

**Evidence type, evidence location, evidence strength**  
**Lisa Matthewson**  
**University of British Columbia**

## **1 Introduction**

A much-debated topic in evidentials research is the question of whether evidentials contribute epistemic modal semantics.<sup>1</sup> In recent work I have advanced the strong equivalency view in (1):

- (1) All evidentials contribute epistemic modal semantics, and all epistemic modals contribute evidential semantics. (Matthewson in press)

My goal in the current paper is not to address the modality question directly, by means of the usual barrage of tests for modal contribution (see the works cited in footnote 1 for discussion of these). Instead, I will be concerned with one obvious challenge to the strong equivalency view in (1), namely direct evidentials. The *prima facie* conflict between direct evidentials and the strong equivalency hypothesis is that direct evidentials are often claimed to *strengthen* the proposition expressed (Faller 2002, Murray 2010), yet strengthening seems to be incompatible with the standard view of modality, according to which even a necessity modal claim is *weaker* than its unmodalized counterpart (Kratzer 1981, 1991, although see von Stechow and Gillies 2010 for an opposing view). The question therefore arises of what, exactly, ‘direct’ evidentials are, and whether they really are incompatible with a modal contribution.

In order to investigate this question, I will be looking at evidentials from nine different languages; all of the evidentials to be investigated have some claim to being called ‘direct’. Based on the data presented, I will propose that evidential contributions are more complex than is often assumed. I will argue that there are three different dimensions of meaning which evidentials may encode, as listed in (2):

- (2)
1. Evidence **type**: whether the evidence is visual, sensory, reported, etc.
  2. Evidence **location**: whether the speaker witnessed the event itself or merely some of its results
  3. Evidence **strength**: the trustworthiness/reliability of the evidence

I will argue that each of the three dimensions has direct and indirect values, and that particular evidential morphemes may be semantically complex, encoding information about one, two or all three of the dimensions. I will then argue (in part adapting arguments from Lecarme 2008 and Faller 2011) that contrary to what we might expect, evidentials which encode direct values on *any* of the three dimensions are compatible with modal semantics.

The paper is organized as follows. In section 2 I present an overview of evidence-type-based

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<sup>1</sup> See Kratzer (1981), Izvorski (1997), Ehrich (2001), Garrett (2001), Faller (2002, 2003, 2006, 2011), Chung (2005, 2009), McCready and Asher (2006), Portner (2006), Davis et al. (2007), McCready and Ogata (2007), Matthewson et al. (2007), Waldie et al. (2009), Murray (2010), Peterson (2010), Lee (2011, this volume), among others, for discussion.



definition of ‘direct’ or ‘firsthand’ evidentials is based on the type of evidence source. We find, for example, the proposal that a ‘direct’ evidential is ‘either visual or covering any sensory information’ (Aikhenvald 2004:367). Similarly, in two-term systems which distinguish firsthand vs. non-firsthand, ‘firsthand’ is used when the speaker has sensory experience, while ‘non-firsthand’ is for inference, report, or logical assumption (Aikhenvald 2004:26). In three-term systems with a direct evidential, the direct is used for information ‘based on sensory evidence, usually visual or auditory’ (Aikhenvald 2004:43). And ‘[i]n systems with three or more terms, the visual or the direct evidential usually covers information acquired through seeing, and also generally known and observable facts. It may be extended to indicate certainty’ (Aikhenvald 2006:323).<sup>2</sup>

Aikhenvald provides (among many other examples) the data involving direct evidentials in Wanka Quechua in (4-5). We see that the direct evidential in this language is characterized as conveying that the speaker either saw (4) or heard (5) the event described.

(4) chay-chruu-**mi** achka wamla-pis walashr-pis alma-ku-lkaa-ña  
 this-LOC-**DIR.EV** many girl-TOO boy-TOO bathe-REFL-IMP.F.PL-NARR.PAST  
 ‘Many girls and boys were swimming.’ (I saw them)  
 (Aikhenvald 2004:43, from Floyd 1997)

(5) ancha-p ancha-p-ña-m buulla-cta lula-n kada tuta-**m**  
 too.much-GEN too.much-GEN-NOW-**DIR.EV** noise-ACC make-3P each night-**DIR.EV**  
 ‘He really makes too much noise ... every night.’ (I hear it)  
 (Aikhenvald 2005:160, from Floyd 1999)

Other evidence-type-based definitions are found in, for example, Willett (1988), Speas (2004) or Cohen et al. (2010:42). Willett proposes three sub-types of direct evidential: visual, auditory, and other sensory. Speas argues that ‘[s]entences with direct evidentials convey that the proposition is to be evaluated with respect to sensory data such as seeing or hearing.’ And Cohen et al. (2010:42) state that ‘Direct knowledge refers to any information obtained through sensory devices.’

