detail the meanings and morphosyntax of the three Gitksan evidentials outlined above.

2.5 The Reportative =*k̲at*

Reportative evidentials indicate that the information was reported to the speaker by another sentient source. In Aikhenvald's categorization of evidential meanings in (2.2), languages can distinguish between hearsay evidentials and quotative evidentials. Hearsay indicates reported information that may or may not reflect literally the statement that was made by the source, while a quotative sets off a direct quotation of another person's speech. Hearsay evidentials can also be broken down further: according to Willett (1988, p. 57, 96), there are three kinds of reported evidence, defined in (2.10):

(2.10) (i.) *Second-hand evidence:* The speaker claims to have heard of the situation described from someone who was a direct witness.

(ii.) *Third-hand evidence:* The speaker claims to have heard of the situation described by someone who was not a direct witness.

(iii.) *Evidence from folklore:* The speaker claims to have heard of the situation described as part of established oral history.

In Nisgha'a, Tarpent (1987, p.499) states that "by using =*k̲at* the speaker disclaims responsibility for the truth of the utterance because he is only reporting information originating with others." Example (2.11) is a typical example of =*k̲at* in Nisgha'a, with its cognate in Gitksan given in (2.12):

(2.11) Nisgha'a (Tarpent 1987: 499)

siipkwg̲at	*t*	*Mary*
siipkw=*k̲at*	t	Mary
sick=REP	PND	Mary

"[I heard] Mary is sick."

(2.12) Gitksan

siipxwk̲atit	*Mary*
siipxw=*k̲at*=t	Mary
sick=REP=PND	Mary

"[I heard] Mary is sick."

2.5.1 The Evidential Meanings of =*k̲at*

Reportative =*k̲at* is felicitous in all three of Willett's reportative types in (2.10). Example (2.13) presents contexts that involve second-hand information: in all of these contexts the speaker is reporting a proposition made by someone who was present and witnessed the relevant eventuality:[15]

(2.13) Second-hand Evidence:

a. Context: The speaker is talking about a time during her childhood when she took a boat from Vancouver Island to Prince Rupert. The speaker does not remember herself exactly where the boat arrived, but was told about it by her older sister, who was there.

bagwg̲at	*n̓uum̓*	*g̲o'ohl*	*Prince*	*Rupert*
pakw=*k̲at*	n̓uum̓	k̲o'=hl	Prince	Rupert
arrive.pl=REP	1pl	LOC=CND	Prince	Rupert

"[I heard] We got to Prince Rupert."

b. Context: The speaker is telling her friends at the coffee shop that Mary had her long hair cut recently. She hasn't seen Mary's hair herself yet, but knows because the speaker's sister is the hairdresser who did it.

gung̲ojig̲as	*Mary-hl*	*g̲est*
kwin-k̲ots-i-(t)=*k̲at*=s	Mary=hl	k̲es-t
CAUS-cut-TR-3sg=REP=PND	Mary=CND	hair-3sg

"[I heard] Mary had her hair cut."

c. Context: The speaker is reassuring a mutual friend that Mark's sister will repay a debt because Mark gave her some money, and the speaker talked to her about it already.

gin̓amig̲as	*Mark=hl*	*daala*	*'ahl*	*gimxtit*
kin̓am-i̲-(t)=*k̲at*=s	Mark=hl	taala	'a=hl	kimxt-t
give-TR-3=REP=PND	Mark=CND	money	OBL=CND	sister-3sg

"[I heard] Mark gave money to his (Mark's) sister."

[15] The edges of =*k̲at* are subject to the global phonological rules in Gitksan of obstruent voicing and deletion. This results in various allomorphs of =*k̲at* such as =*g̲at*, =*k̲a*, and =*g̲a*.

The third-hand evidence in (2.14) is from a source who then reports it to another source, who in turn reports it to the speaker:[16]

(2.14) Third-hand Evidence:

a. Context: John didn't go to work today. You ask your co-workers where he is. None of them have seen John sick, but their boss told them earlier in the morning.

siipxwg̲atit	*John*
siipxw=k̲at=t	John
sick=REP=PND	John

"[I heard] John is sick."

b. Context: All of the children in the neighbourhood are excited about a new dog named Sammy. A parent is talking to a neighbour about the new dog, after overhearing his name is Sammy.

siwatdig̲athl	*gyathl*	*'os*	*'ahl*	*Sammy*
si-wat-t-i-(t)=k̲at=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)

c. Context: People are discussing the various contributions for a feast. Someone heard from the person who did the accounting that Walter also put in money, but the accountant didn't actually witness Walter doing this (as it's done anonymously).

lumag̲digas	*Walterhl*	*daala*
lumak̲-t-i-(t)=k̲at=s	Walter=hl	taala
donate-t-TR-3=REP=PND	Walter=CND	money

"Walter donated/contributed/put in money."

Example (2.15) shows the use of =k̲at in folklore, involving a typical description of the legend character, *Weget*:

(2.15) Folklore

lax̲mo'ong̲at	*wil*	*sgyats*	*Weget*
lax̲-mo'on=k̲at	wil	skyat=s	Weget
LOC-salt=REP	COMP	born=PND	Weget

"Weget was born in the sea."

=k̲at is also felicitous in contexts where the source is entirely anonymous, or can't be determined, as in reporting something overheard from another conversation, as in (2.16), or it can also be used to report predictions about future states or events, as in (2.17):

[16]There is a class of verbs called 'T'-class verbs in Nisgha'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/Nisgha'a literature and leave it unglossed.

(2.16) Context: You're telling your friend that you overheard at the coffee shop earlier that John won at bingo last night.

x̲stag̲as	*John*	*go'ohl*	*bingo*	*gax̲xw*
x̲sta=k̲at=s	John	k̲o'=hl	bingo	kax̲xw
win=REP=PND	John	LOC=CND	bingo	last.night

"John won at bingo last night."

(2.17) Context: A friend of yours heard you were getting married and congratulates you when you meet her in the store.

dim	*naksg̲at*	*n̓iin*
tim	naks=k̲at	n̓iin
FUT	marry=REP	2sg

"[I heard] you're getting married!"

In more complex sentences, such as those that contain complement clauses, the interpretation of =k̲at is sensitive to the predicate it attaches to. In example (2.18) which does not contain =k̲at, 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:

(2.18)

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

g̲o'ohl	*lax̲mo'on*
k̲o'=hl	lax̲-mo'n
LOC=CND	GEO.LOC-coast

"Mark told/said to his sister that John is leaving for the coast." (Rigsby 1986: 324)

In (2.19), =k̲at 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.

(2.19) REPORT: The speaker is asserting based on a report that Mark told his sister John would leave for the coast.

Context: The speaker 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.

mahldig̲as	*Mark*	*'ahl*	*gimxdit*	*dim*	*wil*	*saa*
mahl-t-i-(t)=k̲at=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*	*g̲o'ohl*	*lax̲mo'on*
taa'whl=s	John	k̲o'=hl	lax̲-mu'n
leave=PND	John	LOC=CND	GEO.LOC-coast

"Mark told/said to his sister that John is leaving for the coast." (adapted from Rigsby 1986: 324)

However, in (2.20) =k̲at is attached to the verb in the complement clause. The reportative evidence is now re-oriented to the matrix subject, Mark, and crucially not to the speaker: it is Mark who has reported evidence that John will leave for the coast. Similar to (2.18), the speaker is simply reporting what Mark said, which includes Mark's reportative evidence:

(2.20) REPORT: John is leaving for the coast (as heard by Mark).

Context: You 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

daaẁhltg̲atit	*John*	*g̲o'ohl*	*laxm̲o'on*
taaẁhl=t=k̲at=t	John	k̲o'=hl	lax̲-mo'n
leave=3sg=REP=PND	John	LOC=CND	GEO.LOC-coast

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

A similar example is given in (2.21): in a., which contains =k̲at on the matrix verb, the speaker is reporting from another source that Gwen told her husband that Bill showed his house to John. The reportative in example b., where =k̲at is attached to the embedded verb, is oriented towards the matrix subject Gwen, who is reporting from another source that Bill showed his house to John:

(2.21) a. REPORT: The speaker has reportative evidence for asserting that Gwen told her husband that Bill showed his (Bill's) house to John (in order to sell it).

Context: You overheard a conversation where people were talking about Bill's house being for sale. Everyone knows that both Gwen's husband and John have always been interested in the house. Gwen was also in the room, and someone thought to remind her but you say that you heard she already told her husband.

mahldig̲as	*Gwen*	*'ahl*	*nakst*	*wil*
mahl-T̲-i-(t)=k̲at=s	Gwen	'a=hl	naks-t	wil
tell-t-TR-3sg=REP=PND	Gwen	OBL=CND	husband-3sg	COMP

gungya'adis	*Billhl*	*wilpt*	*'as*	*John*
kwin=kya'-T-i-(t)=s	Bill=hl	wilp-t	'a=s	John
CAUS-see-t-TR-3sg=PND	Bill=CND	house-3sg	OBL=PND	John

"Gwen told/said to her husband that Bill showed his house to John."

b. REPORT: The speaker is asserting that Gwen has reported evidence that Bill showed his house to John.

Context: John has always been interested in buying Bill's house. Gwen told her husband that she heard from Bill's wife that Bill showed his house to John.

mahldis	*Gwen*	*'ahl*	*nakst*	*wil*
mahl-t-i-(t)=s	Gwen	'a=hl	naks-t	wil
tell-T-TR-3sg=PND	Gwen	OBL=CND	husband-3sg	COMP

gungya'adig̲as	*Billhl*	*wilpt*	*'as*	*John*
kwin=kya'a̲-T-i-(t)=k̲at=s	Bill=hl	wilp-t	'a=s	John
CAUS-see-t-TR-3sg=REP=PND	Bill=CND	house-3sg	OBL=PND	John

"Gwen told/said to her husband that Bill showed his house to John."

The morphosyntactic distribution of =k̲at is discussed in more detail in §2.7; there it is shown that the distribution of =k̲at is somewhat flexible, although it is typically found encliticized to the first syntactic constituent of a sentence. However, what the examples in (2.21) show is that the interpretation of =k̲at is sensitive to complex clauses involving verbs of saying. This is summarized in the following schema in (2.22):

(2.22) (i.) REP(SAY(Gwen,p)) = (2.21)a.
(ii.) SAY(Gwen(REP(p))) = (2.21)b.

Gitksan also has what can be characterized as a 'quotative' *tiya*, which is frequently translated as the verb *say*. Quotative *tiya* can be distinguished from reportative =k̲at in two ways. First, *tiya* functions much as 'say' does in English: it directly reports the speech of another person (or a close paraphrase), as in an excerpt from a story in (2.23):

(2.23) a. *dixdahlxw* *se'et,* *diya.*
tixtahlxw se'-t, tiya.
DISTAL.LOC find-3 say.3
"'Up there he found it,' he/she/it said."

b. *n̓idiit* *yatshl* *gyat,* *diyahl* *hanak̲gi.*
n̓itiit yats=hl kyat, tiya=hl hanak̲-ki.
3pl sing=CND man say=CND woman-DIST
"'It was for them that the man sang,' the woman said."

On the other hand, =k̲at does not typically fulfil this kind of quotative function: when a speaker makes a statement of the form =k̲at(p), they are expressing that the content of proposition is obtained from another source, not an exact report of what that source said. The second way the quotative can be distinguished from =k̲at is in the fact that they can co-occur. In example (2.24), a speaker is asking about what it was that John reportedly said:

(2.24) Context: A and B are talking about a discussion B overheard at bingo last night. Someone was asking to borrow money to play. John advised this person against lending the money. B talked to C who was there, and overheard John's part in the exchange.

A. *gwi̲gat* *diyat* *John*
kwi=k̲at tiya=t John
what=REP say=PND John
"What was it that John was supposed to have said?"
"What was it that John was said to have said?"

B. *ham* *ji* *gin̓amhl* *daala* *loodiit,* *diya̲gat* *John*
ha-m tsi kin̓am=hl taala loo-tiit, tiya=k̲at John
NEG-2sg IRR give=CND money OBL.PRO-3pl say=REP John
"(It was said that) John said not to give them (any) money."

Under Aikhenvald's evidential typology, the reportative is divided into two subtypes, the hearsay and the quotative. Given this, *tiya* may be considered as an ideal candidate for the role of a quotative evidential, while =k̲at fulfills the function of a hearsay evidential. I will maintain the label of reportative for =k̲at, and set aside further investigation of quotative *tiya*.

2.5.2 A Note on the Social Uses of =k̲at

A speaker can utilize the meaning of =k̲at when they wish to either make a polite request, show respect, or to distance themselves. This was noted in the Boas (1912) texts of Nisgha'a, where =k̲at is frequently attributed to the speech of people of lower social status, as in (2.25).

(2.25) Nisgha'a (Tarpent 1987, p. 500)
Context: Someone is preparing food for the chief, when one of his sons notices the dish. He wants to prevent a potentially embarrassing situation, but also not offend the person who prepared the food.

niigatgidiit	*gwiix*	*gip-(t)=hl*	*sim'oogit*	*t*	*kunhl*
nii=*k̲at*-ki-tiit	kwiix	kip-(t)=hl	sim'ookit	t	kun=hl
NEG=REP-INTS-3pl	always	eat-3=CND	chief	PND	this=CND

'anwinin
anwin-n
what.one.has-2sg

"(I am told) the chief is not at all keen on eating that stuff."

This politeness effect is reproduced in the Gitksan example in (2.26):

(2.26) Context: Someone wants a group of guests who have been camped out at the edge of the village to move.

ji	*lugwg̲at*	*n̓isim̓*	*ji*	*t'aahlakw*
tsi	lukw=*k̲at*	n̓isim̓	tsi	t'aahlakw
IRR	relocate=REP	2pl	IRR	tomorrow

"(I'm supposed to tell you to) you should move tomorrow."
(Gitksan example adapted from Boas 1912 and Tarpent 1987, p. 500)

The meaning of a reportative evidential is ideally suited for achieving a politeness effect: the speaker can attribute any commands or potentially awkward statements to an unidentified secondary source. That source may not actually exist, as in (2.26), but given the meaning of the reportative, the addressee must assume that the source does exist.

In a related use, =*k̲at* can be used when the speaker wishes to use the reported nature of the proposition to his or her advantage, typically by reporting a proposition they know is false. In (2.27), the speaker is trying to trick his brother into doing his work by 'misreporting' something their parents said:

(2.27) Context: Your brother knows he has to work tomorrow cleaning fish, but he tries to trick you into doing it, implying that this direction came from your parents.

dim	*sixsaksining̲athl*	*hon*	*ji*	*t'aahlakw*
tim	six-saks-in=n=*k̲at*=hl	hon	tsi	t'aahlakw
FUT	REDUP-sharp-CAUS=2sg=REP=CND	fish	IRR	tomorrow

"(I heard) you're supposed to clean the fish tomorrow."

2.6 The Inferential =*ima*

Tarpent (1987, p. 498) describes what she calls the 'dubitative' enclitic =*ima* in Nisgha'a as an evidential which expresses that "the speaker thinks that what he says could be true on the basis of what he knows or can infer, but does not want to commit himself as he could be proved wrong." At first blush, the form and function of the =*ima* described by Tarpent in Nisgha'a corresponds directly to its cognate =*ima* in Gitksan, judging by the translations given to it by Gitksan speakers. Compare (2.28) with (2.29):

(2.28) Nisgha'a (Tarpent 1987: 497)

yugwima	*haywis*	*gingulx*
yukw=*ima*	haywis	kinǩulx
PROG=MOD	rain	Kincolith

"It might be raining in Kincolith."
"It's probably raining in Kincolith."

(2.29) Gitksan

yugwima	*wis*	*gingulx*
yukw=*ima*	wis	kinǩulx
PROG=MOD	rain	Kincolith

"It might be raining in Kincolith."
"It must be raining in Kincolith."

This section takes Tarpent's description of =*ima* as an evidential as a point of departure, and probes further its evidential meanings.

2.6.1 The Evidential Meanings of =*ima*

The uncertain or non-committal nature of =*ima* that Tarpent describes can be observed when someone is speculating about future events, as in (2.30), or in the spontaneous exchange between family members in (2.31):

(2.30) Context: You're thinking about going to bingo tonight. You feel lucky.

xstayima	*n̓iiy̓*
xsta=*ima*	n̓iiy̓
win=MOD	1sg

"I might win."
"Maybe I'll win."

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

LW: *witxwima* *n̓it* *silkwsax*
witxw=*ima* n̓it silkwsax
arrive=MOD 3sg noon.time
"He might arrive around noon."

However, what exactly are the reasons or evidence a speaker adduces for making =*ima*-statements? As a heuristic step, we can approach the evidential meanings of =*ima* using Aikhenvald's typology of inferential evidentials, where inferential evidentiality is divided into the subtypes in (2.32):[17]

(2.32) (i.) Information inferred by observable physical evidence
(ii.) Information inferred by general knowledge
(iii.) Information inferred/assumed because of speaker's experience with similar situations

[17]The fourth Aikhenvald type, evidence from past deferred realization, has not yet been tested for.

Given the speculative nature of (2.31) and (2.30), these examples 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 (the fact that Alvin is usually home by noon when he goes to Smithers). We can further tease these meanings apart by constructing contexts for statements such as in (2.33), where the speaker is responding with uncertainty to a question as to whether John is at home. In this context, a speaker can infer from her experience with John's schedule, that he might or must be at home. Example (2.33) is also felicitous in contexts where a speaker makes a statement based on inferences from physical evidence, in this case, visual:

(2.33) *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.

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

"John may/must be at home."
"John's probably at home."
"Maybe John's at home."

The statement in (2.34) is felicitous in contexts which allow a speaker to infer from observable evidence, or evidence from general knowledge. Note also how both epistemic possibility and necessity can be expressed using =*ima*, translated as both *might* and *must*, as well as degrees in between:

(2.34) *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.

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.

mugwimahl	*maaẏ̓*
mukw=*ima*=hl	maaẏ̓
ripe=MOD=CND	berries

"The berries might be ripe."
"The berries must be ripe."
"The berries are probably ripe."
"It seems the berries are ripe."
" Maybe the berries are ripe."

A crucial feature of these contexts is that speaker has not witnessed the ripe berries firsthand, rather, there is some kind of evidence that the speaker can use to infer a claim about ripe berries in the forest. This restriction is illustrated in the contexts in (2.35) – (2.37):

(2.35) Context: You're looking out the window during a storm.

#	*yukwimahl*	*dim*	*wis,*	*ii*	*gya'ay̓*
	yukw=*ima*=hl	tim	wis,	ii	kya'-y̓
	PROG=MOD=CND	FUT	rain	CONJ	see-1sg

"It might/must be raining, and I see it (outside)."

(2.36) Context: Your friend is slicing up bait for fishing and you see them cut their hand.

#k̲otsinimahl	*'on-n*
k̲ots-i-n=*ima*=hl	'on-n
cut-TR-2SG=MOD=CND	hand-2sg

"You might've cut your hand."

(2.37)

#ye'eyimathl	*wan*	*asun,*	*ii*	*gya'ay̓*	*loot*	*ahl*
ye'e=*ima*=hl	wan	a-sun,	ii	kya'a-y̓	loo-t	a=hl
walk=MOD=CND	deer	LOC-here	CONJ	see-1sg	OBL.PRO-3	LOC=CND

spag̲aytg̲an
spak̲aytk̲an
forest

"A deer might be around here, and I see it in the forest."

Comment: "There's no point saying it might be around here if you see it yourself."

Other examples in (2.38) and (2.39) contrast inference from observable evidence with inference from a speaker's experience with similar situations:

(2.38) *Inference from observable evidence:* You had five pieces of *hoxs* (half-smoked salmon) left when you checked yesterday. Today, you go to get some to make *hagwiljam* (a kind of soup) and you notice it's gone. It's not that you only think it's Fern, you know it's her because you see the *hoxs* skins in her room.[18]

Inference from a speaker's experience with similar situations: You had five pieces of *hoxs* left when you checked yesterday. Today, you go to get some *hoxs* to make *hagwiljam* and you notice they're gone. You're not sure who took them, but you know Fern is the person in your household who really likes *hoxs*, and usually eats a lot whenever she gets the chance.

gubimas	*Fern=hl*	*hoxs*
kup=*ima*=s	Fern=hl	hoxs
eat=MOD=PND	Fern=CND	hoxs

"Maybe Fern ate the *hoxs*."
"Fern must've eaten the *hoxs*."

(2.39) *Inference from observable evidence:* Visual: You sneak into the bedroom and see that she's lying down with her eyes closed. Auditory: You can hear snoring.

Inference from a speaker's experience with similar situations: It's 5 o'clock. Grandma is in her room and always has a nap at this time of day.

wog̲imat	*naa'a*
wok̲=*ima*=t	naa'a
sleep=MOD=PND	grandmother

"Grandmother might/must be sleeping."
"Maybe Grandmother is sleeping."

[18] Contexts adapted from Matthewson et al. (2004).

The above data show that =*ima* does not distinguish between the different inference subtypes in (2.32). Thus, =*ima* could be characterized as a 'general' inferential evidential. This designation has a place within Aikhenvald's classification of evidential systems crosslinguistically: It is fairly common for a language to have what Aikhenvald calls a '3-term system', or an evidential paradigm made up of three evidentials: visual sensory, inferential, and reportative (where the 'visual sensory' evidential is *ʔnakw*, which is discussed in the next section). Languages that have a 3-term system such as this include Aymara, Shastan languages, Qiang languages, Maidu, Quechuan languages, and Northern Embera languages.

2.6.2 The Modal Interpretations of =*ima*

Cross-linguistically, Palmer (2006, p. 25) suggests that languages which morphologically distinguish a contrast between inference from observation and inference from experience usually indicate an evidential system. So far, this appears not to be the case with =*ima*: the previous subsection shows that =*ima* does not distinguish between evidence from observable result, general knowledge, or inference from past experience. Palmer also claims that typology supports the notion that when there is a morphological contrast between simple speculation (without evidence) and inference from evidence, this typically indicates a possibility-necessity contrast. This also appears to not be the case with =*ima*. Nonetheless, the most common translations of =*ima* offered by consultants involve the use of a variety of epistemic modals of varying degrees. For example, the translations given by a variety of speakers for the sentence in example (2.40) show just how variable the modal force interpretations of =*ima* are, ranging from *might* on one end to *must*, and a variety of expressions of modal force in between:

(2.40) Context: You're wondering what your friend is doing. You notice his rod and tackle box are not in their usual place.

yugwimahl	*dim*	*iixwt*
yukw=*ima*=hl	tim	iixw-t
PROG=MOD=CND	FUT	fish-3

"He might be going fishing."
"He must be going fishing."
"He's probably going fishing."
"He's likely going fishing."
"He could be going fishing."
"Maybe/perhaps he's going fishing."

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. However, the concepts underpinning evidentiality and epistemic modality are not interchangeable because other contextual factors intervene. If a person considers a proposition a possibility, this by itself does not give any indication as to the type of evidence the person has. Similarly, the fact that a person has reportative evidence for the truth of a proposition does not determine a certain strength of belief in this proposition. In an example such as (2.40), the context is simple enough that both *must* and *might* are felicitous translations in English: depending on a speaker's previous experiences with John and his rod and tackle box, John might be fishing, or he must be fishing. The modal =*ima* is felicitous where a speaker considers only this fact and no others. Or, this fact in combination with other facts, could lead a speaker of English to use a 'stronger' modal (such as the fact his truck isn't in the driveway, it's August so that means the sockeye are running, his gumboots are gone etc.) The issue of variable modal force is analyzed in detail in chapter 4.

2.7 The Morphosyntactic Distribution of =*k̲at* and =*ima*

Both reportative =*k̲at* and modal =*ima* belong to the class of second position clitics in Gitksan, which include various discourse particles, pronominal markers (the 'Series I' pronouns) and determiners. Chapter 1 gave a brief introduction on the morphosyntax of Gitksan, which I will elaborate on here. (2.41) is a schema of a clause in the Independent order: the V is the first constituent in the clause, to which both =*k̲at* and =*ima* attach. Additionally, if there is more than one enclitic, =*k̲at* and =*ima* are closest to the verb:

(2.41) Independent Clause

(i.) **V**=*k̲at*(=CL) YP ZP ...
(ii.) **V**=*ima*(=CL) YP ZP ...

In Dependent clauses, schematized in (2.42), a phrase precedes the V, and, for most speakers, both =*k̲at* and =*ima* shift to encliticize to this phrase to maintain the second position:

(2.42) Dependent Clause

(i.) XP=*k̲at*(=CL) **V** YP ZP ...
(ii.) XP=*ima*(=CL) **V** YP ZP ...

However, there is some speaker variation in Dependent clauses, where =*k̲at* and =*ima* may remain on the V, as (2.43) shows:

(2.43) (i.) XP(=CL) **V**=*k̲at* YP ZP ...
(ii.) XP(=CL) **V**=*ima* YP ZP ...

In matrix clauses, the surface position of =*k̲at* is variable in three ways. First, the most common is the second position, as can be seen in the majority of the examples above. In example (2.44)a., =*k̲at* surfaces in the second position, attached to the first element in the clause, the progressive *yukw*. However example (2.44)b. shows that, with some speakers, =*k̲at* remains on the verb despite the available second position:

(2.44) a.

yukwg̲at	*dim*	*wotdinhl*	*kartxwn*	*loot*
yukw=*k̲at*	tim	wot-T-i-n=hl	kartxw-n	loo-t
PROG=REP	FUT	sell-t-TR-1sg=CND	car-1sg	OBL.PRO-3sg

"I hear you're gonna be selling your car to him."

b.

yukw	*dim*	*wotdinḡathl*	*kartxwn*	*loot*
yukw	tim	wot-T-i-n=*k̲at*=hl	kartxw-n	loo-t
PROG	FUT	sell-t-TR-1sg=REP=CND	car-1sg	OBL.PRO-3sg

"I hear you're gonna be selling your car to him."

Secondly, there is a less common pattern, shown in (2.45), where =*k̲at* attaches clause-finally:

(2.45) a.

hlabisxwg̲at	*n̓iin*
hlabisxw=*k̲at*	n̓iin
tired=REP	2sg

"I hear you're tired."

b. *hlabisxw* *n̓iingat*
hlapisxw n̓iin=k̲at
tired 2sg=REP
"I hear you're tired."

The second position distribution of =k̲at is sensitive to the syntax: in (2.46)a., =k̲at attaches to the edge of the clefted constituent and not the first word in the sentence, as in the ungrammatical (2.46)b.:

(2.46) a. *go'ohl* *wilps* *na'agat* *wildi* *sgyats* *Clara*
[k̲o'=hl wilp=s na'a]=k̲at wil-t skyat=s Clara
LOC=CND house=PND grandmother=REP COMP-3sg be.born=PND Clara
"(They say) it was at her grandmother's house that Clara was born."

b. *[g̲o'ohl=k̲at wilps na'a] wildi sgyats Clara

A similar example is given in (2.47), where =k̲at attaches to the clefted DP, the first phrase in the sentence, and not the first position adjective that modifies *tk'ihlxw*:

(2.47) a. *k'uba* *tk'ihlxw=gat* *'ant* *sdils* *Bill*
[k'uba tk'ihlxw]=k̲at 'ant stil-(t)=s Bill
small child=REP S.REL accompany-3sg=PND Bill
"It was the child who went with Bill."

b. *[k'uba=k̲at tk'ihlxw] 'ant sdils Bill

Thirdly, there is also some variation when the first word also has a clitic attached. Negation in Gitksan is typically formed by the complex *nee*, which is a negation marker, plus the enclitic =*tii* which is a contrastive marker (Rigsby 1986; Tarpent 1987). As mentioned above =k̲at competes with other clitics for the second position, the result of which is the kind of variation in (2.48):

(2.48) a. *neegatdiit* *sdilis* *Leiwat* *Fern*
nee=k̲at=tii=t stil-i-(t)=s Leiwa=t Fern
NEG=REP=CONTR=3sg go.with-TR-3sg=PND Leiwa=PND Fern
"Leiwa didn't go with Fern."

a. *neediigatit* *sdilis* *Leiwat* *Fern*
nee=tii=k̲at=t stil-i-(t)=s Leiwa=t Fern
NEG=CONTR=REP=3sg go.with-TR-3sg=PND Leiwa=PND Fern
"Leiwa didn't go with Fern."

c. *neediitgat* *sdilis* *Leiwat* *Fern*
nee=tii=t=k̲at stil-i-(t)=s Leiwa=t Fern
NEG=CONTR=3sg=REP go.with-TR-3sg=PND Leiwa=PND Fern
"Leiwa didn't go with Fern."

In discourse contexts it is common for =k̲at to attach to every predicate, as in this story fragment about a hunter in (2.49):

(2.49) *wogi̲gat* *n̓it* *laxjehl* *lakw,* *nee̲gatdiihl* *yook̲xwt,* *ii*
wok̲=k̲at n̓it lax-tsehl lakw, nee=k̲at=tii=hl yook̲xw=t, ii
sleep=REP 3sg LOC-edge fireplace NEG=REP=CONTR=CND eat=3sg CONJ
saa *ye'et̲gat*
saa ye'e-t=k̲at
away go=3sg=REP
"He slept around the fireplace, he didn't eat, and after that he left."

Also common in discourse, =k̲at can attach to whatever phrase the speaker is reporting, as in the response to the following question in (2.50), or as part of an ongoing discourse, as in (2.51):

(2.50) a. *na* *dimt* *'an* *suudy̓*
na dim-t 'an suut-y̓
who FUT-3 REL go.get-1sg
"Who'll come and get me?"

b. *Gwen̲gat* *(dimt* *'an* *suudin)*
Gwen=k̲at dim-t 'an suut-n
Gwen=REP FUT-3 REL go.get-2sg
"(I heard) it's Gwen that'll come and get you"

(2.51) Context: People are sitting around talking about the new restaurant that just opened up in Hazelton.

ama̲gat
ama=k̲at
good=REP
"(I heard) it's good."

The key generalization here is that the variable position of =k̲at does not change its interpretation. This can be observed in another possible variation of (2.48) given in (2.52): in a. =k̲at is in the second position, whereas in b. it remains on the verb. This variation does not correspond to a change in the scopal relations between negation and =k̲at. In other words, neither a. nor b. in (2.52) can be interpreted as 'I didn't hear Leiwa went with Fern.'

(2.52) a. *nee̲gatdii* *sdilis* *Leiwat* *Fern*
nee=k̲at=tii stil-i-(t)=s Leiwa=t Fern
NEG=REP=CONTR go.with-TR-3=PND Leiwa=PND Fern
"(I heard) Leiwa didn't go with Fern."
≠ "I didn't hear Leiwa went with Fern."

a. *needii* *sdili̲gas* *Leiwat* *Fern*
nee=tii stil-i̲-(t)=k̲at=s Leiwa=t Fern
NEG=CONTR go.with-TR-3=REP=PND Leiwa=PND Fern
"(I heard) Leiwa didn't go with Fern."
≠ "I didn't hear Leiwa went with Fern."

The issue of scope and the position of both =k̲at and =*ima* is discussed in more detail in Chapter 3.

The morphosyntactic distribution of =*ima* is identical to that of =*k̲at*. First, it is common in discourse for =*ima* to encliticize to whatever phrase is 'under speculation', as can be seen in the following conversation fragments where =*ima* attaches to the kinds of elliptical responses commonly found in discourse. In (2.53) LW1, =*ima* attaches to an adjunct, in (2.54) a pronoun, and in (2.55) a nominal:

(2.53) GS: *ga̲xguhl* *dim* *ye'en* *g̲o'ohl* *Smithers?*
ka̲xkwi=hl tim ye'-n k̲o'=hl Smithers?
when=CND FUT go-2sg LOC=CND Smithers
"When are you going to Smithers?"

LW1: *t'aahlagwima*
t'aahlakw=*ima*
tomorrow=MOD
"Maybe tomorrow."

LW2: *dim* *ye'eyima* *ṅiiẏ* *g̲o'ohl* *Smithers* *t'ahlakw*
tim ye'=*ima* ṅiiẏ k̲o'=hl Smithers t'ahlakw
FUT go=MOD 1sg LOC=CND Smithers tomorrow
"I might go to Smithers tomorrow."
"Maybe I'll go to Smithers tomorrow."

(2.54) GS: *ṅ̓ida?*
ṅ̓it=a?
3sg=INTERROG
"Is it him/her?" (upon hearing someone you've been expecting pull up into the driveway)

LW: *ṅ̓idima*
ṅ̓it=*ima*
3sg=MOD
"Maybe (it's him)."

(2.55) DH: *W'agyt luu galiiyuuwithl galant, wyit wil witxw't dimil yeet, gasgoohlit ixsta'danhl hla lats' Gwisgwoos.*
"He followed the trail until he got to where he was going because he liked the taste of the *Gwisgwoos* (a mythical bird)."

BH: *ii* *hindahl* *ẇ̓adiit?*
ii hinta=hl ẇ̓a-tiit?
CONJ arrive.at=CND place-3pl
"And where did they get to?"

DH: *ansiilinaasxwdiidima*
an-siilinaasxw-tiit=*ima*
GEO.LOC-hunting.grounds-3pl=MOD
"Maybe their hunting grounds."

DH: (elicited)
bakwdiid=ima *ansiilinaasxwdiit*
pakw-tiit=*ima* an-siilinaasxw-tiit
arrive.pl-3pl=MOD GEO.LOC-hunting.grounds-3pl
"Maybe they got to their hunting grounds."

As with =*k̲at*, the most common surface position for =*ima* is as an enclitic to the first syntactic phrase in a clause. Because Gitksan is VSO, this is typically the verb, as in (2.56):

(2.56) *t'aahldiidimahl* *iis* *'a=hl* *lipn̓idiit*
[t'aahl-tiit]$_{VP}$=*ima*=hl iis 'a=hl lip-n̓itiit
pick.berries-3pl=MOD=CND soapberries OBL=CND REFL-3pl
"They might be picking soapberries for themselves."

Example (2.57) is a Dependent clause: the first constituent in the clause is not the verb, but a preverbal phrase, in this case the progressive *yukw*. As with =*k̲at*, =*ima* encliticizes to the first phrase in the clause:

(2.57) *yukwima* *dim* *t'aahldiithl* *iis* *'a=hl* *lipn̓idiit*
[yukw]$_{XP}$=*ima* tim [t'aahl-tiit]$_{VP}$=hl iis 'a=hl lip-n̓itiit
PROG=MOD FUT pick.berries-3pl=CND soapberries OBL=CND REFL-3pl
"They might be picking soapberries for themselves."

However, example (2.58) shows that, with some speakers, =*ima* remains on the verb despite the available second position on *yukw*:

(2.58) *yukwhl* *dim* *t'aahldiidimahl* *iis* *'a=hl* *lipn̓idiit*
[yukw]$_{XP}$=hl tim [t'aahl-tiit]$_{VP}$=*ima*=hl iis 'a=hl lip-n̓itiit
PROG=CND FUT pick.berries-3pl=MOD=CND soapberries OBL=CND REFL-3pl
"They might be picking soapberries for themselves."

There is a fourth, less robust pattern, as shown in (2.59), where =*ima* encliticizes to the clause. This pattern appears to be restricted to clauses with sentence-final pronouns:

(2.59) a. *siipxwima* *n̓iin*
S[siipxw=*ima* n̓iin]
sick=MOD 2sg
"You might be sick."
"Maybe you're sick."

b. *siipxw* *n̓iinima*
S[siipxw n̓iin]=*ima*
sick 2sg=MOD
"You might be sick."
"Maybe you're sick."

As mentioned above, the surface variability of =*k̲at* and =*ima* in single clauses does not reflect a difference of meaning of any kind. This generalization contrasts with languages such as Plains Cree, where the morphosyntactic attachment site of an evidential correlates with different evidential meanings (Blain and Déchaine 2007; Déchaine 2008).

Additionally, the clause types in Gitksan also do not reflect any evidential meaning, as the syntax and semantics of =*ima* and =*k̲at* are identical in independent and dependent clauses. This observation is relevant for the class of languages where clause-typing corresponds to different evidential meanings. For example, Plains Cree has two clause types that occur as matrix clauses, the Independent and Conjunct modes, which correspond to different kinds of evidential meaning. Déchaine (2008) frames this in terms of mediated knowledge: with the Independent mode, the speaker is present, and thus has unmediated knowledge of the event (direct evidence). In the Conjunct mode, the speaker is not present, and thus has mediated knowledge (indirect evidence) (see Blain and Déchaine (2007), Déchaine (2008), and Cook (2008) for details). The syntactic analysis of =*ima* and =*k̲at* must await further research, but what is clear is that position does not affect meaning.

2.8 The Sensory inferential *ṅakw*

Tarpent (1987, p. 354) claims that *ṅakw* in Nisgha'a is both a modal and evidential which 'introduces a highly probable statement based on direct evidence'.

(2.60) Nisgha'a (Tarpent 1987, p. 354)

ṅakwhl	*wok̲s*	*beebii*
ṅakw=hl	wok̲-(t)=s	peepii
EVID=CND	sleep-3sg=PND	Baby

"Baby must be sleeping!"[19]

Tarpent translates *ṅakw* as the epistemic modal *must*, but does not include with her examples contexts which illustrate its evidential meaning encoding 'direct evidence'. Gitksan consultants corroborate this translation of *ṅakw* in Gitksan, and have also provided a basic evidential context for its use, given in (2.61):

(2.61) Gitksan
Context: You see Baby lying on her tummy, not moving.

ṅakwhl	*wok̲s*	*beebii*
ṅakw=hl	wok̲-(t)=s	peepii
EVID=CND	sleep-3sg=PND	Baby

"Baby must be sleeping."

This subsection describes in detail the evidential meanings, and the semantic, pragmatic and morphosyntactic distribution of *ṅakw*. It is shown that Tarpent's original description of *ṅakw* in Nisgha'a is generally accurate, and I have imported from Nisgha'a Tarpent's gloss of *ṅakw* as an evidential.[20] However, as with *=k̲at* and *=ima* above, we can further sharpen the meanings and distribution of *ṅakw*. In anticipation of this, this subsection claims that *ṅakw* corresponds to Aikhenvald's description of an inferential evidential that specifies that a speaker has physical evidence. More specifically, a sentence containing *ṅakw* indicates that the eventuality was not personally experienced but was inferred from indirect evidence, and that this indirect evidence is of a sensory nature. It is the physical nature of this evidence that likely led Tarpent to describe *ṅakw* in Nisgha'a as a 'direct' evidential.

2.8.1 The Evidential Meanings of *ṅakw*

Based on Tarpent's observations (i.e. 'a highly probable statement based on direct evidence'), contexts were provided to consultants where *ṅakw* is expected to emerge. For example, one would expect *ṅakw* to be felicitous in contexts such as the following, where a speaker can see that John's lights are on:

> Context: 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. Your friend says to you "Why don't you stop by and ask; John must be at home."

[19] Tarpent includes the exclamation mark (!) in all of her translations of *ṅakw*. I have capitalized 'Baby' on the assumption that it is being used as a proper noun, as it receives the proper noun enclitic determiner *=s* and not the expected common noun determiner *=hl*. My Gitksan consultants agree with this usage.

[20] In some parts of her grammar, Tarpent sometimes glosses *ṅakw* as a modal.

However, *=ima* can be still be used in this context, as section §2.6.1 above showed that *=ima* is felicitous in contexts that provide observable evidence such as this. Thus, an alternative elicitation strategy was used: *=ima* was directly contrasted with *n̓akw* by constructing minimal pairs between them, and asking the consultants to differentiate between (2.62) and (2.63) through constructing the appropriate contexts:[21]

(2.62) *mugwimahl* *maay̓*
mukw=*ima*=hl maay̓
ripe=MOD=CND berries
"The berries might be ripe."

Comments: "When you say *mugwimahl maay̓* to someone it's like you're sitting at home talking about it, trying to decide if you go picking or not."

(2.63) *n̓akwhl* *mukwhl* *maay̓*
n̓akw=hl mukw=hl maay̓
EVID=CND ripe=CND berries
"The berries must be ripe."
≠"The berries might be ripe."

Comments: "When you say *n̓akwhl mukwhl maay̓* 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." (BH)

What is crucial to note in this methodology is that the consultants were asked to directly contrast *=ima* with *n̓akw*. These comments and their translations provide an important clue as to the evidential meaning of *n̓akw*: it is felicitous only in contexts where a speaker can make an inference from the physical evidence available provided by the circumstances. Given this, *n̓akw* would be expected to be infelicitous in a context where a speaker can only infer from experience, general knowledge, or simply conjecture. This prediction is borne out in the infelicity of example (2.64), a context where there is no physical evidence available to the speaker:

(2.64) Context: 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.

\# *n̓akwhl* *mukwhl* *maay̓*
n̓akw=hl mukw=hl maay̓
EVID=CND ripe=CND berries
"The berries must be ripe."

The second important feature differentiating *=ima* from *n̓akw* is found in their translations. Consultants consistently comment that this physical evidence makes *n̓akw* carry more force, which is why it is frequently translated as *must*. Thus, the second translation in (2.63),"The berries might be ripe", is not typically an acceptable translation of *n̓akw*. The evidential nature of *n̓akw* is more transparent in one of its frequent translations as 'I can see that ...', as in (2.65):

(2.65) Context: Your friend laughs at you when you tell her you won $1000 at bingo last night.

[21] There is also a homophonous spatial/distal marker *n̓akw*. Tarpent (1987, p. 354) notes that there is a stress difference between evidential and distal *n̓akw*: evidential *n̓akw* is unstressed [n̓akw], while distal *n̓akw* is stressed [n̓ákw]. This is confirmed by two consultants (BS and LW), who describe distal *n̓akw* as 'longer' than evidential *n̓akw*.

ńagwimi	*xsingy̓*
ńakw=mi	xsink-y̓
EVID=2sg	disbelieve-1sg

"I can see that you don't believe me."

Examples (2.63) and (2.65) involve a variety of indirect, physical evidence that was perceived visually by the speaker (happy people running through the forest, ripe berries, laughing etc.). More specifically, evidential interpretations of *ńakw* cover senses other than visual, such as tactile (2.66), auditory (2.67), and olfactory senses (2.68):

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

ńakwhl	*siipxwin*
ńakw=hl	siipxw-n
EVID=CND	sick-2sg

"You must be sick!"

(2.67) Context: You hear your friend's stomach start to grumble loudly.

ńakwhl	*xdaxwin*
ńakw=hl	xtaxw-n
EVID=CND	hungry-2sg

"You must be hungry!"

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

ńakwhl	*sihons*	*Bob*
ńakw=hl	si-hon-(t)=s	Bob
EVID=CND	CAUS-fish-3sg=CND	Bob

"Bob must be smoking/preparing/doing up fish."

Another frequent translation of *ńakw* offered by consultants is one that resembles a rhetorical question in English, as in (2.69):

(2.69) Context: A car comes tearing down the road in front of your house. The road is covered in ice and you're watching him blow by at 100km/hr.

ńakwhl	*maalut*
ńakw=hl	maalu-t
EVID=CND	crazy-3sg

"Is he crazy? He must be crazy!"

These same examples modified with =*ima* are still compatible with the context given above. However, =*ima* in physical evidence contexts will always convey a more speculative, less forceful interpretation, as in (2.70):

(2.70) Context: You see or hear of a bear wandering around the village. The bear is actually very friendly – a little unusual for a bear.

maaluyima	*ńit*
maalu=*ima*	ńit
crazy=MOD	3

"He/she/it might be crazy."

In contrasting (2.69) with (2.70) there are two things happening: first, (2.70) lacks the rhetorical effect of (2.69): a speaker is simply asserting that the bear might be crazy. Secondly, in (2.70) the speaker is concluding that it's not necessarily the case that a bear seen wandering around the village is crazy; it may be sick. However, (2.69) expresses that a speaker believes the observable evidence they perceive unambiguously warrants a necessity-like modal interpretation, and this function is fulfilled by *n̓akw*. Similarly, in (2.71)a., a speaker is expressing that it's not necessary 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 b. the speaker is committing to the claim that blood they observe on the rocks is indeed from your hand:

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

a. *k̲'ojinimahl* *'on̓in*
k̲'ots-i-n=*ima*=hl 'on̓-n
cut-TR-2sg=MOD=CND hand-2sg
"You may've cut your hand."

b. *n̓agwimi* *g̲'otshl* *'on̓in*
n̓akw=mi k̲'ots=hl 'on̓-n
EVID=2sg cut=CND hand-2sg
"You must've cut your hand."