Evidence-type-based conceptions of evidential contributions are also pervasive in that they form the basis of most people’s definition of what it means to be an evidential. Murray (2010:1) writes that ‘Evidentiality is the encoding of information source, which can be direct (e.g., visual, auditory) or indirect (e.g., based on reports, inference, conjecture).’ Similarly, Davis et al. (2007:3) claim that ‘Uttering *S[ev]* commits the speaker to the existence of a situation in which he receives **ev-type** evidence for [S].’ Lee (2011:287) writes that evidentiality ‘specifies the source of information conveyed in an utterance ... such as direct observation, inference, or hearsay.’ Faller (2003) even argues that Cuzco Quechua *-sqa*, an element which initially looks evidential-like, should *not* be classified as an evidential precisely because it does not fit into an

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<sup>2</sup> This last statement suggests an opening for an evidence strength dimension, and we will see in section 4.4 below that Aikhenvald gives data compatible with an evidence strength analysis for Quechua. However, as in the quote here, Aikhenvald views these uses as ‘extensions’ of the core meaning of the evidential.

evidence-type system. She argues that unlike evidentials, which in assertions encode the speaker’s type of source of information, *-sqa* does not restrict the type of evidence source, but only locates the event outside the speaker’s perceptual field at topic time. (Unlike Faller, I would analyze *-sqa* as an evidential; it is simply one which encodes the evidence location dimension.)

### 3 Proposals to deconstruct evidential contributions

Although evidence type clearly plays a role in distinguishing evidential contributions, it is not the only dimension of meaning which evidential contributions convey. As indicated above, I propose that evidential contributions can encode up to three distinct dimensions, repeated in (6):

- (6)
1. Evidence **type**: whether the evidence is visual, sensory, reported, etc.
  2. Evidence **location**: whether the speaker witnessed the event itself or merely some of its results
  3. Evidence **strength**: the trustworthiness/reliability of the evidence

As mentioned above, the evidence type dimension is the typical first-pass idea of what an evidential does. Reportatives are good examples of the evidence-type dimension: they encode that the speaker has (only) reported evidence for the proposition. The second dimension is based on ideas found in Nikolaeva (1999), Faller (2003), Chung (2005), and Speas (2008). This is the idea that some evidentials care about the location of the speaker at the time of the event itself, and specifically whether the speaker was in a position to witness the event itself, or only some results (or precursors) of the event. For example, Faller (2003:29) says about Cuzco Quechua *-sqa* that it ‘specifies the spatial location of e in relation to the speaker such that e is outside the speaker’s perceptual field. No reference is made to the type of source of information by which the speaker acquired the proposition p describing e.’ As noted above, this leads Faller to conclude that *-sqa* is not an evidential. However, we will see several evidentials below which encode information about evidence location.

The third dimension, evidence strength, encodes the speaker’s judgment about the trustworthiness or reliability of the evidence, and correlates very closely with the notion of speaker certainty.

We can now speculate that evidentials might encode either direct or indirect values on each of the three dimensions. We thus predict at least six types of specification, as outlined in (7). Below, we will see examples of evidentials from various languages which will fill in all the cells.

(7)

	DIRECT	INDIRECT
EVIDENCE TYPE	e.g., sensory	e.g., inference, report
EVIDENCE LOCATION	event itself	results
EVIDENCE STRENGTH	best	not best

I am not the first to have proposed that evidential contributions are non-monolithic. For example, Willett (this volume) observes that ‘Several cross-linguistic studies (e.g. Palmer, 1986; Willett, 1988; Bybee, Perkins and Pagluica, 1994 have shown that the speaker’s judgement as to the epistemic value of the proposition involves both the *reliability* and the *source* of his or her

knowledge about the situation described' (emphasis added). Willett goes on to discuss a set of modal particles in Southeastern Tepehuan which encode either evidence reliability or evidence source. In his discussion, however, Willett adheres to a traditional evidence-type conception of evidentials; he calls the elements which encode reliability 'evaluative particles', and the set which encode evidence source 'evidential particles'. One of my main proposals here will be that many evidentials encode information about both these dimensions simultaneously.<sup>3</sup>

A proposal which bears distinct similarity to mine is that of de Haan (2001). De Haan argues that the commonly-assumed two-way split between 'direct' vs. 'indirect' evidence (actions personally witnessed by the speaker, vs. actions not personally witnessed) is insufficient. In particular, de Haan argues that the traditional direct/indirect division cannot account for inferential evidentials across languages. The inferential

has certain elements in common with both sensory evidentials (such as visual evidentiality) and with evidentials denoting secondhand information (the so-called quotative evidential) ... Inferentials can consist of both direct and indirect evidence as these are commonly defined and an additional parameter is needed to analyze this evidential category (de Haan 2001:193-194).

On the basis of his investigation of inferential evidentials, De Haan proposes that there are two binary features involved in evidential contributions: direct/indirect, and firsthand/secondhand. The direct/indirect split corresponds to what I am calling 'evidence type'; it distinguishes visual, auditory and other sensory evidence from quotative evidence. The firsthand/secondhand split corresponds roughly to what I am calling 'evidence location': 'With firsthand knowledge, the speaker has sensory information about the event; with secondhand information, only evidence *after the fact* and hearsay' (de Haan 2001:195; emphasis added). Inferential evidentials straddle the two dimensions; inferential evidence may be direct (in that it involves sensory witness), but secondhand (in that it involves only evidence after the fact). De Haan argues that languages make different choices about whether to classify inferential evidentials with direct evidentials, or with secondhand ones.

The differences between de Haan's proposal and mine are twofold. First, de Haan uses only two dimensions, whereas I argue for three. And second, de Haan asserts that 'the theoretical advantage we gain by introducing a second feature would appear to be very slim, since the only category that is affected by adding a second feature is that of evidence based on deduction, the inferential.' I will attempt to show below, however, that many evidentials require reference to more than one dimension, so that a multi-dimensional analysis is useful not just cross-

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<sup>3</sup> Izvorski (1997:3) makes a similar two-way distinction to Willett, claiming that evidentials encode 'speaker-oriented qualifications of propositions along two dimensions: (i) in terms of the evidence they are based on, e.g. DIRECT (visual / auditory, etc.) or INDIRECT (report or inference), and (ii) with respect to the speaker's commitment to their truth ((dis)belief / agnosticism).' However, Izvorski argues that the two dimensions are treated as coinciding by natural languages, and that the unified meaning of the direct/indirect split is 'whether or not the evidence justifies the speaker's belief in a proposition'.

linguistically but within the same language, and even within the same morpheme.

A third relevant proposal is made by Waldie (in prep.). On the basis of several Nuu-chah-nulth (Wakashan) evidentials, Waldie argues for a three-way characterization of evidential contributions which is quite similar to mine (although each was developed independently of the other). First, Waldie proposes a dimension which he calls ‘perspectival status’; this is similar to my ‘evidence strength’ in that it encodes an agent’s certainty level about the proposition. Second is a ‘perceptual grounding’ aspect, which identifies ‘the sense through which an origo witnesses a situation’ (Waldie in prep:69). This is similar, but not identical, to my ‘evidence type’ dimension. The two differ in that my evidence type dimension contrasts visual or sensory restrictions with e.g., reportative or inferential restrictions, while Waldie separates out reportative and inferential restrictions into a separate dimension called ‘manner of support’. I will discuss the differences between Waldie’s proposal and mine in more detail below, once we have seen some relevant data.

#### 4 Where the evidence-type analysis breaks down

In this section I discuss evidentials from nine languages which cause problems for a simple evidence-type analysis, but which are capturable in the three-dimensional system I have proposed. The focus will be on evidentials which have some claim to being classified as ‘direct’. The languages looked at are St’át’imcets, Gitksan (Tsimshianic), Nuu-chah-nulth, Cuzco and Wanka Quechua, English, Nivacle (Matacoan-Mataguayan), Cheyenne (Algonquian), Korean, and Tibetan.

##### 4.1 St’át’imcets

In this section I examine one St’át’imcets evidential, *lákʷ7a* (previously discussed in Matthewson 2011, in press, in the context of arguing for a modal analysis). *Lákʷ7a* poses problems for an evidence-type-based definition of the direct/indirect split. It acts like an evidence-type *direct* evidential, in that it requires sensory evidence for the proposition. However, it also acts like something we would intuitively want to call an *indirect* evidential, in that it disallows visual evidence of the eventuality itself. Thus, *lákʷ7a* allows both direct perception of the event (as long as it’s non-visual), and indirect evidence about the event (as long as it’s sensory).

The basic behaviour of *lákʷ7a* is illustrated in (8-11). We see that *lákʷ7a* is felicitous in cases where the speaker has any kind of non-visual, sensory evidence for the proposition.<sup>4,5</sup>

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<sup>4</sup> St’át’imcets data are presented in the orthography used by community members; see van Eijk and Williams (1981). The symbol 7 represents a glottal stop. Abbreviations are as follows: CAUS: causative, COMP: complementizer, DEIC: deictic, DET: determiner, DIR: directive transitivizer, ERG: ergative, EXIS: assertion of existence, FOC: focus, IMPF: imperfective, MID: middle intransitive, NEG: negative, NOM: nominalizer, PL: plural, POSS: possessive, SBJN: subjunctive, SG: singular, STAT: stative, SUBJ: subject. The symbol - marks an affix boundary and = marks a clitic boundary.

(8) *Hearing:*

wa7 **lákwa7a** ku=ts7ás=a  
be **lákwa7a** DET=come=EXIS  
'Someone's coming.' (The speaker can hear them, but not see them.) (Davis 2006)

(9) *Taste:*

wa7 **lákwa7a** ku=sq'áq'pa7 lts7a ti=ts'í7=a  
be **lákwa7a** DET=dirt here DET=meat=EXIS  
'This meat tastes as if there's dirt in it.' (said while trying to eat it)

(10) *Smell:*

tsem-s=kán **lákwa7a** ti=ts'í7=a  
burn-CAUS=1SG.SUBJ **lákwa7a** DET=meat=EXIS  
'I burnt the meat.' (Context: you smell it)

(11) *Touch:*

*Context: You are blindfolded. I ask you to tell me which of three cups a stone is in. You feel around and feel the stone and you say:*

nilh **lákwa7a** lts7a  
FOC **lákwa7a** here  
'It's in this one.'

As shown in (12-13), *lákwa7a* disallows the speaker having had visual evidence of the eventuality itself. (12) is bad if the speaker has *seen* manifestations of the sickness, but acceptable if s/he has merely *heard* symptoms. (13) shows the speaker's judgment that visual witness of the event is ruled out.