Comments (paraphrased): *k̲'otsinimahl 'on̓in*: You might've cut your hand, or, I think you cut your hand. *n̓agwimi g̲'otshl 'on̓in*: It looks like you cut your hand, you must've because there's blood on the rocks.

Both =*ima* and *n̓akw* are felicitous in this context, where a speaker has access to physical evidence in making a judgment about a situation. However, *n̓akw* requires this evidence to be observable, whereas =*ima* does not. This distinction can be further brought out in cases of simple speculation. Recall (2.31) above, where a speaker is speculating on the arrival of Alvin. Given the lack of observable evidence, *n̓akw* is expected to be infelicitous, as example (2.72) shows:

(2.72) Q. *gax̲guhl* *witxws* *Alvin?*
kax̲wi=hl witxw=s Alvin?
when=CND arrive=PND Alvin
"When is Alvin arriving?"

A1. *witxwima* *n̓it* *t'aahlakw*
witxw=*ima* n̓it t'aahlakw
arrive=MOD 3 tomorrow
"He might arrive tomorrow"
"I think he'll arrive tomorrow."

A2. *n̓akwhl* *witxwt* *t'aahlakw*
n̓akw=hl witxw-t t'aahlakw
EVID=CND arrive-3 tomorrow
≠ "He might arrive tomorrow."

Observable evidence is not necessary in making speculative judgments, which often predict future events. Therefore *n̓akw* is predicted to not be possible in these contexts, as the second response in (2.72) shows. However, *n̓akw* can be used if there is at least some accessible physical evidence which can be inferred from the context:

(2.73) Context: I can see his truck in the driveway.

ʼnakwhl	*hlihl*	*witxwt*
ʼnakw=hl	hlihl	witxw-t
EVID=CND	already	arrived-3

"He must've arrived already."

An important consideration in evidence contexts is the orientation of the evidence. For example, (2.74) has two different contexts: the first involves a speaker's experience with similar situations. In this context we expect *ʼnakw* to be infelicitous. However, the second context involves observable physical evidence, yet *ʼnakw* is still infelicitous. This infelicity is attributed to the fact that the evidence under consideration does not support the inference that the horse must've run away. Thus, as expected, =*ima* retains its flexibility in expressing varying degrees of modal force:

(2.74) *Inference from a speaker's experience with similar situations:* There was a terrible storm earlier in the day, which can spook the horse. The horse has been known to escape from the field when it gets scared.

Information inferred by observable physical evidence: People are sitting around talking about a fence around a field that's in disrepair.

a. | *guxwimahl* | *gyuwatan* |
|---|---|
| kuxw=*ima*=hl | kyuwatan |
| run.away=MOD=CND | horse |

"The horse **might've/must've** run away."

b. | *#ʼnakwhl* | *guxwhl* | *gyuwadan* |
|---|---|---|
| *ʼnakw*=hl | kuxw-(t)=hl | kyuwatan |
| EVID=CND | run.away-3sg=CND | horse |

"The horse must've ran away."

By adjusting the context to include physical observable evidence that supports an inference that the horse must've run away, as in (2.75), *ʼnakw* is felicitous. In these observable evidence contexts, the modal strength interpretations are split between =*ima* and *ʼnakw*, where =*ima* expresses *might*, and *ʼnakw* expresses *must*:

(2.75) *Inference from observable evidence:* You see there are tracks in the field 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. | *ʼnakwhl* | *guxwhl* | *gyuwatan* |
|---|---|---|
| *ʼnakw*=hl | kuxw-(t)=hl | kyuwatan |
| EVID=CND | run.away-3sg=CND | horse |

"The horse **must've** ran away."

A similar alternation can be observed in (2.76) and (2.77):

(2.76) *Inference from a speaker's experience with similar situations:* It's November – a typically rainy month.

a. *yugwimahl* *dim* *wis*
yukw=*ima*=hl tim wis
PROG=MOD=CND FUT rain
"It might/must be going to rain."

b. *#n̓akwhl* *yukw* *dim* *wis*
n̓akw=hl yukw tim wis
EVID=CND PROG FUT rain
"It must be going to to rain."

(2.77) *Inference from observable evidence:* You hear some raindrops on the roof. There is a certain scent to the air that is associated with imminent rain.

a. *yugwimahl* *tim* *wis*
yukw=*ima*=hl tim wis
PROG=MOD=CND FUT rain
"It might be going to rain."

b. *n̓akwhl* *yukw* *dim* *wis*
n̓akw=hl yukw tim wis
EVID=CND PROG FUT rain
"It must be going to to rain."

n̓akw is characterized as an indirect evidential where a speaker draws an inference from some type of physical evidence. The above cases were visual, and below are examples of tactile *n̓akw* in (2.78), and auditory *n̓akw* in (2.79). In both of the cases below, a speaker is directly 'experiencing' the evidence they have for making either a *might*-like =*ima*-assertion, or a *must*-like *n̓akw*-assertion; in (2.78), it is touching a child's hot forehead, and in (2.79), it is listening to a rumbling stomach:

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

a. *siipxw* *n̓iin*
siipxw n̓iin
sick 2sg
"You're sick."

b. *siipxwima* *n̓iin*
siipxw=*ima* n̓iin
sick=MOD 2sg
"You might be sick."

c. *n̓akwhl* *siipxwin*
n̓akw=hl siipxw-n
EVID=CND sick-2sg
"You must be sick."
"Looks like you're sick."

(2.79) Context: Your hear your friend's stomach start to grumble loudly.

a. *xdaxw* *n̓iin*
xtaxw n̓iin
hungry 2sg
"You're hungry."

b. *xdaxwima* *n̓iin*
xtaxw=*ima* n̓iin
hungry 2sg
"You might be hungry."

c. *n̓akwhl* *xdaxwin*
n̓akw=hl xtaxw-n
EVID=CND hungry-2sg
"You must be hungry!"

The predicates in (2.78) and (2.79) involve an internal mental or physical state. These are ideal cases for drawing out the modal-like interpretations of =*ima* and *n̓akw*. It was suggested above (with more argumentation to come in chapter 3) that =*ima* is better characterized as an epistemic modal, as it does not distinguish any specific kind of evidence. The same question could be asked of *n̓akw*, as it also appears to carry a modal quality, at least if we consider consultants' translations of *n̓akw*. The fact that evidentiality is conceptually distinct from epistemic modality does however not preclude the possibility that languages have specific linguistic markers that may combine both. This appears to be borne out in Gitksan: the fact that =*ima* conveys both possibility and necessity could be correlated with the fact that it can be used speculatively (possibility), and within the presence of evidence (possibility *and* necessity). *n̓akw* is more specialized, but the correlation still holds: because it is only felicitous in contexts that have observable physical evidence, it expresses necessity. But the internal states represent contexts where a speaker must rely on what they believe is suitable evidence for an assertion. Of course, a speaker may make a simple assertion if they wish to completely commit to the truth value of a proposition, as in the a. examples of (2.78) and (2.79). However, their use of =*ima* and *n̓akw* provides the speaker with options for modulating their claim. Contrast these internal state verbs with example (2.80):

(2.80) Context: You see people walking through the door.

a. *bagw* *n̓idiit*
pakw n̓idiit
arrive.pl 3pl
"They've arrived."

b. *n̓akwhl* *bagwidiit*
n̓akw=hl pakw=tiit
EVID=CND arrive.pl=3pl
"They must've arrived." "Looks like they've arrived."

Given this context, a speaker is also directly experiencing the evidence they have for a *n̓akw*-assertion. However, with in a context with a verb such as *arrive*, the truth or falsity of the event described by the verb is easily verifiable. This is what gives rise to a mirative use of *n̓akw*, which is discussed in chapter 5.

The *must*-like quality of *n̓akw* is supported by the fact that multiple occurrences of *n̓akw* in coordinated sentences that contain contradictory propositions is infelicitous. For example, the translations of (2.81) and (2.82) lead to a contradiction ($\Box\phi \wedge \Box\neg\phi$).

(2.81) **n̓akwhl* *kuxwhl* *gyuwatan,* *ii* *needii* *n̓akwhl*
n̓akw=hl kuxw-(t)=hl kyuwatan, ii nee=tii *n̓akw*=hl
EVID=CND run.away-3sg=CND horse CONJ NEG=CONTR EVID=CND
guxwimahl *gyuwatan*
kuxw-(t)=*ima*=hl kyuwatan
run.away-3sg=MOD=CND horse

"The horse must've ran away, and it must not have."
"Looks like the horse ran away, and it looks like it didn't."

(2.82)

*hla	ɬakwhl	dim	wis,	ii	needii	hla	ɬakw	dim	wis
hla	ɬakw=hl	tim	wis,	ii	nee=tii	hla	ɬakw	tim	wis
INCEPT	EVID=CND	FUT	rain,	CONJ	NEG=CONTR	INCEPT	EVID	FUT	rain

"It must be starting to rain, and it must not be."

Constructions of the form $\Box\phi \wedge \Box\psi$, where ϕ is incompatible with ψ, are also infelicitous and ungrammatical, as in (2.83) and (2.84):

(2.83)

*ɬakwhl	guxwhl	kyuwatan,	ii	ɬakwhl
ɬakw=hl	kuxw-(t)=hl	kyuwatan,	ii	ɬakw=hl
EVID=PND	run.away-3sg=CND	horse	CONJ	EVID=PND

guxwindiithl	(ƛ̓kuba)	ƛ̓ihlxwhl	gyuwatan
kuxw-'en-tiit=hl	(ƛ̓kuba)	ƛ̓ihlxw=hl	kyuwatan
run.away-CAUS-3pl=CND	small	child=CND	horse

#"The horse must've ran away, and the kids must've chased it away."

(2.84)

*ɬakwhl	yukw	dim	gahahlaƛ̓sdiit,	ii	ɬakwhl	yukw	dim	iixwdiit
ɬakw=hl	yukw	tim	kahahlaƛ̓st-tiit,	ii	ɬakw=hl	yukw	tim	iixw-tiit
EVID=CND	PROG	FUT	work.pl-3pl	CONJ	EVID=CND	PROG	FUT	fish-3pl

#"They must be working (today), and they must've gone fishing."

However, despite these observations, there is independent evidence from the morphosyntactic, semantic, and pragmatic distribution of *ɬakw* that suggests against a modal treatment of *ɬakw*, and these are reviewed in the following subsections.

Given the predicate status of *ɬakw*, a logical option would be to approach *ɬakw* as type of auxiliary verb. For example, in (2.85)a., the progressive *yukw* functions as a predicate that nominalizes the lower verb, taking it as its argument (cf. (2.42)). *ɬakw* morphosyntactically is exactly the same, as in b.:

(2.85) a.

yukwt	jabs	Sheilahl	hon
[yukw]$_{pred}$[-t	tsap-(t)=s	Sheila=hl	hon]$_{arg}$
PROG-3sg	cook-3sg=PND	Sheila=CND	fish

"Sheila is cooking the fish"

b.

ɬakwt	jabs	Sheilahl	hon
[ɬakw]$_{pred}$[-t	tsap-(t)=s	Sheila=hl	hon]$_{arg}$
EVID-3sg	cook-3sg=PND	Sheila=CND	fish

"Sheila must've cooked the fish!"
"I see that Sheila cooked the fish."

It would then be a natural step to claim *ɬakw* is an evidential verb, similar to *see* or *hear* in English. This accords with the second translation of *ɬakw* in (2.85)b. However, under this analysis, *ɬakw* has propositional status, and in chapter 3 I will argue that *ɬakw* cannot undergo any of the operations we expect of propositional objects. Unlike an evidential verb in English, (2.85)b. cannot be questioned, negated or otherwise challenged.

2.8.2 The Pragmatic Uses of *n̓akw*: Mirativity and Metaphor

Mirativity refers to the grammatical marking of a proposition as representing information which is surprising to the speaker (DeLancey 1997; 2001). A mirative interpretation is also associated with *n̓akw*, which can also be used to express surprise at a situation, such as the unexpected arrival of guests at a party in (2.86):

(2.86) a. *bagw* *n̓idiit*
pakw n̓idiit
arrive.pl 3pl
"They've arrived."

b. *n̓akwhl* *bagwidiit*
n̓akw=hl pakw=tiit
EVID=CND arrive.pl=3pl
"They must've arrived."
"Looks like they've arrived."

What is notable about (2.86)b. is that there is a certain threshold that is crossed with respect to the evidential requirements of *n̓akw*. In all of the contexts examined so far, a speaker is making an assertion inferring from *indirect* evidence of a physical nature. However, in (2.86), a speaker is indeed witnessing the actual event: if there are people standing in the doorway, and the speaker sees them, then one would expect a simple assertion would be felicitous and adequate – there is no need for an evidential-based assertion. These are the key ingredients for a mirative interpretation, and this is presented and analyzed in detail in chapter 5: when a speaker chooses to make a *n̓akw*-assertion over a regular assertion, they are expressing that the circumstances they are faced with are surprising and perhaps unexpected. Note that this is actually not incompatible with the evidential requirements of *n̓akw* as they've been defined so far: a speaker is still basing their *n̓akw*-assertion on observable evidence – the fact they see people standing in the doorway.

In addition to its evidential and mirative uses, *n̓akw* has a metaphorical use, rendering an expression similar to a rhetorical question/statement in English. Consider a context where the speaker is 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. Out of exasperation, the speaker comments:

(2.87) Context: A friend is at bat in a baseball game. A couple of really easy pitches were thrown his way, but he missed them. His frustrated teammates yell out 'Are you blind?!' (Taken from an anecdote given by Jane Smith, and both translations volunteered by her.)

n̓akwhl *sinst*
n̓akw=hl sins-t
EVID=CND blind-3sg
"He must be blind!"
"Is he blind or something?"
"Looks like he's blind!"

The mirative and metaphorical uses of *n̓akw* are examined in detail in chapter 5.

2.8.3 The Morphosyntactic Distribution of *n̓akw*

The morphosyntactic behaviour of *n̓akw* is markedly different from *=ima* or *=k̲at*. In subsection 2.8.1, *n̓akw* was described as a kind of auxiliary verb (cf. example (2.85)). This

description of *ʔakw* is supported by the observation that *ʔakw* patterns identically to other auxiliary verbs such as the progressive *yukw* and the imperfective *hliskw*, as shown in (2.88):

(2.88) a. *yukwhl* *k̲ahahlal'stdiithl* *haanak̲*
[yukw]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
PROG=CND REDUP.pl-work-3pl=CND women.pl
"The women are working."

b. *hliskwhl* *k̲ahahlal'stdiithl* *haanak̲*
[hliskw]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
IMPERF.=CND REDUP.pl-work-3pl=CND women.pl
"The women finished working."

c. *ʔakwhl* *k̲ahahlal'stdiithl* *haanak̲*
[*ʔakw*]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
EVID=CND REDUP.pl-work-3pl=CND women.pl
"The women must be working."

More specifically, these three auxiliary verbs function as intransitive predicates, creating Dependent clauses (cf. (2.42)): they nominalize the following VP, marking it with the common noun determiner *=hl*, as schematized in (2.89):

(2.89) {*yukw, hliskw, ʔakw*}*=hl* VP YP

However, there is one feature that sets *ʔakw* apart from the other auxiliary verbs: no other element can precede *ʔakw* in a clause. For example, the inceptive marker, *hla*, precedes *yukw* in (2.90)a. However, this is ungrammatical with *ʔakw*, as shown in (2.90)b.:

(2.90) a. *hla* *yukwhl* *k̲ahahlal'stdiithl* *haanak̲*
hla yukw=hl k̲ahahlal'st-tiit=hl haanak̲
INCEPT PROG=CND REDUP.pl-work-3pl=CND women.pl
"The women are about to start working."

b. **hla* *ʔakwhl* *k̲ahahlal'stdiithl* *haanak̲*
hla *ʔakw*=hl k̲ahahlal'st-tiit=hl haanak̲
INCEPT EVID=CND REDUP.pl-work-3pl=CND women.pl

This covers some of the basic syntactic features of *ʔakw*. The syntactic behaviour of *ʔakw*, including the restriction that no other element may precede it, is examined in more detail in chapter 3, §3.6.2.1, and chapter 5.

2.9 Interactions

In English it is possible to express combinations of modal and reported meanings through sentences such as (2.91):

(2.91) a. I heard the berries must be ripe.
b. I might've heard the berries must be ripe.

Given that these meanings potentially correspond to the evidential-modal system of Gitksan examined so far, a logical step would be to see to what extent =*k̲at*, =*ima*, and *n̓akw* combine to express meanings such as those in (2.91). However, this subsection shows that combinations of =*k̲at*, =*ima*, and *n̓akw* are in general not possible.

As a starting point, to my knowledge there is no Gitksan-internal restriction on the stacking of enclitics, thus it is expected that =*k̲at* and =*ima* could appear simultaneously stacked on a predicate in order to achieve the kinds of readings that correspond to those in (2.91). This is a plausible move, as we might expect the relative order between =*k̲at* and =*ima* would reflect a difference in scope. However, the stacking of =*k̲at* and =*ima* is not possible, as (2.92) shows:

(2.92) a. **mukw=ima=k̲at=hl maay̓*
ripe=MOD=REP=CND berries
≠"(I heard) the berries might/must be ripe."
≠"I might've heard the berries are ripe."

b. **mukw=k̲at=ima=hl maay̓*
ripe=REP=MOD=CND berries
≠"(I heard) the berries might/must be ripe."
≠"I might've heard the berries are ripe."

A potential alternative strategy is to force the co-occurrence of =*ima* and =*k̲at*. This can be done using the syntax of Dependent clauses. Recall that Dependent clauses consist of a sentence initial predicate which nominalizes the VP (cf. (2.42)). Given their second position behaviour, both =*k̲at* and =*ima* encliticize to the sentence initial predicate. An example of this is given in (2.93)a., where modal =*ima* encliticizes to the progressive *yukw*. However, it was also shown that there is a certain amount of speaker variation (cf. (2.43)), where the second position clitics remain on the verb rather than assuming the second position, as shown in (2.93)b.:

(2.93) a.

yukwima	*dim*	*t'aahltiithl*	*iis*	*ahl*	*lipn̓idiit*
[yukw]$_{XP}$=*ima*	tim	[t'aahl-tiit]$_{VP}$=hl	iis	a=hl	lip-n̓itiit
PROG=MOD	FUT	pick.berries-3pl=CND	soapberries	OBL=CND	REFL-3pl

"They might be picking soapberries for themselves."

b.

yukw	*dim*	*t'aahltiidimahl*	*iis*	*ahl*	*lipn̓idiit*
[yukw]$_{XP}$	tim	[t'aahl-tiit]$_{VP}$=*ima*=hl	iis	a=hl	lip-n̓itiit
PROG	FUT	pick.berries-3pl=MOD=CND	soapberries	OBL=CND	REFL-3pl

"They might be picking soapberries for themselves."

Given the potential for these two positions (XP and VP) to host =*k̲at* and =*ima*, nothing in the morphosyntax prevents both =*k̲at* and =*ima* from appearing in the same sentence, each occupying one of these positions. This would also be a reasonable way of controlling the scope between =*k̲at* and =*ima*, thus obtaining the different readings in (2.91). However, because these positions are subject to free variation, the exact opposite is predicted, and these readings do not obtain: there are no scopal interactions because these positions are not semantically significant. Example (2.94)a. shows that =*ima* > =*k̲at* does not achieve a "might've heard" reading, and (2.94)b. shows that =*k̲at* > =*ima* does not achieve a "heard that X might've" reading:

(2.94) a.

yukw=ima***	*tim*	*t'aahl-tiit=**k̲at***=*hl*	*iis*	*'a=hl*
PROG=MOD	FUT	pick.berries-3pl=REP=CND	soapberries	OBL=CND

lip-n̓itiit
REFL-3pl

≠"I might've heard they're picking soapberries for themselves."

b. **yukw=**k̲at**=hl* *tim* *t'aahl-tiit=**ima**=hl* *iis* *'a=hl*
PROG=REP=CND FUT pick.berries-3pl=MOD=CND soapberries OBL=CND
lip-n̓itiit
REFL-3pl
≠"(I heard) they might be picking soapberries for themselves."

Gitksan has a verb which expresses reported meaning, *la̲x̲n̓i* 'to hear' (2.95), and a propositional attitude verb *han̓iig̲oot* 'to think/believe' (2.96), which can express modal meaning:

(2.95) *la̲x̲n̓iy̓* *wil* *x̲stas* *John* *g̲o'ohl* *bingo* *ga̲x̲w*
la̲x̲n̓i-ỳ wil x̲sta=s John k̲o'=hl bingo ka̲x̲xw
hear-1sg COMP win=PND John LOC=CND bingo last.night
"I heard that John won at bingo last night."

(2.96) *han̓iig̲oodiy̓* *wil* *siipxwin*
han̓iig̲oot-ỳ wil siipxw-n
think-1sg COMP sick-2sg
"I think you're sick."

Rather than combining *=k̲at* and *=ima* simultaneously within the same sentence, the meanings in (2.91) are achieved in combination with *la̲x̲n̓i* and *han̓iig̲oot*. Example (2.97)a. shows how a REPORT > MODAL reading obtains by embedding the modal *=ima* in the complement clause of *la̲x̲n̓i*. The reverse MODAL > REPORT reading is obtained by encliticizing modal *=ima* to *la̲x̲n̓i* itself, as in (2.97)b.:

(2.97) a. *la̲x̲n̓iy̓* *wil* *x̲stayimas* *John* *g̲o'ohl* *bingo* *ga̲x̲w*
la̲x̲n̓i-ỳ wil x̲sta=*ima*=s John k̲o'o=hl bingo ka̲x̲xw
hear-1sg COMP win=MOD=PND John LOC=CND bingo last.night
"I heard that John might've won at bingo last night."

b. *la̲x̲n̓iy̓ima* *wil* *x̲stas* *John* *g̲o'ohl* *bingo* *ga̲x̲w*
la̲x̲n̓i-ỳ=*ima* wil x̲sta=s John k̲o'o=hl bingo ka̲x̲xw
hear-1sg=MOD COMP win=PND John LOC=CND bingo last.night
"I might've heard that John won at bingo last night."

Embedding modal *=ima* in the complement clause of the attitude verb *han̓iig̲oot*, as in (2.98), has the effect of further modulating a modal statement (i.e. 'harmonic' readings; cf. Palmer 2006):

(2.98) *han̓iig̲oodiy̓* *wil* *siipxwinima*
han̓iig̲oot-ỳ wil siipxw-n=*ima*
think-1sg COMP sick-2sg=MOD
"I think you might be sick."

The same combinatorial restriction found with *=k̲at* and *=ima* extends to evidential *n̓akw*. Recall that evidential *n̓akw* requires the speaker to have access to some type of physical evidence. Even though there is no independent reason in the morphosyntax to exclude combinations of *n̓akw* with *=k̲at* or *=ima*, the physical evidence requirement of *n̓akw* would naturally exclude these combinations, as (2.99) shows:

(2.99) a. **ṅakw=k̲at=hl pakw=tiit*
EVID=REP=CND arrive.pl=3pl
≠"(I heard) it looks like they've arrived."
≠ "(I heard) they must've arrived."

b. **ṅakw=ima=hl pakw=tiit*
EVID=MOD=CND arrive.pl=3pl
≠"It might look like they've arrived."
≠ "Maybe they must've arrived."

The incompatibility of *ṅakw* and *=k̲at* in (2.99)a. can be explained given their respective evidential meanings: whereas *ṅakw* and *=k̲at* are both indirect evidentials, *ṅakw* requires this indirect evidence to be of a sensory nature, while *=k̲at* requires the evidence to come in the form of a report from another source.

The nature of the incompatibility found with *ṅakw* and *=ima* in (2.99)b. is somewhat different. Recall that *ṅakw* and *=ima* stand in a specific kind of relationship: *ṅakw* is felicitous in a subset of contexts that *=ima* is felicitous in, specifically those in which there is physical evidence. The function of *ṅakw* in these contexts is to express a speaker's confidence in the physical evidence in supporting a *ṅakw*-assertion, giving it a *must*-like interpretation. On the other hand, the function of *=ima* in a physical evidence context is to stand in contrast to *ṅakw* in expressing a speaker's doubt in using that physical evidence to make an inference. Thus, given this contrasting relationship, it would seem odd to combine both *ṅakw* and *=ima* within the same sentence.

2.10 Summary

In this chapter I gave a semantic and morphosyntactic description of the three evidentials in Gitksan, the reportative *=k̲at*, the inferential *=ima* (glossed as MOD) and the sensory evidential *ṅakw*. It was shown that all three of these evidentials encode different kinds of indirect evidence. The reportative *=k̲at* indicates that the information was reported to the speaker by another person. The more general *=ima* is felicitous in any kind of context that has indirect evidence, whether through the physical senses, or from general knowledge or speculation. The evidential *ṅakw* is more specific: it can only be used in contexts where the speaker has sensory evidence for an inference. There are also additional pragmatic properties associated with *ṅakw*, where it can have a mirative and metaphorical use. These uses do not extend to inferential *=ima*.

The reportative *=k̲at* and modal *=ima* share the same morphosyntactic class: they are classic second position clitics. Their surface position is somewhat variable (likely determined by phonological factors), but this has no effect on their interpretation. This generalization bears upon the hypothesis that the morphosyntactic placement of an evidential can reflect a difference in meaning (see Blain and Déchaine (2007); Déchaine (2008); Cook (2008) for details), and that in some languages, clause-typing corresponds to different evidential meanings. This is also not borne out in Gitksan, where the Independent vs. Dependent clause types do not appear to reflect any evidential meanings.

The evidential *ṅakw*, however, has very different syntactic properties: it has the syntactic characteristics of a predicate, or auxiliary verb. *ṅakw* is also quite restricted in its surface position: it can only occur at the front of a clause. Finally, there is a restriction on more than one evidential from co-occuring in the same clause.

Of particular interest is the translations of *=ima* and *ṅakw*: both are translated by speakers as epistemic modals. However, it is shown in the following chapters, that in the case of *ṅakw*, this is misleading: various tests are applied in the next chapter that show *ṅakw*

cannot be an epistemic modal, despite its translation as one. On the other hand, these same tests confirm that both =*ima* and =*k̲at* are indeed modal evidentials.

Chapter 3

Evidentiality and Levels of Meaning

Chapter 2 described the core meanings and basic morphosyntax of the three morphemes in Gitksan that encode evidentiality. In this chapter I take the next step in probing their meanings by applying a set of theoretical tests that will determine what level of meaning the individual evidentials operate on. I assume that there are two levels of meaning, discussed in detail below: a propositional level (i.e. an evidential contributes to the truth conditions), or an illocutionary level (i.e. an evidential does not contribute to the truth conditions). Given the outcome of these tests, we can then ascertain the appropriate semantic or pragmatic analysis of them, which is undertaken in chapters 4 and 5.

3.1 The Issues

I frame the task of testing the individual Gitksan evidentials by revisiting the third of the four relations between evidentiality and epistemic modality that were identified in Chapter 1, in (3.1):

(3.1) **Formal semantic relation:** (cf. 1.15(iii.))
Can the individual evidentials in Gitksan be analyzed parallel to epistemic modals in formal semantics (i.e. quantification over possible worlds) or do they require a different, independent kind of analysis?

One prominent characteristic of both evidential *=ima* and sensory evidential *n̓akw* is their translations into English as modal verbs *might* and *must*:

(3.2) *t'ayimat* *John*
t'a=*ima*=t John
at.home=MOD=PND John
"John **might/must** be at home."

(3.3) *n̓akwhl* *mukwhl* *maay̓*
n̓akw=hl mukw=hl maay̓
EVID=CND ripe=CND berries
"The berries **must** be ripe."

This feature bears directly on the debate within the literature on the encoding of evidential and epistemic notions. There are two theoretical sides to this debate. One the one hand, de Haan (1999) claims that evidentiality and epistemic modality are mutually exclusive: evidentiality encodes the source of the information contained in the utterance, while epistemic modality encodes the degree of commitment on the part of the speaker to the truth of the information. De Haan therefore proposes that an evidential which distinguishes only an information source is not a modal (see also Lazard 2001; Aikhenvald 2006). Matthewson et al. (2004) show that the St'át'imcets evidentials encode the source of evidence, and do

not encode distinctions of certainty, thus they fall into de Haan's definition of an evidential category. However, they also show that the individual evidentials in St'át'imcets must be analyzed as epistemic modals in the sense of being operators which quantify over epistemically accessible worlds. This analysis bears upon the question in (3.1): are the same formal tools adequate or appropriate for analyzing both epistemic modals and evidentials? Are there evidentials that are *not* amenable to a modal analysis? And if so, what kind of analysis is appropriate for evidentials that are not epistemic modals?

A formal analysis of evidentiality as a type of epistemic modality was first utilized by Izvorski (1997) to analyze the evidential nature of the present perfect in Bulgarian. This inspired similar analyses of evidentials in other languages (e.g. Garrett 2001 on Tibetan, McCready 2005, McCready and Asher 2006 and McCready and Ogata 2007 on Japanese, Chung 2005 on Korean, and Matthewson et al. 2004 on St'át'imcets). However, Faller (2002) argues convincingly using data from the Cuzco Quechua evidential system that evidentials are not a homogeneous class cross-linguistically. She shows that some evidentials in Quechua cannot be analyzed as epistemic modals and require a different kind of analysis. According to the illocutionary-level analysis developed in Faller (2002), an evidential modifies the illocutionary force and/or the sincerity conditions of a speech act. Quechua also shows that a language may have both modal and illocutionary evidentials.

As highlighted in chapter 1, we can use this debate to distinguish between *modal* (i.e. St'át'imcets) and *non-modal* (i.e. Quechua) evidentials. Modal evidentials are propositional operators. Thus, we would predict them to behave as other propositional operators. For example, a modal evidential should contribute to the truth conditions of a sentence, be embeddable, and be sensitive to scope with respect to other operators. We predict the opposite with non-modal evidentials: they should not contribute to truth conditions, nor should they be embeddable or interact with any propositional operators.

3.2 The Plan

The goal of this chapter is to determine the modal vs. non-modal status of the individual evidentials in Gitksan. Before I undertake this task, in section 3.3 I review the basic semantics of modality and how it has been used to analyze modal evidentials. In §3.4 I turn to the formal approaches to non-modal evidentials: as outlined in chapter 1, there are competing theories, each of which are introduced in §3.4: the speech-act/illocutionary operators approach (Faller 2002), and the Dynamic Semantics approach (Portner 2006; Davis et al. 2007).

Then in §3.5 I present the set of theoretical tests that have been used in the literature for determining the level of meaning an evidential operates on. This is done by examining the predictions these tests make for the individual evidentials in St'át'imcets, a language with modal evidentials (Matthewson et al. 2004), and Quechua, a language with non-modal evidentials.

§3.6 is then devoted to testing these predictions on the individual Gitksan evidentials *=ima*, *=k̲at*, and *n̓akw*. The outcome of these tests reveal that the evidential system in Gitksan confirms Faller's hypothesis: Gitksan represents a language which shows a language-internal 'split' system, including both modal and non-modal evidentials. Both *=ima* and *=k̲at* are in fact epistemic modals. The results are the opposite for *n̓akw*: despite its typical translation as *must*, it is not a modal evidential, but rather a non-modal evidential. A non-modal analysis of *n̓akw* is given in chapter 5. In §3.7 I summarize these results.

3.3 Evidentials as Epistemic Modals

There are three interacting components to a modal: quantification, which determines what we interpret as modal force, and two CONVERSATIONAL BACKGROUNDS, which work in tandem to determine the meanings of a modal in a given context (Kratzer 1981; 1991; among others).

The first component is quantification: modals are quantifiers over possible worlds. Quantification encodes what we interpret as *might* and *must*: necessity modals are treated as universal quantifiers, and possibility modals as existential.

(3.4) a. "John **must** be at home." = *must*(John be at home)
b. "John **might** be at home." = *might*(John be at home)

The interpretations of a modal are further determined by two independent, contextually-determined functions, or CONVERSATIONAL BACKGROUNDS: a MODAL BASE and an ORDERING SOURCE (Kratzer 1991). We intuitively understand conversational backgrounds as the kinds of things we know about the actual world, be it the particular facts of some circumstance, the evidence available to us, the laws in place, the normal course of events etc. Using example (3.4), we could be taking the fact that John's lights are on in the actual world as evidence. Another way to understand conversational backgrounds is the set of premises they represent *in view of* the facts known in the actual world. For example, *in view of* the available evidence to us, such as the fact that his livingroom lights are on, "John must be at home" is true iff John is home in all the worlds w' that are compatible with the available evidence in w, such as those worlds in which his livingroom lights are on.

More technically, a conversational background picks out for the actual world w the set of worlds w' which are *accessible* from w, via an accessibility relation. This forms the modal base worlds $B(w)$ over which the modal quantifies. Thus a sentence of the form $must(p)$, as in (3.4)a., states that the prejacent p 'John be at home' is true in all epistemically accessible worlds, while in (3.4)b. $might(p)$, p is true in at least one epistemically accessible world. Thus, we can give the sentences in (3.4) the denotations in (3.5):

(3.5) a. "John must be at home."
$[\![must(B)(w)(\text{John be at home})]\!]^c = 1$ iff $\forall w' \in B(w) : [\![\text{John be at home}]\!]^c(w') = 1$

b. "John might be at home."
$[\![might(B)(w)(\text{John be at home})]\!]^c = 1$ iff $\exists w' \in B(w) : [\![\text{John be at home}]\!]^c(w') = 1$

Assuming an epistemic modal base B, (3.5)a. reads "In all the possible worlds w' compatible with the speaker's knowledge in the actual world w (i.e. where his livingroom lights are on), John is at home", while b. reads "In at least one possible world w' compatible with the speaker's knowledge in the actual world w, John is at home."

Modal bases in English are determined by the context of utterance. The denotations in (3.5) have an epistemic modal base, provided by the context c. However, the modal sentences in (3.4) can have more than one meaning, depending on the context, as shown in (3.6):

(3.6) "John must be at home."

a. His lights are on, and his car is in the driveway. EPISTEMIC
b. His parents imposed a 9pm curfew, and it's now 10pm. DEONTIC

With an epistemic conversational background, the modal base will determine a set of worlds w' which are epistemically accessible from w, or those worlds compatible with everything we know in w. With a deontic conversational background, the modal base contains the

accessible worlds where the laws are the same as in w. The different kinds of modal base worlds picked out by a conversational background are represented by the kinds of meanings that are familiar in (3.7):

(3.7) (i.) In $B(w)$ worlds where what we know holds true EPISTEMIC
(ii.) In $B(w)$ worlds where laws holds DEONTIC
(iii.) In $B(w)$ worlds where certain physical laws hold CIRCUMSTANTIAL
(iv.) In $B(w)$ worlds where desires are the same as in w BOULETIC

Thus, the denotations for modals in English are given in (3.9):[22]

(3.9) a. $[\![must(B)(w)(p)]\!]^c = 1$ iff $\forall w' \in B(w) : [\![p]\!]^c(w') = 1$
b. $[\![might(B)(w)(p)]\!]^c = 1$ iff $\exists w' \in B(w) : [\![p]\!]^c(w') = 1$

It should be noted that the modals in (3.9) have just one meaning – they are not lexically ambiguous – but this single meaning contains a contextual parameter that determines how they are interpreted. The context c provides the modal base worlds, thus, depending on the context, they can be used to express any of the modal interpretations given in (3.7). I return to the semantics of modals in more detail in chapter 4.

The denotations in (3.9) do not include a component for encoding a speaker's relation to the evidence that makes up an epistemic conversational background. This is probably rooted in the empirical generalization that modals in languages such as English encode a speaker's degree of commitment (i.e. modal force), but do not carry any explicit evidential information (although see von Fintel and Gillies (2007), who claim that English 'must' does carry an evidential restriction). However, there is a non-trivial link between modality and evidential meaning. This link can be viewed as a continuum, where at one end there are non-evidential morphemes such as modal verbs or tense/aspect morphemes that are felicitous only in specific kinds of evidential contexts, but without lexically encoding a specific type of evidence. We see this in languages such as Georgian and Bulgarian. At the other end of the continuum are the kinds of morphemes that lexically encode different kinds of evidential sources, as in St'át'imcets and Gitksan.

For example, in both Georgian (3.10), and Chechen (3.11), the use of the perfect aspect conveys an evidential meaning, typically of the reported or inferred variety:

(3.10) Georgian (Topadze 2007)
Context: Someone told me about it; or I inferred it from the many cars parked outside.

teat'r-ši	*bevri*	*xalx-i*	*q'opil-a*
theatre-in	many	people-NOM	be.PERF-3sg

"There were many people in the theatre."
"As it seems, there were many people in the theatre.

[22] If f is a conversational background, then the set of worlds that are accessible from w is the set of worlds in which all the propositions of $f(w)$ are true, or $\cap f(w)$. We can have the conversational background as a parameter of evaluation (Kratzer 1991), or we can treat it as an argument of the verb, as in the denotations in (3.8) (following von Fintel and Heim 2007):

(3.8) a. $[\![must]\!] = \lambda f.\lambda p.\lambda w.\forall w'[w' \in \cap f(w) \rightarrow p(w') = 1]$
b. $[\![might]\!] = \lambda f.\lambda p.\lambda w.\exists w'[w' \in \cap f(w) \wedge p(w') = 1]$

For convenience, I will use the notation $B(w)$ instead of $\cap f(w)$.

(3.11) Chechen (Molochieva 2007)
Context: I didn't see her and I was told about her visit; or I saw the cookies she had brought.

Zaara	*so*	*c'a*	*quuch-lie*	*dwa-j-ax-na*	*xilliera*
Zara.NOM	1s.NOM	home	arrive-CONV.POST	away-J-CON.ANT	cop.PLU

"Zara had left before I arrived."

Comrie (1976) notes that "the semantic similarity ... between perfect and inferential lies in the fact that both categories present an event not in itself, but via its results." Thus, the perfect describes a completed event in the past relative to the moment of utterance, but which has lasting consequences perceptible at the time of speech.

Izvorski (1997) shows that in Bulgarian, the 'perfect of evidentiality' (glossed as 'PE') has an indirect evidential interpretation in addition to its aspectual one:

(3.12) Bulgarian (Izvorski 1997, p. 228)

Maria	*celunala*	*Ivan*	
Maria	kissed.PE	Ivan	
"Maria has kissed Ivan."			PERFECT
"Maria apparently kissed Ivan."			PERFECT OF EVIDENTIALITY (PE)

Izvorski claims that the evidential interpretation of PE in Bulgarian requires a more specialized type of proposition than an ordinary epistemic modal base: it is not sufficient for a proposition to be simply known for it to be considered (indirect) evidence for the core proposition. Because this evidential interpretation is not lexicalized, but parasitic on the perfect aspect, Izvorski posits an evidential operator 'EV' to handle the modal/evidential semantics, which is analyzed as a universal epistemic modal. The indirect evidence requirement is added in the form of a presupposition, which requires that a speaker have indirect evidence for an assertion using the PE. This is summarized in (3.13):

(3.13) The Interpretation of EVp:

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

b. **Presupposition:** Speaker has indirect evidence for p

In other words, a modal base $B(w)$ is further restricted by the presupposition to those worlds in which the evidence a speaker has for the assertion they make holds. This can be more precisely formulated in (3.14) (adopted from Izvorski 1997):

(3.14) $B(w) = \{u \in W : \forall p[(p \text{ is the indirect evidence in } w) \rightarrow u \in p]\}$

The perfect of evidentiality in Bulgarian does not lexically encode a specific evidence source, and can have other indirect evidence readings, including a reportative one.

On the other end of the continuum are languages which specifically encode different kinds of evidential sources, but have a modal semantics. In a series of articles, Matthewson et al. (2004), Rullmann et al. (2008), and Davis et al. (2009) claim that the individual evidentials in St'át'imcets are in fact epistemic modals. The data in St'át'imcets presents a clear case of modals having specialized evidential meanings: the reportative *ku7* in (3.15)a., the inferential *k'a* in b., and the perceived evidence *-an'* in c.:

(3.15) a. Reportative *ku7*: The speaker came to believe the sentence by means of a report.

wa7 ***ku7*** *ku* *sts'éts'qwaz'* *l-ta* *stswáw'cw-a*
be REP DET trout in-DET creek-DET
"[I heard] There are trout in the creek."

b. Inferential *k'a*: The speaker came to believe the sentence by means of inference based on perceived evidence, or general facts about the world.

plan ***k'a*** *tu7* *wa7* *tsu7c* *na* *máq7-a*
already INFER then IMPF melt(INCH) DET snow-DET
"The snow must've already melted."

c. Perceived Evidence *-an'*: The speaker came to believe the sentence by means of inference from visual evidence.

*pel'p-s-ácw-**an'*** *nelh* *neklíh-sw-a*
lost-CAUS-2sg.CONJ-PERC.EVID DET.pl key-2sg.POSS-DET
"It looks like you've lost your keys."

Rullmann et al. adapt the presupposition approach of Izvorski for evidential modals in St'át'imcets. First, they claim that the various evidential modals in (3.15) place an evidence presupposition on the modal base, and secondly, that this evidence presupposition can be specialized to include different subtypes of evidence. Example (3.16) gives the semantics of the inferential evidential *k'a*:

(3.16) Semantics of *k'a* (inferential) (Matthewson et al. 2004, p. 245)

$[\![k'a]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the **inferential** evidence in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![k'a]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

The evidential modal suffix *-an'* requires a more specialized sub-type of evidence than *k'a*. This is written into the presupposition in example (3.17):

(3.17) Semantics of *-an'* (inferential - perceived)

$[\![\text{-}an']\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds w', $w' \in B(w)$, the **perceived evidence** in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![\text{-}an']\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

The presupposition associated with the inferential evidential *-an'* requires that the modal base contain all those worlds in which the perceived evidence in w holds. However, their analysis involves another contextually determined parameter, a choice function f which picks out a subset of $B(w)$. This is the locus of the variable modal force of the modal evidentials in St'át'imcets: the larger the subset of the modal base selected by f, the stronger the modal force expressed. f may simply be the identity function, which results in a universal *must*-like reading. If f selects a proper subset of the modal base, the resulting reading is weaker, although that subset is still universally quantified over. The issue of variable modal force, which is also found in the Gitksan modal *=ima*, is analyzed in chapter 4.

3.4 Formal Pragmatic Approaches to Evidentiality

Faller (2002) shows that most (but not all) evidentials in Quechua are not amenable to a modal analysis, and develops an illocutionary analysis utilizing classical speech act theory. Portner (2006) develops an alternative analysis within a dynamic semantics which treats evidentials as sentential force specifiers. Davis et al. (2007) also develop a kind of dynamic semantics approach, analyzing the meanings of evidentials in terms of their ability to 'shift' a particular contextual parameter, specifically, the degree of certainty that one must have in a proposition before one can utter it.

3.4.1 Speech Act Theory

Under classical speech act theory, utterances are treated as consisting of an illocutionary force, F, and a separate level of propositional content, p, such that F and p together, or $F(p)$, form a complete utterance used to accomplish a speech act (Searle 1969). The illocutionary force F of an utterance also has a logical structure comprising five components, given in (3.18):

(3.18) (i.) The illocutionary point of an utterance
(ii.) Strength of the illocutionary point
(iii.) Preparatory conditions
(iv) Mode of achievement
(v.) Sincerity conditions

Of these components, the *sincerity conditions* are the most intuitively accessible. For example, we understand particles such as *damn* and *frankly* as expressing something of the attitude or sincerity of a speaker towards the sentence they accompany. This kind of meaning is the most transparent with interjections such as *damn*, as in (3.19):

(3.19) *Damn*(p)
ILLOCUTIONARY FORCE = ASSERTION "p"
SINCERITY CONDITION = *The speaker is upset that p*

Similarly, utterance-level adverbs such as *frankly* and *alas* are also amenable to this kind of illocutionary analysis, as in (3.20):

(3.20) *Frankly*(p)
ILLOCUTIONARY FORCE = ASSERTION "p"
SINCERITY CONDITION = *The speaker is being frank in expressing p*

The intuition behind sincerity conditions is that you can't utter a sentence such as (3.19) sincerely unless you are upset that p, and you can't sincerely utter (3.20) without speaking frankly about p.