(12) áolsem=lhkacw **lákwa7a**  
sick=2SG.SUBJ **lákwa7a**  
'You must be sick.'

Rejected if the speaker sees someone is shivering and sweaty.  
Accepted if the speaker hears them coughing.

(13) tsicw **lákwa7a** kwam s=Laura i=ts'wán=a láku7 xésem=a  
go **lákwa7a** take(MID) NOM=Laura DET.PL=wind.dried.salmon=EXIS DEIC box=EXIS  
'Laura took some wind-dried salmon from the box.'

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<sup>5</sup> Most of the data presented here is found in Matthewson (2011). In that paper I propose that evidential contributions encode two distinct dimensions of meaning. In the current paper I have added the third, evidence strength dimension of meaning.

Consultant's comment: "Okay if she didn't see her doing it."

*Lákw7a* does require the speaker to have had some sensory evidence for the proposition advanced. (14) supports this by showing that *lákw7a* is not compatible with the speaker only having had pure reasoning to support his/her claim.

- (14) *Context: I show you a coin and three small cups. I put the coin under one of the cups and then I mix them around and around very fast so you can't see any more which one it's under. I ask you to guess. You guess one cup, and I lift it up and show you that it's not under there. You guess a second one, the same. You point at the last cup and say:*

# láti7 **lákw7a** lh=as legw  
 there **lákw7a** COMP=3SBJN hide  
 'It must be under that one.'

Sensory evidence can either involve perception of the event itself, as in (8-11), or of the *results* of the eventuality. (15) shows non-visual sensory evidence of the results of the event.

- (15) *Feeling the results:*

*Context: An object was under water. The speaker didn't witness how long it was under the water, but feels how dry it is after it is taken out.*

cw7áy=t'u7 **lákw7a** k=s=cin'=s kw=s=wá7  
 NEG=just **lákw7a** DET=NOM=long.time=3POSS DET=NOM=be  
 l=ti=qú7=a – wá7=t'u7 wa7 k'ac  
 in=DET=water=EXIS IMPF=just IMPF dry  
 'It couldn't have been under the water long – it's dry.'

Finally, although visual evidence of the event itself is ruled out, as shown in (12-13), visual evidence of the *results* of the event is fine, as shown in (16).

- (16) *Seeing the results:*

*Context: You had five pieces of ts'wan [wind-dried salmon] left when you checked yesterday. Today, you go to get some ts'wan to make soup and you notice they are all gone. You are not sure who took them, but you see some ts'wan skins in John's room.*

ts'áqw-an'-as **lákw7a** i=ts'wán=a k=John  
 eat-DIR-3ERG **lákw7a** DET.PL=ts'wan=EXIS DET=John  
 'Looks like John might have eaten the ts'wan.'

Similarly in (17), although visual evidence is involved, it is not visual evidence of the event itself (John's being home), but merely of a consequence of his being home, namely that his lights are on.

(17) *Context: A is driving past John's house with B and sees John's lights are on. A says:*

wá7 **lák7a** l=ta=tsítw-s=a s=John  
 be **lák7a** in=DET=house-3SG.POSS=EXIS NOM=John  
 'John must be home.'

Consultant's comment: "Okay, 'cause you don't really see him."

The distinction between visual witness of the event itself (which is disallowed) and visual witness of its results (which is allowed), is confirmed by the infelicity of (18-19). As argued by Matthewson (2011), (18-19) involve visual witness of the result state encoded by the predicate. They therefore contrast with (16-17), which involved visual witness of something which merely contextually counts as a result of the event.

(18) *Context: You are waiting for Billy to arrive. You suddenly see that he's here.*

# t'iq **lák7a** k=Billy  
 arrive **lák7a** DET=Billy  
 'Billy must've arrived.'

(19) *Context: You needed a door put in. You come home and you see the door is in.*

# lan **lák7a** es-máys ti=séps=a  
 already **lák7a** STAT-made DET=door=EXIS  
 'The door must've been made.'

*Lák7a's* evidence source requirements are summarized in (20). Note that if we only consider evidence type as a possible way to formulate evidential contributions, (20i) looks like a directness requirement, but (20ii) looks like an indirectness requirement.

- (20) i. *Lák7a* requires sensory evidence for the proposition.  
 ii. *Lák7a* disallows visual evidence of the eventuality.

The problem posed by *lák7a* is further brought home by comparing it to Willett's (1988) cross-linguistic classification of types of evidential contribution, given in (21). *Lák7a* encodes the highlighted meanings; we see that it cross-cuts Willett's direct/indirect division.

(21) Types of evidence (Willett 1988:57)

	Direct	Indirect	
	Attested	Reported	Inferring
	Visual	Second-hand	<b>Results</b>
	<b>Auditory</b>	Third-hand	Reasoning
	<b>Other sensory</b>	Folklore	

Within the three-dimensional system, however, *lákʷ7a* poses no contradiction: it encodes a direct value for evidence type, and an indirect value for evidence location. (See Matthewson 2011 for a more formal statement of the analysis of *lákʷ7a*.)