There are two tests for determining whether a morpheme's contribution is to the illocutionary force of an utterance or its propositional content. First, if a morpheme contributes only to the illocutionary force of an utterance, then in an indirect speech context, that morpheme 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; Faller 2002). For example, (3.21) shows that *frankly* is not semantically embeddable, while *reportedly* and *obviously* are:

(3.21) (i.) If John's book has frankly sold very little, you shouldn't be surprised.

(ii.) If the ball was reportedly over the line, the matter should be investigated further.

(iii.) If the cook obviously won't poison the soup, we can eat the meal without worrying.

(Faller 2002, p. 216, data from Ifantidou-Trouki 1993)

Likewise, if a morpheme contributes only to the illocutionary force of an utterance, then it is expected that one cannot challenge or disagree with the meaning of that morpheme, as in (3.22):

(3.22) (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.)

Faller's work on the evidential system of Cuzco Quechua likely represents the most prominent approach to examining evidentials and their properties as illocutionary operators (Faller 2002). Quechua has several enclitic suffixes that mark evidentiality or the nature of the speaker's justification for making the claim. As an illustration, the reportative marker *-si*, as in (3.23), indicates that the speaker heard the information expressed in the claim from someone else:

(3.23) *para-sha-n-si*
rain-PROG-3-*si*
"It's raining."
EV: speaker was told that it is raining

-mi indicates that the speaker has direct (usually perceptual) evidence for the claim, as in (3.24):

(3.24) *para-sha-n-mi*
rain-PROG-3-*mi*
"It's raining."
EV: speaker sees that it is raining

-chá indicates that the speaker's background knowledge leads him to believe the information in the claim to be true, as in (3.25).

(3.25) *para-sha-n-chá*
rain-PROG-3-*chá*
"It may/must be raining."
EV: speaker conjectures that it is raining based on some type of inferential evidence

Faller (2002) argues that evidentials in Quechua (except *chá*) do not contribute to the propositional content of an utterance. Rather, they modify the sincerity conditions of the speech act. For example, the reportative evidential *-si* modifies the commitment that is usually associated with an assertive operator, and changes it from one of asserting to one of 'presenting'. Thus, illocutionary evidentials have the effect of introducing additional content into the set of preconditions of an assertion. With the reportative *-si* the propositional content p is not asserted, and Faller posits a special speech act PRESENT for this situation, on which the speaker simply presents a proposition without making claims about its truth. This is formally implemented in (3.26), where a condition is added to the set of sincerity conditions where a source other than the speaker asserts the truth of the proposition:

(3.26) *para-sha-n-si*
rain-PROG-3-*si*
p = "It is raining."
ILL = PRESENT(p)
SINC = $\exists s_2[\text{ASSERT}(s_2, p) \wedge s_2 \notin h, s]$ (Faller 2002, 199)

In words, the sincerity condition in (3.26) says that there is another speaker, s_2, other than the speaker of the sentence, who asserts p.

Thus, most Quechua evidentials only mark the source of information: they do not contribute a modal semantics to the sentence. No matter which evidential is used, the proposition expressed by a declarative remains the same as that of the phrase with which the evidential combines. Faller also claims that Quechua evidentials do not directly mark degree of certainty, though there are correlations: *-mi* normally establishes a high degree of certainty; *-chá* normally establishes a minimal degree of certainty (meaning the proposition is at least possible), and reportative *-si* has no uniform correlation with a degree of certainty. Additionally, under Faller's approach, a declarative sentence does not necessarily fully assert the proposition expressed: *-mi* results in full assertion, while *-chá* results in a weakened assertion.

3.4.2 Evidential Hierarchies and Context Dependence

Davis et al. (2007) claim that when a speaker has more than one source of evidence for a proposition in a given context, they will use the evidential that represents the best or most reliable kind of evidence they have for that proposition. Thus we can differentiate between reliable and unreliable hearsay evidence, as in (3.27):

(3.27) Speaker concludes from the evidence that John was at the feast last night.

a. Speaker heard from **a reliable source** that John was at the feast last night.

b. Speaker heard from **a local drunk** that John was at the feast last night.

Whether a particular kind of evidence is better or more reliable than another can vary with the context. In a reliable evidence context such as (3.27)a., the speaker will use a hearsay/reportative evidential rather than a more general inference evidential, if the language possesses both. On the other hand, if the evidence comes from what is perceived to be an unreliable source in that context, the speaker will use the more general inference evidential rather than the more specific hearsay/reportative one.

This is formalized in the following way: every context c has a 'subjectivity probability threshold' c_T that falls between 1 (absolute certainty) and 0 (absolute doubt). In any particular context c, a speaker S can only assert a proposition p if speaker S assigns to p a subjective probability threshold that is higher than c_T. In other words, a speaker S can only assert p if the degree to which S believes p, or is certain that p is above the 'certainty threshold' for that context.

The meaning of an evidential can be characterized in terms of the effects it has on the subsequent context. For example, when a speaker asserts EV(p) in context c, the speaker is claiming they have inferential evidence for p. The subjective probability threshold c_T for c is 'shifted', so that it becomes the probability c_T that a proposition with inferential evidence is true. The proposition p is asserted in the new context ($c+$ EV(p)), which has the new probability threshold c_T.

3.4.3 Evidentials as Sentential-Force Specifiers

Portner (2006) develops an alternative to the classical speech act theory analysis presented in Faller (2002) in accounting for the evidential meanings of the individual evidentials in

Quechua. Under Portner's analysis, the Quechua evidentials are not really illocutionary modifiers, but rather 'sentential force specifiers': they are grammaticized elements which specify precisely which kind of conversational update is to be performed. This is based on Faller's insight, where there is a type of speech act with fewer commitments than assertion described as PUTTING (cf. Faller's 'presenting') which can be modified in various ways to represent the different kinds of evidentials meanings in a language (Faller 2002; 2003).

This is an adaptation of the theory of dynamic semantics, where the meaning of a sentence, or its context change potential, is the instructions it gives as to how to update the common ground, the aspects of knowledge, or set of propositions, that participants in a conversation assume to share (Heim 1990). Portner introduces a modification to this theory: first is that the common ground is only one of potentially numerous sets of propositions. These other sets represent propositions that encode other categories, such as the different kinds of evidentiality. Evidentials under this approach are sentential force operators that specify a kind of conversational update: they can function to conversationally update the common ground, the set of mutually believed propositions, or other specialized sets of propositions. I take up a dynamic semantics of analysis of *ńakw* in chapter 5, where Portner's innovations are presented in more detail.

3.5 Determining Levels of Meaning: The Tests

In the previous subsections we looked at a modal (propositional) and several non-modal (illocutionary) analyses of evidentials. We do not expect a particular type of meaning (e.g. an evidential meaning) to be constrained either only to the propositional level or to the illocutionary level (Faller 2002; 2003). However, modal and a non-modal analyses of evidentiality make different predictions about the semantic characteristics of an evidential. These centre on the kinds of characteristics we associate with any propositional operator. For example, we expect a propositional operator to affect the truth conditions of a sentence, and it should be able to fall within the scope of other operators such as *if*. Conversely, evidentials which are not propositional operators should do neither.

In chapter 1 I introduced the set of diagnostics which can aid us in determining whether a given evidential marker operates at the illocutionary or propositional level. These tests were collected from different lines of research investigating the semantics of epistemic modality, and its connection to evidentiality (Lyons 1977; Papafragou 2000; 2006; Garrett 2001; Faller 2002; 2003; Matthewson et al. 2004; Waldie et al. 2009). These tests can be classified into two categories: tests which are sensitive to the truth value of the prejacent in (3.28), and tests which are sensitive to scope and embeddability in (3.29):

(3.28) Tests involving Truth Values

(i.) **Known Truth/Falsity:** Is the sentence felicitous if the prejacent is known to be true or false?

(ii.) **Assent/Dissent:** Can the contribution of the evidential be agreed or disagreed with?

(iii.) **Cancellability of type of evidence requirement:** Can the evidence type requirement be cancelled?

(3.29) Tests involving Scope and Embedability

(i.) **Embeddability:** Can the evidential be understood as part of the propositional content of an embedded clause (i.e. the antecedent of a conditional, under a factive attitude verb, under a verb of saying)?

(ii.) **Scope with respect to interrogatives:** Can the evidential take scope over a speech act?

(iii.) **Interaction with negation:** Is the evidence type requirement affected by negation?

There are additional considerations with regards to some of these tests. For example, in a particular language it may not be possible to use a certain evidential in an embedded clause for independent syntactic reasons (see the discussion of Nuu-chah-nulth in Waldie et al. 2009). Thus, if an evidential can be embedded, it is a propositional operator. But if it can't be embedded, we can't necessarily conclude that the evidential is an illocutionary operator. Additionally, following Matthewson et al. (2004), Waldie et al. show that both a modal and non-modal analysis make the same predictions with regards to interaction with negation, and with regards to cancellability of evidence.

Keeping these considerations in mind, the tests in (3.28) and (3.29) provide a methodological foundation for determining whether the evidentials in a language should be formally treated as propositional or illocutionary operators which correspond to a modal or non-modal analysis of evidentials respectively. In this section I work through in detail the definition of these tests as they were applied in St'át'imcets and Quechua, and then I evaluate their applicability to the Gitksan data.

3.5.1 Tests Regarding Truth

3.5.1.1 Known Truth/Falsity

We predict certain effects when a speaker modulates their assertion using a modal or evidential when they already know the prejacent p to be true or false. This is captured by the test in (3.30):

(3.30) **The Known Truth/Falsity Test:**
If the use of the evidential is felicitous when the speaker knows the prejacent is true or false, the evidential cannot be a modal.

In Quechua, the reportative evidential *-si* modifies the sincerity condition of an utterance to one of 'presenting' rather than 'asserting'. This was illustrated in example (3.26), repeated here as (3.31):

(3.31) *para-sha-n-si*
rain-PROG-3-*si*
"It's raining."
ILL = PRESENTING
SINC = The speaker heard from someone that p

This illocutionary analysis of *-si* predicts that the truth value of p is opaque to the reportative evidential. Thus, it is possible to utter a sentence of the form p-*si* even when p is known by the speaker to be false, as in (3.32) and (3.33):

(3.32) *para-sha-n-si* *ichaqa* *mana* *creinichu*
rain-PROG-3-*si* but not I.believe
"[I heard] It's raining, but I don't believe it." (Faller 2002: 160)

(3.33) *Pay-kuna-**s*** *ñoqa-man-qa* *qulqi-ta* *muntu-ntin-pi* *saqiy-wa-n,* *mana-má*
(s)-he-pl-REP I-ILLA-TOP money-ACC lot-INCL-LOC leave-1O-3 not-SURP
riki *riku-sqa-yui* *ni* *un* *sol-ta* *centavo-ta-pis* *saqi-sha-wa-n-chu*
right see-PP-2 not one sol-ACC cent-ACC-ADD leave-PROG-1O-3-NEG

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

The opposite effect obtains under a modal analysis: a speaker is asserting that a sentence S is either possibly or necessarily true (given the evidence). This effect is observable in the infelicity of (3.34), where the modal claim is inconsistent with the falsity of the embedded proposition:

(3.34) # It may be raining, but I don't believe it.
It's not raining, but it may be.

Thus, a modal analysis of evidentials predicts the same outcome: they are infelicitous when the prejacent is known to be false.[23] Matthewson et al. show that this makes the correct prediction for the set of evidentials in St'át'imcets, given in (3.35):

(3.35) a. Inferential *k'a*

#wa7	***k'a***	*kwis,*	*t'u7*	*aoz*	*t'u7*	*k-wa-s*	*kwis*
IMPF	INFER	rain	but	NEG	just	DET-IMPF-3.POSS	rain

"It may/must be raining, but it's not raining."

b. Perceived evidence *-an'*

*#wá7-as-**an'***	*kwis,*	*t'u7*	*aoz*	*t'u7*	*k-wa-s*	*kwis*
IMPF-3.CONJ-PERC.EVID	rain	but	NEG	just	DET-IMPF-3.POSS	rain

"It's apparently raining, but it's not raining."

c. Reportative *ku7*

#um'-en-tsal-itas	***ku7***	*i*	*án'was-a*	*xetspqíqen'kst*	*táola,*	*t'u7*
give-DIR-1sg.OBJ-3pl.ERG	REP	DET.pl	two-DET	hundred	dollar	but

aoz	*kw*	*s-7um'-en-tsál-itas*	*ku*	*stam'*
NEG	DET	NOM-give-DIR-1sg.OBJ-3pl.ERG	DET	what

"They gave me $200 [I was told], but they didn't give me anything."

A similar result obtains when the speaker knows the prejacent to be true.[24] In Quechua, sentences of the form *S-mi* have the modified sincerity condition which requires that the speaker directly witness and believe the truth of S:

(3.36) *para-sha-n-mi*
rain-PROG-3-*mi*
p = "It's raining."
ILL = ASSERTION$_s$ p
SINC = $\{Bel(s,p)$, EV = $See(s,e_p)\}$
STRENGTH = $+1$ (Faller 2002: 164)

[23] This observation only holds true with epistemic modals. Sentences such as (3.34) are felicitous with root modals: "It should be raining, but it isn't."

[24] However, there are certain cases involving logical inference where epistemic modals can be used when the speaker knows the precajent is true; von Fintel and Gillies (2007) claim that this is an evidential use of an epistemic modal such as *must*. This is discussed in more detail in §3.6.1.1.

Again we see the same opacity effects regarding the truth value of the embedded proposition: under an illocutionary operator analysis, the assertion made by a sentence containing *-mi* is simply the proposition itself. This predicts that it should be possible to use an illocutionary evidential such as *-mi* when the embedded proposition is already known to be true.

On the other hand, under a modal analysis, we expect a quality implicature in using an epistemic modal when the embedded proposition is known to be true, as in (3.37)(i.). This implicature can be cancelled, as in (ii.):

(3.37) Context: Spoken on November 6th, 2008.

(i.) ? Barack Obama must be the next president. (S. Cable class h/o)

(ii.) Yes, Barack Obama must be the next president. In fact, we *know* he is!

Example (3.37) is infelicitous (or at least very marginal) in this context because it is very unlikely that the speaker would be unaware on the day after the presidential election who the next president will be. This is typically analyzed as a quality implicature: a speaker is using a weaker claim when the stronger, non-modal claim would be felicitous (see also von Fintel and Gillies (2007), p. 38 for discussion).

This is the same effect observed by Matthewson et al. in St'át'imcets: the use of the evidentials is infelicitous if the speaker knows that the embedded proposition is true, as in (3.38):

(3.38) a. Inferential *k'a*

#ts'um'-qs-án'-as k'a kw s-Lémya7 kw s-Roger;
suck-nose-DIR-3.ERG INFER DET NOM-Lémya7 DET NOM-Roger
ats'x-en-lhkán wi7 zam'
see-DIR1sg.SUBJ EMPH after.all
"Lémya7 must've kissed Roger; actually, I saw it."

b. Perceived evidence *-an'*

#ts'um'-qs-án'-as-an' kw s-Lémya7 kw s-Roger;
suck-nose-DIR-3.ERG-PERC.EVID DET NOM-Lémya7 DET NOM-Roger
ats'x-en-lhkán wi7 zam'
see-DIR1sg.SUBJ EMPH after.all
"Lémya7 apparently kissed Roger; actually, I saw it."

c. Reportative *ku7*

#ts'um'-qs-án'-as ku7 kw s-Lémya7 kw s-Roger;
suck-nose-DIR-3.ERG REP DET NOM-Lémya7 DET NOM-Roger
ats'x-en-lhkán wi7 zam'
see-DIR1sg.SUBJ EMPH after.all
"[I was told] Lémya7 kissed Roger; actually, I saw it."

3.5.1.2 Assent/Dissent

Assuming that meaning which is at the illocutionary level is not truth conditional, we expect that it cannot be targeted for assent or dissent (Papafragou 2000; 2006; Faller 2002; to appear; Matthewson et al. 2004). This is formulated in the following test:

(3.39) **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.

We saw this effect with English illocutionary adverbs in (3.22): if a morpheme's function is to modify the illocutionary force of an utterance, then one cannot object to the contribution of a speech act operator by saying something like 'That's false'. If modals are propositional operators, we expect their content to be agreed or disagreed with: In example (3.40), 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:

(3.40) 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. 2004, adapted from a similar example in Faller 2002, p. 113)

In order to apply this test we need to ensure that the assent or dissent take the form of an explicit agreement with, or denial of, the truth of the relevant aspect of meaning. This is motivated by the fact that there are always strategies for challenging or rejecting different levels of meaning, whether presupposition or sincerity conditions of speech acts. Thus, only the requirement that the challenge take the form of (the relevant language's equivalent of) "That is (not) true" ensures that the test distinguishes presuppositional material from material which contributes to the truth conditions of the utterance. This can be seen in example (3.41), where B" challenges the propositional content of A's assertion:

(3.41) A: Harriet likes the sociolinguistics professor.
B: What sociolinguistics professor? I didn't know we had one!
B': ?? That's not true. We don't have a sociolinguistics professor.
B": That's not true. She hates him.

.

Matthewson et al. (2004) demonstrate this with the evidentials in St'át'imcets, which do allow dissent with the modal claim, using the explicit "That is (not) true" response in (3.42)b. to the claim in a.:

(3.42) Inferential *k'a*
Context: A is driving past John's house with B and sees John's lights are on.

a. *wá7 k'a l-ta tsítcw-s-a s-John; tákem i*
be INFER in-DET house-3.POSS-EXIS NOM-John all DET.pl
sts'ák'w-s-a wa7 s-gwel
light-3.POSS-EXIS IMPF STAT-burn
"John must be home; all his lights are on."

b. *aoz kw-a-s wenácw; papt wa7 lháp-en-as*
NEG DET-IMPF-3.POSS true always IMPF forget-DIR-3.ERG
kw-a-s lháp-an'-as i sts'ák'w-s-a lh-as
DET-IMPF-3.POSS put.out-DIR-3.ERG DET.pl light-3.POSS-EXIS when-3.CONJ
úts'qa7
go.out
"That's not true. He always forgets to turn his lights off when he goes out."

B's statement ≠ "John is not home."

B's statement = "It's not true that John *must* be home."

Matthewson et al. (2004) show the same effect with the perceived evidence evidential *-an'* in (3.43):

(3.43) Perceived evidence *-an'*
Context: A is driving past John's house with B and sees John's lights are on.

a. *wáʔ-as-**an'*** *l-ta* *tsítcw-s-a* *s-John;* *tákem* *i*
be-3.CONJ-PERC.EVID in-DET house-3.POSS-EXIS NOM-John all DET.pl
sts'ák'w-s-a *waʔ* *s-gwel*
light-3.POSS-EXIS IMPF STAT-burn
"Looks like John is home; all his lights are on."

b. Same answer as in (3.42)b.
B's statement ≠ "John is not home."
B's statement = "It's not true that John *must* be home."

Faller's work does not contain the right kind of example to show that Quechua evidentials pattern as speech act operators for this test. Faller does give the following example in (3.44), but as Matthewson et al. point out it illustrates disagreement with the *evidence type* rather than dissent with the prejacent itself, or a hypothesized modal claim:

(3.44) a. *Inés-qa* *qaynunchaw* *ñaña-n-ta-s* *watuku-sqa*
ines-TOP yesterday sister-3-ACC-REP visit-PST.2
p = "Inés visited her sister yesterday.'
EV = speaker was told that *p*

b. *Mana-**n*** *chiqaq-chu.* # *Mana-**n*** *chay-ta* *willa-rqa-sunki-chu*
not-BPG true-NEG not-BPG this-ACC tell-PST.1-3s2o-NEG
"That's not true. You were not told this."

Both a modal and speech act analyses predict Faller's data, i.e. that you cannot say 'That's not true. You didn't hear this.'[25] Only a modal evidential would predict the kinds of data given in examples (3.42) and (3.43) because only a modal evidential gives a modal claim which can then be denied.

3.5.1.3 Cancellability of Evidence Type Requirement

The literature contains one other test involving the truth value of the prejacent, called the Cancellability Test, given in (3.45):

(3.45) **The Cancellability Test:**
Can the evidence type requirement be cancelled?

However, this test is not very useful for distinguishing between the modal analysis and the speech operator analysis, because both analyses predict that the evidence type requirement cannot be cancelled, albeit for different reasons (see also Waldie et al. 2009). In the modal analysis, the evidence type requirement is a presupposition, so it cannot be cancelled (Izvorski 1997). In the speech act operator analysis, the evidence type requirement cannot be cancelled either, because it is a sincerity condition (Faller 2002; to appear).

[25] Although presuppositions are challengeable, you don't usually challenge them using 'That's not true'.

3.5.2 Embeddability and Scope

A propositional and an illocutionary analysis of evidentials make different predictions regarding embeddability and scope.

3.5.2.1 Embeddability

Another test for whether evidentials contribute to the truth conditions of a sentence involves embedding. The idea is that an element which can be semantically embedded within the antecedent of a conditional or under a factive attitude verb or a verb of saying must be contributing to the propositional content, and is therefore not an illocutionary operator. Likewise, if a morpheme contributes only to the illocutionary force of an utterance, if we put it in an indirect speech context, that morpheme cannot be understood as part of the propositional content of the indirectly described speech act. This test is formulated as (3.46):

(3.46) **The Embeddability Test:**
An illocutionary operator cannot be understood as part of the propositional content of an embedded clause, but a modal can.

However, in order to properly assess the facts surrounding embedding and its applicability as a test, it is necessary to examine more closely what embedding actually entails. In doing this we find that there is a need to distinguish between semantic embedding, and structural or (morpho-)syntactic embedding (i.e. subordination). Schenner (2010) characterizes this difference in (3.47):

(3.47) a. An expression is *syntactically embedded* if it occurs in a clause distinct from the root clause (i.e. in an adverbial, relative or complement clause).
b. An expression is *semantically embedded* if it is interpreted in the scope of some other operator.

The pair of related sentences in example (3.48) illustrates the difference between syntactic and semantic embedding:

(3.48) a. If the dog barks, the postman might run away.
b. The dog might bark. The postman might run away.

The conditional in example a. is a case of both syntactic and semantic embedding. However, the same message is conveyed in the sequence of sentences in b., but the embedded interpretation is provided by the discourse understanding – the semantics and pragmatics – and not the syntax.

However, there are several classes of expressions that are semantically unembedded, even if they occur in syntactically embedded positions (cf. Potts 2005). Thus syntactic embedding does not entail semantic embedding. To see the difference, consider syntactically embedded appositives, parentheticals in English, as in the appositive relative clause *who I met yesterday* in example (3.49). Crucially, it is not interpreted in the scope of the belief operator *thinks*, even though it occurs in its complement clause, i.e. in its syntactic scope.

(3.49) Lara thinks that her mother, who I met last night, will enjoy the gardens.

Neither is there an entailment in the other direction, i.e. semantic embedding does not entail syntactic embedding. This was shown in example (3.48), but another example of semantic subordination in the absence of syntactic embedding are cases of modal subordination (Roberts 1989; McCready and Ogata 2007), as in (3.50), where the second sentence is interpreted as semantically subordinate to the proposition expressed by the first sentence:

(3.50) A thief might break into the house. He would take the silver.

The English modal *might* can be semantically embedded, and indicates that it is the matrix subject making the inference, rather than the speaker, as in (3.51):

(3.51) John said that he might've won = John said "I might've won!"

We find these kinds of embedded environments within the antecedent of a conditional, or under a factive attitude verb or a verb of saying. If an evidential can embed within any of these environments, it must be contributing to the propositional content, and cannot be an illocutionary operator. Matthewson et al. (2004) have found that evidential modals in St'át'imcets can embed under a verb of saying, as in the examples in (3.52):

(3.52) St'át'imcets

a. *tsut* *kw* *s-Lémya7* *kw* *s-melyíh* ***ku7*** *ta*
say DET NOM-Lémya7 DET NOM-marry REP DET
í7mats-s-a *s-Rose*
grandchild-3.POSS-EXIS NOM-Rose
"Lémya7 said that [she was told that] Rose's grandchild got married." [Lémya7 was told; Lémya7 did not witness it; *ku7* relates to the report given to Lémya7]

b. *tsut* *s-Lémya7* *kw* *s-tup-un'-ás* ***k'a*** *s-Maria* *ta*
say NOM-Lémya7 DET NOM-punch-DIR-3.ERG INFER NOM-Maria DET
sésq'wez'-s-a
younger.sibling-3.POSS-DET
"Lémya7 said that Maria must have hit her younger brother."
Only Lémya7 in this context is making a deduction from evidence.

c. *tsut* *s-Lémya7* *kw* *s-tup-un'-ás-**an'*** *s-Maria* *ta*
say NOM-Lémya7 DET NOM-punch-DIR-3.ERG-PERC.EVID NOM-Maria DET
sésq'wez'-s-a
younger.sibling-3.POSS-DET
"Lémya7 said that Maria must have hit her younger brother."
Only Lémya7 in this context is making a deduction from perceived evidence.

In these examples, the reported, inferential or perceived evidence is oriented towards the subject of the matrix clause, and not the speaker of the sentence. This is the crucial interpretation that indicates semantic embedding, and that evidentials in St'át'imcets are propositional operators and not illocutionary ones. Faller shows that the reportative *-si* can syntactically embed under a verb of saying. However, the relevant interpretation does not obtain: the report remains anchored to the speaker as in (i.) and (ii.), and not the subject of the matrix clause (iii.):

(3.53) *Marya* *ni-wa-rqa-n* *Pilar-(*si)* *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)

3.5.2.2 Scope with Respect to Interrogatives

A general assumption is that pragmatic operators take wide scope over propositional operators. Thus, we expect a difference in behaviour between an illocutionary evidential and a modal evidential. A modal evidential should be within the scope of an interrogative operator, whereas a speech act operator could in principle take scope over the interrogative. This forms the test in (3.54):

(3.54) **The Interrogative Scope Test:**
Epistemic modals cannot take scope over an illocutionary act, such as performing a request/asking a question.

Faller (2002a) shows that the reportative *-si* can be used to ask a question on someone else's behalf. The context in example (3.55) is that the investigator's question to the mother-in-law is not heard, so the consultant repeats the question on the investigator's behalf.

(3.55) *Imayna-ta-s* *ka-sha-nki*
how-ACC-REP be-PROG-2
"How are you?" (Faller 2002: 251)

Matthewson et al. (2007) report the opposite effect in St'át'imcets, where the reportative *ku7* in (3.56) cannot be used to indicate that the speaker is asking the question on someone else's behalf:

(3.56) St'át'imcets (Matthewson et al. 2007: 232)

swat ***ku7*** *k-wa* *táns-ts-an*
who REP DET-IMPF dance-CAUS-1sg.ERG
"Who did they say I was dancing with?"
≠ "(She says) Who was I dancing with?"

However, in St'át'imcets, the insertion of the inferential modal *k'a* into a question has a different effect, creating a non-interrogative utterance, roughly translatable using 'I wonder...', as (3.57) shows:

(3.57) St'át'imcets

a. *lán=ha* *kwanen-s-as*
already=YNQ take.REDUP-CAUS-3.ERG
ni=n-s-mets-cál=a
DET.ABS=1sg.POSS-NOM=write-act=EXIS
"Has she already got my letter?"

b. *lan=as=há=**k'a*** *kwanen-s-as*
already=3.SBJN=YNQ=INFER take.REDUP-CAUS-3.ERG
ni=n-s-mets-cál=a
DET.ABS=1sg.POSS-NOM=write-act=EXIS
"I wonder if she's already got my letter."
"I don't know if she got my letter or not." (Matthewson 2008)

The semantics of evidential questions will be examined in detail in chapter 4.

3.5.2.3 Interaction with Negation

Another test involving scope concerns the interaction of evidentials with negation:

(3.58) **The Interaction with Negation Test:**
Can the evidence type requirement take narrow scope with respect to negation?

As with the Cancellability Test, both analyses predict the same results. In the modal analysis, the evidence type requirement is a presupposition, and will therefore project through negation. In the speech act operator analysis, the evidence type requirement is a sincerity condition, which is not affected by negation either. Moreover, speech act operators should not be able to occur in the scope of negation in the first place. The theories therefore make very similar predictions for this test, and it is not very useful for our purposes.[26]

3.5.3 Interim Summary

In all of the tests, the predictions for a modal analysis of the evidentials in St'át'imcets are borne out, while the predictions of the illocutionary operator analysis hold for the Quechua examples presented above. However, two of the tests, The Cancellability Test and the Interaction with Negation Test, do not distinguish between the two analyses. The results are summarized in Table 3.1 (adapted from Matthewson et al. 2007), and based on this, a theoretical typology can be organized as in Table 3.2 (cf. Waldie et al. 2009):

	St'át'imcets	CQ
Felicitous if p is known to be true or false?	**No**	**Yes**
Pass assent/dissent test?	**Yes**	**No**
Evidence type cancellable?	No	No
Semantically embeddable?	**Yes**	**No**
Able to scope outside interrogatives?	**No**	**Yes**
Evidence requirement affected by negation	No	No

Table 3.1: Test results for St'át'imcets and Quechua

	Yes	**No**
Felicitous if p is known to be true or false?	Illocutionary	Propositional
Pass assent/dissent test?	Propositional	Illocutionary
Evidence type cancellable?	–	–
Semantically embeddable?	Propositional	Illocutionary
Able to scope outside interrogatives?	Illocutionary	Propositional
Evidence requirement affected by negation?	–	–

Table 3.2: A Propositional/Illocutionary typology based on the levels of meaning tests.

The next section applies these tests to the Gitksan data, where I show that not only do languages vary in what level of meaning evidentiality is expressed, but that the same language can possess both illocutionary and propositional (modal) evidentials.

[26]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. Variable modal force is discussed in detail in the following chapter, and also see Matthewson et al. (2007).

3.6 Gitksan Evidentials: Propositional or Illocutionary Operators?

The previous section showed that evidential interpretations can arise on different levels of meaning. This section shows that the evidential system of Gitksan provides evidence that a propositional-illocutionary 'split' in the distribution of evidentials can occur within the same language. Specifically, by applying the tests in the previous section, in this section I claim that both modal *=ima* and reportative *=k̲at* are epistemic modals, and that *n̓akw* is an illocutionary operator, as summarized in Table 3.3.

	Gloss	**Evidence type**	**Level of Meaning**
=k̲at	REPORTATIVE (REP)	Reportative	**Propositional**
=ima	MODAL (MOD)	Inferential	**Propositional**
n̓akw	EVIDENTIAL (EVID)	Inferential – Sensory	**Illocutionary**

Table 3.3: The Propositional vs. Illocutionary status of the evidential System in Gitksan

The outcome of these tests as applied to the Gitksan data will help us determine the appropriate modal and non-modal analysis of the individual evidentials. This is undertaken in chapters 4 and 5.

3.6.1 Tests Regarding Truth

Recall that the use of a propositional evidential when the embedded proposition is known to be true or false results in infelicity. A speaker avoids the use of an evidential if they have direct evidence or knowledge, as the use of an evidential implicates the lack of knowledge.

3.6.1.1 Known Truth/Falsity

The claim that *=ima* is a modal predicts that a sentence containing *=ima* will be infelicitous if the proposition embedded under it is known to be true or false. The examples in (3.59) and (3.60) show that *=ima* cannot be used if the embedded proposition is known to be false (or extremely unlikely to be true), either based on some kind of prior relevant knowledge or experience:

(3.59) Context: You wake up and see the sun shining on the bedroom wall.

#yugwimahl	*dim*	*wis*
yukw=*ima*=hl	tim	wis
PROG=MOD=CND	FUT	rain

"It might/must be raining."

(3.60) Context: It's August.

#yugwimahl	*dim*	*maadim*
yukw=*ima*=hl	tim	maatim
PROG=MOD=CND	FUT	snow

"It might/must be snowing."

The same results obtain with the reportative *=k̲at*: the examples in (3.61) – (3.63) show the infelicity of *=k̲at* when the speaker knows that the embedded proposition is false:

(3.61) Context: You know John was at work yesterday.

#sihon̲gatit	*John*	*k'yoots*
si-hon=*k̲at*=t	John	k'yoots
CAUS-fish=REP=PND	John	yesterday

"[I heard] John canned fish yesterday."

Comments (paraphrased): 'Why say you heard it from someone else when you know it's not true yourself?'

(3.62) Context: You know that John always insists in sitting at a different position in the feast hall, contrary to the customary seating arrangement by *wilp* (house).

#aluu̲gat	*t'aahl*	*ayuuk̲*	*'as*	*n̓it*
'aluu=*k̲at*	t'aa=hl	'ayuuk̲	'a=s	n̓it
visible=REP	sit=CND	traditional.law	OBL-PND	3sg

"[I heard] He understands the (traditional) law."

(3.63) Context: You hear from your best friend (a reliable source) that John won at bingo last night. You were at bingo last night, and you remember seeing his brother Bill win the jackpot instead.

#la̲x̲n̓iy̓hl	*x̲stat*	*John*	*go'ohl*	*bingo*	*ga̲x̲xw*	*ii*	*'ap*
la̲x̲n̓i-y̓=hl	x̲sta=t	John	k̲o'=hl	bingo	ka̲x̲xw	ii	'ap
hear-1sg=CND	win=PND	John	LOC=CND	bingo	last.night	CONJ	ASSERT

wilaay̓	*wil*	*needii*	*x̲stat*
wilaa-y̓	wil	nee=tii	x̲sta-t
know-1sg	COMP	NEG=CONTR	win-3sg

"I heard that John won at bingo last night, but I know he didn't win (because I was there too)."

The same infelicity results when the speaker knows that the embedded proposition is true. Neither =*ima* nor =*k̲at* can be used in this case. However, it should be pointed out that there are two different issues to consider here: (i) directly observing the event itself, which gives rise to infelicity, and (ii) knowing in some other way that the prejacent is true/false through logical inference (von Fintel and Gillies 2007; von Fintel and Iatridou 2009), which does not give rise to infelicity. I will discuss each of these in turn, and how =*ima* and =*k̲at* behave in contexts that reflect these two issues.

Directness. The first issue involves a speaker directly witnessing the event expressed by the prejacent, thereby believing it is true. In example (3.64) with =*ima*, and (3.65) with =*k̲at*, cannot be used:

(3.64) a. Context: Your friend is showing you how to cook something, and while watching them you see them accidentally cut themself.

#g̲ojinimahl	*'onin*
k̲ots-i-n=*ima*=hl	'on-n
cut-TR-2=MOD=CND	hand-2sg

"You might've/must've cut your hand."

b. Context: You're looking out the window during a storm.

#yugwimahl	*wis,*	*ii*	*gya'ay̓*
#yukw=*ima*=hl	wis,	ii	gya'-y̓
PROG=MOD=CND	rain	CONJ	see-1sg

"It might be raining, and I see it (outside)."

(3.65)

#ye'egathl	*wan*	*asun,*	*ii*	*gya'ay̓*	*loot*	*ahl*
ye'e=*k̲at*=hl	wan	a-sun,	ii	kya'-y̓	loo-t	a=hl
walk=REP=CND	deer	LOC-here	CONJ	see-1sg	OBL.PRO-3sg	LOC=CND

sbag̲ayt̲gan
spag̲ayt̲g̲an
forest

"I heard a deer walked around here, and I see it in the forest."
Comment: "There's no point saying someone else sees it if you do yourself."

Logical Inference. von Fintel and Gillies (2007) discuss a class of cases where the prejacent is known to be true based on logical inference, but the use of the modal *must* is still felicitous, as in (3.66):

(3.66) The ball is in A or in B or in C.
It is not in A. It is not in B.
So, it *must* be in C.

They adduce cases such as these to support the claim that epistemic modals incorporate an evidential meaning component (von Fintel and Gillies 2007, p. 39). The reason 'must' is bad in the normal cases where we know p is true is because in these cases we have too direct evidence. In the logical inference case, we have indirect evidence, so the use of 'must' is felicitous.

However, neither =*ima* nor *n̓akw* are felicitous in cases involving logical inference such as (3.66): a speaker will always make the strongest, unmodalized claim, if they know the truth of the prejacent. With *n̓akw*, this restriction follows from the fact that the context lacks sensory evidence. However, it is less clear why =*ima* is infelicitous. I do not have a concrete explanation for this, except to suggest that in non-sensory evidence contexts, such as those involving logical inference, =*ima* can also express a weak, *might*-like reading. This is less infelicitous in English, as the variation on (3.66) shows in (3.67):

(3.67) The ball is in A or in B or in C.
It is not in A. It is not in B.
? So, it *might* be in C.

This strengthens the claim that =*ima* is an epistemic modal, but weakens somewhat the effectiveness of the Known Truth/Falsity Test, making it a one-way test: if an evidential can be used when the truth or falsity of the prejacent is known, then it may be either an illocutionary or modal evidential. If an evidential can't be used, this is evidence that it is a modal.

Turning now to the behaviour of *n̓akw* with respect to the Known Truth/Falsity test, in its normal use, *n̓akw* behaves the same as =*ima* and =*k̲at*: it is infelicitous if the speaker knows the embedded proposition is true, as in (3.68)(a.) or (b.):

(3.68) a. Context: You're looking out the window during a storm.

#n̓akwhl	*yukw*	*dim*	*wis*
n̓akw=hl	yukw	tim	wis
EVID=CND	PROG	FUT	rain

"It must be raining."

b. Context: Upon pulling clothes off the line that have been in the sun all day.

#ṅakwhl	*gwalkw*
ṅakw=hl	kwalkw
EVID=CND	dry

"It must be dry."

Comment: 'If you're touching it and it's dry, you would just say 'it's dry'.'

However, *ṅakw* is also quite different than =*ima* or =*kat*. First, when a speaker uses *ṅakw* knowing the embedded proposition is false, a non-literal/metaphorical use is triggered, rendering an expression similar to a *must*-type rhetorical question/statement in English, as in (3.69)a. Conversely, when a speaker uses *ṅakw* knowing a proposition is true a mirative meaning is expressed, as in (3.69)b. Mirativity is the marking of a proposition that represents information which is new and possibly surprising to the speaker (DeLancey 1997, 2001):

(3.69) a.

ṅakwhl	*sinst*
ṅakw=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.
Context B – The proposition is known to be false (metaphorical): 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.

ṅakwhl	*bagwdiit*
ṅakw=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 (3.70) is also felicitous in the context in (3.69), but it cannot have this pragmatic effect: =*ima* must express that the batter is literally blind, or inferential evidence of the arrival of people:

(3.70) a.

sinsima	*ṅit*
sins=*ima*	ṅit
blind=MOD	3

"He might/must be blind." (literal comment)

b.

bagwima	*ṅidiit*
bakw=*ima*	ṅi-tiit
arrive.pl=MOD	DET-3pl

"They might be here." (no surprise)

In both its metaphorical and mirative uses, *ṅakw* maintains its evidential function: the speaker is making a type of assertion based on what they perceive as sensory evidence – in

(3.69)a. the fact that the batter keeps missing the ball, and in (3.69)b. the fact that they can see people coming through their front door.

It should be pointed out that the infelicity that arises when the prejacent is known to be false does not in and of itself show that =*ima* and =*k̲at* are modals, just as *n̓akw* is also infelicitous in these contexts; we could expect the same infelicity if they were illocutionary operators, perhaps stemming from a conflict in the relevant kind of evidence. However, we do see different behaviour emerge between =*ima* and *n̓akw* when comparing the examples in (3.69) with those in (3.70): *n̓akw* is felicitous when the prejacent is known to be true or false, although it must express an extra meaning, but neither =*ima* nor =*k̲at* can do this. This effect, and its bearing on the Truth/Falsity test, is examined in chapter 5.

3.6.1.2 Assent/Dissent

The application of the Assent/Dissent Test shows the propositional status of both =*ima* and =*k̲at*. For example, 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 (3.71):

(3.71)

ji	*da*	*yukwhl*	*wis*	*g̲o'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*	*g̲o'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."
(cf. Faller 2002: 130-133)

Recall the requirement that the challenge take the form of "That is (not) true" in order to ensure that the test distinguishes presuppositional or illocutionary material from material which contributes to the truth conditions of the utterance. In Gitksan a listener may agree with the modal claim as in (3.72)a., or disagree as in b. using =*ima*, or actively 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":

(3.72) a. *n̓idima*
n̓it=*ima*
3sg=MOD
"Maybe."

Comment: True, it's possibly raining because those are the usual weather patterns.

b. *neeyima*
nee=*ima*
NEG=MOD
"Maybe not."

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'nig̲oody̓*	*ji*	*hugwax̲n*
nee=tii=hl	ha'nig̲ood-y̓	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."
≠ "It's not raining in Kitwanga."

(3.72)c. is an explicit dissent: you can't assume that just because it's raining in Kispiox, that it *must* be raining in Kitwanga, regardless of your evidence.

Further evidence that *=ima* passes the Assent/Dissent test comes from a test applied to epistemic modals in English and the modal evidentials in St'át'imcets (Matthewson et al. 2004). von Fintel and Gillies (2007) suggest that sentences containing epistemic modals, such as (3.73), perform two speech acts simultaneously:

(3.73) There might've been a mistake in the calculation.

The first speech act involves the assertion that it is compatible with the evidence that there has been a mistake, and the second involves suggesting (with a lack of conviction) that there has been a mistake, or advice not to overlook the possibility that there has been a mistake. This allows hearers to respond to an epistemic modal claim by targeting either the epistemic claim or the embedded proposition. They show this using the following scenario in (3.74) (von Fintel and Gillies 2007; von Fintel and Iatridou 2009, adapted from an example in von Fintel 2005. See also Matthewson et al. 2004, p. 223–225 for an application of this test in St'át'imcets):

(3.74) Context: Pascal and Mordecai are playing Mastermind. After some rounds where Mordecai gives Pascal some hints about the solution, Pascal says: 'There might be some reds.' Mordecai, knowing the solution, has a range of possible responses:

(i.) That's right. There might be.

(ii.) That's right. There are.

(iii.) That's wrong. There can't be.

(iv.) That's wrong. There aren't.

In the response using the modal in (3.74)(i.) Mordecai assents to the modal claim that Pascal's evidence allows that there are reds. In the response in (iii.), Mordecai denies the modal claim that Pascal's evidence allows that there are reds. In other words, these two modal responses agree with or deny the modal claim, not the prejacent. Matthewson et al. (2004) applied the same test in St'át'imcets which confirms a modal analysis of the evidentials in that language. We find the same results with *=ima* when the Mastermind scenario in (3.74) is reproduced in Gitksan in (3.75):[27]

(3.75) *neeyimahl* *ihleetxwda*
nee=*ima*=hl ihleetxwt=a
NEG=MOD=CND be.red=INTERROG
"Is it maybe red?" (lit. "Is it not possibly red?")

(i.) *ee'e, ńidima*
ee'e, ńit=*ima*
yes, 3sg=MOD
"Yes, maybe."

(ii.) *ee'e, ihleetxwt*
ee'e, ihleetxwt
yes, be.red
"Yes, it is red."

[27]The context in (3.75) is adjusted slightly from (3.74): the first speaker in (3.75) is simply guessing the colour of a particular peg.

(iii.) *neediihl* *hugwax̲it,* *neeyimahl* *ihleetxwt*
nee=tii=hl hugwax̲-t, nee=*ima*=hl ihleetxwt
NEG=CONTR=CND correct=3sg, NEG=MOD=CND be.red
"It's not correct. It is not possibly red."

(iv.) *neediihl* *hugwax̲it,* *neediihl* *ihleetxwt*
nee=tii=hl hugwax̲-t, nee=tii=hl ihleetxwt
NEG=CONTR=CND correct=3sg, NEG=CONTRAST=CND be.red
"It's not correct. It is not red."

There are two considerations when examining the application of the assent/dissent test to *n̓akw*: first, statements involving any kind of negation and *n̓akw* are judged by speakers to sound odd and unnatural. Secondly, in example (3.76), a speaker is making a *n̓akw* statement based on the visual and auditory evidence of someone sneezing. While not technically ungrammatical, the response in (3.76)a. with *n̓akw* cannot be used to assent to the claim in (3.76). A stronger effect is observed in another response in (3.76)b. using negation. The negative response used in (3.76)c. cannot be used to dissent from the meaning of *n̓akw*:

(3.76) *n̓akw=hl* *siipxw-t*
EVID=CND sick-3sg
"He must be sick."

a. # *ee'e,* *n̓akw=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* *n̓akw=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-y̓* *tsi* *hugwax̲-n*
NEG=CONTR=CND think-1sg IRR correct-2sg
≠ "I don't think you're right." (cf. (3.72)c.)

It will be shown in the next subsection that *n̓akw* cannot be syntactically embedded, which accounts for the ungrammaticality of (3.76)b., where *n̓akw* is embedded under the negation predicate. However, in (3.76)a. I assume that *n̓akw* is not syntactically embedded as *ee'e* is a general expression of agreement or positive response in conversation, and not a part of the syntax of the clause it precedes. Nonetheless, cannot be used to assent to (3.76).

Recall from §3.5.1.2 that in order to apply the Assent/Dissent test we need to ensure that the dissent take the form of an explicit denial of the truth of the relevant aspect of meaning. Thus, the challenge must take the form of "That is (not) true" to ensure that the test distinguishes presuppositional material from material which contributes to the truth conditions of the utterance (cf. (3.41)). We see this in (3.76)c., which is the relevant form in Gitksan for denying the truth of a statement, and how it cannot be used to deny (3.76) (cf (3.72)c.).

3.6.1.3 Cancellability of Evidence Type Requirement

§3.5.1.3 discussed the inapplicability of the Cancellability test as a way of distinguishing a modal from an illocutionary. However, it is still important to test whether the predictions common to both theories are upheld. Under a modal analysis of evidentials, the evidential meaning is encoded as a presupposition and not implicature. Thus, we expect that the evidential meaning it encodes cannot be cancelled or negated. The Gitksan data confirms this in examples 3.64 and 3.65, repeated here:

(3.77)

#yugwimahl	*wis,*	*ii*	*gya'ay̓*
#yukw=*ima*=hl	wis,	ii	gya'-y̓
PROG=MOD=CND	rain	CONJ	see-1sg

"It might be raining, and I see it (outside)."

(3.78)

#ye'egathl	*wan*	*asun,*	*ii*	*gya'ay̓*	*loot*	*ahl*
ye'e=*k̲at*=hl	wan	a-sun,	ii	kya'-y̓	loo-t	a=hl
walk=REP=CND	deer	LOC-here	CONJ	see-1sg	OBL.PRO-3sg	LOC=CND

spag̲ayt̲g̲an
spag̲ayt̲g̲an
forest

"I heard a deer walked around here, and I see it in the forest."

The inapplicability of the cancellability test is for theoretical reasons, and not a matter for empirical confirmation. The predictions of both a modal and illocutionary analysis cannot distinguish them in principle.

3.6.2 Scope and Embeddability

Because speech act operators do not contribute to the propositional content they should, in principle, not be embeddable under expressions that take propositions as their arguments, such as propositional attitude verbs and conditional operators like 'if'. Modals on the other hand are propositional and therefore should be embeddable.

3.6.2.1 Embeddability

In investigating the embeddability of evidentials, it is necessary to determine whether they can occur syntactically and/or semantically embedded in complement, adverbial and/or relative clauses. The difference we are looking for in determining semantic scope is the orientation of the modal/evidential claim to either to the subject of the matrix clause, or to the speaker of the sentence. Both modal =*ima* and reportative =*k̲at* can be both syntactically and semantically embedded. In (3.79)a., =*k̲at* attaches to the matrix clause, and the speaker is reporting that she heard about Mark telling his sister that he would leave for the coast. The reported evidence is oriented towards the speaker: they are presupposing that the report was reliable and at least possibly true. However, in (3.79)b. =*k̲at* is attached to the verb in the complement clause. The reportative evidence is now re-oriented to the matrix subject, Mark, and not crucially not to the speaker: it is Mark who has reported evidence that John will leave for the coast. The speaker is asserting this because they witnessed this event first-hand:

(3.79) a. REPORT: The speaker is reporting that Mark told his sister that John would leave for the coast.

Context: You 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.

mahldig̲as		*Mark*	*'ahl*	*gimxdit*	*dim*	*wil*	*saa*
mahl-T̲-i-(t)=*k̲at*=s		Mark	'a=hl	kimxt-t	tim	wil	saa
tell-t-TR-3=REP=PND		Mark	OBL=CND	sister-3	FUT	COMP	away
daaw̓hlt	*John*	*g̲o'ohl*	*lax̲mo'on*				
taaw̓hl=t	John	k̲o'=hl	lax̲-mo'n				
leave=PND	John	LOC=CND	GEO.LOC-coast				

"Mark told/said to his sister that John would leave for the coast."

b. REPORT: Mark told his sister that he heard that John would leave for the coast.

Context: You 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	gimxt-t	tim	wil	saa
tell-t-TR-3-PND	Mark	OBL=CND	sister-3	FUT	COMP	away

daa'whlt̲katit	*John*	*g̲o'ohl*	*la̲x̲mo'on*
taa'whl=t=*k̲at*=t	John	k̲o'=hl	la̲x̲-mu'n
leave=3=REP=PND	John	LOC=CND	GEO.LOC-coast

"Mark told/said to his sister that he would leave for the coast."

The same results obtain with *=ima* when it is attached to the matrix verb, *mahl*: the inferential evidence is now oriented towards the speaker, and not Granny. In (3.80) you were learning how to can berries with Granny, and in this context you can infer from the fact you had this learning experience, that it's possible Granny told you that a certain berry will taste better once it's left until autumn:

(3.80) 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'*	*looy̓*	*dim*	*ixst̓a*	*ji*	*hla*
mahl-i-(t)=*ima*=s	nits'iits'	loo-y̓	tim	ixst̓a	tsi	hla
say-TR-3sg=MOD=PND	grandmother	OBL.PRO-1sg	FUT	taste	IRR	INCEPT

xwsit
xwsit
autumn

"Granny might've told 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 *=k̲at*: the evidence is related to the matrix subject, and not to the speaker. In example (3.81), a speaker is asserting that Granny has inferential evidence, based on her experience in canning berries, that the berries might taste good in the autumn:

(3.81) 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'*	*looy̓*	*dim*	*ixst̓ayima*	*ji*	*hla*
mahl-i-(t)=s	nits'iits'	loo-y̓	tim	ixst̓a=*ima*	tsi	hla
say-TR-3sg=PND	grandmother	OBL.PRO-1sg	FUT	taste=MOD	IRR	INCEPT

xwsit
xwsit
autumn

"Granny told me it might taste better in the autumn."

Similar minimal pairs of this alternation are given in examples (3.82) and (3.83): in (3.82)a., the speaker is talking about who scored the winning goal, even though she wasn't there herself. She is inferring from the fact that Louise was the only one at the soccer game that she might or must be the source of this information. In (3.82)b., the speaker is simply asserting that Louise has inferential evidence that John assisted Tony in scoring the winning goal by kicking the ball to him. Louise's claim is based on the evidence that John is the striker on the team, and this is typically the job of the striker in soccer:

(3.82) a. Context: You're talking with your friends about the soccer game that morning. You weren't there yourself, but you know that Tony scored the winning goal assisted by John's kick. But you can't remember how you know this. You likely heard it from Louise earlier, who was there because her cousin was playing.

mahliyimas	*Louise*	*looy̓*	*wilt*	*hlo'oxsis*
mahl-i-(t)=*ima*=s	Louise	loo-y̓	wil=t	hlo'oxs-(t)=s
say-TR-3sg=MOD=PND	Louise	OBL.PRO-1sg	COMP=3sg	kick-3sg=CND

John-hl	*hlit*	*'as*	*Tony*
John=hl	hlit	'a=s	Tony
John=CND	ball	OBL=PND	Tony

"Louise might've/must've told me John kicked the ball to Tony."

b. 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*	*looy̓*	*wilt*	*hlo'oxsiyimas*
mahl-i-(t)=s	Louise	loo-y̓	wil=t	hlo'oxs-i-(t)=*ima*=s
say-TR-3sg=PND	Louise	OBL.PRO-1sg	COMP=3sg	kick-TR-3sg=MOD=CND

John-hl	*hlit*	*'as*	*Tony*
John=hl	hlit	'a=s	Tony
John=CND	ball	OBL=PND	Tony

"Louise told me John might've/must've kicked the ball to Tony."

The embedded evidentials in the examples above involve inference from experience and general knowledge: Granny's experience in canning berries, and general knowledge about the role of a striker in a soccer game (the assist in goal scoring). In the next minimal pair in (3.83), the embedded evidential involves inference from observation: in b., Barbara infers from the fact that there are big footprints around the car that Tyler (who has big feet) pushed the car there after it broke down:

(3.83) a. Context: You're talking about a mutual friend's car that you know broke down. It was sitting at Barbara's place, so she might've been the one who told you how it got there.

mahliyimas	*Barbara*	*looy̓*	*wilt*
mahl-i-(t)=*ima*=s	Barbara	loo-y̓	wil=t
say-TR-3sg=MOD=PND	Barbara	OBL.PRO-1sg	COMP=3sg

t̓isimas	*Tylerhl*	*kartxw*
t̓is-(t)=*ima*=s	Tyler=hl	kartxw
push-3=MOD=CND	Tyler=CND	car

"Barbara might've told me Tyler pushed the car."

b. Context: You're telling a mechanic friend that Barbara's car is sitting in the yard. Barbara thinks Tyler pushed it because of the big footprints in the mud around the car.

mahlis	*Barbara*	*looy̓*	*wilt*	*t̓isimas*
mahl-i-(t)=s	Barbara	loo-y̓	wil=t	t̓is-(t)=*ima*=s
say-TR-3sg=PND	Barbara	OBL.PRO-1sg	COMP=3sg	push-3=MOD=CND

Tylerhl	*kartxw*
Tyler=hl	kartxw
Tyler=CND	car

"Barbara told me Tyler might've pushed the car."

Finally, in (3.84)a., Gwen is expressing the epistemic claim that the dog might bite her. In (3.84)b, the matrix verb is the predicate *xpts'axw* 'to be afraid', which takes the same complement clause marked by *=ima*. As with the verb of saying, it is Gwen herself who is expressing the possibility that the dog might bite her:

(3.84) Context: Gwen keeps complaining about the dogs in front of Fern's house. She has mentioned her fear of being bitten before, and even though the dogs haven't bitten her, it's possible they might given their aggressive nature.

a. *mahlis* *Gwen* *wilt* *hats'imahl* *'os*
mahl-i-(t)=s Gwen wil=t hats'-i-(t)=*ima*=hl 'os
say=PND Gwen COMP=3sg bite-tr-3sg=MOD=CND dog
"Gwen said the dog might bite her."

b. *simxpts'axwt* *Gwen* *hoti* *hats'imahl* *'os*
sim-xpts'axw=t Gwen hoti hats'-i-(t)=*ima*=hl 'os
true-be.afraid=PND Gwen COMP bite-tr-3sg=MOD=CND dog
"Gwen's really afraid the dog might bite her."

The embedding facts of *n̓akw* are markedly different from the enclitics *=kat* and *=ima*. This is mostly rooted in the status of *n̓akw* as an intransitive verb, which takes as its argument a nominalized verb. This places *n̓akw* in the same syntactic class of nominalizing intransitive verbs as the progressive *yukw*, and the imperfective *hliskw* (see also Tarpent 1987, p. 350, who describes *n̓akw* as an auxiliary verb, along with *yukw* and *hliskw*). These constructions are compared in (3.85):

(3.85) a. *yukwhl* *gahahlal'stdiithl* *haanak*
yukw=hl kahahlal'st-tiit=hl haanak
PROG=CND REDUP.pl-work-3pl=CND women.pl
"The women are working."

b. *hliskwhl* *gahahlal'stdiithl* *haanak*
hliskw=hl kahahlal'st-tiit=hl haanak
IMPERF=CND REDUP.pl-work-3pl=CND women.pl
"The women finished working."

c. *n̓akwhl* *gahahlal'stdiithl* *haanak*
n̓akw=hl kahahlal'st-tiit=hl haanak
EVID=CND REDUP.pl-work-3pl=CND women.pl
"The women must be working."

In probing further the syntactic features of *n̓akw*, consider a typical intransitive verb construction example (3.86). These are the simplest constructions in Gitksan, and minimally consist of a verbal predicate and its DP argument.[28] The DP is marked with either a common noun determiner *=hl* (CND), or a proper noun determiner *=t/=s* (PND), which encliticize to the verb:

(3.86) a. $[\text{V}]_{pred}[=\text{DET NP}]_{arg}$

[28]This is a preliminary syntactic analysis; more investigation is required.

b. *gahahlal'sthl* *haanak̲*
[k̲ahahlal'st]$_{pred}$[=hl haanak̲]$_{arg}$
REDUP.pl.work=CND women.pl
"The women work."

When intransitive predicates such as *yukw* and *hliskw* in (3.85) are applied to an intransitive (or transitive) sentence such as (3.86), they nominalize the intransitive predicate, appearing before it and marking it with the common noun determiner *=hl*. This is sketched out in (3.87):

(3.87) a. *yukwhl* *gahahlal'stdiithl* *haanak̲*
[yukw]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
PROG=CND REDUP.pl-work-3pl=CND women.pl
"The women are working."

b. *hliskwhl* *gahahlal'stdiithl* *haanak̲*
[hliskw]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
IMPERF.=CND REDUP.pl-work-3pl=CND women.pl
"The women finished working."

c. *n̓akwhl* *gahahlal'stdiithl* *haanak̲*
[*n̓akw*]$_{pred}$[=hl k̲ahahlal'st-tiit=hl haanak̲]$_{arg}$
EVID=CND REDUP.pl-work-3pl=CND women.pl
"The women must be working."

These data show so far that *n̓akw* behaves syntactically like an auxiliary verb in Gitksan. However, there are several unique features that set *n̓akw* apart from the other auxiliary verbs in (3.87). First, unlike the predicates *yukw* and *hliskw*, *n̓akw* cannot appear under negation, which occupies the first position in a clause, as shown in (3.88)c. Example d. shows that placing *n̓akw* before negation also does not rescue its grammaticality.

(3.88) a. *needii* *yukwhl* *gahahlal'stdiithl* *haanak̲*
nee=tii yukw=hl k̲ahahlal'st-tiit=hl haanak̲
NEG=CONTR PROG=CND REDUP.pl-work-3pl=CND woman.pl
"The women are not working."

b. *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."

c. **needii* *n̓akwhl* *gahahlal'stdiithl* *haanak̲*
nee=tii *n̓akw*=hl k̲ahahlal'st-tiit=hl haanak̲]
NEG=CONTR EVID=CND REDUP.pl-work-3pl=CND woman.pl
"The women must not be working."

d. **n̓akwhl* *needii* *gahahlal'stdiithl* *haanak̲*
n̓akw=hl nee=tii k̲ahahlal'st-tiit=hl haanak̲]
EVID=CND NEG=CONTR REDUP.pl-work-3pl=CND woman.pl
"The women must not be working."

Secondly, *n̓akw* cannot appear in a conditional. Example (3.89)a. shows the basic structure of a conditional in Gitksan, and the embeddability of the progressive predicate *yukw*. (3.89)b. shows that the modal *=ima* can also be embedded in the consequent, while (3.89)c. shows that *n̓akw* cannot appear in this same embedded position:

(3.89) a.

ji	*da*	*yukwhl*	*wis*	*g̲o'ohl*	*ansbayaxw*	*ii*	*hodi*
tsi	da	yukw=hl	wis	k̲o'=hl	ansbayaxw	ii	hoti
IRR	COND	PROG=CND	rain	LOC=CND	Kispiox	CONJ	COMP

***yukw**hl*	*wis*	*g̲o'ohl*	*gitwangak̲*
yukw=hl	wis	k̲o'=hl	kitwangak̲
PROG=CND	rain	LOC=CND	Kitwanga

"If it's raining in Kispiox, then it's raining in Kitwanga."

b.

ji	*da*	*yukwhl*	*wis*	*g̲o'ohl*	*ansbayaxw*	*ii*	*hodi*
ji	da	yukw=hl	wis	k̲o'=hl	anspayaxw	ii	hoti
IRR	COND	PROG=CND	rain	LOC=CND	Kispiox	CONJ	COMP

*yugw**ima**hl*	*wis*	*g̲o'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."

c.

**...*	*ii*	*hoti*	***n̓akw***	*yukw=hl*	*wis*	*k̲o'=hl*	*kitwangak̲*
...	CONJ	COMP	EVID	PROG=CND	rain	LOC=CND	Kitwanga

"If it's raining in Kispiox, then it must be raining in Kitwanga."

If *n̓akw* belongs to the same morphosyntactic class of items that can both embed under negation and the conditional, then we would expect *n̓akw* to occur in these positions as well. However, the examples above show that *n̓akw* cannot be syntactically embedded. Given these facts, I claim that the reason why *n̓akw* cannot be syntactically embedded is because is cannot be semantically embedded. This suggests the illocutionary status of *n̓akw*.

Table 3.4 summarizes the embedding results of *=ima*, *=k̲at*, and *n̓akw*.

	Syntactic	**Semantic**
=k̲at	✓	✓
=ima	✓	✓
n̓akw	–	–

Table 3.4: The embeddability of *=ima*, *=k̲at*, and *n̓akw*.

3.6.2.2 Scope with Respect to Interrogatives

Both *=ima* and the reportative *=k̲at* have a productive use in questions. When *=k̲at* 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 (3.90), where a speaker is enquiring about when the bus will arrive in Prince George. By using *=k̲at* 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:

(3.90) 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 bagwim̓*
kaxgwi tim pakw-m̓
when FUT arrive.pl-1pl
"When is it we'll get there?"

b. *gaxgwigat dim bagwim̓*
kaxgwi=kat tim pakw-m̓
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 targeting of the addressee's knowledge is implied in the alternate translations offered by consultants and given in (3.90) "When is it did you hear...". In both (3.90) and (3.91), the speaker has a reasonable expectation that the addressee would have some kind of reported evidence to support an answer to their question: in (3.90) it would be because the addressee booked the bus tickets; in (3.91) it would be because her sister just got off the phone with a reliable source for an answer to her question:

(3.91) Context: You're asking your sister about what your niece bought at the store yesterday. Your sister just got off the phone with your mother, who was with your niece.

a. *gwigathl giigwit k'yoots*
kwi=kat=hl kiikw-t k'yoots
what=REP=CND buy-3sg yesterday
"What is it (did they say) she bought yesterday?"
"What is it did you hear she bought yesterday."

b. *giigwigathl andadaala k'yoots*
kiikw-i-(t)=kat=hl anta-daala k'yoots
buy-TR-3=REP=CND container-money yesterday
"(I heard) she bought a wallet/purse yesterday."

The insertion of the modal =*ima* into a question has a different effect from that of =*kat*: it creates a non-interrogative utterance, roughly translatable using 'I wonder...', as in (3.92) – (3.94):

(3.92) 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*	*jaby̓*	*jox̲k̓uuhl*
kwi=*ima*=hl	tim	tsap-y̓	tsox̲k̓uuhl
what=MOD=CND	FUT	do/make-1sg	next.year

"I'm wondering what to do next year."

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

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

b. *naayima* *tun*
naa=*ima* t=xwin
who=MOD PND=this.one
"I wonder who this s/he/this person is."
"Who might this s/he/this person be?"

(3.94) a. *naayima* *'ant* *sdils* *John*
naa=*ima* 'an=t stil-(t)=s John
who=MOD textscs.rel=3 accompany-3=PND John
"I wonder who went with John."
"Who might've gone with John?"

b. *Clarayima* *'ant* *sdils* *John*
Clara=*ima* 'an=t stil-(t)=s John
Clara=MOD S.REL=3 accompany-3=PND John
"It's Clara who might've gone with John."
"Maybe it was Clara who went with John."
"It must've been Clara who went with John."

The use of modal *=ima* in questions and the effect it has in reducing the interrogative force of a question is examined in detail in the next chapter.

As we've seen with the other tests, *n̓akw* diverges significantly from *=ima* and *=k̲at*: *n̓akw* cannot participate in any kind of interrogative statement. Example (3.95) is a yes/no question, formed by adding the interrogative enclitic *=a* to the sentence. Despite occupying its required clause-initial position (cf. (3.87)) *n̓akw* is ungrammatical:

(3.95) **n̓akwhl* *x̲m̓iyeenis* *Jasona*
n̓akw=hl x̲-m̓iyeen-(t)=s Jason=a
EVID=CND consume-smoke-3sg=PND Jason=INTERROG
≠ "Must Jason be smoking?"

Comparing (3.96)a. with b. shows how the progressive *yukw* can occur within a question, although *n̓akw*, being of the same syntactic category as *yukw*, cannot. Example (3.96)c. shows how moving *n̓akw* to the first position of a wh-question is also ungrammatical:

(3.96) 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=ńakw 'an-t sdil=s Clara*
who=EVID S.REL-3sg go.with=PND Clara
"Who must've gone with Clara?"

c. **ńakw=na 'an-t sdil=s Clara*
EVID=who S.REL-3sg go.with=PND Clara
"Who must've gone with Clara?"

This test suggests that both *=ima* and *=k̲at* are propositional operators. However, the results are less clear with *ńakw*, as it cannot participate in any kind of interrogative construction.

3.6.2.3 Interaction with Negation

As with cancelling the evidence requirement test, negation does not distinguish between a propositional and a modal analysis of evidentials. In a modal analysis, the evidence requirement is a presupposition, and will therefore project through negation. In a speech act operator analysis, the evidence requirement is a sincerity condition, which is not affected by negation either. In (3.97) the reported evidence projects through negation, as it is not a part of the assertion. The same effect can be observed in (3.98) with modal *=ima*:

(3.97) *neegatdiit* *sdilis* *Leiwat* *Fern*
nee=k̲at=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."

(3.98) *neeyimatiihl* *txookxwhl* *smax*
nee=*ima*=tii=hl txookxw=hl smax
NEG=MOD=CONTR=CND eat(pl)=CND bears
"[I have inferential evidence that] The bears might not have eaten."
≠ "[It's not the case that I have inferential evidence that] The bears might have eaten."

As shown in (3.76) and in the previous chapter, *ńakw* and negation cannot occur within the same clause, thus the ungrammaticality of (3.99):

(3.99) **nee=tii* *ńakw* *txookxw=hl* *smax*
NEG=CONTR EVID eat(pl)=CND bears
≠ "[I have sensory evidence that] The bears might not have eaten."
≠ "[It's not the case that I have sensory evidence that] The bears might have eaten."

This is consistent with the with the fact that speech act operators in general cannot occur in the scope of negation.

3.7 Summary

In sum, what these six tests show is that *=ima* and *=k̲at* operate on the propositional level: they cannot be used when the proposition is known to be true or false, but a speaker may dissent from a statement made with either *=ima* or *=k̲at*. Moreover, both *=ima* and *=k̲at* can be semantically embedded. Evidential *ńakw* patterns differently: *ńakw* can be used when the speaker knows the prejacent is true or false. This has a pragmatic effect, expressing

a mirative meaning when the proposition is true, and a metaphorical meaning when the proposition is false. It has also been shown that *n̓akw* cannot be assented to, dissented from, or embedded in any way. These results indicate a split: while *=ima* and *=k̲at* are propositional, similar to the evidential modals in St'át'imcets in the previous section, *n̓akw* operates on an illocutionary level, much like the Quechua evidentials. It was also shown that tests based on cancellation of the evidence-type and interaction with negation do not distinguish between *=ima*, *=k̲at*, and *n̓akw*.

These results are summarized in Table 3.5 below.

	=ima, *=k̲at*	*n̓akw*
Felicitous if p is known to be true or false?	No	Yes
Pass assent/dissent test?	Yes	No
Semantically embeddable?	Yes	No
Able to scope outside interrogatives?	No	–

Table 3.5: Test results for *=ima*, *=k̲at*, and *n̓akw*

Chapter 4

The Semantics of the Modal Evidentials =*ima* and =*k̲at*

The tests in the previous chapter show that both =*ima* and =*k̲at* operate at the level of the proposition. In contrast, these tests show the opposite results for the evidential *n̓akw*: it cannot be a propositional operator. This chapter takes the first part of these results and presents a modal analysis of =*ima* and =*k̲at*, while *n̓akw* is analyzed in the following chapter.

4.1 The Issues

There are three main issues in adequately explaining the meaning of =*ima* and =*k̲at*. The first involves being able to account for both the evidence source restrictions and semantic properties of =*ima* and =*k̲at*. The previous chapter reviewed a semantic approach to evidentials that analyzes them as specialized types of epistemic modals: the evidence source restrictions are encoded by presuppositions, which restrict the modal base to those accessible worlds where evidence of that type holds. This chapter shows that both =*ima* and =*k̲at* are amenable to this kind of analysis. However, this leads directly to the second issue: a Gitksan speaker faced with the task of translating a sentence of the form =*ima*(p) into English, will use a variety of sentences that express varying degrees of modal strength from *might* to *must*, and other forms expressing modal force. This can be observed in (4.1):

(4.1) *yugwimahl* *dim* *iixwt*
yukw=*ima*=hl tim iixw-t
PROG=MOD=CND FUT fish-3
"He might be going fishing."
"He must be going fishing."
"He's probably going fishing."
"He's likely going fishing."
"He could be going fishing."
"Maybe/perhaps he's going fishing."
"It seems he's fishing."

There is similar variability in translations of the reportative =*k̲at*. Sentences of the form =*k̲at*(p) are typically translated into English as "I hear/heard that p". This translation is often given to =*k̲at*(p) sentences when the speaker considers the source of the report to be reliable. However, there is another translation given to =*k̲at*(p) sentences when a speaker is neutral or perhaps considers the report to be less reliable, as shown in (4.2):

(4.2) *x̲stag̲as* *John* *g̲o'ohl* *bingo* *gax̲xw*
x̲sta=*k̲at* John k̲o'=hl bingo kax̲xw
win=REP John LOC=CND bingo last.night
RELIABLE REPORT: "I heard that John won at bingo last night."
NEUTRAL RELIABILITY: "Apparently, John won at bingo last night."

These translations can also be considered to represent a kind of variable modal force, where "I heard that p" is akin to *must*, and "Apparently p" is somewhat weaker, resembling *might*. If *=k̲at* is also analyzed as an epistemic modal, we face the same problem as with *=ima* in formally representing this variability.

Example (4.3) shows that within a possible worlds semantics, modal force is encoded by quantification over a modal base. In languages such as English, quantificational force is lexically encoded by modal verbs, such as *might* and *must* (Kratzer 1991), and the conversational background (e.g. epistemic, circumstantial, deontic etc. cf. (3.7)) is provided by the context:

(4.3) "John might/must be at home."

a. $[\![might(B)(w)(\text{John be at home})]\!]^c = 1$ iff $\exists w' \in B(w) : [\![\text{John be at home}]\!]^c(w') = 1$

b. $[\![must(B)(w)(\text{John be at home})]\!]^c = 1$ iff $\forall w' \in B(w) : [\![\text{John be at home}]\!]^c(w') = 1$

Thus, the leading questions are: first, if the conversational background of a modal is provided by the context, why are the meanings of *=ima* and *=k̲at* fixed with respect to the type of evidence? Secondly, if modal force is encoded by quantification, how does a variable force modal such as *=ima* fit into the universal-existential dual? How do the variable translations of *=k̲at* fit in?

The third issue involves another effect associated with *=ima*: when *=ima* is inserted into a question it creates a non-interrogative utterance, roughly translatable using "I wonder." An example of the effect *=ima* has in questions is given in (4.4): example a. is an ordinary wh-question in Gitksan, while example b. is a question that contains *=ima*, which is translated as a statement of uncertainty:

(4.4) a.

naa	*'ant*	*gin̓amhl*	*xhlaw'sxw*	*'as*	*Johna*
naa	'an-t	kin̓am-(t)=hl	xhlaw'sxw	'a=s	John
who	S.REL-3sg	give-3sg=CND	shirt	OBL=PND	John

"Who gave this shirt to John?"

b.

naayima	*'an-t*	*gin̓amhl*	*xhlaw'sxw*	*'as*	*John*
naa=*ima*	'an-t	kin̓am-(t)=hl	xhlaw'sxw	'a=s	John
who=**MOD**	S.REL-3sg	give-3sg=CND	shirt	OBL=PND	John

"I wonder who gave this shirt to John."

The variable modal force of *=ima*, and the effect it has in questions, is also found in other unrelated, northwest coast languages such as St'át'imcets (Lillooet Salish) and Nɬeʔkepmxcín (Thompson Salish). Can a modal analysis account for this, or is some other mechanism required to turn a question into a statement of uncertainty? What level of meaning does this effect operate on?

4.2 The Plan

The main claim pursued in this chapter is rooted in the generalizations regarding *=ima* and *=k̲at* discussed in the previous chapter: *=ima* and *=k̲at* semantically belong to the category of epistemic modals. Both *=ima* and *=k̲at* introduce quantification over possible worlds. In §4.3 it is argued that their evidential interpretations are the result of a presupposition that restricts the modal base to epistemically accessible worlds where evidence of some specific type holds. In the case of modal *=ima*, this presupposition places a condition on the modal

base such that it contain worlds in which some general kind of inferential evidence holds. The presupposition attached to =*k̲at* restricts the modal base to worlds in which a report was made.

The modals =*ima* and =*k̲at* differ from English modal auxiliaries in that they do not lexically encode modal force. In §4.4 I approach this question by relating the Gitksan data to two other separate, yet similar phenomena involving the expression of variable modal force in two unrelated languages: Bulgarian, and St'át'imcets. Research on variable modal force in these languages has resulted in two different technical refinements that can be applied to the denotations in (4.3): the ordering source (Kratzer 1991; Izvorski 1997), and the choice function (Rullmann et al. 2008). Both of these approaches attribute variable modal force not to the choice of the quantifier, which is uniformly universal, but to a parameter of interpretation that determines the value of a second function – an ordering source or choice function – operating on the modal base. Both of these contextually determined functions restrict the modal base in different ways, the effect of which determines the interpretation of modal force. Both of these analyses can be applied to the epistemic modal =*ima* in sentences such as (4.1), and the reportative =*k̲at* sentences in (4.2).

However, in §4.4 I depart from all previous analyses of variable modal force evidentials in claiming that the various degrees of modal force correspond to (at least) two different types of ordering sources in Gitksan, and that the choice function analysis can be reduced to an ordering source one. Specifically, the weak/strong interpretations of =*ima* correspond to empty/non-empty ordering sources which order an existentially quantified epistemic modal base. This analysis is then extended to St'át'imcets, where the weak/strong interpretations of modals in that language also correspond to empty/non-empty ordering sources, but over a universally quantified modal base. What this gives us is a unified account and a theoretical typology of languages in which modal forces vary under a fixed quantifier.

§4.5 turns to the the effect =*ima* has when added to a question in what are called Conjectural Questions (CQs). Following Littell et al. (2010), my central claim is that CQs have the semantics of ordinary questions: they denote sets of propositions. The presupposition analysis of =*ima* is then applied to the question: the presuppositions carried by each proposition in the question denotation conjoin, so that the CQ as a whole presupposes everything presupposed by each of its members. The resulting conjoined presupposition entails that there is mixed evidence, and therefore that the speaker does not expect the hearer to be able to provide an answer to the question. The outcome is a reduced interrogative force for CQs: not only is the hearer not required to answer, the speaker is encoding that the hearer is probably not able to answer.

4.3 A Modal Analysis of =*ima* and =*k̲at*

In this section I support the line of argumentation emerging in the literature, specifically Izvorski (1997), Matthewson et al. (2007), Rullmann et al. (2008), and McCready and Ogata (2007), that evidentials in some languages are epistemic modals.

To recap the results of chapter 3, both =*ima* and =*k̲at* pass the tests for being propositional operators: they contribute to the truth-conditional content of an assertion, they can be embedded, and the modal claim they are a part of can be assented to and dissented from. This places them in the same semantic class as the individual evidentials in St'át'imcets, for which Rullmann et al. give a modal analysis, a general denotation for which is given in (4.5):

(4.5) $[\![\text{MODAL}]\!]^{c,w}$ is only defined if c provides a modal base B.
If defined, $[\![\text{MODAL}]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w')]$.

Recall the Rullmann et al. claim that the modal force of the St'át'imcets evidentials is uniformly universal. Whether the modal evidential is understood to quantify over the

entire modal base (strong) or a sub-part (weak) of the modal base depends on the choice of the function f. The individual evidential meanings of the modal evidentials reflect different types of definedness conditions on the modal base. For example, with the reportative *ku7*, the modal base is restricted to worlds where the reported evidence in w holds. Thus, reportative *ku7* has the denotation in (4.6):

(4.6) Semantics of *ku7* (reportative)

$[\![ku7]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the **reported** evidence in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![ku7]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

To see how this works, consider the example in (4.7):

(4.7) *wa7 ku7 ku sts'éts'qwaz' l-ta stswáw'cw-a*
be REP DET trout in-DET creek-DET
"[I heard] There are trout in the creek."

In (4.7), the speaker's evidence for p is the fact that a report was made. Therefore, the accessible worlds in the reportative case are all those worlds in which (for example) the speaker overheard John, an experienced fisherman in the village, talking in the coffee shop. The sentence in (4.7) then asserts that in all worlds of this type in which a report from John about fishing is reliable, there are trout in the creek. Since the actual world is presupposed to be a world in which John said there are trout in the creek, the sentence makes a strong claim about the actual world: unless John is not reliable, there are trout in the creek in the actual world.[29]

The analyses of *-an'* and *k'a* are exactly parallel; the only difference is located in the definedness condition, which for *-an'* requires that the modal base contain all those worlds in which the perceived evidence in w holds, and *k'a* requires that it contain all worlds in which the inferential evidence in w holds.

A modal analysis, coupled with the presupposition which encodes the individual evidential meanings, makes the right predictions regarding the semantic properties of =*ima* and =*k̲at*. Modal =*ima* is similar to the inferential *k'a* in St'át'imcets: =*ima* requires that the modal base contain only those worlds in which the inferential evidence in w holds. Evidence for this comes from the fact that =*ima* is infelicitous when used in other kinds of conversational backgrounds. For example, the verb *da'ak̲hlxw* is a circumstantial modal, and is typically translated as *might*, *can*, or *able to* in English (Davis et al. 2009). =*ima* is infelicitous in a circumstantial context such as (4.8) (adapted from Kratzer 1991):

(4.8) 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. *#limx̲simahl maay̓ go'osun*
limx̲s=*ima*=hl maay̓ go'osun
grow=MOD=CND berries LOC.here
"Berries might be growing here."

[29] Matthewson et al. (2007: 212) note that a presuppositional analysis of reportatives does not mean the same thing as "John said that p." Under the modal analysis of reportatives, the sentence presupposes the existence of a report which constitutes evidence for p, and asserts that p must be true, given that report. In a sentence containing a verb of saying, the sentence asserts that a report was made, and does not commit the speaker to any claim about the truth or otherwise of p.

b. *da'ak̲hlxwhl* *dim* *limx̲shl* *maay̓* *go'osun*
da'ak̲hlxw=hl tim limx̲s=hl maay̓ go'osun
CIRC=CND FUT grow=CND berries LOC.here
"Berries might/can/are able to grow here."

Example (4.8)a. with modal =*ima* would only be felicitous in a context where the speaker can infer that there might be berries growing there at that moment, such as people coming back to town with purple hands.

This puts us in a position to develop a preliminary semantics for =*ima* and =*k̲at*, given in (4.9) and (4.10) (adapted from Matthewson et al. (2004)):

(4.9) A Preliminary Semantics for =*k̲at* (to be revised)
$[\![=\underline{k}at]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the **reported** evidence in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![=\underline{k}at]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

(4.10) A Preliminary Semantics for =*ima* (to be revised)
$[\![=ima]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the **inferential** evidence in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![=ima]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

Both =*ima* and =*k̲at* share another feature with the evidential modals in St'át'imcets: variable quantificational force. The next section shows that this is where Gitksan and St'át'imcets diverge empirically: whereas the modals in St'át'imcets have a universal interpretation by default, =*ima* and =*k̲at* have a *might*-like, existential reading by default. Rullmann et al. locate this variability in the choice function. However, in §4.4.4 I propose that another conversational background, the *ordering source*, can replace this function and make the right predictions for the variability found in both Gitksan and St'át'imcets evidential modals. Thus, the denotations in (4.9) and (4.10) are ultimately not appropriate for =*k̲at* and =*ima*.

4.4 The Variable Modal Force of =*ima* and =*k̲at*

As argued in the previous section, =*ima* and =*k̲at* semantically belong to the category of epistemic modals, such as *might* and *must* in English: they introduce quantification over possible worlds. However, both =*ima* and =*k̲at* differ from English modal auxiliaries in two respects: first, whereas the conversational background of a modal in English is determined by the context, both =*ima* and =*k̲at* lexically encode an epistemic conversational background through a presupposition restricting the modal base worlds. Secondly, unlike modals in English, neither =*ima* nor =*k̲at* lexically encode modal force, rather, it is determined by the context.[30] This 'reversed' arrangement is summarized in Table 4.1:

However, it is important to clarify what it means for a modal to have 'variable force'. We can observe the variable modal force effect of =*ima* and =*k̲at* by refining the contexts in such a way that restricts the use of either *might* as possibility or *must* as necessity in any given language. We can then test this against the distribution of =*ima* and =*k̲at* in these contexts, where we find that both =*ima* and =*k̲at* are felicitous both in contexts where possibility and necessity is required.

[30]The effects of variable modal force are somewhat more difficult to observe with the reportative. This is described in detail in §4.4.2 below.

	Modal Base	**Modal force**
English	CONTEXT	LEXICAL
Gitksan	LEXICAL	CONTEXT

Table 4.1: Lexically vs. contextually determined modal base and force (cf. Rullmann et al. 2008)

4.4.1 The Variability of =*ima*

The variable modal force of =*ima* can be conditioned by both the context it occurs in, and the type of evidence a speaker has for an =*ima*-assertion.

4.4.1.1 Context-Conditioned Modal Force

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. However, the fact that a person has inferential evidence for the truth of a proposition does not determine a certain strength of belief in this proposition. In (4.11) the context is simple enough that both *must* and *might* are felicitous translations in English: depending on a speaker's previous experiences with John and his rod and tackle box, John might be fishing, or he must be fishing:

(4.11) Context: You're wondering where your friend is. You notice his rod and tackle box are not in their usual place.

yugwimahl	*dim*	*iixwt*
yukw=*ima*=hl	tim	iixw-t
PROG=MOD=CND	FUT	fish-3

"He might be going fishing."
"He must be going fishing."
"He's probably going fishing."
"He's likely going fishing."
"He could be going fishing."
"Maybe/perhaps he's going fishing."

In (4.12), a speaker concludes that, based on the fact that her father was frequently away when she was a child, it must've been her mother who fed her:[31]

(4.12) Context: The speaker's father was away frequently when she was a child.

naa'ayima	*'an*	*yook̲xwinỷ*
naa'a=*ima*	'an	yook̲xw-in-ỷ
mother(informal)=MOD	S.REL	eat-CAUS-1sg

"It **must've** been mother who fed/cooked for me."
≻ "It **might've** been mother who fed/cooked for me."

[31] For any two (or more) sentences S_1 and S_2, I define the relation ≻ to mean that a consultant judges a translation S_1 to be more felicitous than S_2 given the context, without S_2 being *necessarily* infelicitous.

The above context relies on a logical deduction a speaker is making in order to reconstruct a past event she trying to recall. This same kind of deduction is used in (4.13) in order to retrace a recent sequence of events and explain an outcome of those events. In (4.13), deduction leads to the speaker to conclude that, given that everyone else who ate the bad fish got sick, Gwen must also be sick because of the fish. The necessity modal *must* or some equivalent phrase is more felicitous in English than the weaker *might*, and =*ima* is also felicitous:

(4.13) Context: There was a bad can of fish: everyone at the dinner got sick, and Gwen was there too.

x̲sidinhl	*hont*	*Gwen*
x̲sit-in-(t)=hl	fish=t	Gwen
vomit-CAUS-3sg=CND	fish=PND	Gwen

"The fish **must've** made her sick."
≻ "The fish **might've** made her sick."

In another case, the speaker concludes that, upon hearing that Alvin's new truck broke down recently, (4.14) is an appropriate response to the suggestion that the fuel pump is responsible for the breakdown:

(4.14) Context: You hear that Alvin's truck broke down on the way up to the Suskwa. It's a very reliable truck, but someone suggests that the problems he's having starting it indicate a problem with the fuel pump.

ɲ̓idimahl	*g̲an*	*wilt*
ɲ̓it=*ima*=hl	k̲an	wil-t
3sg=MOD=CND	COORD	do.something-3sg

"That **must've** been why it happened."
≻ "That **might've** been why it happened."

We can apply the same methodology and examine the felicity of =*ima* in contexts where the expression of necessity is less felicitous than possibility. In the context given in (4.15), there is no reason why the speaker's uncle *must* know the people he's talking to; they could just be strangers asking for directions:

(4.15) Context: You see your uncle stopped at the intersection talking to some people through the window of his pickup. You and your friends don't recognize the people.

wilaayimas	*nibib-y̓*	*(ɲ̓idiit)*
wilaa-i-(t)=*ima*=s	nipip-y̓	(ɲ̓itiit)
know-TR-3=MOD=PND	mother's.brother-1sg	3pl

"My uncle **might** know them."
≻ "My uncle **must** know them." '

Likewise, in a story told by DH in (4.16), the destination of the group in this passage is not a central part of the story and is likely not determined, thus it is not necessarily the case that they went to their hunting grounds, only a logical possibility:

(4.16) BH:

ii	*ndahl*	*w'adiit?*
ii	nda=hl	w'a-tiit?
CONJ	where=CND	arrive-3pl

"And where did they get to?"

DH: *bakwdiid=ima* *ansilinasxwdiit*
pakw-tiit=*ima* an-si-lin-sxw-tiit
arrive.pl-3pl=MOD GEO.LOC-CAUS-trap-ANTIPASS-3pl
"**Maybe** they got to their hunting grounds."
≻ "They **must've** gotten to their hunting grounds."

In (4.17), two people are speculating on why someone in the news (like a politician or movie star) passed away. In the absence of any concrete information, there is no reason why the person *must've* been sick: it could've been a heart attack, or an accident:

(4.17) Context: You see on TV that someone in the news passed away.

ṅ̓agwimahl *siipxwt*
ṅ̓akw=*ima*=hl siipxw-t
DIST=MOD=CND sick-3sg
"S/he **might've** been sick."
≻ "S/he **must've** been sick."

In another conversation fragment in (4.18), a speaker weakens the potential universal modal force of =*ima* by explicitly stating that they forget. This causes the second translation of (4.18) to sound infelicitous:

(4.18) Context: Alvin's wife asks when Alvin is getting back from shopping in Smithers. Alvin told you the night before, but you forget.

GS: *ga̲xguhl* *witxws* *Alvin?*
ka̲xkwi=hl witxw=s Alvin?
when=CND arrive=PND Alvin
"When is Alvin arriving?"

LW: *t̓agy̓,* *witxwima* *ṅ̓it* *silkwsa̲x*
t̓ak-y̓, witxw=*ima* ṅ̓it silkwsa̲x
forget-1sg arrive=MOD 3sg at.noon
"I forget, he **might** arrive around noon."
≻ "I forget, he **must** arrive around noon."