#### 4.2 Gitksan

Similar problems for a pure evidence-type definition of evidential contributions arise in Gitksan, as discussed by Peterson (2010). Peterson shows that the Gitksan evidential *'nakw* encodes ‘that a speaker has sensory evidence for an event that they have not witnessed directly’ (Peterson 2010:244). We thus see again an apparent conflict between a *directness* requirement (having sensory evidence) and an *indirectness* requirement (not witnessed directly). Examples of felicitous uses of *'nakw* are given in (22-23).

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

'nagwimi	k'otshl	'o'nin
' <b>nakw</b> =mi	k'ots=hl	'o'n-n
EVID=2SG	cut=CND	hand-2SG
'You must've cut your hand.'		

(Peterson 2010:74)

(23) *Context: You get to Bob's place and you can smell or see smoke.*

'nakwhl	sehons	Bob
' <b>nakw</b> =hl	se-hon-(t)=s	Bob
EVID=CND	CAUS-fish-3=CND	Bob
'Bob must be smoking fish.' / 'Looks like Bob is smoking fish.'		

Just like St'át'imcets *lákʷ7a*, Gitksan *'nakw* cross-cuts Willett's classification of evidential contributions. Just like *lákʷ7a*, *'nakw* encodes both a direct value for evidence type (sensory) and an indirect value for evidence location (non-overlap between the event itself and the speaker's visual field; cf. Faller 2003, Chung 2005).

#### 4.3 Nuu-chah-nulth

Problems for a monolithic approach to evidential contributions are also posed by Nuu-chah-nulth, as discussed by Waldie (in prep.). For example, Waldie argues that the Nuu-chah-nulth evidential *-k'uk* encodes ‘visual inference’. It requires the speaker to have witnessed something visually, but they may not have witnessed the event itself. An example of *-k'uk* is given in (24). The speaker here has seen some evidence which allows her to infer that it is hot outside.

(24) *Scenario: Kay was inside where the air conditioning kept the temperature at 21°C. She looked outside and saw it was sunny and people were wearing shorts and t-shirts, so she said this to Bill.*

λ'upaak'uk  
λ'up-(y)a-k'uk  
hot-CONT-VIS.EVID  
'It looks hot out.'

(Waldie in prep:50)

On the basis of *-k'uk* as well as several other Nuu-chah-nulth evidentials, Waldie argues for a three-way characterization of evidential contributions which is similar to mine. Waldie's system is given in (25).

(25) Three separate aspects to evidentiality (Waldie in prep.:5)

- i. perceptual grounding (which sense the origo used)<sup>6</sup>
- ii. manner of support (witness, inference, report)
- iii. perspectival status (origo certainty)

Waldie's 'perspectival status' corresponds to my 'evidence strength'. Waldie's 'perceptual grounding' is similar, but not identical, to my 'evidence type' dimension. The two differ in that the evidence type dimension contrasts visual or sensory requirements with e.g., reportative or inferential restrictions, while Waldie separates out reportative and inferential restrictions into a separate dimension called 'manner of support'. Waldie's motivation for separating perceptual grounding and manner of support is based on Nuu-chah-nulth-internal facts. Nuu-chah-nulth has one evidential, *naʔaat*, which strictly requires auditory evidence, and imposes no other restrictions. As such, it includes auditory reports (but only auditory ones; written reports do not suffice). *naʔaat* therefore encodes *only* the sense used (the perceptual grounding). It contrasts with other evidentials which encode a more traditional reportative semantics. In St'át'imcets, on the other hand, there is no evidence for a separation between perceptual grounding and manner of support, so I group them all together under 'evidence type'. The combination of Waldie's data and mine may suggest that eventually we may need a four-way system, but I leave this for future research.

A final difference between the two proposals is that Waldie does not distinguish between evidence type and evidence location; this is presumably because unlike in St'át'imcets or Gitksan, there are no Nuu-chah-nulth evidentials which reveal the need for such a distinction. The auditory evidential *naʔaat* is relevant again here. As mentioned above, *naʔaat* is used whether the origo directly perceived the event itself, as in (26), or only by means of an intermediary (i.e., some results of the event), as in (27). It therefore does not care about evidence location.

(26) *Scenario: Kay and Bill were walking past Ken's house, and they could hear him yelling, but they couldn't see him. Kay said this to Bill.*

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<sup>6</sup> Following Garrett (2001), Waldie uses the term 'origo': 'the person from whose perspective a given evidential is evaluated' (Garrett 2001:4). Here I will usually simply talk about the speaker instead, since origo shifts are not relevant to the current discussion.

ʕaaqʕaaqaʔiʃ	naʔaat	Ken	
ʕa:q-(y)a[RLL]-ʔiʃ	naʔa-t	Ken	
yell.at-REP-3.IND	AUD.EVID	Ken	

‘Ken is hollering.’ (Waldie in prep.:129)

(27) *Scenario: The police arrested someone, but the newspapers didn't say who it was. Olive told Kay that it was Ken. Later, Kay said this to Bill.*

ʔuʔitwaʔiʃ	Ken	naʔaat	maʕpiʕ
ʔuʔ-(m)it-wa-ʔiʃ	Ken	naʔa-t	maʕ-piʕ
FOC-PAST-3.QUOT	Ken	AUD.EVID	tied-MOM.in.the.house

‘It is said it was Ken who ended up in jail.’ (Waldie in prep.:129)

This accords with what I have proposed, namely that an evidential may encode information on one dimension (here, evidence type/perceptual grounding), while neutralizing another dimension (here, evidence location). The difference between St’át’imcets or Gitksan, on the one hand, and Nuu-chah-nulth on the other is that the former languages have evidentials which *do* encode information about evidence location (e.g., *lákʷ7a* or *’nakw*).