4.4.1.2 Modals in Coordinated Sentences

The cases above show that in contexts where the expression of epistemic necessity is less felicitous than the expression of possibility, and *vice versa*, =*ima* is felicitous in both types of contexts. We can expand on this test of modal strength: Rullmann et al. (2008) note that when sentences containing modals in English are coordinated, certain combinations of modal strength are less felicitous than others. Example (4.19) and (4.20) show how a sentence of the form '*must p and might/must not p*' is a contradiction in English, yet the use of =*ima* in these coordinated constructions is acceptable to consultants:

(4.19) *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
(a.) "Maybe the horse ran away, and maybe it hasn't."
(b.) #"The horse must've ran away, and it might/must not have."

(4.20) *hla* *yugwimahl* *dim* *wis,* *ii* *neeyima* *hla* *yukw* *dim*
hla yukw=*ima*=hl tim wis, ii nee=*ima* hla yukw tim
INCEPT PROG=MOD=CND FUT rain, CONJ NEG=MOD INCEPT PROG FUT
wis
wis
rain
(a.) "It might start raining, and it might not."
(b.) #"It must start raining, and it might/must not have."

Modal =*ima* can also be used in coordinated sentences where the speaker is listing a number of possibilities to explain some circumstance. Here again, =*ima* shows its possibility reading, as in (4.21) and (4.22):

(4.21) *guxwimahl* *gyuwadan,* *ii* *guxwindiidimahl* *(ʔkuba)*
kuxw=*ima*=hl kyuwatan, ii kuxw-'en-tiit=*ima*=hl (ʔkuba)
run.away=MOD=CND horse CONJ run.away-CAUS-3pl=MOD=CND small
ʔtihlxwhl *gyuwadan*
ʔtihlxw=hl kyuwatan
child=CND horse
"Maybe the horse ran away, and maybe the kids chased it away."

(4.22) Context: All of the trucks are out of the driveway. It's possible that everyone has gone to work, but since it's a holiday, it's possible they went fishing instead.

yugwimahl *dim* *g̲ahahlalʔsdiit,* *ii* *yugwimahl* *dim* *iixwdiit*
yukw=*ima*=hl tim g̲ahahlalʔst-tiit, ii yukw=*ima*=hl tim iixw-tiit
PROG=MOD=CND FUT work.pl-3pl CONJ PROG=MOD=CND FUT fish-3pl
"Maybe they're working (today), and maybe they went fishing."

As predicted by the idea that =*ima* has variable modal force, sentences of the form '*might p and not p*' are bad in Gitksan, just as they are in English. In example (4.24), a speaker is already aware of the truth or falsity of a proposition, thus the use of =*ima* on the first conjunct is infelicitous:

(4.23) *#hla* *yugwimahl* *dim* *wis,* *ii* *needii* *hla* *yukw* *tim*
hla yukw=*ima*=hl tim wis, ii nee=tii hla yukw tim
INCEPT PROG=MOD=CND FUT rain CONJ NEG=CONTR INCEPT PROG FUT
wis
wis
rain
#"It might/must start raining, but it won't rain."

Also as in English, the reverse arrangement is felicitous if the conjunct marked by =*ima* is used to speculate about a future event:

(4.24) *neediihl* *wis,* *ii* *hla* *yugwimahl* *dim* *wis*
nee=tii=hl wis, ii hla yukw=*ima*=hl tim wis
NEG=CONTR=CND rain, CONJ INCEPT PROG=MOD=CND FUT rain
"It's not raining, but it might start raining."

All of the examples presented in this subsection confirm that =*ima* can be interpreted as *might* or *must*. I showed this by showing that =*ima* is felicitous when the contexts are set up to control for the felicity of *might* over *must* as in English, and vice versa.

4.4.1.3 Evidence Type and Modal Force

There is one way the *must vs. might* modal force readings of =*ima* can be teased apart: this involves examining contexts where there is some kind of observable physical evidence available to the speaker. Recall example (2.3), repeated in (4.25) for convenience. In a context where a speaker is making an inference based on general knowledge or similar previous experiences, =*ima* displays its variable force. On the other hand, the evidential *ʼnakw* is infelicitous: it requires the speaker to have observable evidence:

(4.25) Context: 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.

a. *mugwimahl* *maayʼ*
mukw=*ima*=hl maayʼ
ripe=MOD=CND berries
"The berries **might/must** be ripe."
"Maybe the berries are ripe."

b. *#ʼnakwhl* *mukwhl* *maayʼ*
ʼnakw=hl mukw=hl maayʼ
EVID=CND ripe=CND berries
"The berries **must** be ripe."
"Looks like the berries are ripe."

When the context is adjusted to include observable evidence, as in in (4.26), the use of *ʼnakw* is felicitous, which is typically translated by consultants as a necessity modal *must*, and very rarely the weaker *might*.

(4.26) Context: People are arriving home after a day of berrypicking up in the Suskwa. They're carrying buckets of berries, and their hands are all purple.

a. *mugwimahl* *maayʼ*
mukw=*ima*=hl maayʼ
ripe=MOD=CND berries
"The berries **might** be ripe."

b. *ʼnakwhl* *mukwhl* *maayʼ*
ʼnakw=hl mukw=hl maayʼ
EVID=CND ripe=CND berries
"The berries **must** be ripe."
"Looks like the berries are ripe."

In chapter 2 I showed that =*ima* is also felicitous in observable evidence contexts as in (4.26); however, in these observable evidence contexts where both =*ima* and *ʼnakw* are felicitous, =*ima* is interpreted as the weaker *might*, while *ʼnakw* takes over the stronger *must* interpretation. Looking at it from another angle, given an observable evidence context such as in (4.27), a speaker is faced with a choice of making an epistemic claim using =*ima* or *ʼnakw*. Upon observing some money on the floor, by using =*ima*, a speaker is claiming that it's *possible* but not *necessary* that the money was dropped by the person standing ahead in line. By using the evidential *ʼnakw*, a speaker is making a stronger inference from this same physical evidence: the money *must've* been dropped by the person:

(4.27) Context: You and a friend are at the store and you see a dollar coin on the ground. It could be yours, your friend's, or the person in front of you in line may've dropped it.

a. *kẇoodindimahl* *daalat*
kẇoo-T-in-t=*ima*=hl daala-t
drop-t-CAUS-3sg=MOD=CND money-3sg
"S/he **might**'ve dropped his/her money."

b. *ʼnakwt* *kẇoodindimahl* *daalat*
ʼnakw=t kẇoo-T-in-t=*ima*=hl daala-t
EVID=3sg drop-t-CAUS-3sg=MOD=CND money-3sg
"S/he **must**'ve dropped his/her money."

This is where the modal properties of =*ima* clearly emerge. Assuming the standard notions of epistemic modality, the use of *must* over *might* is rooted in the speaker's certainty level about the proposition expressed. Thus, a speaker who uses a possibility modal is less certain about the truth of the embedded proposition than a speaker who uses a necessity modal. This distinction is mapped on to the distribution of =*ima* and *ʼnakw* in the observable evidence contexts they are both felicitous in: by asserting (4.27)a. when b. is also felicitous, a speaker is conveying that s/he only *might've* dropped their money. This is because b. can unambiguously mean that they *must've* dropped their money.

A note on the translation of *ʼnakw* must be reiterated here from chapter 2: speakers commonly translate *ʼnakw* into the modal auxiliary *must* in English. However, we also saw how *ʼnakw* clearly does not pass the test for being a propositional operator. Chapter 5 presents a non-modal analysis of *ʼnakw* as sentential force specifier, and also analyzes the interaction between =*ima* and *ʼnakw* as a 'pragmatic blocking' effect: *ʼnakw* blocks =*ima* from expressing its strong, necessity-like reading.

4.4.2 The Variability of =*k̲at*

Unlike =*ima*, sentences with =*k̲at* are not translated using epistemic modals such as *must* and *might*, rather, =*k̲at*(*p*) sentences are typically translated as "I hear/heard *p*", as in (4.28):

(4.28) Context: The speaker is telling her friends at the coffee shop that Mary had her long hair cut recently. She hasn't seen Mary's hair herself yet, but knows because the speaker's sister is the hairdresser who did it.

gung̲oji g̲as *Mary-hl* *g̲est*
kwin-k̲ots-i-(t)=*k̲at*=s Mary=hl k̲es-t
CAUS-cut-TR-3=REP=PND Mary=CND hair-3
"[I hear] Mary had her hair cut."

However, =*k̲at* is frequently translated with modal adverb *apparently*, as in (4.29) (see also Hunt 1993 for several examples):

(4.29) *ʼmajig̲athl* *haʼniig̲uyʼax̲* *'ahl* *lo'op*
ʼmats-i-(t)=*k̲at*=hl ha-ʼnii-g̲uyʼax̲ '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."

With translation (i.), the speaker is transmitting 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 *p*" translation. However, in translation (ii.), 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 receives the report from one of the children who were there and wanted to avoid punishment or blame. We see the same contrast in (4.30):

(4.30)

lumak̲dig̲as	*John=hl*	*daala*
lumak̲t-i̲-(t)=*k̲at*=S	John=hl	daala
donate-TR-3=REP=PND	John=CND	money

(i.) "I heard John put in money (for the feast)."

(ii.) "Apparently, John put in money."

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 (4.30) as (i.) 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 source in a crowded room that John also contributed, the translation in (ii.) is felicitous. However, it is important to note that this is not necessarily an unreliable source: by using *apparently* a speaker is conveying a neutral attitude towards the proposition – maybe the report is reliable, maybe it isn't.

We can generalize the kinds of contexts and interpretations of (i.) and (ii.) in the examples above in the following way: in both (4.29) and (4.30) speaker judgments vary in the use of the translation "I hear/heard *p*", which can mean that a speaker either believes the source of the report to be reliable, or is neutral towards the source. Translations with *apparently* can also mean a neutral attitude towards the source, but more often used only when a speaker views the source as less reliable.

The variable modal force of =*ima* is transparent in its translations as *must* or *might*. However, examples such as (4.29) and (4.30) illustrate that the modal force of =*k̲at* reveals itself in the difference between universal and existential force, which would correspond to a difference between the paraphrases of (i.) and (ii.) above in (4.31):

(4.31) (i.) "[Given what I've heard], *p must* be true"

(ii.) "[Given what I've heard], *p may* be true"

Because the existence of the report is presupposed and crucially not asserted, the truth conditions of reportative sentences depend not on whether there was a report, but on whether the report was true in the speaker's view. The speaker asserts that it is at least possible that the report was true (Izvorski 1997; Faller 2002; Matthewson et al. 2007). More specifically, under a modal semantics, the modal force of a reportative evidential equates to how reliable the source of the report is. If we assumed that a reportative evidential necessarily has universal force, then we would predict that it could only be used in cases where the report comes from a reliable source. A reportative evidential with existential force would be used in cases where the report does not come from a perfectly reliable source, since the embedded proposition would only be true in some of the worlds where the report is made.

4.4.3 Default Modal Force

The previous two subsections showed how both =*ima* and =*k̲at* display variable modal force. Under a possible worlds analysis this corresponds to variable quantificational force. In some

contexts =*ima* and =*k̲at* have existential quantification, and in other contexts they have universal quantification. However, there is a preference for existential quantificational force. There is suggestive evidence for this claim based on speakers' judgments of both =*ima* and =*k̲at* when asked specifically about the strength in meaning they convey, and in the preference for *might*-like translations out-of-the-blue.

There may be a paradigmatic explanation for the default existential force of =*ima*: there is a way to disambiguate in favour of the universal translation, especially in contexts where the evidential *n̓akw* is felicitous. This was shown in the translations in (4.26) and (4.27) above: even though the diagnostics in chapter 3 showed that evidential *n̓akw* cannot be a modal, it is consistently translated as one, and as only having *must*-like force. Thus, Gitksan has a strategy for clearly disambiguating =*ima* as existential.

With =*k̲at* it is less clear: speakers mostly translate =*k̲at* as "I hear/heard *p*". However, given that this translation can cover the spectrum of reliability from reliable to neutral to unreliable, a default interpretation is more difficult to identify. Unlike =*ima*, there is also nothing to lexically disambiguate =*k̲at*.

In the next section it is argued that the source of variable modal force in =*ima* and =*k̲at* is not located in the quantifier, which is uniformly existential for both =*ima* and =*k̲at*, but in the ordering source.

4.4.4 The Ordering Source in Deriving Variable Modal Force

It is claimed here that we already have a tool on hand for handling variable modal force: the ordering source. Kratzer (1991) developed the ordering source to have wide application to a number of phenomena such as unwanted entailments (i.e. $\Box\phi \rightarrow \phi$), the weak readings of necessity modals, different interpretations involving circumstantial possibilities, counterfactual conditionals, and graded modality. It is the last of these that relates to the issue facing us with the variable modal force of =*ima* and =*k̲at*.

The general idea is as follows: in English, the modal base B is contextually determined by a conversational background. However, there is a second conversational background, the ORDERING SOURCE O, which imposes a particular evaluative ordering of the B-worlds. The general idea is that the modal base B contains propositions representing facts or knowledge about the world as assessed by the speaker in a given scenario, while the ordering source contains propositions representing beliefs, ideals, norms, intentions, and universally-held assumptions about normal courses of events in the world. These two conversational backgrounds interact: the propositions that comprise the ordering source impose an ideal ordering on those that comprise the modal base. For example, a modal statement such as $may(p)$ is interpreted as meaning that p is the case in some B-worlds (for some contextually-determined B) which are ranked as best by some salient O. Likewise, $must(p)$ is interpreted as meaning that p is the case in all B-worlds ranked as best by O.

More formally, the ordering source g, like the modal base B, is also a function from worlds to sets of propositions. If g is applied to a world w, the resulting set of propositions $g(w)$ induces a partial order $\leq_{g(w)}$ on the modal base worlds. This is defined as follows in (4.32):

(4.32) (i.) $\forall w_1, w_2 \in X : w_1 \leq_{g(w)} w_2$ iff $\{p \in g(w) : w_2 \in p\} \subseteq \{p \in g(w) : w_1 \in p\}$

(ii.) For a given partial order $\leq_{g(w)}$ on worlds, define the selection function $O_{g(w)}$ that selects the set of $\leq_{g(w)}$-best worlds from any set X of worlds:
$\forall X \subseteq W : O_{g(w)}(X) = \{w \in X : \neg\exists w' \in X : w' \leq_{g(w)} w\}$
adapted from von Fintel and Heim 2007[32]

[32]In von Fintel and Heim's notation, the ordering source is notated as MAX. I have used O simply for mnemonic reasons, following Portner (1997).

Given the partial order as defined above, $w_1 \leq_{g(w)} w_2$ means that w_1 verifies all the propositions in $g(w)$ that w_2 does, that is, w_1 is equally close to or closer to the 'ideal' than w_2 is with respect to $g(w)$, iff among the propositions in $g(w)$, those that are satisfied in w_2 are a subset of those that are satisfied in w_1. Thus, the meaning of $w_1 \leq_{g(w)} w_2$ with an epistemic modal base can be paraphrased as 'w_1 is at least as desirable or in accordance with what we know at w than w_2'. It may also be noted that ordering does not technically give us degrees of conformity with the ordering source.

In English, the sets of propositions that induce the function $O_{g(w)}$ are contextually determined, just as they are with the modal base. Thus denotations of the modals *must* and *might* including the ordering source would be as in (4.33):

(4.33) $[\![must]\!]^{c,w} = \lambda p.\forall w'[w' \in O_{g(w)}(B(w)) \rightarrow p(w') = 1]$.
$[\![might]\!]^{c,w} = \lambda p.\exists w'[w' \in O_{g(w)}(B(w)) \wedge p(w') = 1]$.

The effects of the ordering source are intuitively the clearest with root modals. With deontic modals, the propositions that make up the ordering source typically express rules to be followed by anyone who respects the regulations for driving a car: the deontic conversational background "what the driving regulations provide". This conversational background functions as the ordering source and thus orders the modal base worlds according to their compliance with its propositions.

As an illustration, let $g(w)$ contain the following propositions: p_1 = "you have a driving license", p_2 = "your car is insured" and p_3 = "you're wearing a seatbelt", $g(w) = \{p_1, p_2, p_3\}$.[33] We can distinguish eight different sets of worlds in terms of these three propositions, given in Table 4.2. For instance, world w_4 is the world where you don't have a driving license but your car is insured and you are wearing a seatbelt.

	p_1	p_2	p_3
w_0	1	1	1
w_1	1	1	0
w_2	1	0	1
w_3	1	0	0
w_4	0	1	1
w_5	0	1	0
w_6	0	0	1
w_7	0	0	0

Table 4.2: Possible worlds that can be distinguished in terms of three propositions.

We have for instance that $w_2 \leq w_6$, i.e. a world such as w_2, where the only deviance from the norm $g(w)$ is that your car is not insured, is closer to $g(w)$ than a world where your car is not insured and you don't have a driving license.[34]

(4.34) $\{p : p \in g(w) \wedge w_6 \in p\} \subseteq \{p : p \in g(w) \wedge w_2 \in p\}$

To get a feel for how this works with epistemic modality, consider an epistemic reading of (4.35): this sentence has an epistemic modal base, containing a set of propositions that make up our knowledge in the actual world, and a STEREOTYPICAL ordering source, which represents a normal course of events in this context.

[33] Example adapted from Nauze (2008).

[34] Notice that the ordering is partial: the worlds w_1 and w_2 cannot be ordered by $O_{g(w)}$: driving without a seatbelt does not comply more with $g(w)$ than driving without insurance, nor vice versa.

(4.35) John **must** be fishing.

Suppose we know that John's rubber boots are missing, and his truck is gone. The prejacent of (4.35) is not true in all the worlds compatible with what we know: given this modal base it's entirely plausible he went berry picking instead of fishing. But in the ordering source is a proposition which says 'rubber boots are used for fishing'. Using this ordering source proposition, all the worlds in which the missing boots are used for fishing are going to count as better than worlds in which they are not.

The next step is applying an ordering source analysis to account for the variable modal force of =*ima* and =*k̲at*. It is shown in this subsection that the interaction between the two conversational backgrounds, the modal base and ordering source, provides us with the technical resources for accounting for this variation in modal force readings. The basic thrust of the analysis is that the quantification of =*ima* is fixed as existential, while the ordering source is what modulates what is translated as modal force in English. More specifically, the interpretation of strong/weak modals in Gitksan is not a function of the universal/existential dual, but whether the ordering source is empty (weak) or non-empty (strong). It is also shown here how this analysis can be extended to St'át'imcets, another language that displays the same type of variable force modality, and how we can also capture default readings in both languages in a straightforward way using the ordering source.

4.4.4.1 Ordering Sources with Fixed Quantification

I will start with the assumption that the value of a quantifier is not determined by a parameter of interpretation: there is no contextually determined function that fixes the value of quantification over the modal base as existential in one context and universal in another. The quantification associated with =*ima* is fixed, just as it is with lexical modals in English. This leaves two other formal options within the system: both the modal bases and ordering sources are independent conversational backgrounds; either can be determined lexically, or determined by the context. As mentioned above (cf. (4.33)), in English both the modal base and ordering source are contextually determined. In contrast, in Gitksan the modal base is restricted to indirect evidence (through the presupposition lexically associated with =*ima*). However, the value of the ordering source in Gitksan is entirely contextually determined. I claim that this gives us a formal way for explaining why context plays a role in determining the force of a modal statement in Gitksan. More specifically, I begin by grounding the following analysis in the basic notion that the belief state of the speaker, and what a speaker considers a normal course of events, play a formal role in modulating what we interpret as modal force (Kratzer 2002).

As shown above, a stereotypical ordering source involves propositions representing the normal course of events, or relatively fixed ideas about the uses of things like rubber boots. The interpretation of an epistemic modal can also be conditioned by a speaker's beliefs. This characterizes a DOXASTIC ordering source. Thus, a doxastic modal statement is one in which the epistemic modal quantifies over the worlds of a modal base ordered by an ideal determined by the belief state of a speaker. The effects of doxastic and stereotypical ordering sources, and the contrast they draw out between Gitksan and English, can be observed in (4.36):

(4.36)

yugwima=hl	*iixwis*	*John*
yukw=*ima*=hl	iixw-(t)=s	John
PROG=MOD=CND	fish-3=CND	John

"John **must** be fishing." ≻ "John **might** be fishing."

$B(w)$ EPISTEMIC: {John's rubber boots are missing; his truck is not in the driveway; it's fishing season}

$g(w)$ STEREOTYPICAL: {Rubber boots are used for fishing; rubber boots are not ideal for hunting, or berry picking}

$g(w)$ DOXASTIC: {Knowing how much John likes fishing}

Given the fact that John's rubber boots are missing, and that rubber boots are used for fishing, "John *must* be fishing" is more felicitous than "John *might* be fishing." This strong reading is derived from the stereotypical ordering source: the modal base $B(w)$ contains the proposition that John's rubber boots are missing and the ordering source $g(w)$ concerns the the typical use of rubber boots. If the world of evaluation w is such that rubber boots are typically used for fishing, the ordering source $O_{g(w)}$ is such that worlds in which John uses his boots for fishing are ranked more highly than worlds in which he uses them for some other purpose (other things being equal). (4.36) will assert that the worlds in which John uses his boots for fishing, are worlds in which 'John is fishing' is true. Since the speaker believes w to be such a world, it follows that the speaker believes 'John is fishing' is true in w. Because of this belief in the typical use of rubber boots, the interpreted modal force is strong, translated as *must*. If, however, the speaker does not believe that rubber boots are used solely for fishing – the boots could be used for berry picking – the proportion of accessible worlds where it is true that John is fishing because his rubber boots are missing, will be smaller. This is because the set of worlds in $g(w)$ also contains worlds where he didn't go fishing (beside the ones where he did). This leads to the resulting interpretation that 'John is fishing' is only a slight possibility in w. The doxastic reading functions in the same way, only instead of evaluating the normal course of events or uses of items such as boots, the speaker is evaluating a modal statement based on their beliefs, such as their prior experience with John's likes or activities.

This analysis is based on Izvorski (1997), who shows that this variable modal force effect is present in the perfect in Bulgarian, which has a modal (and evidential) interpretation in addition to its aspectual one:

(4.37) *az* *sâm* *došâl*
1sg be-1sg.PRES come.P.PART
"I have come." "I have apparently come." (Izvorski 1997: 228)

Izvorski claims there is a covert evidential operator (EV) in sentences such as (4.37) that has a modal semantics. The force of this modal in EV*p* sentences is determined by the speaker's belief or trust in the evidence. In its report reading, (4.37) can mean "I may have come", "I probably came", or "I must have come", given what a person X says. In other words, the more trustworthy X is, the closer to a universal interpretation the modal has. Under an inferential reading, EV*p* sentences like (4.37) can interpreted along the lines of "I must have come" because in stereotypical contexts, the speaker bases her reasoning on a highly reliable source of (indirect) evidence. These effects are captured by the ordering source, as the actual domain of quantification is restricted by the ordering source. A sketch of Izvorski's analysis is given in (4.38):

(4.38) $B = \{p$: a speaker considers p indirect evidence in $w\}$
$B(w) = \{u \in W : \forall p[(p \text{ is indirect evidence in } w) \rightarrow u \in p]\}$
$g(w) = \{p$: a speaker believes p with respect to the indirect evidence in $w\}$

In words, an EV*p* statement is true in a world w with respect to the conversational backgrounds provided by $B(w)$ and $g(w)$, iff p is true in all worlds accessible from w which come closest to the ideal represented by the speaker's beliefs regarding the available indirect evidence in w (Izvorski 1997: 9). Thus a denotation for modal/evidential sentences of the form EV(p) in Bulgarian is given in (4.39):

(4.39) $[\![\text{Ev}]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the inferential evidence in w holds in w'

$[\![\text{Ev}(p)]\!]^{c,w} = 1$ iff for $\forall w' \in O_{g(w)}(B(w)) : [\![p(w')]\!]^{c,w} = 1$.

The modal base and ordering source are the propositions which narrow down or order the set of accessible worlds under either an inferential or reportative interpretation of PE, as in (4.40):

(4.40) *Ivan* *izpil* *vsičkoto* *vino* *včera*
Ivan drunk-PE all.the wine yesterday
"Ivan apparently drank all the wine yesterday." (Izvorski 1997: 228)

(i.) Inferential interpretation:
$B(w)$ = {There are empty wine bottles in Ivan's office}
$g(w)$ = {If there are empty wine bottles in someone's office, that person has drunk the wine}

(ii.) Reportative interpretation:
$B(w)$ = {Mary said that Ivan drank the wine}
$g(w)$ = {Normally, Mary is reliable as a source of information}

The reason for universal quantification in (4.39) comes from the observation that these kinds of modal/evidential statements in Bulgarian tend towards a default strong reading. A universal modal statement is then pragmatically weakened by the ordering source, the effect being a *might*-like translation. However, in Gitksan, =*ima* tends towards a weak *might*-like reading by default. This is built into the denotation of =*ima*, given in (4.41), where quantification is existential:

(4.41) The Semantics of =*ima* (Final) (revised from (4.10))

$[\![=ima]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the inferential evidence in w holds in w'.

If defined, $[\![=ima]\!]^{c,w} = \lambda p.\exists w'[w' \in O_{g(w)}(B(w)) \wedge p(w') = 1]$.

At face value, it would seem counterintuitive to attribute a strong, *must*-like reading to a modal with existential quantification. However, we can find a similar effect of semantic strengthening in the nominal domain in the entailment patterns with existentially quantified DPs. For example, restricting an existential statement leads to strengthening: an expression like "some male students" is semantically stronger than the expression "some students", since a sentence of the form "some male students smoke" is true in a subset of situations in which "some students smoke" is true (i.e., the former asymmetrically entails the latter). We can derive the same strengthening effect from the ordering of an existentially quantified modal base: in example (4.36), a set of worlds where John's boots are missing, and boots are used for fishing is a more restricted set of worlds than one in which only John's boots are missing. If you assert that in some possible world where John's boots are missing, he's fishing, that is a weaker claim than asserting that in some possible world where John's boots are missing and boots are used for fishing, he's fishing. However, we need the connection to the actual world to make the latter statement stronger: assuming that the actual world is a world in which the ordering source propositions are true. Therefore, asserting that in some of the smaller set of worlds, John is fishing, is a stronger claim than asserting that in some of the larger set of worlds, John is fishing. Note that the opposite parallel can be drawn with Izvorki's universal analysis in (4.39): restricting a universal quantifier leads to weakening, as "all male

students smoke" is weaker than "all students smoke". Both the strengthened existential and the weakened universal are achieved by a non-empty ordering source.

This analysis accounts for the strong, *must*-like reading of =*ima*, and also allows us to derive its default weak reading. Whereas a non-empty ordering source restricts the modal base to a subset of O-ideal words, an empty ordering source would logically remove this restriction by mapping every possible world to the empty set. Kratzer (1991: 645) characterizes this as ALETHIC modality. Whereas epistemic modality has an epistemic modal base with an ordering based on doxastic reasoning or stereotypicality, alethic modality is a kind of purely logical modality: it does not relativize the modal to any particular kind of facts, rather, our epistemic reasoning is based solely on the facts that comprise the modal base. Thus a weak reading of (4.36) is obtained in (4.42), where the unordered modal base is simply existentially quantified over:

(4.42) *yukw=ima=hl* *iixw-(t)=s* *John*
PROG=MOD=CND fish-3=CND John
"John **might** be fishing."

$B(w)$ EPISTEMIC: {John's rubber boots are missing; his truck is not in the driveway; it's fishing season}

$g(w)$ EMPTY: $\varnothing$

This basically resembles a standard *might*-as-existential modal: a speaker of (4.42) is asserting that in some world where John's rubber boots are missing, his truck is not in the driveway, and it's fishing season, John is fishing in that world. This is the locus of the *might* $\succ$ *must* meaning: the difference between saying that in some world where his boots are missing, he's fishing (the empty ordering source), and saying that in some world where his boots are missing and boots are used for fishing, he's fishing (the non-empty ordering source, and assuming that the actual world is such a world), is claimed to be a big enough difference so that the latter gives you a stronger, *must*-like reading.

In sum, the indirect evidence presupposition placed on the modal base ensures the epistemic interpretation of =*ima*, while the value of the ordering source is contextually determined. By default, the ordering source is empty, but other contextual factors can intervene and provide the ordering source with propositions that order the worlds of the modal base according to some doxastic or stereotypical ideal. Thus, the modal force interpretations of =*ima* can be schematized as in (4.43):

(4.43) The modal force interpretations of =*ima*:

$B(w) = \{u \in W : \forall p[(p \text{ is indirect evidence in } w) \rightarrow u \in p]\}$

$g(w) =$
(i.) STRONG: {p: a speaker believes p with respect to the indirect evidence in w}
(ii.) WEAK: (default): $\varnothing$

Turning to the variable modal force of =*k̲at*, we can apply an ordering source analysis to the reliability of the reported evidence. As with =*ima*, we can build into the denotation the default weak interpretation of =*k̲at* in (4.44):

(4.44) The Semantics of =*k̲at* (Final) (revised from (4.9))

$[\![=\underline{k}at]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the reported evidence in w holds in w'.

If defined, $[\![=\underline{k}at]\!]^{c,w} = \lambda p.\exists w'[w' \in O_{g(w)}(B(w)) \wedge p(w') = 1]$.

Consider again the case of the feast contributions in (4.45), repeated from the previous section:

(4.45)

lumak̲tigas	*John=hl*	*daala*
lumak̲t-i̲-(t)=*k̲at*=s	John=hl	daala
donate-TR-3=REP=PND	John=CND	money

(i.) "I heard John put in money (for the feast)."

(ii.) "Apparently, John put in money."

Faller observes in Quechua that if the reliability of the source is unknown, only an existential analysis predicts a reportative sentence to be true (2002: 109): if the reliability of a source is unknown, then the set of worlds in which that report is heard will include both worlds where the report is true, and worlds where it is false. Both translations in (4.45) can reflect this kind of neutrality, and I claim that this is derived from an empty ordering source, as in (4.46):

(4.46) Modal base and Ordering source for a weak interpretation of (4.45):

$B(w)$ REPORTATIVE: {a conversation was overheard in the feast hall}

$g(w)$ EMPTY: $\varnothing$

However, if a speaker views the source of the report as reliable, then the ordering source reflects this and is non-empty, as in (4.47):

(4.47) Modal Base and Ordering Source for a strong interpretation of (4.45):

$B(w)$ REPORTATIVE: {The accountant was loudly discussing John's contribution}

$g(w)$ NON-EMPTY: {Normally, accountants are reliable sources for accounting matters}

The ordering source analysis for =*ima* applies *mutatis mutandis* to =*k̲at*: an existentially quantified modal base is given a stronger interpretation through a non-empty ordering source. This is schematized for =*k̲at* in (4.48):

(4.48) The modal force interpretations of =*k̲at*:

$B(w) = \{u \in W : \forall p[(p \text{ is reported evidence in } w) \rightarrow u \in p]\}$

$g(w) =$

(i.) STRONG: {p: a speaker believes p with respect to the reported evidence in w}

(ii.) WEAK: (default): $\varnothing$

4.4.4.2 An Emerging Theoretical Typology: Variable Force in St'át'imcets Modals

An ordering source analysis can be applied to the St'át'imcets inferential evidential *k'a*, as in (4.49):[35]

[35] Portner (2009) also discusses the use of the ordering source instead of the choice function in St'át'imcets. See also Kratzer (2009) for a discussion of the effects of an empty ordering source on an epistemic modal base. These publications were not available until just prior to the filing of this dissertation.

(4.49) a. *t'ak* ***k'a*** *tu7* *kents7á* *ku* *míxalh*
go.along INFER then DIETIC DET bear
"A bear **must've** gone around here." (Rullmann et al. 2008: 5)

b. *wa7* ***k'a*** *séna7* *qwenúxw*
IMPF INFER COUNTER sick
"He **may** be sick." (Rullmann et al. 2008: 5)

However, St'át'imcets modals differ from Gitksan modals in one key respect: whereas the default modal force of =*ima* is weak, the default interpretation of modals in St'át'imcets is strong. Recall from the previous section that Rullmann et al. (2008) locate the variability in modal force in a contextually-determined choice function f. The choice function picks out a subset of the modal base, which is universally quantified over. The larger the subset of the modal base selected by f, the stronger the modal force expressed. f may simply be the identity function, which results in a universal *must*-like reading. If f selects a proper subset of the modal base, the resulting reading is weaker, although that subset is still universally quantified over. The denotation of inferential *k'a* is repeated below in (4.50):

(4.50) Semantics of *k'a* (inferential) $[\![k'a]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the **inferential** evidence in w holds in w', and f is a choice function such that $f(B(w)) \subseteq B(w)$.

If defined, $[\![k'a]\!]^{c,w} = \lambda f.\lambda p.\forall w'[w' \in f(B(w)) \rightarrow p(w') = 1]$.

However, given the difference in default quantification between Gitksan and St'át'imcets, we can extend the ordering source analysis to the St'át'imcets modals in a straightforward way: in the previous subsection it was shown that =*ima* has fixed existential quantification over a presupposed epistemic modal base; the default weak interpretation comes from the ordering source, which is assumed to be empty by default (cf. (4.41)). The revised denotation of St'át'imcets modals such as *k'a* given in (4.51) can involve the exact same components as in Gitksan, except that it has universal quantification:

(4.51) $[\![k'a]\!]^{c,w}$ is only defined if c provides a modal base B such that for all worlds $w' \in B(w)$, the inferential evidence in w holds in w'.

If defined, $[\![k'a]\!]^{c,w} = \lambda g.\lambda p.\forall w'[w' \in O_{g(w)}(B(w)) \rightarrow p(w') = 1]$.

This analysis gives us a unified account of variable modal force found in the evidential modals of both Gitksan and St'át'imcets: modal evidentials in these languages involve a presupposed epistemic modal base, and an ordering source, which is empty by default in both languages. This empty ordering source is what derives the default weak interpretation of existential =*ima*, and the default strong interpretation of universal *k'a*, as schematized in (4.52):

(4.52) The interpretations of *k'a*
$B(w) = \{u \in W : \forall p[(p \text{ is indirect evidence in } w) \rightarrow u \in p]\}$

STRONG (default): $g(w) = \varnothing$

WEAK: $g(w) = \{p$: the speaker believes p with respect to the indirect evidence in $w\}$

With an empty ordering source, modal *k'a* is universally quantifying over literally every possible world in the modal base (the worlds in which the relevant evidence holds), representing alethic modality, just as =*ima* does under a default reading. However, a non-empty ordering source has the opposite effect with a universally quantified modal base: whereas a

non-empty ordering source has the effect of pragmatically strengthening an existential modal, a non-empty ordering source essentially weakens a universal modal claim.

This approach has its roots in Kratzer's original characterizations of the modal base and ordering source. Whereas the modal base will always contain a consistent set of facts, other sources of information that can make up a potential ordering source may be inconsistent, or inconsistent with these facts (Kratzer 1991). For example, in (4.49)a., a speaker may be faced with a variety of facts which can include overturned garbage cans, tracks in the mud, apples missing off the tree, stories overheard in the coffee shop etc. This is a set of consistent propositions that comprise the modal base. Given the abundant evidence that a bear was present, it would be true in all stereotypical worlds consistent with the evidence that a bear did in fact go around there. However, a universal modal claim can be weakened if the speaker believes the modal base evidence to be less reliable, or that there are other plausible courses of events. For example, a modal base for (4.49)b. could be the symptoms or evidence typical of having a cold (i.e. a red face, runny nose etc.), and the doxastic ordering source would concern the speaker's belief in the applicability of this kind of evidence. If the world of evaluation w is such that this kind of evidence is normally right in indicating that someone is sick, we will consider those accessible worlds where this evidence holds. Thus, (4.49)b. will assert that all those worlds are p-worlds, and the interpreted modal force is strong. However, if these symptoms are considered unreliable or inconclusive as evidence for being sick – coming in from a cold winter day would produce the same symptoms – the set of accessible worlds where this evidence holds, and that this indicates an illness, will be very restricted; hence, the resulting interpretation is that p is only slightly possible in w.

Doxastic ordering sources contain information characterizing a speaker's belief state. An empty ordering source clearly differs in this respect, involving reasoning purely from accepted, speaker-external facts rather than considering the belief state of the speaker. To get a feel for the difference between the doxastic and empty ordering sources in St'át'imcets, consider example (4.53) uttered by a speaker in isolation upon hearing a knock at the door:

(4.53) *nilh* *k'a* *kw* *s-Henry* *wa7* *pegwpeg'wtsám'*
FOC INFER DET NOM-Henry IMPF knock.repeatedly
"That'll be Henry knocking." (Rullmann et al. 2008: 7)

This can be understood as simply saying something about the speaker's beliefs, specifically that it's compatible with her beliefs that the person at the door is Henry. In contrast to this doxastic reading, consider (4.53) again, but this time uttered to a hearer in the following context in (4.54):

(4.54) Henry said he would come tonight, so if he isn't here yet it follows that (4.53).

Here the speaker is not simply commenting on her belief state. She is rather making a statement of general fact, specifically that the evidence provided by the modal base leads to the following conclusion: that it is compatible with all known facts that the person at the door is Henry. She is not claiming that her belief state follows from the evidence (see Tancredi 2007 for a similar discussion and Lakoff 1972, p. 233 for similar examples and explanations). This kind of 'pure' modality does not involve identification of an ideal in any sense, and so does not involve an ordering source either. Thus, under its default reading – which is (4.54) – modal *k'a* only involves quantification over a modal base.

Could a choice function analysis be extended to Gitksan =*ima*? There are a variety of issues that suggest not. The first consideration is theoretical: what distinguishes a choice function from the ordering source in deriving the effect of variable modal force? Both the choice function and ordering source rely on context to determine their value. An ordering source analysis provides a truth-conditional way of picking out a set of ideal modal base

worlds, which is then quantified over. However, exactly what kinds of modal base worlds are picked out by the choice function? In other words, the ordering source is principled because it orders worlds according to propositions which are believed or stereotypical, whereas f could be totally random in the set of worlds which it picks out. Additionally, if we maintain a dual conversational background treatment of modality, how does the ordering source interact with f?

Another consideration is empirical: St'át'imcets modals such as *k'a* have a strong, *must*-like reading by default, which under a choice function analysis means that f is by default the identity function. We could apply a choice function to the existentially quantified modal base of =*ima*. This faces the same theoretical problem: how do we know or assess which worlds are picked out by f that would give a strong reading of =*ima*? Another option would be to have universal quantification for =*ima*, giving it the same denotation as St'át'imcets *k'a*. However, given the default weak reading of =*ima*, we would then need some way of explaining why some languages have identity (St'át'imcets) vs. non-identity (Gitksan) function readings by default.

By attributing variability of modal force to an effect of empty vs. non-empty ordering sources, a typology of modality emerges that captures not only the variable modal force readings of modals in Gitksan and St'át'imcets, but also the default readings these modals have, which are uniformly treated as the effect of an empty ordering source, as Table 4.3 shows:

	Gitksan (∃)	St'át'imcets (∀)
Strong	NON-EMPTY	EMPTY (default)
Weak	EMPTY (default)	NON-EMPTY

Table 4.3: Empty vs. Non-empty Ordering Sources in Strong/Weak Modals

4.4.4.3 Strengthening and Weakening in Paradigms

There are certain empirical challenges in claiming that a language has a default interpretation in terms of modal force. Rullmann et al. (2008) note that in both textual examples and elicitation contexts, the universal is preferred. I have found the opposite tendency in the translations of observed conversations in Gitksan, where there is a preponderance of the weaker existential interpretations (cf. (2.55)).

In this subsection I look at additional supporting evidence for the default quantificational force in both Gitksan and St'át'imcets, as summarized in Table 4.3. To begin with, we can view variable modal force and default values in terms of strengthening and weakening a quantifier. The two possibilities for this are given in (4.55)(Rullmann et al. 2008):[36]

(4.55) (i.) ∃ **plus strengthening:** Modals (in some languages) are uniformly existential and are strengthened though some mechanism.

(ii.) ∀ **plus weakening:** Modals (in some languages) are uniformly universal and are weakened though some mechanism.

Options (i.) and (ii.) appear to be borne out by Gitksan and St'át'imcets, respectively. Secondly, we have a theory-internal mechanism for strengthening or weakening the modal

[36]Rullmann et al. identify two other possibilities. One is *Ambiguity:* Modals can be lexically ambiguous between existential and universal readings. The other is *Underspecification:* Quantificational force is underspecified and requires setting through some mechanism. They also note that it is unclear what kind of theoretical mechanism could fix the value of a quantifier in these two options.

interpretation of a quantifier by adding another function over its domain: the ordering source orders the domain of the quantifier according to some ideal.

There are also pragmatic and paradigmatic considerations: both Gitksan and St'át'imcets have other modal-type words that are not ambiguous with regards to modal force. In example (4.56) St'át'imcets has the adverb *sxek* which is translated as 'maybe'.

(4.56) St'át'imcets

a. *lh-ʔámh-as* *kw* *s-qwal'út-s-al'ap* ***sxek***
HYP-GOOD-3.conj DET NOM-talk-CAUS-2pl.ERG **maybe**
um'-en-tumulh-ás *kelh*
give-dir-2pl.obj-3.erg FUT
"If you talk to him nicely, he might give you some."

b. *nihl* *ku* *cwʔaoy-s* *kw* *s-k'úl'-em* *múta7* *ku* *pálaʔ* ***k'a***
FOC DET NEG-3.poss DET NOM-make-MID again DET one **INFER**
sxek *xetspásq'et*
maybe week
"So she wouldn't have to make more for about a week maybe."

This can be considered as a disambiguation strategy: Whereas *k'a* has a default universal reading, there is a morpheme dedicated to an unambiguously weaker modal force reading.

The opposite arrangement of this occurs in Gitksan: whereas =*ima* has a default existential reading, the evidential *n̓akw* can only be translated as a strong, *must*-like modal:

(4.57) Context: You and a friend are at the store and you see a dollar coin on the ground. It could be yours, your friend's, or the person in front of you in line may've dropped it.

a. *kẇoodindimahl* *daalat*
kẇoo-T-in-t=*ima*=hl daala-t
drop-t-CAUS-3sg=MOD=CND money-3sg
"She **might**'ve dropped her money."

b. *n̓akwt* *kẇoodintdima=hl* *daala-t*
n̓akw=t kẇoo-T-in-t=*ima*=hl daala-t
EVID=3sg drop-t-CAUS-3sg=MOD=CND money-3sg
"She **must**'ve/#**might**'ve dropped her money."

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

a. *k̲'ojinimahl* *'on̓in*
k̲'ots-i-n=*ima*=hl 'on̓-n
cut-TR-2sg=MOD=CND hand-2sg
"You **may**'ve cut your hand."

b. *n̓agwimi* *k̲'otshl* *'on̓n*
n̓akw=mi k̲'ots=hl 'on̓-n
EVID 2sg cut=DET
"You **must**'ve/#**might**'ve cut your hand."

As discussed earlier in this chapter and in chapter 2, there are restrictions on the distribution of *n̓akw*: it is only felicitous in contexts in which the speaker can make an inference from observable evidence. When =*ima* appears in these contexts, it is almost always translated

as a possibility modal. In the next chapter this arrangement is analyzed as a case of *pragmatic blocking*: *n̓akw* is more specialized for the strong reading, and blocks =*ima* from that reading. This is relevant because when a speaker chooses to use =*ima* in a context where *n̓akw* is felicitous, they are essentially expressing that they don't believe the evidence they have warrants a stronger statement. This would again amount to existential quantification over a set of worlds that is restricted by the ordering source: There is a proposition that is a part of the ordering source that would say that, normally, when you see blood at a person's feet (and they are using a knife), that person cut themself.