Waldie’s proposal and mine may actually be even more similar than they appear. In particular, Waldie’s manner of support category may be more similar to my evidence location than it initially appears. Although the only distinctions Waldie argues for under manner of support are report vs. inference (making it look like it is subsumed under my evidence type category, along with perceptual grounding), his prose suggests that conceptually, manner of support is similar to what I am calling evidence location. For example, he writes (in prep:84) that ‘Another kind of relation [i.e., manner of support (LM)] is needed to indicate that for an origo a perceived situation and a proposition are linked in some way, whether directly (by witnessing) or indirectly (by contingent inference).’ Further research is required into the connections between Waldie’s system and mine. In any case, it is clear that Nuu-chah-nulth, like St’át’imcets and Gitksan, has evidentials which cross-cut a simple evidence-type direct-indirect split.

#### 4.4 Wanka and Cuzco Quechua

I now turn to Quechua languages, focusing on the evidential which in these languages has been called a ‘direct’. I will attempt to determine whether this evidential encodes evidence-type directness, evidence-location directness, or evidence-strength directness.

There is evidence that the relevant Quechua morpheme encodes evidence strength information, i.e. speaker certainty. For example, Aikhenvald (2004:161) claims that ‘The direct evidential expresses the speaker’s firm belief that what they are talking about is true.’ One of Aikhenvald’s examples is given in (28). She writes (2004:161) that ‘[b]y saying [28] the speaker does not mean to say that he has seen his parents fail to do a particular job. This example implies that the speaker is quite sure that his parents are unable to do it.’

- (28) papaa-kaa-si                      mana-**m**                      atipa-n-cu                      lula-y-ta  
 father-DEF-also                      not-**DIR.EV**                      be.able-3P-NEG                      do-IMPF-ACC  
 ‘Our parents can’t do it either.’                      (Wanka Quechua; Aikhenvald 2004:162)

Aikhenvald also observes (2004:162) that the Quechua direct evidential ‘is also used when talking about generally known facts. [29] is something every Peruvian knows.’

- (29) yunka-pi-**n**                      k’usillu-kuna-qa                      ka-n  
 rainforest-LOC-**DIR.EV** monkey-PL-TOP                      be-3P  
 ‘In the rainforest, there are monkeys.’                      (Cuzco Quechua; Aikhenvald 2004:162)

For Cuzco Quechua, Faller (2002) argues that the ‘best possible grounds’ evidential =*mi* requires that ‘the speaker has the best possible source of information required for the type of event described’ (Faller 2002:18). The restriction imposed by =*mi* thus appears to be at least partly a restriction on the *quality* of evidence the speaker has, rather on the *type*. This is supported by the fact that =*mi* is licensed by any of the following three kinds of evidence (Faller 2010):

- (30) i. Direct evidence, in cases where the described event is directly observable or otherwise directly accessible  
 ii. The ‘next best thing’, in cases where the event is not observable (this includes reliable reports)  
 iii. Undisputed common and learnt knowledge

(31) illustrates the use of =*mi* when the evidence is the ‘next best thing’, and (32a,b) show cases of undisputed common and learnt knowledge. (‘Ev’ indicates the source of the speaker’s information.)

- (31) paqarin                      Inés                      Qusuq-ta=**n**                      ri-nqa  
 tomorrow                      Inés                      Cuzco-ACC=**BPG**                      go-3FUT  
 ‘Inés will go to Cuzco tomorrow.’  
 Ev: Inés told the speaker that she will go to Cuzco tomorrow                      (Faller 2011)

- (32) a. 1945                      wata-pi=**n**                      segunda                      guerra mundial=**qa**                      tuku-rqa-n.  
 1945                      year-LOC=**BPG** second                      war                      world=**TOP**                      end-PST-3  
 ‘World War II ended in 1945.’  
 Ev: learnt in school                      (Faller 2011; cf. also Aikhenvald 2004:162)

- b. yunka-pi-**n**                      k’usillu-kuna-qa                      ka-n  
 rainforest-LOC-**BPG**                      monkey-PL-TOP                      be-3  
 ‘In the rainforest, there are monkeys.’  
 Ev: speaker knows it as part of Quechua culture                      (Faller 2002:133)

Data such as (31-32) rule out a pure evidence-type analysis of =*mi*, because they show that direct witness of the relevant events is not required; reports can count as good enough in certain circumstances. Like St’át’imcets *lákʷ7a* or Gitksan *’nakw*, =*mi* does not fit with Willett’s classification; this is shown in (33).