Additionally, there is no 'weaker' epistemic modal in Gitksan other than =*ima*. The Gitksan equivalent of the St'át'imcets adverb *sxek* is the word *n̓idima*, which is common in Gitksan discourse, and is frequently translated as 'maybe'. It is morphologically complex, composed of the 3sg independent pronoun, *n̓it*, and modal =*ima*. This was observed in the Mastermind example in Chapter 3 (3.75), repeated in (4.59):

(4.59) a. *neeyimahl* *ihleetxwda*
nee=*ima*=hl ihleetxwt=a
NEG=MOD=CND be.red=INTERROG
"Is it maybe red?" (lit. "Is it not possibly red?")

b. *ee'e, n̓idima*
ee'e, n̓it=*ima*
yes, 3sg=MOD
"Yes, maybe."

I take this paradigmatic relationship found in both St'át'imcets and Gitksan to be supporting evidence for default quantificational force in these languages, as summarized in Table 4.3.

4.4.5 Interim Summary

Gitksan represents a class of languages in which an epistemic modal can be translated as having variable modal force, while lexically encoding an epistemic conversational background. Assuming that modals are quantifiers over possible worlds, it was argued that the modal =*ima* is uniformly existential, and shown that variability of modal force can be derived from the ordering source. The strong/weak interpretations of =*ima* correspond to non-empty vs. empty ordering sources. This in turn predicted a theoretical typology. In St'át'imcets, the arrangement is reversed: quantification is fixed as universal, but the strong/weak interpretations of the epistemic modal in that language correspond to empty vs. non-empty ordering sources.

This analysis is rooted in Kratzer's original (1991) analysis of graded modality, and how the modal paraphrases in (4.60) which encode finer distinctions of possibility and necessity, correspond to different ordering sources:

(4.60) a. *Es kann gut sein, dass...* HUMAN POSSIBILITY
"There is a good possibility that..."

b. *Es besteht eine geringe Möglichkeit, dass...* SLIGHT POSSIBILITY
"There is a slight possibility that..."

c. *Es ist wahrscheinlich, dass...* HUMAN NECESSITY
"It is probable that..."

Gitksan and St'át'imcets simply represent languages where the grades of modality as expressed in the various paraphrases in (4.60) are admitted by a single lexical item, or a many-to-one relation between ordering sources and an epistemic modal.

The translation of the epistemic modals =*ima* and =*k̲at* into English reveal that a speaker's certainty level about the proposition must still be underlyingly there. This is not about distinguishing different sources of evidence, but how a speaker's world knowledge, beliefs and experiences condition their attitude towards the propositions in the modal base. This is invoked by context, and the ordering source is a contextually determined function which provides the formal means to truth-conditionally capture the effects this knowledge and/or beliefs has on the modal base.

4.5 Modal =*ima* and Conjectural Questions

In chapter 3, §3.6.2.2 it was shown that modal =*ima* has a peculiar effect in interrogatives. The insertion of =*ima* into a question creates a non-interrogative utterance, translated by speakers using 'I wonder....' Examples of this effect are given below: example (4.61)a. is an evidential assertion, (4.61)b. is an ordinary yes-no question, and (4.61)c. contains both the evidential and the yes-no question marker and is translated as a statement of uncertainty:[37]

(4.61) a.

sdinimahl	*x̲biist*	*tust*
stin=*ima*=hl	x̲biist	tust
be.heavy=MOD=CND	box	DEM

"That box might be heavy."

b.

neehl	*sdinhl*	*x̲biist*	*tusta*
nee=hl	stin=hl	x̲biist	tust=**a**
NEG=CND	be.heavy=CND	box	DEM=**INTERROG**

"Is that box not heavy?"

c.

neeyima=hl	*sdinhl*	*x̲biist*	*tust=a*
nee=*ima*=hl	stin=hl	x̲biist	tust=**a**
NEG=MOD=CND	be.heavy=CND	box	DEM=**INTERROG**

"I wonder if that box isn't heavy."

The same effect is shown in (4.62) with *wh*-questions:

(4.62) a.

gi̓namiyimas	*Gwenhl*	*xhlaẃsxw*	*'as*	*John*
ki̓nam-i-(t)=*ima*=s	Gwen=hl	xhlaẃsxw	'a=s	John
give-TR-3sg=MOD=PND	Gwen=CND	shirt	OBL=PND	John

"Gwen might've given the shirt to John."

b.

naa	*'an-t*	*gi̓namhl*	*xhlaẃsxw*	*'as*	*John*
naa	'an-t	ki̓nam-(t)=hl	xhlaẃsxw	'as	John
who	S.REL-3sg	give-3sg=CND	shirt	OBL=PND	John

"Who gave this shirt to John?"

c.

naayima	*'an-t*	*gi̓namhl*	*xhlaẃsxw*	*'as*	*John*
naa=*ima*	'an-t	ki̓nam-(t)=hl	xhlaẃsxw	'as	John
who=MOD	S.REL-3sg	give-3sg=CND	shirt	OBL=PND	John

"I wonder who gave this shirt to John."

[37] This subsection is largely adapted from Littell, Matthewson & Peterson 2009.

Littell et al. call these kinds of questions containing inferential evidentials such as =*ima* *Conjectural Questions* (CQs): they are syntactically and semantically questions, but pragmatically CQs have the force of assertions.[38] The apparent reduced interrogative force of the CQs might suggest that they are some kind of rhetorical question. However, Littell et al. argue that CQs are distinct from rhetorical questions, and form part of a three-way typology, given in Table 4.4, of question-types based on expectations of Speaker/Addressee knowledge of the answer:[39]

	Speaker	**Addressee**
Ordinary Questions	No	Yes
Rhetorical Questions	Yes	Yes
Conjectural Questions	No	No

Table 4.4: Speaker/Addressee knowledge of the answer across question types

Given these properties, how we can derive the right semantics and pragmatics for CQs? Ideally, we want to derive the meaning compositionally, using only the independently-needed semantics for the elements contained within CQs. Littell et al. show that this is attainable, given the independently motivated modal analysis of evidentials presented in §4.3: =*ima* has a modal semantics but carries a presupposition that there is evidence of a certain type for the prejacent.

4.5.1 The Properties of Conjectural Questions

Modal =*ima* appears to affect the illocutionary force of a question, lessening it; thus, are the b. utterances in (4.61) and (4.62) actual questions or assertions? In approaching this question, it is necessary to start with the basics and review the three different but interrelated notions of *question* (Higginbotham 1996):

(4.63) *Syntactic:* An instance of a certain sort of linguistic structure.
Semantic: An utterance with a certain type of denotation.
Pragmatic: A particular sort of speech act.

CQs have the syntax and semantics associated with questions, but do not have the same pragmatic properties as questions. The data from Gitksan support this: CQs in Gitksan take the characteristic syntactic form of questions, with either a *wh*-element taking a particular sort of complement, or the usual yes-no question particle, as examples (4.61) and (4.62) above showed. Furthermore, results show that CQs syntactically embed in the same manner as ordinary questions, as in (4.64):

(4.64) *neediihl* *wilaaxs* *Henry* *ji* *ixstadinimas*
nee-tii=hl wilaax-(t)=s Henry tsi ixsta-t-in-(t)=*ima*=s
NEG-CONTR=CND know-3=PND Henry IRR taste-T-CAUS-3sg=MOD=PND
Lisahl *x̲dii*
Lisa=hl x̲-tii
Lisa=PND consume-tea
'Henry doesn't know if Lisa might like tea drinking.'

[38] Recent work in Inquisitive Semantics suggests a fourth property: whether or not an utterance is *inquisitive*, a property shared by questions and some kinds of assertions, such as disjunctions (Groenendijk 2006). CQs do appear to be inquisitive, in that they raise the issue of which of a set of alternatives holds.

[39] Rhetorical questions in Gitksan can only be formed with the evidential *n̓akw*. These are examined in chapter 5.

Not only are CQs syntactically questions, they denote the same sorts of things that questions denote. That CQs embed under predicates like KNOW, ASK, etc. in an identical manner to ordinary questions is *prima facie* evidence that they are of the same type. This can be treated under a fairly standard approach (Hamblin 1973; see Groenendijk and Stokhof 1982; 1984 for an alternative view): a question denotes a set of propositions, each of which is a (partial) answer to the question. The question set contains the set of possible answers (as in Hamblin 1973, but unlike in Karttunen 1977), as in a yes-no question in (4.65), or in the wh-question in (4.66):

(4.65) $[\![\text{is that box heavy}]\!]^w = \{\text{that box is heavy, that box is not heavy}\}$

(4.66) $[\![\text{who gave this shirt to John}]\!]^w = \{\text{that Gwen gave this shirt to John, that Leiwa gave this shirt to John, that Holly gave this shirt to John,...}\}$
$= \{p : \exists x[p = \text{that } x \text{ gave this shirt to John}]\}$

The semantics of CQs can be fairly straightforwardly handled by a Hamblin-set analysis: in the denotation of a question containing a modal, the modal is distributed across the set of possible answers, as shown in (4.67),:

(4.67) $[\![\text{who } \Diamond \text{ gave this shirt to John}]\!]^w = \{\text{that Gwen } \Diamond \text{ gave this shirt to John, that Leiwa } \Diamond \text{ gave this shirt to John, that Holly } \Diamond \text{ gave this shirt to John,...}\}$
$= \{p : \exists x[p = \text{that } x \Diamond \text{ gave this shirt to John}]\}$

The insertion of a modal intuitively has the effect of 'weakening' of the interrogative force of the question: the speaker is asking only who could have *possibly* given this shirt to John, rather than who *did* give this shirt to John. It is shown below that the evidence presuppositions of the epistemic modal =*ima*, when inserted into a question, are actually what is responsible for a further weakening of interrogative force.

In terms of pragmatics and discourse, Ordinary Questions (OQs) such as (4.65) and (4.66) have three features: first, an OQ is a request by the speaker for information from the addressee. Secondly, its answer is not known to the Speaker, but the Speaker thinks the Addressee may know it. Thirdly, an OQ requires an answer in order for the dialogue to be felicitous (Caponigro and Sprouse 2007). However, not everything that is a syntactic or semantic question is, by this definition, a pragmatic question. Consider an Ordinary Question vs. a Rhetorical Question (RQ), given in (4.68) (examples adapted from Caponigro and Sprouse 2007):

(4.68) a. 'John looks like an interesting syntactician.'
OQ: 'What does he know about semantics?'
[Possible answers: He knows a lot about semantics; He doesn't know a lot about semantics; etc.]

b. 'I don't think we should have John on our short list.'
RQ: '(After all,) what does he know about semantics?'
[Implicates he knows nothing about semantics.]

RQs and OQs are syntactically and semantically the same, but pragmatically different (Sadock 1971; Han 2002; Sprouse 2007; Caponigro and Sprouse 2007): an RQ differs from an OQ in that the answer is known to the Speaker and the Addressee, and they both also know that the other knows the answer as well. In terms of the requirement for an answer, RQs also differ from OQs in that they can have, but do not require an answer. CQs are similar to RQs in these respects. They have same syntactic form and alternative semantics as OQs, but the sentential force of a declarative. CQs can have, but do not require an answer. For the CQ in (4.69)a., either the Speaker or the Addressee can respond with (4.69)b.:

(4.69) a. *nayima* *'ant* *sdils* *John*
na=*ima* 'an-t stil-(t)=s John
who=MOD S.REL-3sg accompany-3=PND John
'I wonder who went with John.'

b. *Billyima* *('ant* *sdils* *John)*
Bill=*ima* ('an-t stil-(t)=s John)
Bill=MOD S.REL-3sg accompany-3=PND John
'Maybe it was Bill (who went with John.).'

However, CQs are not acceptable in RQ situations, as shown in (4.70):

(4.70) Context: The speaker is 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. Out of exasperation, the speaker exclaims (4.70).

sinsima *n̓ida*
sins=*ima* n̓it=a
blind=MOD 3sg=INTERROG
≠ "Is he blind or something?"

CQs also differ from RQs in terms of Addressee knowledge. In an RQ, typically both the Speaker and Addressee know the answer. CQs, in contrast, are typically bad in situations in which the Addressee can be assumed to know the answer (cf. also Rocci 2007, p. 147). This is shown not only in (4.70), but in other cases of Addressee knowledge such as (4.71).

(4.71) *#neeyimahl* *xwdaxina*
nee=*ima*=hl xwdax-n=a
YNQ=MOD=CND hungry-2sg=INTERROG
'I wonder if you're hungry.'

In sum, a CQ differs from an OQ and RQ in that it is a statement expressing uncertainty or wondering. An CQ is unlike both an OQ and an RQ in that its answer is not known to the Speaker or the Addressee, and they both also think that the other does not know the answer. A CQ invites, but does not require, an answer from the Addressee, and may be answered by either the Speaker or the Addressee, similar to an RQ. These claims are summarized in table 4.5:

	S. knows answer	**A. knows answer**	**Answer req'd**
OQ	No	Yes	Yes
CQ	No	No	No
RQ	Yes	Yes	No

Table 4.5: Knowing and requiring an answer across question types

4.5.2 An Analysis of Conjectural Questions

The goal is to derive the reduced interrogative force of CQs from the semantics of CQs, rather than by positing the presence or absence of an invisible speech-act-operator for which there is no syntactic or semantic evidence. This means that we want to use only independently-needed aspects of the meanings of evidentials and questions to derive the right semantics and

pragmatics for CQs. Following Littell et al. (2009), the central claim here is that CQs in Gitksan have the semantics of ordinary questions, but exhibit a reduced interrogative force in the pragmatics due to their evidential presuppositions.

The semantics of questions outlined in (4.65) and (4.66) will serve as a base for the claim that the presupposition introduced by a question is the conjunction of the presuppositions introduced by the statements in its Hamblin set.[40] This conjunction of presuppositions is usually not detectable, as each proposition in the question set introduces exactly the same presupposition. This is illustrated in (4.72) and (4.73) using the presupposition associated with *too*:

(4.72) Is that box heavy too?
{that that box is heavy too, that that box isn't heavy too}

(4.73) Has Jason stopped smoking?
{that Jason has stopped smoking, that Jason has not stopped smoking}

In (4.72) all propositions in the question set presuppose that some salient box is heavy other than the one currently in question, and in (4.73) all the propositions in the question set presuppose that Jason used to smoke.

However, the interesting cases are where each member of the Hamblin set introduces a *different* presupposition.

(4.74) Who here doesn't drink anymore?
{that Tyler doesn't drink any more, that Lisa doesn't drink anymore, ...}

(4.75) Who went to Paris again?
{that Scott went to Paris again, that Edna went to Paris again, ...}

The question in (4.74) presupposes of each x in the contextually salient group that x used to drink, and (4.75) presupposes of each x in the contextually salient group that x has been to Paris.

Evidence that the combined presupposition exists is found in the interpretations in (4.76)a,b. The exclusive particle *only* presupposes that its embedded proposition is true. The conjoined presupposition of (4.76)a. is therefore that each country has two cities. While this is not true for strictly every country in the world (e.g. Vatican City or Tuvalu), the assumption is nevertheless fairly commonly held, and therefore the question is felicitous. However, (4.76)b. is odd: although some countries do have two capital cities (e.g., Bolivia, Swaziland) it is definitely infelicitous to presuppose this of each country.

(4.76) a. Which countries have only two cities?
{that Canada has only two cities, that Iceland has only two cities, ...}
(presupposes of each country x that x has two cities.)

b. #Which countries have only two capital cities?
{that Canada has only two capital cities, that Iceland has only two capital cities, ...}
(presupposes of each country x that x has two capitals.)

The reduction of interrogative force is predicted from two assumptions. First, questions presuppose the conjunction of the presuppositions of their partial answers; secondly, evidentials such as =*ima* introduce presuppositions of evidence. The denotations and presuppositions of a yes-no question and a *wh*-question in Gitksan are illustrated in (4.77) and (4.78) respectively:

[40] For a similar idea, namely that a question presupposes all the presuppositions of its sub-constituents, see Guerzoni (2003).

(4.77) *x̱m̓iyeenimat* *Jasona*
x̱-m̓iyeen-(t)=*ima*=t Jason=a
consume-smoke-3sg=MOD=PND Jason=INTERROG
'I wonder if Jason smokes.'

= {that Jason might smoke [presupposing there is inferential evidence that Jason smokes], that Jason might not smoke [presupposing there is inferential evidence that Jason doesn't smoke]}

(4.78)

naayima	*'ant*	*gin̓amhl*	*xhlaẁsxw*	*'as*	*John*
naa=*ima*	'an-t	kin̓am-(t)=hl	xhlaẁsxw	'a=s	John
who=MOD	S.REL-3	give-3=CND	shirt	OBL=PND	John

"I wonder who gave this shirt to John."

= {that Gwen might have given this shirt to John [presupposing there is inferential evidence that Gwen gave this shirt to John], that Leiwa might have given this shirt to John [presupposing there is inferential evidence that Leiwa gave this shirt to John], that Holly might have given this shirt to John [presupposing there is inferential evidence that Holly gave this shirt to John], ...}

= {$p : \exists x[p =$ that x might have given this shirt to John [presupposing there is inferential evidence that x gave this shirt to John]]}

The conjoined presupposition of (4.78) is that there is inferential evidence that Gwen gave this shirt to John, and there is inferential evidence that Leiwa gave this shirt to John, and there is inferential evidence that Holly gave this shirt to John, and so on. We can now connect this to the claims in table 4.5 about speaker and addressee knowledge: a speaker who utters a question (not knowing the answer) but at the same time makes explicit that she believes the evidence is utterly mixed (even contradictory), is indicating her belief that the hearer is not in a position to answer the question, and nor is an answer required of the addressee.

However, there is an additional pragmatic angle worth considering in CQ sentences such as (4.78). Consider a slightly different context where the speaker *requires* an answer. In this case, it would be simpler and more succinct for the speaker to simply utter a regular OQ, which requires an answer from the addressee in order for the discourse to be felicitous. CQs are more complex constructions than OQs, and by using an evidential in a question, a speaker is implicating that the speaker was not in a position to utter an OQ, and thus that the hearer is assumed to lack an answer to the question.

4.5.3 Conjectural Questions in Other Languages, and with Other Evidentials

The analysis presented in this section predicts that CQs should be a wider phenomenon cross-linguistically. Littell et al. (2010) report the same effects in both St'át'imcets in (4.79) and Nɬeʔkepmxcín (Salish) in (4.80): when an evidential is inserted into a question it creates an evidential question:[41]

(4.79) St'át'imcets

a. *lán=**k'a*** *kwanen-s-as*
already=**INFER** take.REDUP-CAUS-3.ERG
ni=n-s-mets-cál=a
DET.ABS=1sg.POSS-NOM=write-ACT=EXIS

[41] See also Littell (2010) for a detailed discussion of other evidentials in questions, and Nɬeʔkepmxcín.

'She must have already got my letter.'

b. *lán=**ha*** *kwanen-s-as*
already=**YNQ** take.REDUP-CAUS-3.ERG
ni=n-s-mets-cál=a
DET.ABS=1sg.POSS-NOM=write-ACT=EXIS
'Has she already got my letter?'

c. *lan=as=**há=k'a*** *kwanen-s-as*
already=3.SBJN=**YNQ=INFER** take.REDUP-CAUS-3.ERG
ni=n-s-mets-cál=a
DET.ABS=1sg.POSS-NOM=write-ACT=EXIS
'I wonder if she's already got my letter.'
'I don't know if she got my letter or not.'

(4.80) Nɬe?kepmxcín

a. *y'e-mín-s=**nke*** *e=Meagan* *e=ti*
good-REL-3.sub=**INFER** DET=Meagan DET=tea
'Meagan must like the tea. / Apparently, Meagan likes tea.'

b. ***ké?*** *k=s=y'e-mín=s* *e=Meagan* *e=ti*
whether IRL=NOM=good-REL=3.poss DET=Meagan DET=tea
'Does Meagan like the tea?'

c. ***ké?**=ws=**nke*** *k=s-y'e-mín-s* *e=Meagan* *e=ti*
whether=SBJN=**INFER** IRL=NOM-good-REL=3.ERG DET=Meagan DET=tea
'I wonder whether Meagan likes the tea.'

The conjectural/inferential evidential is not the only evidential to appear in questions, but it is the only one to have this 'I wonder' effect. Both *=ima* and *=k̲at* have the same semantics, differing only in the formulation of their presuppositions, yet *=k̲at* does not have the same effect in questions as *=ima* does. Reportative questions, for example, are straightforward questions meaning something like 'Have you heard ...?'. An example of this is found in (4.81):

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

a. *ga**x̲**gu* *dim* *bagwiṁ*
ka**x̲**gwi tim pakw-ṁ
when FUT arrive.pl-1pl
'When is it we'll get there?'

b. *ga**x̲**gu**ʔ**at* *dim* *bakw-ṁ*
ka**x̲**gwi=*k̲at* tim pakw-ṁ
when=REP FUT arrive.pl-1pl
'When is it (did they say/did you hear) we'll get there?'

c. *silkwsa**x̲*** *t'aahlakw=k̲at*
silkwsa**x̲** t'aahlakw=*k̲at*
noon tomorrow=REP
'(I heard/They said) at noon tomorrow.'

The analysis above predicts that these questions would introduce conjoined presuppositions, too, to the effect that there is mixed or contradictory *reportative* evidence, in the same way that conjectural questions introduce a conjoined presupposition that there is mixed or contradictory conjectural evidence. However, in none of these reportative questions does there appear to be any meaning akin to 'reports are mixed', nor does there appear to be any resulting signal that the speaker does not expect the addressee to be able to answer. However, Murray (2009b) reports that in Cheyenne it appears to be the reportative, rather than the conjectural, that has this effect. Why this same effect would be caused by different evidentials in different languages is another issue for future research.

The account above will thus need to be refined and expanded to properly account for evidentials other than the conjectural evidential, with the eventual goal of accounting for Conjectural Questions as a unified phenomenon. One possible direction to pursue is focusing on the meanings of individual evidentials and taking into account their paradigmatic relation to one another in terms of specific kinds of inferential evidence they encode. For example, in Gitksan both the modal *=ima* and reportative *=k̲at* are inferential evidentials, but *=k̲at* encodes a more specific kind of inferential evidentiality, specifically that the inferential evidence must be a report. The suggestion here is that *=k̲at* cannot convey a 'wonder' interpretation when put into a question because the kind of evidential information encoded by *=k̲at* is too specific to allow for any kind of controversy. In other words, only the 'weakest' evidential can be used in a CQ, and this is the more general *=ima*.

Evidential *n̓akw* is also more specific than *=ima* in that it encodes sensory evidence. It is also therefore worth observing that *n̓akw* does not have this effect in questions. The analysis of *n̓akw* in the next chapter shows that its evidential meaning is also encoded by presupposition. Yet, as with *=k̲at*, questions with *n̓akw* cannot have a 'wonder'-type translation, as (4.82) shows:

(4.82) Context: You can smell cigarette smoke coming from outside. You can see Jason standing outside (but not the actual cigarette).

**n̓akwhl*	*x̲m̓iyeenis*	*Jasona*
n̓akw=hl	x̲-m̓iyeen-(t)=s	Jason=a
EVID=CND	consume-smoke-3sg=PND	Jason=INTERROG

"Jason must be smoking."
≠ "I wonder if Jason smokes."

However, (4.82) is ungrammatical as a result of the restriction on *n̓akw* from being a part of any kind of interrogative construction, thus we are unable to gain any further insight from *n̓akw* into this issue.

4.6 Summary

Three issues concerning the semantics of evidentials were addressed in this chapter. The first involved the semantics of the evidentials *=ima* and *=k̲at*. The tests in chapter 3 showed that both *=ima* and *=k̲at* are propositional operators. I showed that both *=ima* and *=k̲at* are modal evidentials: they are quantifiers over possible worlds. The analyses of *=ima* and *=k̲at* are exactly parallel; the only difference resides in the definedness condition, which for *=ima* requires that the modal base contain those worlds in which the inferential evidence in w holds, and for *=k̲at* requires that the modal base contain those worlds in which the reported evidence in w holds.

A modal analysis of *=ima* and *=k̲at* led to the second issue addressed here: the variable modal force of *=ima* and *=k̲at*. I attribute the variable modal force not to variable

quantification, which is fixed as existential, but in the ordering source. The weak/strong interpretations of *=ima* and *=k̲at* correspond to empty/non-empty ordering sources respectively. I extended this to St'át'imcets, where the weak/strong interpretations of modals also correspond to non-empty/empty ordering sources, but over a universally quantified modal base. The choice function analysis of Rullmann et al. can be reduced to an ordering source one, and what this gives us is a unified account and a theoretical typology of languages in which modal forces vary under a fixed quantifier.

Thirdly, I examined the effect *=ima* has when added to a question, in what are called Conjectural Questions. It was shown that we can attribute the lessened interrogative force that characterizes a CQ to the independently needed presuppositions associated with *=ima*. The presuppositions introduced by *=ima* are carried by each proposition in the question denotation, and conjoin with each other. The resulting conjoined presupposition entails that there is mixed evidence about the question at hand. Thus, the presupposition of mixed evidence functions to indicate reduced confidence on the speaker's part that the hearer is in a position to know the true answer. The outcome is a reduced interrogative force for CQs: not only is the hearer not required to answer, the speaker is encoding that the hearer is probably not able to answer.

Chapter 5

The Pragmatics of Evidentiality in Gitksan

In chapter 3 a battery of four diagnostics was applied that tested which level of meaning an evidential operates on. These tests revealed that both =*ima* and =*k̲at* operate at the propositional level, and in chapter 4 both =*ima* and =*k̲at* were analyzed as epistemic modals whose evidential meaning is encoded through presupposition. However, these same tests show that the sensory evidential *n̓akw* diverges from the modals =*ima* and =*k̲at* in every respect: *n̓akw* cannot be a propositional operator. This indicates that *n̓akw* operates above the proposition at the illocutionary level. These results are summarized in table 5.1, repeated from chapter 3 for convenience:

	Gloss	*Evidence type*	*Level of Meaning*
=k̲at	REPORTATIVE (REP)	Reportative	**Propositional**
=ima	MODAL (MOD)	Inferential	**Propositional**
n̓akw	EVIDENTIAL (EVID)	Inferential – Sensory	**Illocutionary**

Table 5.1: The modal vs. illocutionary status of the evidential system in Gitksan

The goal of this chapter is to give a formal account of the range of meanings and uses of *n̓akw*, and how it fits into the system of evidentiality and epistemic modality in Gitksan.

5.1 The Issues

In order to adequately explain the meaning of *n̓akw*, there are four specific issues that have to be addressed. The first issue involves accounting for the core meaning of *n̓akw* in terms of its felicitous use in discourse. The evidential meanings of *n̓akw* were presented in chapter 2: sentences of the form *n̓akw*(p) require that a speaker have indirect sensory evidence for inferring p. In other words, *n̓akw* is infelicitous in contexts that involve conjecture, or a speaker's inference for p based on past experiences, as example (5.1) shows:

(5.1)

n̓akwt	*hlak̲hlak̲shl*	*as'oshl*	*haahlx̲an*
n̓akw=t	hlak̲-hlak̲s-(t)=hl	as-os=hl	haahlx̲an
EVID=3pl	pl-scratch-3sg=CND	pl-dog=CND	wall

"The dogs must've scratched the wall."

Felicitous (sensory evidence): You see scratch marks on the outside wall of your friend's house that weren't there last night.
Infelicitous (past experience): Your friend tells you about the scratches on the wall outside her house. You know that her dogs get really restless when they're tied up for too long, and maybe they did this because they were anxious.

Secondly, evidence was presented in chapter 3 that showed *n̓akw* patterns morphosyntactically in a similar way to an auxiliary verb that takes a complement clause. However,

unlike verbs, *ʼnakw* cannot undergo any of the usual operations expected of verbs: it cannot be embedded or questioned. Further to this, evidence is presented below that shows *ʼnakw* is in complementary distribution with other sentential forces, such as assertions, questions and imperatives. Does this mean that *ʼnakw* signals a novel sentence type? If *ʼnakw*(p) sentences are not asserted, what is their illocutionary status?

Thirdly, despite the diverging characteristics of *ʼnakw* from modal =*ima* and reportative =*k̲at*, *ʼnakw* is nonetheless an indirect evidential. Thus, we expect it to interact with the other indirect evidentials in Gitksan in some systematic way. This is indeed the case: it was shown in chapter 2 that =*ima* and *ʼnakw* stand in relation to one another: in contexts where a speaker makes an inference based on speculation or experience, =*ima* may be interpreted as either *must* or *might*, as (5.2)

(5.2) Context: Your friend tells you about the scratches on the wall outside her house. You know that her dogs get really restless when they're tied up for too long, and maybe they did this because they were anxious.

hlak̲hlak̲stiidimahl	*as'oshl*	*haahlx̲an*
hlak̲-hlak̲s-tiit=*ima*=hl	as-os=hl	haahlx̲an
pl-scratch-3pl=MOD=CND	pl-dog=CND	wall

"The dogs **might've/must've** scratched the wall."

However, example (5.3) shows that when there is sensory evidence available in the context, *ʼnakw* takes over the interpretation of *must*, and =*ima* is relegated to meaning only *might*:

(5.3) Context: You see scratch marks on the outside wall of your friend's house that weren't there last night.

a.

hlak̲hlak̲stiithl	*as'oshl*	*haahlx̲an*
hlak̲-hlak̲s-tiit=hl	as-os=hl	haahlx̲an
pl-scratch-3pl=MOD=CND	pl-dog=CND	wall

"The dogs **might've** scratched the wall."

b.

ʼnakwt	*hlak̲hlak̲shl*	*as'oshl*	*haahlx̲an*
ʼnakw=t	hlak̲-hlak̲s-(t)=hl	as-os=hl	haahlx̲an
EVID=3pl	pl-scratch-3sg=CND	pl-dog=CND	wall

"The dogs **must've** scratched the wall."

Modal =*ima* and non-modal *ʼnakw* are both inferential evidentials, however, they operate on different levels of meaning. Thus, the leading question is how do linguistic objects that operate on different levels of meaning interact in this way?

Lastly, *ʼnakw* has two additional interpretations that draw upon its evidential status. In chapter 3 §3.6.1.1, the Known Truth/Falsity Test showed that modal =*ima* is infelicitous if the speaker knows the truth or falsity of the proposition embedded under the evidential. Under normal conversational use, when sentences of the form *ʼnakw*(p) are used in a conversation, the speaker is claiming that they have indirect sensory evidence for p. However, when *ʼnakw*(p) is used in contexts where the speaker knows p is true, usually through the direct observation of the event of p, *ʼnakw* has a mirative meaning. There is also another effect associated with the opposite arrangement: when a speaker knows that p is false, *ʼnakw* has a non-literal meaning. Why does *ʼnakw* have this meaning when other sentences, including regular assertions and =*ima*(p) sentences, cannot convey these meanings?

5.2 The Plan

Because all of these issues are interconnected and directly involve the pragmatic meaning of *ńakw*, I approach them incrementally in the following way: first, in §5.3, *ńakw* is examined in terms of how it functions in conversation. All of the evidence presented so far indicates that *ńakw* is highly dependent on the local context of its use. Dynamic semantics provides an effective way of explaining the use of *ńakw* in terms of its context change potential, or the 'instructions' *ńakw* gives as to how to update the Common Ground. Just as we saw in the denotations of modal *=ima* and *=k̲at* in the previous chapter, this chapter shows that presupposition is also crucial in determining the felicity of *ńakw* in a conversation. Whereas *=ima* and *=k̲at* have semantic presuppositions (definedness conditions on a proposition) that restrict the modal base worlds, *ńakw* carries a pragmatic presupposition which places a condition on its use in a conversation: the felicitous use of a *ńakw*(p) sentence requires that sensory evidence is entailed by the Common Ground. Whereas semantic presuppositions are treated formally as conditions on the definedness of a proposition, and are characterized as constraints on the discourse context, pragmatic presuppositions are beliefs about the context that must be attributed to a speaker.

While this explains the use of *ńakw* in conversation in terms of its context change potential, we still require an account of *ńakw* in terms of its sentential force. If *ńakw*(p) sentences are not assertions, then what exactly do they contribute to the conversation? §5.4 refines the Dynamic Semantics of *ńakw* by proposing that *ńakw* is a novel sentential force operator. Portner (2006) suggests an enrichment of Dynamic Semantics to include other sets of propositions distinct from the common ground. For example, the sentential force of a declarative is assertion: a proposition is added to the common ground, the set of propositions representing the shared assumptions of the discourse participants. Under this analysis, the sentential force of *ńakw* adds a proposition to the inferential set: the set of propositions a speaker has inferential evidence for.

A Dynamic semantics analysis of *ńakw* in terms of pragmatic presupposition allows us to place the sensory evidence presupposition associated with *ńakw* into a relation with the semantic presupposition associated with *=ima*. This is facilitated by the notion that semantic presuppositions give rise to pragmatic presuppositions within a discourse context (von Fintel 2005; Simons 2006). We then have a way of explaining why, in sensory evidence contexts, *ńakw* assumes that strong *must*-like translation, while *=ima* takes the weaker *might*-like reading: the sensory evidence presupposition of *ńakw* is more specialized than the indirect evidence presupposition of *=ima*, therefore *ńakw* blocks *=ima* from the strong reading.

The other robust features of *ńakw*, its mirative and non-literal meanings, are also rooted in the use of *ńakw* in conversation. §5.6 presents an analysis of the mirative as conversational implicature. More specifically, a speaker making a *ńakw*(p) statement when they know p to be true is flouting the Maxim of Quantity: a speaker is contributing more to the discourse than is required for the purposes of conversation. This flout implicates that a speaker is surprised or otherwise unprepared for the event that p denotes. The flipside is metaphor: a speaker making a *ńakw*(p) statement when they know p to be *false* is flouting the Maxim of Quality.

5.3 The Dynamic Semantics of *ńakw*

A static semantics equates the meaning of a sentence with its truth conditions: the conditions in which a sentence is true or false. This is the kind of semantics that was presented in analyzing modal *=ima* and reportative *=k̲at*. Dynamic semantics involves the meanings of sentences in contexts. More specifically, the meaning of a sentence is its context change potential, or the way in which it changes a discourse context (Heim 1982, 1990). Thus,

the interpretation of a sentence is dependent on context. For example, (5.4) contains two different sequences of two sentences:

(5.4) a. A boy walks onto the basketball court. He is dribbling a basketball.

b. ? He is dribbling a basketball. A boy walks onto the basketball court.

The sequencing of these sentences affects their felicity. We can understand the referent of the pronoun *he* in (5.4)a. if it is preceded by a noun phrase, such as *a boy*, which may serve as its antecedent. Reversing these sentences produces an odd discourse as in (5.4)b., or at least one in which the pronoun has to be resolved differently. This phenomenon reflects a sensitivity sentences have to discourse; informally this would be that the indefinite noun phrase may set up a discourse referent which can be referred back to by a following pronoun.

Context can be built into a static semantics in terms of parameters of interpretation. Indeed, the context is necessary for the interpretation of a modal in English, as we saw in the previous chapter how the context provides modal bases and ordering sources of different varieties that determine the interpretation of a modal. However, a dynamic semantics systematically investigates how the interpretation of an expression changes the context, creating a new context out of the old one, and thus affects how subsequent expressions in a discourse are interpreted.

There are a variety of linguistic phenomena which require a dynamic account of interpretation that is provided by the theory of dynamic semantics. These include anaphoric pronouns such as in example (5.4), temporal sequencing, and presuppositions of various kinds. It is the last of these that is relevant to the pragmatic analysis of *ṅakw* and its function in discourse. We saw the use of semantic presupposition in the denotations of modal *=ima* and reportative *=kat* in the previous chapter. As this section shows, it is pragmatic presupposition that is relevant in determining the felicity of *ṅakw* in discourse.

5.3.1 Pragmatic Presupposition

One of the main drivers of dynamic semantics is presupposition. There are two main views on presupposition in the literature, and how presupposition fits into general theories of meaning (Soames 1989):

(i.) *Semantic Presupposition:* Sentences have two components: their propositional content, and their presuppositional content. A semantic presupposition is a necessary condition for the proposition to have a truth value: q is a semantic presupposition for p iff q is true whenever p is true or false.

(ii.) *Pragmatic Presupposition:* Presuppositions are admittance conditions for sentences into a context (Stalnaker 2002; Heim 1982, 1990).

One important assumption is that semantic presuppositions become the pragmatic presuppositions of speakers, as speakers should believe that contexts satisfy the conditions required to allow their utterances to have a truth value (Simons 2006). In other words, the semantic presuppositions of the propositions that are expressed by the sentence that is uttered also have to be pragmatic presuppositions of the utterance. This will become an important assumption when the interaction between *ṅakw* and *=ima* is examined in §5.5.

The notion of pragmatic presupposition is rooted in the theory of presupposition of Stalnaker (2002; 1974):

> A proposition P is a pragmatic presupposition of a speaker in a given context just in case the speaker assumes or believes that P, assumes or believes that his addressee assumes or believes that P, and assumes or believes that his addressee

recognizes that he is making these assumptions, or has these beliefs (Stalnaker 1974, 573).

In other words, a speaker presupposes P just in case she believes that P is in the common ground. This places a constraint on possible discourse contexts in which sentences may be felicitously uttered. Two core components are defined in (5.5) (Stalnaker 1974; Heim 1990):

(5.5) (i.) *Common Ground (CG)*:
The set of propositions which the participants in a conversation agree to be uncontroversial for the purposes of conversation.

(ii.) *Context Set (C)*:
The set of worlds in which every proposition in the Common Ground is true.

The notions of the Common Ground and Context Set provide us with the formal tools talk about the state of a conversation at a given point in time. These may include previous shared history of the participants, world knowledge, the purpose of the discourse and so on. For example, suppose in a particular conversation the participants have agreed on three facts: it's raining, John's truck is in the driveway, and Bill is hungry. We assume they know these things because they can see that they are true, or perhaps because someone may have previously brought them to the discourse by asserting them. Thus a sample CG would be as in (5.6):

(5.6) CG= {the proposition that it's raining; the proposition that John's truck is in the driveway; the proposition that Bill is hungry}

The Context Set C is then the set of possible worlds in which it's raining and John's truck is in the driveway and Bill is hungry:

(5.7) C = the set of worlds in which it's raining and John's truck is in the driveway and Bill is hungry.

Using this notion we can explain the idea that presuppositions are conditions on whether a sentence is admissible into a conversation. In general, the theory of pragmatic presuppositions states that a presupposition is a statement of the form "Sentence S can only be used in C if ...". For example, sentences with the particle *too* attached to them require that there is some previous discourse-relevant sentence of the same meaning denoting the same state or activity etc. This can be readily captured by presupposition:

(5.8) For any Context Set C, "Alvin's truck is in the driveway too" can be used in C iff C entails that some other person's truck is in the driveway.

Given the Common Ground in (5.6), the sentence "Alvin's truck is in the driveway too" is felicitous, since the Context Set illustrated in (5.7) entails that someone else's truck, namely John's, is in the driveway.

5.3.2 Context Change Potential

What this gives is a way of examining the use of a sentence based on its context change potential. This is incrementally driven by the rule that allows us to add a sentence into an evolving conversation. In a nutshell when you update a Context Set C with S, all those worlds in which S is not true are discarded from C. This is captured by the rule in (5.9):

(5.9) For any Context Set C and sentence S, $C + S = C \cap [\![S]\!]$.
(adapted from Heim 1990)

$C \cap [\![S]\!]$ is the intersection of C with the proposition expressed by S. Since the Context Set is defined as the intersection of the propositions in the Common Ground, this is equivalent to saying that the proposition expressed by S is added to the common ground. In other words, it becomes a proposition which the participants in a conversation take as uncontroversial.

Using the toy conversation from above, we can imagine an earlier stage in the conversation where the proposition that John's truck is in the driveway was added to the Context Set by following the rule in (5.9). The effect of this is that all the worlds in which John's truck is not in the driveway are discarded from C, giving us an updated context $C*$. The sentence "Alvin's truck is in the driveway too" is next to be added to $C*$ through the application of (5.9). However, this sentence has a presupposition attached to it, lexically represented by the particle *too*. This presupposition requires that the sentence can only be added to $C*$ if $C*$ entails that some other person's truck is also in the driveway. $C*$ in fact does entail this, and the sentence "Alvin's truck is in the driveway too" can be added to $C*$.

5.3.3 Presupposing Sensory Evidence and the Common Ground

Before we can apply this kind of analysis to evidential *ṅakw*, we need to make more precise how sensory evidence can be pragmatically presupposed. When a dog walks into a backyard where a conversation is taking place, he becomes salient in the context. The consequence of the fact that this dog walked in is that it becomes part of the common ground, simply because the discourse participants can *see* that it's true. The immediate consequences of this depend on the context – for example, if it already was common ground beforehand that everything in the vicinity (i.e. house, yard etc.) belongs to Alvin, now it is common ground that Alvin has a dog. This can apply to other senses: Imagine sitting in Alvin's living room and you hear a child crying in the next room. In this same context, it is now common ground that Alvin has a child.

One prediction made by modeling this sensory evidence requirement as a presupposition, is that contexts which lack sensory evidence should result in a presupposition failure. However, as is commonly the case, these requirements can be accommodated within certain limits. Accommodation is the most flexible when dealing with subjective judgments, as in the case in (5.10):

(5.10) Context: Your friend laughs at you when you tell her you won $1000 at bingo last night.

ṅawimi	*xsingẏ*
ṅakw=mi	xsinx̲-ẏ
EVID=2sg	disbelieve-1sg

"I can see that you don't believe me."

However, more objective statements using *ṅakw* are less easily accommodated, with the potential result of presupposition failure. This presupposition failure effect can be inferred from the consultant's comments in example (5.11):

(5.11) Context: You're chopping wood out by the smokehouse.

ṅakwhl	*sehons*	*Bob*
ṅakw=hl	se-hon-(t)=s	Bob
EVID=CND	CAUS-fish-3=CND	Bob

"Bob must be smoking/preparing/doing up fish."

Comment: Really? Can you smell something or see smoke by coming out of his *wilpsehon* (smokehouse)?

The sentence in (5.11) presupposes that the context entails a proposition about some physical evidence in the discourse situation. Since we imagine (5.11) to be uttered in a context which does not entail such a proposition, and since contexts are transparent (and hence, if p is not entailed by the context then the proposition that the context doesn't entail p is), accommodation is not possible.

The notion of accommodation places certain requirements on the hearer: *ńakw* always has the effect of drawing a hearer's attention to any possible source of sensory evidence, be it visual, tactile, or auditory. We can contrast this effect with the evidential modal *=ima*. Recall from chapter 4 that *=ima* presupposes that the modal base contain only worlds where there is inferential evidence for p. This is a weaker presupposition than the one associated with *ńakw*. This would suggest that it is accommodated more easily. For example, someone may utter (5.12) in a conversation about berry picking: *ńakw* is infelicitous in the context, while *=ima* is fine:

(5.12) *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.

a. *#ńakwhl* *mukwhl* *maaẏ́*
ńakw=hl mukw=hl maaẏ́
EVID=CND ripe=CND berries
"The berries must be ripe."

b. *mugwimahl* *maaẏ́*
mukw=*ima*=hl maaẏ́
ripe=MOD=CND berries
"The berries might/must be ripe."

The presupposition of *ńakw* is more specific, requiring sensory evidence in the context that must be in the common ground and hence available to speaker and hearer. This cannot be as easily accommodated. Modal *=ima* merely presupposes that there is a certain kind of evidence in the modal base. Since this is about the belief-state of the speaker, it can more easily be accommodated. Intuitively speaking, the hearer may not have the evidence themselves, but is willing to take the speaker's word for it. The theoretical issue here concerns how to tie these facts to the difference between pragmatic and semantic presupposition. I suggest that a pragmatic presupposition is a presupposition on the utterance context, and therefore tied to the present state of the conversation, or the "here and now".[42] It is a presupposition on sensory evidence that is in the utterance context and available to all the interlocutors.

5.3.4 The Context Change Potential of *ńakw*(p)

We can use this theory to examine the Context Change Potential of sentences of the form *ńakw*(p) in Gitksan. Here it is claimed that by making a statement *ńakw*(p), a speaker pragmatically presupposes that he or she has sensory evidence for p at the utterance time. More specifically, the addition of *ńakw*(p) to a Context Set C requires that C contain only worlds where the proposition that the speaker has sensory evidence for p is true. For example, when a speaker utters (5.13), there must be some sensory evidence in the common ground that John is home, and a statement of the sentence in example (5.14) presupposes the speaker has some sensory evidence for claiming the hearer has a cut hand:

[42] See Cook (2008) for a related phenomenon with Cree indexicals.

(5.13) Context: You need to ask John a favour, so you and a friend drive by John's place to see if he's home.

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

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

PRESUPPOSITION: There is visual evidence publicly available in the utterance context (John's truck is in the driveway).
p: John is at home.

(5.14) Context: You and a friend are fishing. You're sitting on the rocks, cutting up bait. You notice blood on the rocks at your friend's feet.

ʔnakwhl	*gotshl*	*'onin*
ʔnakw=mi	kots-(t)=hl	'on-n
EVID=2sg	cut-3=CND	hand-2sg

"You must've cut your hand."
"I see you cut your hand."

PRESUPPOSITION: The speaker has visual evidence (blood on the rocks).
p: You cut your hand.

An important claim made here is that the common ground must provide sensory evidence that is both interpretable by the speaker making a *ʔnakw*-sentence, and available to the hearer in assessing the sensory evidence presupposition attached to *ʔnakw*. The infelicity of (5.11) can be attributed to the fact that the speaker does not have access to the sensory evidence – which is specifically targeted in their response – that would license the presupposition attached to the *ʔnakw*-sentence, nor does a hearer have access to any sensory evidence that may lead them to accommodate such a presupposition.

A dynamic semantics analysis of *ʔnakw* also correctly accounts for the temporal constraints placed on *ʔnakw* statements such as (5.13) – (5.14). For example, imagine extending the context in (5.13), where you and a friend continue driving past John's house without stopping, and return home. Even though you saw earlier (sensory evidence) that John's lights were on, uttering (5.13) would result in a presupposition failure: the common ground at that point no longer has any sensory evidence present in the discourse context.

5.4 *ʔnakw* as a Sentential Force Specifier

As outlined in §3.4.1, within classical speech act theory utterances are treated as consisting of an illocutionary force, F, and a separate level of propositional content, p, such that F and p together, or $F(p)$, form a complete utterance used to accomplish a speech act (Searle 1969: 49-50). For example, a sentence with the illocutionary force of assertion adds a proposition to the common ground. However, we also need to take into account a sentence's form independently of illocutionary force. Some of the more common sentence forms or types typically include *declaratives*, *imperatives*, and *interrogatives*. For example, both sentences in (5.15) are declaratives:

(5.15) a. Sammy the dog is cute.
b. I'd like for you to sit down now.

However, these sentences differ in illocutionary force: (5.15)a. is a declarative sentence with the illocutionary force of an assertion. While the sentence in (5.15)b. has a similar form to a., its illocutionary force is that of requesting, or perhaps demanding. Likewise, the sentential force of interrogatives is asking, and the sentential force of imperatives is requiring (Portner 1997). In many languages there are also other sentence types, including exclamatives and promissives.

When a declarative sentence is uttered with assertive illocutionary force, the common ground is updated by applying its context change potential (a function from contexts to contexts) to the current common ground. Context change potential is a property of the sentence, whereas illocutionary force is a property of an utterance of a sentence. The context change potential of a sentence is only "realized" if the sentence is uttered assertively (i.e. with assertive illocutionary force).

5.4.1 A Case for Evidential Sentential Force

Sentential force is often encoded by a sentence's form, and this is partially the case in Gitksan: the sentences in (5.16) have the same predicates, but there are three different sentential forces which also correspond to three different syntactic and morphological clause types: Declarative, Interrogative, and Imperative:

(5.16) a. *jabis* *Sheilahl* *hon*
tsap-i-(t)=s Sheila=hl hon
cook-TR-3=PND Sheila=PND fish
"Sheila cooked the fish."
DECLARATIVE[Sheila cooked the fish]

c. *naa* *'ant* *japhl* *hon*
naa 'an-t tsap-(t)=hl hon
who S.REL-3 cook-3=CND fish
"Who cooked the fish?"
INTERROGATIVE[who cooked the fish]

b. *jabnhl* *hon*
tsap-n=hl hon
cook-2=CND fish
"Cook the fish!"
IMPERATIVE[(you) cook the fish]

There are two distinct clause types in the Tsimshianic languages: what Rigsby (1986) calls the *Independent*, and the *Dependent*. Generally speaking, Independent clauses have a canonical VSO word order. Declaratives such as (5.16)a. are Independent clauses. Dependent clauses are clauses where a constituent other than the verb, such as a wh-element, is at the front of the clause. This element is followed then by the verb, subject and object. Interrogative sentences such as (5.16)b. are always Dependent clauses. The typing of a clause as Independent or Dependent is accompanied by a variety of other morphological alternations. The two notable features of Dependent clauses are the second position ergative clitics (replaced by a common noun determiner in intransitive sentences), and object or intransitive subject independent pronouns replaced by agreement on the verb.

There is a third clause type that I call the Imperative, which corresponds to the imperative sentential force of (5.16)c. Imperative clause types can be characterized as 'half' Independent (they have the Independent, verb-initial, VSO word order), and half Dependent (they have ergative morphology, which is only found in Dependent clauses).

Independent clauses are always declarative, and typically have the illocutionary force of an assertion. However, Independent declarative clauses can also have other illocutionary forces, such as promising and warning. On the other hand, Dependent clauses are not exclusive to any sentential or illocutionary force. Example (5.16)b. is a Dependent clause with interrogative sentential force. However, the progressive and negation are both Dependent clauses, as in (5.17), yet their illocutionary force is assertion:

(5.17) a.

yukwt	*jabs*	*Sheilahl*	*hon*
yukw-t	tsap-(t)=s	Sheila=hl	hon
PROG-3sg	cook-3sg=PND	Sheila=CND	fish

"Sheila is cooking the fish."

b.

neediit	*jabs*	*Sheilahl*	*hon*
nee=tii-t	tsap-(t)=s	Sheila=hl	hon
NEG=CONTR-3sg	cook-3sg=PND	Sheila=CND	fish

"Sheila didn't cook the fish."

As with interrogatives, the progressive and negation, sentences with *n̓akw* are always Dependent:

(5.18)

n̓akwt	*jabs*	*Sheilahl*	*hon*
n̓akw-t	tsap-(t)=s	Sheila=hl	hon
EVID-3sg	cook-3sg=PND	Sheila=CND	fish

"Sheila must've cooked the fish!"
"I see Sheila is cooking fish!"
"Looks like Sheila is cooking fish."

The fact that *n̓akw* introduces a Dependent clause reveals nothing specific about its sentential force. Thus, the main task of this subsection is to identify the sentential force of *n̓akw* sentences. I claim that *n̓akw* clauses have their own sentential force, or what I call an 'evidential sentential force'. The function of evidential sentential force is to add to the set of discourse propositions for which a speaker has inferential evidence. *n̓akw* sentences do not have the illocutionary force of assertion – they do not add a proposition to the common ground – but are similar to other sentential forces: their illocutionary force is largely determined by the context of use.

Supporting evidence that *n̓akw* sentences are not assertions comes from its characterization by consultants. Twelve Gitksan consultants were asked to characterize a *n̓akw* sentence in a typical sensory evidence context. For example, in (5.18) this context is one where a speaker sees the empty cans of *ts'al* (dried sockeye salmon) and smells fish cooking in a pot in the kitchen. Aside from its evidential meaning, which speakers agree on unanimously, speakers variously describe *n̓akw* as sounding similar to asking a yes/no question, emphasizing something, surprise, negating (in the sense of a negative tag question: "Sheila didn't actually cook the fish, did she?") or conveying a sense that something they thought couldn't actually happen actually did happen (this characterization relates to a mirative meaning of *n̓akw*, discussed in §5.6).

Recall from §3.6.2.2 that *n̓akw* cannot participate in any kind of interrogative statement, including a yes/no question. This indicates that *n̓akw* sentences cannot have the sentential force of an interrogative, as example (5.19) shows:

(5.19) a.

yukhl	*x̲m̓iyeenis*	*Jasona*
yukw=hl	x̲-m̓iyeen-(t)=s	Jason=**a**
PROG=CND	consume-smoke-3sg=PND	Jason=**INTERROG**

"Is Jason smoking?"

b. **ǹakwhl* *x̲mǹiyeenis* *Jasona*
ǹakw=hl x̲-mǹiyeen-(t)=s Jason=**a**
EVID=CND consume-smoke-3sg=PND Jason=**INTERROG**
≠ "Jason must be smoking!?"

Finally, there are also two other robust characterizations of *ǹakw* made by consultants: while *ǹakw* expresses a fairly high degree of certainty as to the truth of the embedded predicate, the speaker is not certain of it.

5.4.2 Evidentials as Sentential Force Specifiers (Portner 2006)

Section 5.3 sketched out a dynamic semantics for *ǹakw*, which presupposes that a speaker have sensory evidence in the utterance context for a *ǹakw*-statement. Portner (2006) adapts the theory of conversational update and introduces two modifications to the classical model: the first is that the common ground is only one of potentially numerous sets of propositions. These other sets represent propositions that encode cognitively or communicatively important categories, such as the different subtypes of evidentiality. Evidentials under this approach are sentential force operators that specify a kind of conversational update: they can function to conversationally update the common ground, the set of mutually believed propositions, or to update specialized sets of propositions.

Portner's second modification is the introduction of a wider set which contains the common ground set and all of the other specialized sets: the 'presented' set *ps*. Portner characterizes the *ps* as the set of propositions of which the participants are mutually aware. The common ground is a crucial subset of *ps*, but so are other subsets. We must keep track of subsets of *ps* representing propositions which belong to different categories. For example, we keep track of the propositions to which we have made additional commitments (e.g., the common ground) and about which we have additional kinds of information (e.g., those for which the speaker had indirect evidence). Under this analysis, simple assertion is conversational update where a speaker adds p to the common ground, or the specialized subset $cg(ps)$ of the presented set *ps*.

This offers an alternative to the classical speech act theory analysis presented by Faller (2002a) in accounting for the evidential meanings of the individual evidentials in Quechua. Faller uses utterance modifiers such as *alas* to motivate the addition of a class of illocutionary modifiers into classical speech act theory. This is done largely to account for the fact that sentences of the form $\textsc{ev}(p)$ are not assertions in Quechua. For example, the reportative suffix *-si* has the illocutionary force of 'presenting' a proposition.

(5.20) *para-sha-n-si*
rain-PROG-3-*si*
p = "It is raining."
$\textsc{ill} = \textsc{present}(p)$
$\textsc{sinc} = \exists s_2[\textsc{Assert}(s_2, p) \wedge s_2 \notin h, s]$ (Faller 2002:199)

Under Portner's analysis, the Quechua evidentials are not really illocutionary modifiers, but rather 'sentential force specifiers': they are grammaticized elements which specify precisely which kind of conversation update is to be performed. This is based on Faller's insight, where there is a type of speech act with fewer commitments than assertion which can be modified in various ways to represent the different kinds of evidential meanings in a language (Faller 2002, 2003, to appear; von Fintel 2005).[43]

[43]See Déchaine (2008) for a related analysis of evidentiality in Plains Cree, where sentences, without any evidentials, have the default force of 'presenting' rather than asserting. Whereas with assertion a speaker presents p as true, with the presentative a speaker simply presents p and source of information.

5.4.2.1 The Model of Discourse

In Portner's model of discourse, instead of the common ground as the basic construct, there is a wider set called the *presented set*: the set of propositions which the participants in a conversation are mutually aware of. Portner (2006) defines a model of discourse ds as a pair $\langle ps, F\rangle$ of a set of propositions ps and a tuple of selection functions F from ps to subsets of ps: $F = f_1, ..., f_n$. Each f represents a cognitively and linguistically real way of categorizing a proposition which has been presented and accepted. One or more f's may be modified so that $p \in f(ps)$. Every language has cg as an available f and in every language cg is the default f for propositions that are presented.[44] However, the linguistic system of a language may have one or more grammaticized ways of indicating other types of f to update with a given sentence, and evidentials are one such way.

In its simplest form, when a proposition is PUT into ps, F may also be modified as follows:

(5.21) 1. Simple PUT: For any discourse structure $ds = \langle ps, F\rangle$, $\text{PUT}(ds, p) = \langle ps', F'\rangle$, where (Portner 2006: 9–10)
   (a.) $ps' = ps \cup \{p\}$, and
   (b.) F' is that sequence such that, for each f which is a component of F, f is replaced by f', where $Dom(f') = \{ps \cup \{p\}\}$ and $f'(ps \cup \{p\}) = f(ps)$.

2. PUT which changes a member of F:
   For any discourse structure $ds = \langle ps, F\rangle$, and any f which is a component of F, there is a variety of PUT, PUT_f, such that $\text{PUT}_f(ds, p) = ds'$ as follows:
   Let α' be the discourse component in ds' corresponding to α in ds. Then ds' is the minimal expansion of ds such that all of the following are satisfied:
   a. $p \in ps'$
   b. for all selection functions g which are components of F', $Dom(g) = \{ps'\}$
   c. $p \in f'(ps')$
   d. Any further constraints imposed on discourse structures are satisfied.

Given this technical implementation, evidentials can then correspond to varieties of PUT: for language L, a valid discourse structure has the form in (5.22):

(5.22) $ds_L = \langle ps_L, \langle cg_L, evid^1_L, ..., evid^n_L\rangle\rangle$.

5.4.2.2 Meanings of the Evidentials as Update Functions

Portner models the evidential system of Quechua by treating the different evidentials as corresponding to varieties of PUT_f, which are essentially the formal representations of individual evidential sentential forces. Given the definition in (5.22), a valid discourse structure for Quechua has the form in (5.23):

(5.23) $ds = \langle ps, \langle cg, bpg, report, conj\rangle\rangle$ (cf. (5.22))

The sincerity conditions which Faller used to encode the evidential meanings of the different evidentials are defined by Portner as constraints on ds, given in (5.24):

(5.24) *mi*: $bpg_L(ps) \subseteq cg_L(ps)$
si: $\{\{w : \exists x[Say(x, p, w)]\} : p \in report_L(ps)\} \subseteq cg_L(ps)$
chá: $\{\Diamond p : p \in conj_L(ps)\} \subseteq cg_L(ps)$

[44] However, Déchaine (2008) claims that the cg is not the universal default.

However, the actual meanings of the individual evidentials are defined as update functions in (5.25) that correspond to the different varieties of PUT, the uses of which are subject to the constraints in (5.24):

(5.25) $[\![mi]\!] = \lambda p.\lambda ds.\text{PUT}_{bpg}(ds, p)$
$[\![si]\!] = \lambda p.\lambda ds.\text{PUT}_{report}(ds, p)$
$[\![chá]\!] = \lambda p.\lambda ds.\text{PUT}_{conj}(ds, p)$

The absence of an evidential gives simple assertion: If S is a root node which denotes a proposition p, shift p to $\lambda ds.\text{PUT}_{cg}(ds, p)$.

For example, a sentence of the form *p-si* must satisfy the constraint on the discourse that there is some speaker who asserted p, and that this speaker is neither the hearer nor the current speaker. There is no condition that the speaker believes p, and as such p is not added to the common ground, but to $report(ps)$ (cf. (5.25)). This shows how the common ground is affected as a "side effect" of the speaker using a reportative evidential: for every proposition p that is in the $report(ps)$, the proposition that "someone said that p" is added to the common ground.

5.4.2.3 *ṅakw* as an Evidential Sentential Force Specifier

Portner's analysis of evidentials as sentential force modifiers can be straightforwardly applied to *ṅakw*. This accomplishes two things: first, we can account for *ṅakw* as encoding a kind of sentential force, which is not assertion. Secondly, under Portner's model, evidentials are sentential force modifiers, not illocutionary ones. This leaves us open to account for the varying illocutionary forces of *ṅakw* purely through its context of use.

If a speaker utters a sentence with *ṅakw*, this sentence expresses $ṅakw(p)$. Because $ṅakw(p)$ has been expressed, $ṅakw(p) \in ps$. The evidence shown above suggests that we don't want $ṅakw(p)$ to automatically become a member of the common ground, $cg(ps)$, as it is not asserted, yet we want to keep track of its inferential status in the conversation. Let INFER(ps) be the subset of ps which was put forth on the basis of some sensory evidence the speaker has. Thus, to put forth $ṅakw(p)$ successfully as evidence for p, means p is added to INFER(ps).

(5.26) The definition of *ṅakw* as an update function
$[\![ṅakw]\!] = \lambda p.\lambda ds.\text{PUT}_{infer}(ds, p)$

A *ṅakw* sentence performs a double conversational update: in uttering $ṅakw(p)$, p is added to ps and INFER(ps). An evidential prejacent is not added to the common ground. Rather, what is added to the common ground is the fact that an evidential claim was made: "there is sensory evidence that p".

There is one minor difference made between the analysis presented here and Portner's analysis of Quechua: Portner models the sincerity conditions of the different Quechua evidentials as general constraints on the discourse as in (5.24). However, I maintain that the sensory evidence requirement of *ṅakw* is not a constraint on the discourse, but rather a pragmatic presupposition. The reasons for this involve the interaction between *ṅakw* and modal *=ima* in sensory evidence contexts, where *ṅakw* blocks *=ima* from the *must*-like reading. The analysis in the next section attributes this effect as a result of their respective presuppositions.

Under this analysis, an evidential does not affect the propositional content of a sentence in the following sense: The highest phrase (the sister of the evidential) which denotes a proposition doesn't incorporate the evidential, and this proposition is the one presented. Additionally, Portner shows that this analysis can also explain the assent/dissent facts: the challenge "That's not true" does not have access to the speech act level of meaning, and therefore targets the denotation of the highest proposition-denoting constituent.

5.4.2.4 Interaction Between the Evidential Modals =*ima* and =*k̲at*

The evidential modals =*ima* and =*k̲at* can appear in any clause type. The only co-occurrence restriction that =*ima* and =*k̲at* have is in imperatives, with each other, and with *ʼnakw*. Example (5.27) shows that *ʼnakw* sentences with =*ima* or =*k̲at* are uninterpretable:

(5.27) a. *#ʼnakwimahl* *siipxwin*
ʼnakw=ima=hl siipxw-n
EVID=MOD=CND sick-2sg

a. *#ʼnagwg̲athl* *siipxwin*
ʼnakw=k̲at=hl siipxw-n
EVID=REP=CND sick-2sg

This co-occurrence restriction on evidentials can be explained by extending the sentential update theory to =*ima* and =*k̲at*. If a speaker has inferential evidence for a proposition, that proposition is added to the inferential set $infer(ps)$. This is achieved by the use of *ʼnakw*, because it has the sentential force of inferring. However, there is no theoretical reason why $infer(ps)$ should be exclusive to *ʼnakw*. We can use this assumption to account for the co-occurrence restriction in (5.27) in the following way: $=ima(p)$ makes a double conversational contribution: $[\![=ima(p)]\!]$ is added to $cg(ps)$ – it asserts its modal content – and $[\![p]\!]$ is added to $infer(ps)$ (following Portner's 2006 analysis of Quechua *chá*). Reportative $=\underline{k}at(p)$ also makes a double conversational contribution: $[\![=\underline{k}at(p)]\!]$ is added to $cg(ps)$, and $[\![p]\!]$ is also added to $infer(ps)$. This gives a formal way to rule these combinations out: *ʼnakw*, =*ima*, and =*k̲at* 'compete' for $infer(ps)$.

There are two additional predictions this pragmatic analysis of =*ima* and =*k̲at* makes. First, =*ima* and =*k̲at* should also compete against each other for $infer(ps)$, and this is what we find as sentences with co-occurring =*ima* and =*k̲at* are infelicitous:

(5.28) *#yugwg̲atit* *jabimas* *Sheilahl* *hon*
yukw=k̲at-t tsap-(t)=ima=s Sheila=hl hon
PROG=REP-3 cook-3=MOD=PND Sheila=CND fish
≠ "[I heard] Sheila might be cooking the fish."

The second prediction is that there should be some kind of interchangeability between *ʼnakw*, =*ima*, and =*k̲at*, so long as their presuppositions are satisfied by the context. It is not uncommon for sentences with =*k̲at*, as in (5.29), to be translated not as reportative (i.e. "I hear..."), but with a modal-like word such as *apparently* (this effect was also discussed in the previous chapter):

(5.29) *naksxwitg̲athl* *hanak̲* *tust* *tBill*
naks-xw-i-t=k̲at=hl hanak̲ tust t=Bill
marry-PASS-TR-3sg=REP=CND woman DEM PND=Bill
"Apparently Kathy married Bill." (adapted from Hunt 1994: 117)
"[I heard] Kathy married Bill."

The use of =*k̲at* presupposes the speaker has inferential evidence of the reported variety for the assertion p. This presupposition is satisfied in this context, thus, $[\![=\underline{k}at$(Kathy married Bill)$]\!]$ is added to $cg(ps)$ – it asserts the possibility according to the reportative evidence that Kathy married Bill – and [[Kathy married Bill]] is also added to $infer(ps)$. Portner's analysis of Quechua showed that there is a specific set, $report(ps)$, for those propositions that a speaker has reportative evidence for. This is not the case in Gitksan for two reasons: first,

=k̲at is not a sentential force operator – it is an epistemic modal – therefore we predict there is no specialized *report*(*ps*) set. Secondly, this analysis allows the kinds of different translations of *=k̲at* in discourse, as (5.29) shows – *=k̲at* need not be translated only as "I hear...".

This same kind of interchangeability between *=ima* and *=k̲at* can be observed in discourse. Imagine a conversation fragment in (5.30), where several people are discussing the whereabouts of Alvin.[45] GS asks:

(5.30) GS: *gax̲guhl* *witxws* *Alvin?*
ka*x̲*kwi=hl witxw=s Alvin?
when=CND arrive=PND Alvin
"When is Alvin coming back?"

LW: *silkwsax̲g̲at*
silkwsa*x̲*=*k̲at*
noon=REP
"[I heard] noon."

In this context, LW heard from her sister earlier in the morning that Alvin would come back at noon. HW enters the discourse later and asks the same question:

(5.31) HW: *gax̲guhl* *witxws* *Alvin?*
ka*x̲*kwi=hl witxw=s Alvin?
when=CND arrive=PND Alvin
"When is Alvin coming back?"

GS1: *silkwsax̲*
silkwsa*x̲*
noon
"noon."

GS2: *silkwsax̲ima*
silkwsa*x̲*=*ima*
noon=MOD
"Maybe noon."

Because *=k̲at*(*p*) has updated both *cg*(*ps*) and *infer*(*ps*), GS may reply with either an elliptical statement in (5.31) GS1, or with the inferential *=ima* in GS2.

Portner predicted that discourse relations like anaphora and temporal sequencing should be able to hold within *infer*(*ps*), just as they commonly do within *cg*(*ps*). This follows from the fact that all of the subsets of *ps* are formally the same kind of thing. A dynamic semantics provides the participants in a conversation a way to track the commitments made to both the inferential status of a proposition ($p \in infer(ps)$), and its possible or probable truth ($=\underline{k}at(p) \in cg(ps)$) as the discourse proceeds, just as we've seen in (5.30) and (5.31).

In looking at the other two possible interchanges between the evidentials in Gitksan, we don't expect to find the same kind of interchangeability between *n̓akw* and *=k̲at*. This is due to the specific nature of the evidence they specify: reportative evidence can in no natural way be sensory, and vice versa. However, we do expect *n̓akw* and *=ima* to interact given the fact that the broad inferential nature of *=ima* includes the kinds of sensory evidence *n̓akw* specifies. This is examined separately in §5.5 below.

[45] This artificial conversation was based on actual events and recreated with consultants.

5.4.3 *n̓akw* is Not an Illocutionary Force Modifier

One advantage of treating *n̓akw* as a sentential force modifier instead of a Faller-type illocutionary modifier, is the ability to account for its illocutionary functions. Although this was not tested explicitly during fieldwork, there is suggestive evidence that *n̓akw*, like many other sentential forces, can be associated with a variety of illocutionary acts. These different illocutionary acts reveal themselves in the varieties of discourse contexts and translations of *n̓akw*. As mentioned above, many Gitksan speakers remark on the exclamatory quality of *n̓akw*, as well as giving the impression of asking a question or negative attitude. All three of these qualities can be found in (5.32) and (5.33):

(5.32) Context: At the party you notice that John's jacket is gone.

n̓akwhl	*taw̓hls*	*John*
n̓akw=hl	taw̓hl-(t)=s	John
EVID=CND	leave-3=PND	John

"John must've left!"

Comments: You expect someone in the room might confirm or deny this; you're surprised that he would leave without saying goodbye; you don't believe it's true.

(5.33)

n̓akwhl	*maaluhl*	*smax*	*tust*
n̓akw=hl	maalu-(t)=hl	smax	tust
EVID=CND	crazy-3=CND	bear	that

"Is that bear crazy or something?" "That bear must be crazy!"

PRESUPPOSITION: The speaker has visual evidence (watching a bear wandering around the village).
ASSERTION: The bear is crazy.
IMPLICATURE: This is unusual behaviour for a bear; it could be dangerous (to the people and bear).

Context: You're watching a bear wandering around the streets in the village during broad daylight.

n̓akw is also fairly common in warnings of various degrees, as the following examples show:

(5.34) Context: You can smell smoke from the bar-b-que.

n̓akwhl	*mihlmihlt*
n̓akw=hl	mihl-mihl-t
EVID=CND	REDUP-burn-3sg

"It's burning!"

(5.35) Context: A misbehaving child is defying her parents' order to go home because it's past her curfew.

n̓agwimi	*xsingy̓*
n̓akw=mi	xsink̲-y̓
EVID=2sg	disbelieve-1sg

"I can see you don't believe me."

(5.36) Context: You notice a wallet on the floor at the feet of person ahead of you in line.

n̓agwimi	*galithl*	*andadaalan*
n̓akw=mi	k̲ali-t=hl	anda-daala-n
EVID=2sg	drop-3sg=CND	container-money-2sg

"You must've dropped your wallet."

Under a sentential force analysis of *ʼnakw*, the illocutionary force of sentences of the form *ʼnakw*(*p*) can be determined by the context of use. In other words, the illocutionary force of *ʼnakw* is not lexically specified as it would be under a speech act analysis.

5.5 Explaining the Interaction Between =*ima* and *ʼnakw*: Pragmatic Blocking

We are now in a position to examine the interpretations of =*ima* and *ʼnakw* when they are felicitous in the same contexts, ones where there is sensory evidence for an epistemic claim. This is exemplified in (5.37). In these contexts, *ʼnakw* is typically translated as *must* while =*ima* is translated as *might*:

(5.37) Context: You and a friend are fishing. You're sitting on the rocks, cutting up bait. You notice blood on the rocks at your friend's feet.

a. *gotsinimahl* *ʼoʼnin*
k̲ots-i-n=*ima*=hl ʼoʼn-n
cut-TR-2sg=MOD=CND hand-2sg
"You **might've** cut your hand."

b. *ʼnagwimi* *g̲otsihl* *ʼoʼnin*
ʼnakw=mi k̲ots-(t)=hl ʼoʼn-n
EVID=2sg cut-3=CND hand-2sg
"You **must've** cut your hand."

Comments (paraphrased): When you say *k̲'otsinimahl ʼoʼn*, you're trying to say 'You might've cut your hand', or 'Maybe you cut your hand'. You're not totally sure because it could be fish blood. When you say *ʼnagwmi g̲'otshl ʼoʼn* you're saying 'It looks like you cut your hand . . . you must've because there's blood on the rocks.'

This context provides the speaker with what could be construed as visual evidence that the hearer cut himself while preparing bait at the river's edge. Recall from example (4.1) in the previous chapter that =*ima* can be translated as either *must* or *might*. However, consultants often comment that when you have the appropriate context to use either *ʼnakw* or =*ima* – one that has sensory evidence – *ʼnakw* is somehow 'stronger' than =*ima*. I take this intuition as a starting point in working towards the claim that *ʼnakw* takes over the *must*-type interpretation in these sensory evidence contexts, blocking =*ima* from a universal interpretation. In a nutshell, this can be attributed to the principle of blocking: *ʼnakw* is more specialized for the 'strong' (i.e. *must*) reading than =*ima*, and thus blocks =*ima* from that reading.

The formal implementation of this blocking relationship is achieved by the application of *Maximize Presupposition*: use the most informative presupposition that is satisfied in a context (Heim 1991; Sauerland 2003; Schlenker 2006), defined in (5.38):

(5.38) *Maximize Presupposition (MP):*
If a sentence S_1 with the presupposition p_1 entails S_2 with the presupposition p_2, and p_1 is a scalar alternative of p_2, the assertion of S_2 entails that the speaker doesn't believe p_1 to be entailed by the common ground.

The use of =*ima* carries the semantic presupposition of inferential evidence, while *ʼnakw* carries a pragmatic presupposition of *sensory* inferential evidence in the utterance context. The sensory evidence presupposition associated with *ʼnakw* prevents it from being felicitous in contexts which lack sensory evidence. The weaker presupposition of =*ima* is less specific, and

is satisfied in contexts with any type of inferential evidence, sensory or not. These evidence presuppositions can be placed on a scale, schematized in (5.39):[46]

(5.39) [[visual, auditory, other sensory]$_{ʼnakw}$ ≻ reasoning, assumption]$_{=ima}$

The modal force readings of =*ima* and *ʼnakw* map to this continuum: the more indirect the evidence, the 'weaker' the reading; the more direct the evidence, the 'stronger' the reading is.

Recall the assumption made earlier in this chapter that semantic presuppositions become the pragmatic presuppositions of speakers. Once this is in place, it should now be straightforward to apply MP to this scale in the following steps, assuming the following conditions are met: following Schlenker (2006), I assume that the application of MP is triggered by certain lexical items which have a pre-determined presuppositional scale, such as the evidential scale mapped to =*ima* and *ʼnakw* in (5.39). As such, *ʼnakw* and =*ima* are scalar alternatives as the presupposition of *ʼnakw* in a sentence such as (5.37)b. entails the presupposition of =*ima* in (5.37)a.: having sensory evidence entails that you have evidence. Another requirement of MP is that it only compares utterances whose assertive components are contextually equivalent. This condition is met by the fact that both (5.37)a. and b. are felicitous in the same context. MP now selects among these the assertion that carries the strongest presupposition compatible with the common ground without yielding a presupposition failure.

In (5.37), both *ʼnakw*-statements and =*ima*-statements are felicitous (satisfying contextual equivalency), and the assertion of b. entails a. However, when the evidence is being assessed within a certain context, the use of the *ʼnakw*-assertion blocks the =*ima*-assertion in that context if the speaker *believes* they have sensory evidence for making that epistemic assertion. Now, if a speaker uses an =*ima*-assertion associated with the weaker presupposition but in the same context where the use of *ʼnakw* is potentially felicitous, such as in (5.37)a., the use of =*ima* with its non-specific evidence presupposition implies that you don't believe your direct sensory evidence is adequate to make a stronger claim, and thus implicates the negation of the sensory evidence presupposition (Sauerland 2003). In other words, (5.37)a. implicates that 'It is not the case that (I believe) I have sensory evidence that you cut your hand'. The outcome is that the =*ima*-assertion is translated as *might*. Thus, there are two interleaving pragmatic properties to evidential assertion in Gitksan: (i.) the scalar presuppositions lexically encoded by *ʼnakw* and =*ima*, and (ii.) the scalar implicature that is triggered by either a *ʼnakw*- or =*ima*-statement.

Maximize Presupposition has been effectively applied to a variety of phenomena involving the scalar distribution of presuppositions. This analysis contributes to this line of research by applying MP to an evidential system: the modal =*ima* carries the presupposition that a speaker has some kind of evidence for an assertion, while the evidential *ʼnakw* carries the presupposition that a speaker has sensory evidence for an assertion. When the common ground provides sensory evidence for an assertion, MP selects among these the assertion that carries the strongest presupposition compatible with the common ground without yielding a presupposition failure.

In the next section I turn to a different aspect of *ʼnakw*, and how it is used in conversation to convey a mirative and metaphorical meaning.

[46] In (5.39) I am using bracket notation simply for the purposes of grouping the types of evidence.

5.6 The Extended Pragmatics of *ṅakw*: Mirativity and Metaphor

This section presents an analysis of how *ṅakw* contributes to both the mirative and metaphorical interpretations of sentences.[47] The connection between evidentiality and mirativity has received some attention in the literature, particularly in various language grammars and typological studies, yet the category of mirativity has still not found a place within any theory of meaning. In a nutshell, mirativity refers to the grammatical marking of a proposition as representing information which is surprising to the speaker (DeLancey 1997, 2001). The translations in example (5.40) show the mirative interpretation is associated with the evidential *ṅakw*:

(5.40) a. *bagw* *ṅidiit*
pakw ṅidiit
arrive.pl 3pl
"They've arrived."

b. *ṅakwhl* *bagw=diit*
ṅakw=hl pakw=tiit
EVID=CND arrive.pl=3pl
"They must've arrived!"
"Looks like they've arrived!"

Under its evidential reading, the use of *ṅakw* means the speaker has indirect sensory evidence for a proposition, such as a truck parked in the driveway, or noise in the hallway. When a speaker witnesses an event, *ṅakw* can be used to express surprise at a situation, such as the unexpected arrival of guests at a party.

There is another pragmatic feature associated with *ṅakw*: in addition to its evidential and mirative uses, *ṅakw* has a metaphorical use. Consider a context where the speaker is 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. Out of exasperation, the speaker sarcastically exclaims:[48]

(5.41) *ṅakwhl* *sinst*
ṅakw=hl sins-t
EVID=CND blind-3sg
"He must be blind!"
"Is he blind or something?"
"Looks like he's blind!"

This is a nonliteral use of *ṅakw*: the speaker is not asserting that the batter is literally blind, rather, they are drawing attention to the poor performance of the batter by attributing his missing the ball as a result of blindness. Whereas there is an established tradition of research on metaphor in literary studies, philosophy, and linguistics, its connection to evidentiality has not been previously explored in much detail. There is suggestive evidence from a variety of languages that there is a connection between the nonliteral uses of miratives and

[47] This section is largely adapted from Peterson (2010).

[48] It is possible to explicitly distinguish between two different kinds of nonliteral interpretation: (i.) sarcastic (e.g., intending the opposite of what is literally said); and (ii.) metaphorical (e.g., involving some sort of parallelism or correspondence between what is meant and what is said, for instance between being literally blind, and blind in an extended metaphorical sense). These are in fact different cases, but I assume both involve "nonliteral" meaning.

evidentials. This can be observed even in the translations of the Gitksan example in (5.41), which would also be appropriate nonliteral statements in English in this context.

Also in English we see the link between evidentiality and nonliteral interpretations in how evidential verbs such as *see* can be used in the following context in (5.42):

(5.42) Context: Your daughter is only allowed to use the computer on the weekends. However, there is an assignment due at school, and she asks to use the computer on a weeknight to finish it. You give her permission, but when you come home, you see her playing computer games instead of working on her project (adapted from Gilmour et al. (2010)). "I see you're working on your project." (nonliteral/evidential)

Even language-internally, a quick survey of how mirativity is conveyed in English reveals a wide variety of ways of how one can express surprise when a friend unexpectedly shows up at a party:

(5.43) *You made it!*
I don't believe you made it!
Looks like you made it!
That must be you!
Wow, you're here!
Is that really you?!
That can't be who I think it is!
etc.

There are a number of questions that come out of the observations above. The first involves examining the notion of mirativity as a natural linguistic class. Why is *ʼnakw* used in conveying mirativity in Gitksan? How is mirativity related to modality, as in English in (5.43)? Is there any systematic connection between evidentiality and and the non-literal use of an evidential? Are there any empirical generalizations that can draw these features of mirativity and metaphor together, and can this be approached in a compositional way?

This section addresses these questions by examining evidentiality as the semantic and pragmatic source of mirativity, the constructions and morphemes mirativity is associated with, and its source in the psychological orientation of a speaker to evidence and events. In all of its manifestations, mirativity is shown to be linked to the semantics and pragmatics of evidentiality.

From here, steps are taken towards a formal account of mirativity as a pragmatic phenomenon: mirativity operates at the speech act level, and does not contribute to the truth conditional meaning of a sentence. In a nutshell, what distinguishes a mirative statement from a non-mirative statement in an example such as (5.40) is conversational implicature: evidential expressions have a mirative interpretation as the result of a Quantity implicature.

Recall from chapter 3 that in a statement of the form EV(p), where p is the proposition associated with the evidential (EV), a speaker cannot know for certain that p is in fact true. This is the Known Truth/Falsity test, repeated here from chapter 3:

(5.44) **The Known Truth/Falsity Test:**
If the use of the evidential is felicitous when the speaker knows the prejacent is true or false, the evidential cannot be a modal.

This test says that if an evidential can be used when the prejacent is true or false, it is not a modal. For example, For example, in Cuzco Quechua a speaker may use the direct evidential *-mi* if they know p is true (Faller 2002). Additionally, the test also suggests that a non-modal evidential would be straightforwardly felicitous when the prejacent is known to be true or false without implicature. This contrasts with a modal evidential: if a speaker

knows p is true, we expect either infelicity or Gricean considerations to ensure that a speaker assert p, and not EV(p) (cf. (3.37)).

However, I suggest it may not be as simple as this. The tests applied in chapter 3 showed that *ṅakw* is a non-modal evidential (i.e. *ṅakw* cannot be embedded, assented to/dissented from etc.), yet in a way it does obey the Truth/Falsity test: in its normal usage, *ṅakw*(p) statements are used in discourse to convey that the speaker has sensory evidence for p, not knowing whether p is true or false. A mirative statement results when a speaker uses *ṅakw*(p) knowing (p) is in fact true, and a metaphorical statement results when a speaker *ṅakw*(p) knowing that p is false. These facts may tell us something more about the applicability of the Known Truth/Falsity test: in languages such as Quechua with non-modal evidentials, we do not see (to my knowledge) any extra meaning when the prejacent is known to be true or false. However, with *ṅakw* there is extra meaning, and they correspond to the truth or falsity of p.

I claim that these observations form a three-way formal system for the pragmatic use of an evidential, as given in (5.45):

(5.45) (i.) In asserting EV(p), the Speaker does not know it's part of the common ground that either p or not p: *Evidential without any implicated meaning*

(ii.) In asserting EV(p), the Speaker knows it's part of the common ground that p: *mirativity as Quantity implicature*

(iii.) In asserting EV(p), the Speaker knows it's part of the common ground that not p: *metaphor as Quality implicature*

This bears directly on the status of mirativity as a natural linguistic class, and the debate within the literature as to whether or not mirativity is a separate semantic category, or simply an extension of evidentiality (cf. DeLancey 1997; 2001). One of the outcomes of this analysis is a unified treatment of mirativity: its effects are derived from other components of the grammar in a predictable way through implicature. This analysis also predicts a relation between mirativity and metaphor based on the speaker's knowledge of the truth or falsity of p.

I take a fairly standard approach to analyzing the nonliteral uses of evidentials, such as the Gitksan example in (5.41) (Grice 1989).[49] For example, upon uttering (5.41), the speaker literally says that 'he must be blind', something he knows is is false. Thus, the speaker is flouting the maxim of Quality ("do not say what you believe to be false"). What the speaker is doing is asserting (5.41) in order to implicate that the batter is performing counter to expectations, or that the batter has the attributes of blindness.

The next section examines in detail the meanings and sources of mirativity and its systematic relation to evidentiality. In §5.6.2 a formal pragmatic analysis is presented of how mirativity is conversationally implicated. §5.6.3 turns to the nonliteral uses of evidentials in examining the effect of an evidential statement when the speaker knows the embedded proposition is false.

5.6.1 Approaching the Category of Mirativity

Although descriptions of the mirative have appeared in various language grammars and in the typological literature, discussions of mirativity as a cross-linguistic phenomenon usually begin with DeLancey (1997; 2001), who defines mirativity as marking information which is 'new to the speaker', or more specifically:

[49] The features of metaphor and their study are numerous and complex. My intention here is not to offer an account of metaphor in general or argue for a particular approach to metaphor, but only to explore the link between evidentials and metaphorical interpretations.

> [Mirativity] marks both statements based on inference and statements based on direct experience for which the speaker had no psychological preparation, and in some languages hearsay data as well. What these apparently disparate data sources have in common ... is that the proposition is one which is new to the speaker, not yet integrated into his overall picture of the world.
>
> (DeLancey 1997: 35-36)

Mirativity covers semantic dimensions variously described as 'non-expected' information (Egerod and Hansson 1974), information for which the speaker is 'not prepared' (Slobin and Aksu 1982), 'immediate meaning' (Nichols 1986), and 'new knowledge' (DeLancey 2001: 369 for other references). Dickinson (2000, p. 379) refines the definition of mirativity to include the speaker's immediate experience of an event: if the event does not correlate well with a speaker's expectations, the proposition coding the event receives special marking.[50] However the 'mirative' (and the related 'admirative') include not only expressions of newly emerged evidence, but often also inferences based on such evidence (see also Friedman 2003; Aikhenvald 2006, p. 195-215 for an overview).

What these descriptions from various languages and studies suggest is that mirativity, as a conceptual category at least, may be universal: it is a plausible claim that all languages have the means to encode an event or state as occurring outside normal expectations. In order to deepen our understanding of mirativity, and to draw these descriptions together into a more cohesive and focused picture, it is useful to examine the systematic relationship mirativity has with the better understood categories of evidentiality and epistemic modality. Mirativity forms a conceptual natural class with evidentiality and epistemic modality as these three categories express something about a speaker's physical, psychological and temporal orientation to events and states (cf. Dickenson 2000; DeLancey 2001: 379). The summary in (5.46) outlines this connection:

(5.46) (i.) *Epistemic modality marking:* encodes the speaker's attitude towards the proposition in terms of certainty or probability.

(ii.) *Evidential marking:* encodes the source of the speaker's knowledge.

(iii.) *Mirative marking:* encodes the relationship between the proposition and the speaker's overall expectations and assumptions in a given context.

Chapters 3 and 4 examined the link between modality and evidentiality: the evidentials *=ima* and *=k̲at* are epistemic modals. However, the link between evidentiality and mirativity, and epistemic modality and mirativity are examined more closely in this subsection.

5.6.1.1 Evidentiality and Mirativity

In building a picture of mirativity from the ground up, recall so far that the primary function of an evidential is to give a speaker a way of talking about events they haven't personally seen, heard, or otherwise taken part in. In example (5.47), the evidential *ʼnakw* is used to encode that a speaker has sensory evidence for an event that they have not witnessed directly:

(5.47) Context (sensory evidence): You get to Bob's place and you can smell or see smoke.

ʼnakwhl	*sehons*	*Bob*
ʼnakw=hl	se-hon-(t)=s	Bob
EVID=CND	CAUS-fish-3=CND	Bob

[50] Dickenson (2000: 379) also notes other construals of mirativity based on the speaker's past experiences of similar situations and his general knowledge, physical interactions or cultural and social norms. I won't be discussing these occurrences of the mirative, assuming for my purposes that these construals still reduce to a speaker's unprepared state of mind at the time of utterance.

"Bob must be smoking fish"
"Looks like Bob is smoking fish"

At an intuitive level, an event that is witnessed is more certain than one that occurs sight unseen, and an event that is witnessed from beginning to end is less surprising than one that is only inferred or deduced from its results (Dickenson 2000). If we adjust the context slightly to include not only the sensory evidence, but the speaker actually *witnessing* the event of Bob smoking fish, (5.47) is still felicitous. However, (5.47) carries an additional meaning: the speaker is surprised or otherwise unprepared for the fact that Bob is smoking fish. This additional meaning characterizes the mirative use of an evidential, and illustrates the notion of the 'unprepared mind' (DeLancey 1997): an event may be perceived to be out of one's control, unexpected, and thus surprising to the speaker, or when they come into contact with the results of the event.