(33) Types of evidence (Willett 1988:57) vs. Quechua =*mi*:

Direct	Indirect	
Attested	Reported	Inferring
<b>Visual</b>	<b>Second-hand</b>	Results
<b>Auditory</b>	<b>Third-hand</b>	Reasoning
<b>Other sensory</b>	Folklore	

However, it could still be the case that evidence type, *as well as* evidence strength, plays a role with =*mi*. In support of this, Martina Faller observes (p.c.) that having very reliable evidence is not always sufficient to license =*mi*. For example, suppose we are having a meeting and Mary’s partner calls in to say that she is sick and cannot attend. Even if I completely trust this source, I could not use =*mi* to say that Mary is sick; I would have to use the reportative. Similarly, suppose that I call my parents and they say that it has been raining: I could not use =*mi* to report that it has been raining where my parents live. The difference between these cases, where =*mi* is not licensed, and (31), where it is, is that it is in principle possible to directly witness Mary’s sickness, or the rain. Therefore, direct witness counts as the best possible evidence for these events, and =*mi* is disallowed if the speaker lacks that best evidence. In (31), in contrast, Inés’s future plans are not directly observable. In this case (or with other non-observable events, such as another’s person’s emotions), the ‘next best thing’ is allowed, such as a reliable report (see Faller 2002, 2011 for further discussion and data).

It is clear that what counts as ‘good enough’ evidence to license =*mi* is dependent upon the type of event being described. However, the generalization about Cuzco Quechua =*mi* still seems to be – exactly as Faller describes it – that the speaker must have the *best possible* evidence for the claim being made. Usually, the best possible evidence will come from having personally witnessed the event. If that is not possible, other types of evidence are allowed, including reliable reports. Notice that the restriction is still about evidence strength, not type of evidence. If we analyzed it as involving an evidence *type* restriction, we would need a complicated and disjunctive definition of what counts as the right type of evidence.

In light of these facts, I propose that Quechua =*mi* encodes the highest level of evidence strength. Note, by the way, that this shows that ‘evidence strength’ is a better characterization of this dimension than ‘speaker certainty’. In the cases mentioned above where =*mi* is not licensed (where Mary’s partner tells me she’s sick, or my parents tell me it’s raining), the speaker may be highly certain of the proposition they are advancing. However, they did not receive the best possible type of evidence for those events, so =*mi* is disallowed. Note also that this analysis of Quechua does not require us to have a basic meaning (an evidence type meaning), plus ‘extensions’, as in Aikhenvald’s (2004) conception of Quechua. We simply have one unified meaning; the variation comes from the fact that what counts as the best possible evidence varies according to what type of event one is reporting.

## 4.5 English

According to von Fintel and Gillies (2010), English *must* makes an evidential contribution. They argue that *must*  $\varphi$  is infelicitous if the speaker's evidence for  $\varphi$  is 'direct' (see also Kratzer 2010 for the claim that all epistemic modals contain indirect evidential meaning). Relevant data are given in (34-36). In (34), the speaker has visual evidence of the rain itself; this counts as direct evidence, so *must* is infelicitous.

- (34) [Seeing the pouring rain.]  
?? It must be raining. (von Fintel and Gillies 2010:3)

In (35), the speaker has only inferential evidence for the location of the ball. Even though this evidence may be very strong, strong enough to lead to full certainty on the part of the speaker, *must* is felicitous due to the indirectness of the evidence.

- (35) Chris has lost her ball, but she *knows* with full certainty that it is in either Box A or B or C. She says:

The ball is in A or B or C. It is not in A ... It is not in B. So, it must be in C.  
(von Fintel and Gillies 2010:14)

And in (36), the speaker again may be very certain about the event described, but has only indirect evidence, so *must* is licensed.

- (36) *Context: Billy sees wet raingear and knows rain is the only cause.*

It must be raining.

On the basis of data such as these, von Fintel and Gillies propose (2010:3) that *must* 'signals that the speaker has reached her conclusion via an indirect inference.' The question here is what exactly is meant by 'indirect' – is this an evidence type requirement, an evidence location requirement, or an evidence strength requirement? I will argue that it is an evidence strength requirement, and that English *must* therefore encodes the opposite end of the same dimension as Quechua *=mi* does.

In order to isolate the nature of the indirectness requirement of *must*, we need to look at exactly which sorts of situations render *must* infelicitous. As already shown in (34), visual witness of the event itself counts as direct and renders *must* infelicitous. (37-40) show that any kind of sensory evidence of the event itself counts as direct evidence, and therefore disallows *must*.

- (37) *Context: The speaker hears people playing Tchaikovsky.*

# They must be playing Tchaikovksy.

- (38) *Context: The speaker smells a good smell.*

# Something must smell good.

(39) *Context: The speaker tastes something good.*

# Something must taste good.

(40) *Context: The speaker feels that a coat is wet.*

# The coat must be wet.

Second, *trustworthy reports that  $\varphi$*  count as direct evidence for the purposes of *must*. This is mentioned by von Fintel and Gillies (2010:354), and illustrated in (41).

(41) *Context: Belinda, Bob's wife, told the speaker that Bob is home. Belinda is a very reliable source. The speaker now tells someone else:*

# Bob must be home.

The infelicity of (41) indicates that the proposition that Bob is home counts as direct evidence, even though the speaker only obtained that information via a trustworthy report.

Finally, general knowledge also counts as direct evidence, as shown in (42).