However, the distinction between witnessing the event and witnessing the results of the event can be subtle. In example (5.48), both *n̓akw* and *-mIş* in Turkish have an evidential meaning when the speaker infers they cut themselves upon observing blood at their feet (the results of the hand-cutting event). When they observe their cut hand (the hand-cutting event itself), the mirative meaning emerges: the speaker didn't actually witness the event of cutting, and the results of the event are surprising to the speaker:

(5.48) a. Gitksan

n̓agwin	*k̲otshl*	*'onin*
n̓akw=n	k̲ots-(t)=hl	'on-n
EVID=1sg	cut-3sg=CND	hand-1sg

"I must've cut my hand."
"I see I cut my hand."

b. Turkish

el-im-i	*kes-miş-im*
hand-1sg.poss-ACC	cut-MIR/EVID-1sg

"I must've cut my hand." (A. Tekant p.c.)

Inferential: There is blood at your feet.
Mirative: You see the cut on your hand.

In Gitksan, if a speaker witnesses the actual event of cutting, they can use a non-evidential statement which lacks a mirative effect. It is only in the context where the speaker uses *n̓akw* when a plain assertion would also be felicitous, that the mirative meaning emerges. Another way to view this is in terms of knowledge of p: in its purely evidential use, *n̓akw* is signals that the speaker is not sure if p is true; under a mirative reading, the speaker knows p is true..

There is also another angle of meaning. The event(s) leading to the cut hand in (5.48) were likely inadvertent. This implies a lack of involvement or control on the part of the speaker, thus they react with surprise at the outcome. Example (5.49) also shows this, where a speaker could comment to a mother at the conclusion of her daughter's piano recital:

(5.49) Turkish (Aksu-Koç and Slobin 1986, 162)

kiz-iniz	*çok*	*iyi*	*piyano*	*çal-iyor-muş*
daughter-2pl.poss	very	good	piano	play-PRES-MIR/EVID

"Your daughter plays the piano very well."

The speaker directly witnessed the entire event of piano playing, but indicates using *-mIş* that he was not psychologically prepared for the high quality of the performance. Slobin and Aksu (1982: 196) also describe *-mIş* as representing an experience for which the speaker had no 'premonitory awareness' . When *-mIş* occurs with a first person subject, it indicates lack of conscious awareness on the part of the speaker, not simply lack of speaker involvement.

The extended meaning of an evidential to convey a sense of surprise also presents us with a potential contradiction: the use of *n̓akw* when the speaker actually witnesses the event they have evidence for in (5.47), would appear to undermine its evidential meaning: Gricean considerations would compel a speaker to simply assert "Bob is smoking fish" if the speaker did indeed witness the event of Bob smoking fish. However, we can draw these two interpretations of *n̓akw* together if we view this in terms of distancing: whereas evidentiality indicates *physical* distancing from an event, mirativity indicates *psychological* distancing (Dickenson 2000). In some languages these are marked separately but in Gitksan and Turkish and many other languages, evidentiality and mirativity are encoded by the evidential markers of the language.[51]

Chapter 3, §3.3, discussed languages that do not have lexical evidentials, but where evidential meanings arise through the use of the perfect aspect. It is not surprising that we find a mirative use of the perfect as well. In Bagvalal, the aspectual auxiliary *ek∘'a* carries a mirative meaning:

(5.50) Bagvalal (Tatevosov 2001)
Context: The speaker looks into his desk and finds 100 rubles there; he had completely forgotten about this money being there.

di-č'	*as*	*b-uk'a-b-o*	*ek∘'a!*
1.sg.OBL-CONT	money	N-be-N-CONV	AUX.PRS

"(I see) I have money!"

(5.51) Context: The speaker watches Ali trying to put on the hat. At last Ali succeeds.

ali-r	*butuna*	*ẽs̄a-m-o*	*ek∘'a!*
Ali-ERG	hat	put.on-N-CONV	AUX.PRS

"Ali has put on the hat!"

English also lacks lexical evidentials, although a mirative meaning can be attributed to evidential verbs when these are used in the context of witnessing the actual event. Example (5.52) uses the same context as the Gitksan example in (5.47) with *n̓akw*: evidential verbs such as *look like* and *see* are felicitous when the speaker observes the event embedded under the evidential verb. This expresses the mirative:[52]

(5.52) "**Looks like** Bob is smoking fish!"
"I **see** Bob is smoking fish!"

[51] In other languages such as Hare, Dargwa and Chechen, mirative meaning is formally detached from evidentiality, although it is still dependent on it. Because these languages have morphology dedicated to mirative meaning, mirativity is conventionally implicated. See DeLancey (2001); Peterson (2010) for details.

[52] Intonation is another way to express mirativity in English, and may overlay the evidential statements in (5.52). A 'surprise' intonation is how a plain assertion such as "Bob is smoking fish!" can register mirativity. Nonetheless, the sentences in (5.52) can still express the unexpected or unprepared psychological state of the speaker at witnessing Bob smoking fish, although usually with the support of intonation.

5.6.1.2 Mirativity and Epistemic Modality

There is also a relation between epistemic modality marking and mirativity. As with evidential-marked miratives, a mirative reading of an epistemic modal in English is mostly clearly obtained where a speaker is surprised at the results of a previous event. In the context given in example (5.53), a mirative interpretation can be expressed using either the strong epistemic modal *must* in (i.), or a plain assertion with a 'surprised intonation' in (ii.) (see footnote on this page). A mirative interpretation is less felicitous with the weak epistemic modal *might*, as in (iii.):

(5.53) Context: Said upon awakening over one's books after a long night studying (context adapted from Aksu-Koç & Slobin 1986: 160)

(i.) "I must've fallen asleep!"

(ii.) ? "I fell asleep!"

(iii.) #"I might've fallen asleep!"

It is beyond the scope of this dissertation to examine in more detail the mirative use of epistemic modals in languages such as English, as I will be limiting myself to the relationship between evidentiality and mirativity, as described in the previous subsection. However, there are two points worth making. The first point regards the use of modal force: to convey the surprised or unprepared state of the speaker in (5.53), the strong modal *must* is used over both the weaker modal *might* and a plain assertion. Because modals don't overtly encode an evidence source/type, they may reveal something different of the nature of mirativity than we find with evidentials. It seems natural that, in encoding a speaker's state of surprise, the 'strongest' lexical item would be used. However, in example (5.54), the weaker modal *might* is used to convey a speaker's unprepared state, not upon encountering any kind of evidence as in (5.53), but at the possibility of winning:

(5.54) Context: Your husband tells you that he thinks your lucky numbers came up on the weekly lotto.

(i.) "I might've won!"

(ii.) # "I must've won!"

(iii.) # "I won!"

This is expected, as when a speaker is surprised at a possibility, a possibility modal is natural. However, intonation is likely the actual carrier of the mirative contribution in (5.54), as the possibility is actually part of the proposition a speaker is surprised at. This is different from example (5.53), where the proposition a speaker is surprised at is the plain one without any modal. It is in those cases where the strong modal must be used for the mirative.

Secondly, a mirative use of an epistemic modal in English is infelicitous in a context where the speaker actually witnesses the event, as in (5.55):

(5.55) Context: A friend unexpectedly shows up a party.

(i.) "You're here!"

(ii.) # "You must be here!"

(iii.) # "You might be here!"

This restriction likely follows from the fact that epistemic modals are propositional operators. This would also predict that evidential modals cannot be used miratively, which is confirmed with the modal evidentials in St'át'imcets (Matthewson p.c.). This is also the case in Gitksan with the modal evidential *=ima* in example (5.56), which cannot be used if the speaker witnesses the event embedded under it:

(5.56) Context: Your friend is showing you how to cook something, and while watching them you see them accidentally cut themself.

#kotsinima=hl	*'onin*
kots-i-n=*ima*=hl	'on-n
cut-TR-2=MODAL=CND	hand-2sg

"You might've/must've cut your hand."

The lack of mirativity in the modals in (5.55) and (5.56) is derived from their status as propositional operators. However, in (5.54) the proposition a speaker is surprised at is the plain one with a weak modal. This shows that if one is really surprised at a necessity statement, *must* would be felicitous in a mirative. As in (5.54), if you see some evidence that you've won, for example, if there is a person walking towards you holding out the trophy, then 'I must've won!' would be felicitous. However, it is not the modal that's conveying mirativity, but the intonation.

These observations relates to the claim of von Fintel and Gillies (2007) that epistemic 'must' in English is an evidential. Viewed from their perspective, the use of 'must' miratively may come from the logical inference a speaker is making in example (5.53) (cf. (3.66) in chapter 3). Given the analysis presented here, more research is clearly needed into these contexts and the relation between mirativity and epistemic modality.

5.6.2 An Analysis of Mirativity as Conversational Implicature

In this section I work through an analysis that shows mirativity is a pragmatic phenomenon involving implicature. More specifically, when a speaker makes a mirative statement, they are flouting the Maxim of Quantity, the two parts of which are given in (5.57):

(5.57) *Maxim of Quantity* (Grice 1989)

(i.) Make your contribution as informative as is required for the current purposes of the exchange.

(ii.) Do not make your contribution more informative than is required.

The central claim here is that what is interpreted as mirativity – a sense of surprise, and/or dealing with new and unexpected information – is the result of the flouting of Quantity, specifically, part (ii.) of the maxim. However, the notion of 'informative' in the Gricean sense in (5.57) warrants closer examination. What's actually happening when someone makes a mirative statement is that they are flouting (5.57) by making an apparently redundant or uninformative statement, which is made non-redundant/informative once we calculate the implicature, which is done below.

A simple example illustrating mirativity as a Quantity implicature can be found in a context where John is standing in the doorway and Gwen says "You're here!". While this statement is true, literally speaking, our intuition tells us that it does not contribute to the discourse in any meaningful way, since we can assume that everyone in the immediate vicinity is well aware of John's presence. This is the first indication that "You're here!" is in violation of Quantity. At this point, John in this context must find some alternative meaning to Gwen's statement in order to maintain the assumption of cooperation.[53] Let us assume that John knows that Gwen is aware that what she said violates Quantity (by making a contribution more informative than required), and assuming that Gwen is cooperative, John concludes that Gwen must be expressing something beyond the statement "You're here!". In

[53] An interesting aspect to explore is whether this statement is directed at John or more generally to anyone in the vicinity.

attempting to attribute an alternative meaning to this statement, John concludes that his appearance is unexpected and perhaps surprising to Gwen.

In Gitksan, a simple statement, such as example (5.58), does not have a mirative meaning. In the given context, the speaker is in full control of the circumstances, and thus the sentence conveys no sense of unexpectedness or surprise:

(5.58) Context **NON-MIRATIVE: Calling out to your mother in the other room as you see John pull up in his truck.**

witxwt	*John*
witxw=t	John
arrive=PND	John

"John's here."

As analyzed in the previous section, *ńakw* is a sentential force operator that carries with it the presupposition that the speaker has sensory evidence in the utterance context. In order for the sentence in (5.59) to be felicitous, a speaker must have some kind of sensory evidence available to them in the context, in this case, a pick-up in the driveway:

(5.59)

ńakwhl	*witxwt*	*John*
ńakw=hl	witxw=t	John
EVID=CND	arrive=PND	John

"John must be here"
"Looks like John's here"

PRESUPPOSITION: The speaker has sensory evidence of John's presence (i.e. his pick-up in the driveway; you can hear loud music playing inside his house).
NON-MIRATIVE

There is also nothing inherently mirative about (5.59): as in (5.58), we assume the speaker is making an informative contribution to the conversation; they have visual evidence from which they can infer the presence of John. However, *ńakw* takes on a mirative meaning in example (5.60):

(5.60)

ńakwhl	*witxwt*	*John*
ńakw=hl	witxw=t	John
EVID=CND	arrive=PND	John

"John's here!"
"Look who's here!"
"I see John's here!"

PRESUPPOSITION: The speaker has sensory evidence (John is standing in the doorway; his pick-up in the driveway; you can hear loud music playing inside his house).
MIRATIVE

As in (5.59), the use of *ńakw* in (5.60) is felicitous because the speaker has sensory evidence for the statement they're making: John standing in the doorway. The key question here is: what distinguishes the mirative from the non-mirative uses of *ńakw*? In order to answer this question, it is worth carefully breaking down the circumstances around (5.59) and (5.60) in terms of the propositions that make up the common ground.

Imagine a common ground made up of the following propositions in (5.61):

(5.61) CG = {the proposition that John's pick-up is in the driveway; the proposition that there is loud music playing inside his house; etc...}

Starting with example (5.59), a speaker faced with the visual evidence of a pick up in the driveway, makes the *ṅakw*-claim inferring that John is here, reflected in the various translations of *ṅakw* involving sensory verbs (i.e. *look*, *see*). Consider now the context in which John is standing in the doorway. The common ground in this case would already contain the proposition that John is here, as in (5.62). The *ṅakw*-assertion in (5.60) is felicitous in this context: a speaker has visual evidence for the claim that John is here (as he is standing right in front of her):

(5.62) CG = {**the proposition that John is standing in the doorway**; the proposition that John's pick-up is in the driveway; the proposition that there is loud music playing inside his house; etc...}

The *ṅakw* statement in (5.60) is making a contribution to the discourse that is uninformative in the sense that it is already known information. This is the core of the mirative implicature, which can be calculated as follows:

(5.63) (i.) The information expressed by the proposition is relevant to the context, and the speaker has (sensory) evidence for the proposition's truth.

(ii.) A cooperative speaker generally does not make additional, redundant statements that all the discourse participants already pragmatically presuppose.

(iii.) The speaker must be conversationally implicating that they were previously unaware of this fact, and its discovery possibly counters their expectations.

As mentioned above, when someone makes a mirative statement is that they are flouting (5.57) by making an apparently redundant or uninformative statement, which is made non-redundant/informative once we calculate the implicature, as in (5.63).

In the Stalnakerian sense mirative statements are uninformative – nothing new is added to the common ground (Stalnaker 2002). Under the analysis presented here, mirative statements always make explicit some proposition that is already pragmatically presupposed, as in (5.62). This in turn drives the Gricean effect: the hearer flouts Quantity by saying too much, as the mirative/evidential-marked proposition was already assumed to be a shared belief of the participants in the conversation, crucially including the speaker. This flout triggers an implicature which a hearer interprets as one of surprise or unpreparedness on the part of the speaker. Note that the fact that *ṅakw*(p) sentences are not asserted (they are added to the ps while p is added to $infer(ps)$) is compatible with this analysis: the crucial component is the set of sensory propositions already in the common ground that makes the use of *ṅakw* felicitous in the first place.

There is also the issue of the conversational intent of a mirative statement. In English at least, a mirative statement expects, or at least often receives, some explanation or comment. In the case of mirative "You're here!", a response could be "Yeah, I know you weren't expecting me but I decided to come after all."[54] Given this fact, mirative statements, or the implicature that conveys mirativity, can be targeted and reinforced – one of the predicted outcomes of an implicature analysis. Along those same lines, treating mirativity as implicature makes the prediction that you should be able to cancel the 'surprised' or 'unexpected meaning'. We can see this in the English example in (5.64): the speaker is exclaiming (5.64) in the context of actually seeing John standing in the doorway. This triggers the mirative implicature. The implicated surprise can be cancelled in (5.64)a., and the implicated unexpectedness of the event to the speaker can be cancelled in (5.64)b.:[55]

(5.64) Context: John is standing in the doorway. "Look who's here!"

[54]Thanks to Lisa Matthewson for the example and pointing this out to me.

[55]There are likely more subtle implicated meanings behind a statement such as (5.64), such as happiness or sarcasm.

a. "...not that I'm surprised or anything..."

b. "...not that I wasn't expecting you..."

This pragmatic treatment of mirativity applies straightforwardly to the Turkish evidential *-miş*, as in (5.65). Recall that in addition to its evidential function, Aksu-Koç & Slobin (1986: 160) describe the function of *-miş* as representing an experience for which the speaker has no 'premonitory awareness'. This can correspond to both reportative and inferential interpretations, as well as expressing the mirative (Slobin & Aksu 1982: 187):

(5.65) Turkish

Ahmet *gel-**miş***
Ahmet came-MIR/EVID
"Ahmet came."

Inference: The speaker sees Ahmet's coat hanging in the hallway, but hasn't yet seen Ahmet.

Hearsay: The speaker has been told that Ahmet has arrived, but has not yet seen Ahmet.

MIRATIVE: The speaker hears someone approach, opens the door, and sees Ahmet – a totally unexpected visitor.

Under the mirativity-as-implicature analysis, when a speaker utters (5.65) in a discourse context that does not include an event of Ahmet arriving, the hearer will interpret *-miş* as an evidential without implicature: the speaker is making an informative assertion that contributes to the common ground similar to the Gitksan example (5.59). However, when a speaker utters (5.65) in a discourse context that includes actual witnessing of the event of Ahmet's arrival, the mirative emerges through implicature: the speaker is making a redundant contribution to the discourse through flouting Quantity, and then the mirative implicature is calculated.

The next section turns to the third part of the theoretical typology presented in (5.45): when a speaker makes an EV(p) statement when they know p is false, a nonliteral meaning is implicated.

5.6.3 Nonliteral Uses of Evidentials

Aksu-Koç and Slobin note that in Turkish, in some contexts, evidentiality can be pragmatically extended, expressing degrees of metaphorical or "feigned surprise" (1986: 163). This is shown in (5.66):

(5.66) Turkish

Context: Used to convey doubtful scorn on someone you know hates exercise.

her *gün* *koş-uyor-**muş***
every day run-PRES-MIR/EVID
"(It is said that) he jogs every day."

A similar effect can be seen in Abkaz in the example in (5.67). The Prince has first-hand knowledge of the presence of a child, yet he uses a non-firsthand evidential to express his surprise at the child's crying:

(5.67) Abkaz (Chirikba 2003, p. 248-248)

Context: The Prince of Abkhazia is visiting a peasant who is entertaining him as well as he can. All of a sudden the Prince hears a child crying. Although he is already aware of the child's presence (having seen the child), he expresses his 'surprise' at the noise.

sa+ra	*jə-s-ajha+bə-w*	*a-wa+ǰ°-dəw-c'°q''a*	*abra*
I	it-me-elder-PRES:STAT:NFIN	ART-man-big-really	here

*də-q'a-**zaap'***
(s)he-be-NON-FIRSTHAND

"It turns out (unexpectedly) that there is really a great person here who is more important than me!"

The prince is making a qualitative comparison between him and the child, as evidenced by the noise-making, and not literally asserting that there is someone more important than him present.[56] Here, the evidential *-zaap'* is used to signal his unpreparedness.

The Gitksan evidential *ńakw* also has a nonliteral (metaphorical) interpretation in addition to its evidential meaning, as in (5.68):

(5.68) 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.

ńakwhl	*sinst*
ńakw=hl	sins-t
EVID=CND	blind-3

"He must be blind!"
"Is he blind or something?"

(5.69) Context: You're watching a bear wandering around the streets in the village during broad daylight.

ńakwhl	*maaluhl*	*smax*	*tust*
ńakw=hl	maalu-(t)=hl	smax	tust
EVID=CND	crazy-3sg=CND	bear	that

"Is that bear crazy or something?"
"That bear must be crazy!"

There are two things to track in an example such as (5.68): The first is that the assertion that the batter is blind is obviously not true in reality: the function of such a statement is to express dissatisfaction at the batter's performance; and secondly, the speaker is relying on the sensory evidence presupposition, or what they perceive to be sensory evidence for supporting such an assertion in the first place: the fact that the batter keeps missing the ball. In this section, it is shown that these are *nonliteral* uses of evidentials. This is the third part of the theoretical typology introduced in (5.45): in stating EV(p), the speaker knows p is false. This involves the metaphorical use of an evidential such as *ńakw*, which is treated below as a Quality implicature.

Broadly speaking, metaphorical statements are made to implicate a relationship of resemblance or analogy. In interpreting a metaphorical statement, a hearer is required to match or contrast certain properties of a *topic* with a *vehicle*, and then to identify a subset of properties which they have in common (e.g. Tversky 1977; Ortony 1979). This is easiest to see when we attribute the properties of animals to humans. For example, a metaphorical statement such 'my room mate is a pig' would involve considering those properties the hearer has stored as part of his knowledge of the speaker's room mate and the stereotypical properties of pigs, and selecting a subset of these properties which the speaker's room mate and pigs share, for example the properties of 'being filthy', 'being messy', 'not being hygienic', 'smelling funny'

[56] I should be careful to note that this is my interpretation of this data, and not a description made in Chirikba (2003).

etc. These properties are taken to form the grounds for interpretation (Glucksberg et al. 1997).

Metaphor has been approached and analyzed in various ways in the literature. However, for the present purposes, I will adopt a fairly standard, Gricean model of metaphor (see Camp 2003 for details, although see Fernández 2007 for an overview and objections to this). Metaphor is a kind of conversational implicature that arises from a violation of Quality Grice (1989). For example, there is a literal reading of blindness in (5.68) to which a truth condition can be assigned. This serves as an input to some inferential schema that generates a secondary, figurative reading (Nunberg 2004, 345). It is possible to attribute these interpretations to the flouting of the Maxim of Quality. In (5.68) the speaker is literally asserting that the batter must be blind, something the speaker knows to be false, thus potentially violating cooperativity. However, what the speaker implicates with (5.68) is that the batter is playing *as if* he was blind, and thus the speaker registers his dissatisfaction at his performance. This re-establishes the situation and serves to show that his behaviour is cooperative: the speaker has made the false assertion 'he must be blind' to convey the implicated meaning.

However, it's not quite as simple as this: something new must be added to the common ground. A Quality implicature typically involves a speaker asserting the opposite to what is true, usually resulting in a sarcastic statement, as may be the case in the Turkish example in (5.66). However, the assertion "The batter is blind" would amount to implicating that the speaker is *not* blind, which is obviously true in (5.68). The function of metaphorical *ńakw*-statements such as (5.68) is instead to invite the attention of the hearer to the bad playing, which actually constitutes the sensory evidence (visual in this case) for making a *ńakw*-statement.

(5.70)

ńakwhl	*sinst*
ńakw=hl	sins-t
EVID=CND	blind-3

"He must be blind!"
"Is he blind or something?"

PRESUPPOSITION: The speaker has visual evidence (the batter keeps missing the ball).
PREJACENT: The batter is blind.
IMPLICATURE: The batter is performing poorly.

(5.71)

ńakwhl	*maaluhl*	*smax*	*tust*
ńakw=hl	maalu-(t)=hl	smax	tust
EVID=CND	crazy-3=CND	bear	that

"Is that bear crazy or something?"
"That bear must be crazy!"

PRESUPPOSITION: The speaker has visual evidence (watching a bear wandering around the village).
PREJACENT: The bear is crazy.
IMPLICATURE: This is unusual behaviour for a bear; it could be dangerous (to the people and bear).

Context: You're watching a bear wandering around the streets in the village during broad daylight.

In both of these contexts, a speaker is witnessing an event that is not only surprising, but also countering their (or perhaps common) expectations regarding the role of a batter at a baseball game, or the behaviour of bears. Also as with mirative expressions, these interpretations rely on the coincidence of sensory evidence perceived at the time of utterance. This also shows the relation between metaphor and evidentiality: in order to understand a metaphor correctly the hearer must infer, commonly from context, the grounds of comparison between the literal and novel referents of the metaphorical expression (Warren 1992: 74).

We see the same kind of effects with evidentiality in English. English does not have a dedicated system of evidentials, rather, they are achieved paraphrastically through 'sensory' verbs (Gisborne 1996):

(5.72) a. "He *sounds* foreign"
b. "He *looks* ill"
c. "I *see* you don't believe me"

Example (5.73) is an unmarked, literal use of the verb *see* along with an appropriate context:

(5.73) Context: You come home after work and notice your daughter doing her homework. You want to encourage her. (Adapted from Gilmour et al. (2010)) "I see you're working on your project." (literal/evidential)

Moreover, sensory verbs in English can also be used to flout Quality. Consider the context in (5.74):

(5.74) Context: Your daughter is only allowed to use the computer on the weekends. However, there is a assignment due at school, and she asks to use the computer on a weeknight to finish it. You give her permission, but when you come home, you see her playing computer games instead of working on her project. "I see you're working on your project." (nonliteral/evidential)

This nonliteral interpretation of *see* relies on the evidential meaning of the verb: example (5.74) without the matrix verb *see* does not allow a nonliteral reading in this context:

(5.75) #"You're working on your project." (nonliteral)

The same observation holds in Gitksan: plain assertions such as *sins ṅit* "You're blind." only have a literal interpretation. Additionally, the nonliteral use of *see* cannot be embedded without losing this interpretation, confirming a standard test for pragmatic effects such as this:[57]

(5.76) #"I didn't see that you're working on your homework." (nonliteral)

What the examples above crucially show is how context and evidence play a vital role for the pragmatic uses of *ṅakw* and evidential verbs in English: both *see* and *ṅakw* rely on evidence in some specific utterance context in order to have a nonliteral interpretation.

In order to trigger a Quality implicature (your displeasure at a batter's performance) you have to actually witness the poor playing. This amounts to a speaker having sensory evidence for an assertion, and the evidential *ṅakw* must be used. This relates to an observation that can be made in English using the same baseball context in (5.70). In example (5.77), the strong *must* is more felicitous than the weaker *might* in expressing a nonliteral meaning:

(5.77) "He must be blind." (nonliteral)
#"He might be blind." (nonliteral)

I claim that the metaphorical use of *must* over *might* in English is rooted in the speaker's certainty level about the proposition expressed. A speaker who uses an existential modal is less certain about the truth of the embedded proposition than a speaker who uses a universal modal. This links back to the discussion in the previous subsection on the evidential use of *must* in conveying mirativity. However, it is not the type of evidence that determines this, as metaphorical uses of *must* are also felicitous in non-sensory evidence contexts:

[57] Recall from chapter 3 that *ṅakw* cannot embed under negation.

(5.78) Context: Your sister told you she just gave away all her lottery winnings. "She must be crazy!" (nonliteral)
#"She might be crazy!" (nonliteral)

A Quality implicature is supported by the strong degree of certainty, and this certainty is most effectively reinforced by evidence (rather than speculation). Metaphorical interpretations of *ńakw* are only felicitous if the common ground provides sensory evidence that is interpretable by both the speaker and hearer. It is these evidence contexts that increase a speaker's certainty, which in turn ideally supports the emphatic effect of Quality implicatures of this type. In non-evidential languages such as English, it is predicted that the the universal modal will be used in conveying the implicature.

5.7 Summary

This chapter covered a range of topics concerning the pragmatics of evidentiality in Gitksan, focusing on analyzing the meaning of the evidential *ńakw*. The tests in chapter 3 determined that *ńakw* is a non-modal evidential, and an analysis was presented in this chapter that explained the use of *ńakw* in terms of its *context change potential*, or the 'instructions' *ńakw* gives as to how to update the Common Ground. Using Portner's innovation within dynamic semantics, I claimed that *ńakw* is an evidential sentential force specifier. Besides explaining its felicitous use in discourse, we also have an account of why *ńakw* is in complementary distribution with other sentential forces, and why *ńakw* can never co-occur with *=ima* nor *=kat*.

ńakw carries a pragmatic presupposition which places a condition on its use in a conversation: the felicitous use of a *ńakw*(p) sentence requires that sensory evidence is entailed by the Common Ground. Given the inferential presupposition attached to *=ima*, as analyzed in chapter 4, I claimed that these two presuppositions stood in relation to one another. Using Maximize Presupposition, I was able to explain why in sensory evidence contexts, *ńakw* blocks *=ima* from expressing the strong *must*-like reading: the presupposition of *ńakw* is specialized for sensory evidence.

In the last half of the chapter, I turned to two other pragmatic characteristics of *ńakw* in how it expresses mirativity and metaphor. An analysis was presented that analyzes mirativity as pragmatic phenomenon that is the result of implicature. Specifically, it is the context in which an evidential statement of the form *ńakw*(p) is made which determines its interpretations as either a statement of inference, or as a statement of mirativity or metaphor. When a speaker knows or believes p is true (by witnessing the event), mirativity is implicated. When they know or believe p is false, a non-literal meaning is implicated. Given the diverse range of constructions that mirativity and metaphor can be associated with, this chapter presented a set of theoretical tools capable of testing the core link between evidentiality and how it is used in context to project these two kinds of meanings. This would ideally serve as a foundation for more focused, language-specific studies of mirative and nonliteral meaning in evidential languages. As these emerge in the literature, we may get a more complete and systematic picture of mirativity and its status a natural class of meaning which can cover this diverse collection of constructions.

Chapter 6

Conclusion

This dissertation research was motivated by the question asked in chapter 1: *what does evidentiality look like in language X?* In asking this question of Gitksan, I set out to first document the core meanings of the evidential and modal system of the language. This in turn served as a foundation for a more theoretically driven investigation of the relation between epistemic modality and evidentiality, and how these manifest themselves in a single language. As the picture started emerging, I was in a position to identify a variety of issues the Gitksan data brings to bear on current theories and analyses of evidentiality and epistemic modality. This necessarily took us into the semantics-pragmatics interface, as an adequate explanation of the meanings and uses of the individual evidentials in Gitksan required both a static and dynamic semantics, both which were undertaken in detail.

In chapter 2 I embarked upon the first detailed description of evidentiality and modality in Gitksan (and indeed in any of the Tsimshianic languages). Gitksan has three morphemes that encode evidential distinctions: the reportative *=k̲at* indicates that the information was reported to the speaker by another person; the evidential *n̓akw* encodes that a speaker has sensory evidence with which to make an inference; and modal *=ima* is a more general inferential evidential that is compatible with a broad range of evidence types, from sensory evidence, to evidence from a speaker's past experiences. The basic morphosyntactic properties were also examined in chapter 2.

Once I was able to determine the basic meanings of the individual evidentials in terms of what kinds of evidence they encode, I turned to probing further their meaning in chapter 3. I began by reviewing the current state of the art in analyzing both modal and non-modal meaning and the different predictions they make with regards to the semantic and pragmatic properties of evidentials. I then evaluated and applied a series of diagnostics from the literature that test whether the individual evidentials in Gitksan operate on a propositional or illocutionary level. Here, we were able to confirm Faller's hypothesis that a single language may have both propositional and illocutionary evidentials: *n̓akw* differed from both *=ima* and *=k̲at* on each of the tests. This led to the description of *=ima* and *=k̲at* as modal evidentials, and *n̓akw* as a non-modal evidential.

In working through these tests, we were also able to examine the tests with regards to the predictions a modal and speech act operator analysis would make. Two tests were shown to make the same prediction: the cancelling of type of evidence requirement is not very useful for distinguishing between the modal analysis and the speech operator analysis, because both analyses predict that the evidence type requirement cannot be cancelled: in the modal analysis, because the evidence type requirement is a presupposition, it cannot be cancelled. A similar problem arises in the speech act operator analysis: the evidence type requirement cannot be cancelled here either because it is a sincerity condition. As with cancelling the evidence requirement test, negation does not distinguish between a propositional and a modal analysis of evidentials. In a modal analysis, the evidence requirement is a presupposition, and will therefore project through negation. In a speech act operator analysis, the evidence requirement is a sincerity condition, which is not affected by negation either.

The effectiveness of the Truth/Falsity test was also examined, and it was found that we also need to control for the implicated meanings that arise when the speaker knows if the prejacent is true (mirativity) or false (metaphor). This happened with the evidential *n̓akw*:

whereas all the other tests indicated *n̓akw* was a non-modal evidential, it was flexible with regards to the Truth/Falsity test, and could implicate mirativity and metaphor – something the modals *=ima* and *=k̲at* cannot do. These kinds of implicated meanings are, to my knowledge, not found in Quechua, where the Truth/Falsity test was used to support an illocutionary analysis of evidentials in that language.

In chapter 4 I gave a semantic analysis of *=ima* and *=k̲at*. The tests in chapter 3 revealed that both *=ima* and *=k̲at* are amenable to a modal analysis, and it was shown that the analysis of Izvorski (1997) and Matthewson et al. (2004) made the right predictions: both *=ima* and *=k̲at* are epistemic modals. However, this led to its own challenge. Given that modal force is encoded by quantification in standard modal semantics, we were faced with having to account for why *=ima* and *=k̲at* vary in their modal force. Faced with a similar problem in St'át'imcets, Rullmann et al. (2008) proposed a solution which applied a choice function to the modal base; the size of the choice function determined the strength of the modal. I claimed that there is a device already within the standard analysis of modality, the ordering source, which can account for not only the variable modal force in *=ima* and *=k̲at*, but also in St'át'imcets. Under an ordering source analysis, the various degrees of modal force correspond to (at least) two different types of ordering sources in Gitksan: the weak/strong interpretations of *=ima* correspond to empty/non-empty ordering sources which order an existentially quantified epistemic modal base. In St'át'imcets, where the weak/strong interpretations of modals in that language also correspond to empty/non-empty ordering sources, but over a universally quantified modal base. What this gives us is a unified account and a theoretical typology of languages in which modal forces vary under a fixed quantifier.

In the second half of chapter two I looked at the effect *=ima* has in questions. When *=ima* is inserted into a yes/no or wh-question, it reduces the interrogative force of the question, turning it into a conjectural question. Following Littell et al. (2010) the reduced interrogative effect that characterizes conjectural questions is attributed to the presupposition that is attached to *=ima*. Assuming a standard semantics of ordinary questions in which they denote sets of propositions, the presupposition analysis of *=ima* is then applied to the question: the presuppositions carried by each proposition in the question denotation conjoin, so that the conjectural question as a whole presupposes everything presupposed by each of its members. The resulting conjoined presupposition entails that there is mixed evidence, and therefore that the speaker does not expect the hearer to be able to provide an answer to the question. The outcome is a reduced interrogative force for conjectural questions: not only is the hearer not required to answer, the speaker is encoding through *=ima* that the hearer is probably not able to answer.

Chapter 5 turned to the meaning of non-modal *n̓akw*. We already have a fully articulated theory of modality, which extends straightforwardly to modal evidentials. However, with non-modal evidentials there are several competing theories. These were briefly examined in chapter 3, but in chapter 4 I analyzed the meaning of *n̓akw* within a dynamic semantics. Here I departed from Faller's illocutionary operator analysis of non-modal evidentials, and claimed that *n̓akw* is an evidential sentential force modifier. This made the right predictions regarding the felicitous use of *n̓akw* in discourse, as well as its relation to other sentential forces in Gitksan.

Evidential *n̓akw* presupposes that there is sensory evidence within the utterance context. Modal *=ima* is also felicitous in these contexts, and the competition between them in these contexts is mediated by the application of Maximize Presupposition. This was used to explain why, in sensory evidence contexts, *n̓akw* assumes that strong *must*-like translation, while *=ima* takes the weaker *might*-like reading: the sensory evidence presupposition of *n̓akw* is more specialized than the indirect evidence presupposition of *=ima*, therefore *n̓akw* blocks *=ima* from the strong reading.

The second half of chapter 5 explored in detail two other characteristics of *n̓akw*: its

mirative and metaphorical uses in conversation. These were shown to be the result of conversational implicature: a speaker making a *n̓akw*(p) statement when they know p to be true is flouting the Maxim of Quantity. This flout implicates that a speaker is surprised or otherwise unprepared for the event that p denotes. Metaphor is the opposite of this: a speaker making a *n̓akw*(p) statement when they know p to be false is flouting the Maxim of Quality.

6.1 Revisiting the Relations

We can also summarize this study by revisiting the original questions posed in (1.15) to see how the Gitksan evidential and modal data helps us gain a better understanding of the relationship between evidentiality and epistemic modality.

6.1.1 The Conceptual Relations

The original question was *What is the relation between the concept of evidentiality and the concept of epistemic modality?* I suggest that the interaction between *=ima* and *n̓akw* illuminates this relation in the following way. A modal analysis makes the right predictions for the semantic properties of *=ima*. However, it differs from modals in English as the meaning of *=ima* is fixed by presupposition, and its modal force is determined by the context (cf. chapter 4). On the other hand, *n̓akw* is not an epistemic modal, but rather a sentential force operator (cf. chapter 5). Evidential *n̓akw* encodes sensory evidence through presupposition, but it also seems to encode a modal concept, found in its consistent translation of *must*-like modal force.

There are two interesting aspects to this. First, the modal-like force of *n̓akw* is fixed – it does not have variability of *=ima*. Secondly, *=ima* and *n̓akw* stand in relation to one another in terms of evidence (they are both felicitous in sensory evidence contexts), but the choice of *n̓akw* over *=ima* in a sensory evidence context directly implicates modal force: *n̓akw* is used to express more confidence in the sensory evidence than *=ima*. This clearly indicates how evidential and modal concepts overlap, especially in terms of a speaker's attitude towards the evidence they have for an inference. Thus, modal concepts are not necessarily limited to what we analyze as epistemic modality.

6.1.2 The Encoding Relations

The Gitksan evidential data also bears on the relation between the encoding of evidential concepts and the encoding of modal concepts. Given the fact that Gitksan has ways of encoding both evidential and modal concepts, there is no empirical evidence that Gitksan separately encodes the modal concepts possibility and probability within the same semantic class (i.e. two different modal evidentials).

We can also look to the morphosyntax in encoding evidential and modal concepts: the evidential system in Gitksan is morphosyntactically diverse: *=ima* and *=k̲at* are second position clitics that encode both modal and evidential concepts. However, *n̓akw* is quite different: it has the morphosyntactic characteristics of a fully-fledged verb (albeit that it is restricted to the first position in a clause, unlike other verbs). In light of this evidence, we are in a position to re-evaluate Aikhenvald's (2006) claim that there is a two-way split in languages of the world: the first describes evidential languages, where evidential meaning is expressed through grammatical means using a closed-class, paradigmatically organized, and often obligatory morphology. The other side of the split are non-evidential languages, where evidentiality is expressed through optional means such as adverbs and sensory predicates.

Gitksan appears to sit somewhere in the middle: on the one hand, the Gitksan evidentials are entirely optional and not paradigmatically organized, in addition to encoding both

evidential and modal concepts. On the other hand, Gitksan can be characterized as an evidential language: the evidential system is a small set of closed-class morphemes.

6.1.3 The Formal Semantic Relations

A modal analysis of the evidentials *=ima* and *=k̲at* claims that they are indeed modals: they introduce quantification over a modal base and ordering source. However, is it possible that *=ima* and *=k̲at* belong to some other category at the propositional level? For example, in English a variety of expressions can introduce a modal base and ordering source without actually being a modal:

(6.1) Q: Where's John? (example from P. Speas, p.c.)
A': If my experience is any guide, he's fishing.
A": Based on what Mary has told us, he's fishing.

One alternative possibility is to treat *=ima* and *=k̲at* as a different kind of propositional operator, such as the overt version of the covert evidential operator Ev Izvorski proposed for the the 'perfect of evidentiality' in Bulgarian (cf. chapter 4, (4.38)). The evidential operator Ev introduces both an evidential modal base and ordering source, allowing us to capture the same facts.

One indication that *=ima* and *=k̲at* are indeed *bona fide* modals is to again look at the encoding relations in the Gitksan lexicon: first, the evidential interpretation of the perfect in Bulgarian is related to its aspectual semantics. To my knowledge, there are no evidential meanings associated with aspect in Gitksan. Secondly, also to my knowledge, Gitksan speakers rarely express epistemic knowledge through discourse such as (6.1): there is a specialized set of morphemes that encode these kinds of knowledge: *=ima*, *=k̲at*, and *n̓akw*. Further to this point, there are no epistemic modals in Gitksan that simply encode certainty, such as 'might' and 'must' in English. Assuming that the expression of epistemic knowledge is a semantic universal, this is function of the evidential system in Gitksan.

Turning attention to a different area, there is also an interesting three-way link between mirativity, conjectural questions, and exclamativity. Exclamatives express the emotional attitude of a speaker towards the situation that a sentence or nominal denotes, as in "What a nice guy he is!", or "The strange things that he says!" Portner and Zanuttini (2004) suggest exclamative sentences may be a type of mirativity. They develop an interface theory of exclamatives, as they involve not only the semantics of questions, but also the pragmatic force of an utterance (Portner and Zanuttini 2000; 2004). This is used to capture the various interpretations of exclamatives such as 'a sense of surprise' or 'unexpectedness', but which are question-like statements. In this regard, conjectural questions as analyzed above share the same formal properties with exclamatives: they are questions which express something of the speaker's state of mind, but so not require answers from the addressee. Can mirativity, or some sub-type of it be reduced to exclamativity and illocutionary force? Portner & Zanuttini suggest that this may only be partly the case, as "the connection to exclamatives more generally only seems relevant in the use of the mirative marker having to do with unexpected information, not indicating inferential [evidentiality]."

6.1.4 The Formal Pragmatic Relations

Presupposition played a pivotal role in analyzing both the semantics and pragmatics of evidentiality in Gitksan. Each of the Gitksan evidentials were associated with a presupposition that either restricted the modal base (*=ima* and *=k̲at*), or a presupposition that restricted the utterance context. In chapter 5 I presented an analysis of *n̓akw* that the evidence restriction

of an evidential is a common-ground presupposition, which stands in relation to the presuppositions introduced by *=ima* and *=k̲at*. Note that evidential presuppositions are in this respect on a par with other aspects of meaning which are often analyzed as presuppositions, for example the features on tenses and pronouns (Heim and Kratzer 1998).

However, we can revisit this component of the analysis, and question the exact status of the evidence restriction introduced by evidentials: are we really dealing with presupposition? One alternative is offered by Murray (2009b), who argues that the evidence restriction of an evidential is asserted, and not a Stalnakerian presupposition. It may be that evidential features are not truly presuppositional, but are some other type of not-at-issue content. For example, perhaps an evidential claim is part of a sentence's not-at-issue 'expressive meaning' (Potts 2005). Under this view, evidentials may be thought of as conventional implicatures, and wholly independent from at-issue meaning, thus predicting (in the absence of further conditions) that a sentence with an evidential will assert the same proposition as the sentence without the modal. Additionally, an evidential-as-conventional-implicature analysis predicts that an evidential is the same kind of object as illocutionary adverbs such as 'truthfully' and 'honestly', the function of which is to raise the contextual threshold for confidence. We can see this effect with modals in how they express the speaker's level of confidence in the proposition they embed. However, it is less clear how evidentials express speaker confidence. We see this in the translations of *=ima* and *ńakw* in sensory evidence contexts (cf. §5.5), yet do these translations in fact reveal anything as to a speaker's confidence in the proposition they embed?

These approaches represent the state-of-the-art in formal research into evidential meaning, and indicate the future directions of the formal study of evidentials. I believe it is ultimately an empirical question whether the evidence requirements of evidentials are Stalnakerian presuppositions or some other kind of not-at-issue meaning. Gitksan provides suggestive evidence, at least for *ńakw*, although perhaps not for the other evidentials in other languages, that evidential requirements can in fact be real common ground presuppositions. Given that empirically driven, theoretically focused research into evidentiality is relatively new, this kind of investigation offered the opportunity to develop and refine the kinds of fieldwork methodology that can target and adequately describe evidential meaning.

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Appendix A

Gitksan Orthography

This appendix contains the Gitksan orthography as developed in Hindle and Rigsby (1973) along with their IPA equivalents. Discussion of the variation in phonetic implementation of these sounds can be found in Rigsby (1986) and Brown (2008).

Orth.	IPA	Orth.	IPA	Orth	IPA	Orth.	IPA
a	a	k̲	q	p̓	p̓	y	j
aa	aː	k̓	k̓	s	s	y̓	j
b	b	k	k	t	t	’	ʔ
d	d	kw	kʷ	t̓	t̓		
e	e	k̲w̓	qʷ’	tl̓	tɬ’		
ee	eː	l	l	ts	ts		
g	g	l̓	l̰	ts̓	ts̓		
g̲	ɢ	m	m	u	u		
gw	gʷ	m̓	m̰	uu	uː		
h	h	n	n	w	w		
hl	ɬ	n̓	n̰	w̓	w̰		
i	i	o	o	x	x		
ii	iː	oo	oː	x̲	χ		
j	dz	p	p	xw	xʷ		