(42) *Context: It is general knowledge that World War II ended in 1945.*

# World War II must have ended in 1945.

The claim that general knowledge propositions count as direct evidence is also supported by (36), repeated here as (43):

(43) *Context: Billy sees wet raingear and knows rain is the only cause.*

It must be raining.

When discussing (43), von Fintel and Gillies write that 'Billy's *direct information* is that the people coming inside have wet umbrellas, slickers, and galoshes *and that rain is the only cause*' (von Fintel and Gillies 2010:372; emphasis added). The proposition that if raingear is wet, then rain is the only cause is a general knowledge proposition – not one which is directly supported by witnessed evidence in this discourse situation.<sup>7</sup>

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<sup>7</sup> According to von Fintel and Gillies's analysis, *must  $\varphi$*  is felicitous if the speaker's evidence for  $\varphi$  is indirect, and true if the direct evidence as a whole entails  $\varphi$ . In order to correctly predict that (43) is true in the context given, the proposition 'if raingear is wet, then rain is the only cause' must be part of the speaker's direct evidence. If we did not count this general knowledge proposition as direct evidence, then the direct evidence as a whole would not entail that it is raining.

In summary, then, what counts as ‘direct’ evidence for *must* includes the three types of information listed in (44).

- (44) i. information obtained by **sensory observation** in the utterance situation  
 ii. **trustworthy reports**  
 iii. **general knowledge**, accepted assumptions and reasoning

These three types of information make little sense from the point of view of a pure evidence-type understanding of evidential contributions, since three different types of evidence count as direct. However, they make perfect sense according to an evidence-strength understanding. What *must* cares about is the trustworthiness or reliability of the speaker’s evidence.

Notice now that the evidence disallowed by *must* parallels very closely the kinds of evidence allowed by Quechua =*mi*, as discussed above. =*mi* and *must* apply the trustworthiness distinction in inverse ways: =*mi* requires the strongest possible evidence for the prejacent proposition, while *must* disallows the strongest possible evidence. In other words, while =*mi* is an evidence-strength direct evidential, *must* is an evidence-strength indirect evidential. This provides further support for the claim that evidentials can encode evidence strength as their primary distinction.

#### 4.6 Nivacle

Gutiérrez (2010) and Gutiérrez and Matthewson (in press) argue that determiners in Nivacle (Matacoan-Mataguayan) encode evidential distinctions. They propose that Nivacle determiners encode whether or not the speaker has had, at some point in the relevant individual’s lifespan, the best type of sensory evidence for the existence of that individual. This means that Nivacle determiners convey both an evidence type restriction (whether the evidence is sensory or not) and an evidence strength restriction (whether it is of the best possible kind or not).

Some data illustrating the evidential contributions of Nivacle determiners are given in (45). In (45a), the speaker has seen his elder sister at some time in the past, so he has had the best type of sensory evidence for her existence, at some point in her lifespan. Consequently, the best-sensory-evidence determiner *xa* is used. In (45b-c), on the other hand, the speaker never had sensory evidence of his sister’s existence, because she was kidnapped by the military before he was born. So even though he firmly believes that his sister existed (due to reliable reports), the not-best-sensory evidence determiner *pa* must be used.<sup>8</sup>

- (45) a. kaʔax      ɫ-xa=beʔla                      ʃiʔtaʔ  
          have        F-BEST.SENS.DET=one            elder.sister  
          ‘I have one elder sister.’

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<sup>8</sup> Nsyilxcen (Okanagan Salish) possesses an evidential, *cmay*, which is partially similar to Nivacle *pa* (Menziez in prep.). *Cmay* is licensed only when the speaker has no sensory evidence for the proposition; it thus encodes an indirect value on the evidence-type dimension. Menziez explicitly contrasts *cmay* with Gitksan *’nakw*, which is direct for evidence-type.

- b. kaʔax      łan      ł-pa=beʔła                      ʃĩtaʔ  
 have      REP      F-NOT.BEST.SENS.DET=one      elder.sister  
 ‘I have one elder sister.’
- c. x-en-tax                      ka      xa-βan                      ł-pa=ʃĩtaʔ  
 1S.SG-want-IPFV      SUB      1S.SG-see/find      F-NOT.BEST.SENS.DET=elder.sister  
 ‘I wanted to find my sister.’                      (Gutiérrez and Mathewson in press)

Importantly, determiner choice in Nivacle cannot be analyzed as relying solely on evidence type. This is because having had sensory evidence of the existence of the relevant individual is not sufficient to license the best-sensory-evidence determiners. Rather, the speaker must have had the *best possible* type of sensory evidence – which will usually, but crucially not always, be visual evidence. For example, in (46), the speaker has auditory evidence that an animal is coming. This is not the best sensory evidence for an animal, so *pa* is used.

- (46)      pa=jakisit                                      naʃ  
             NOT.BEST.SENS.DET=animal      come  
             ‘An animal is coming.                      (Gutiérrez and Mathewson in press)

Importantly, however, in cases where non-visual evidence is superior to visual, such as when determining whether a drink is vodka or water, the best-sensory-evidence determiners do not require vision, as shown in (47).

- (47)      *Context: You are blindfolded. You need to guess what liquid you are being given: “Now I am tasting...”*

- k’a-joxi                      na=jinoʔot  
 1S.SG-drink      BEST.SENS.DET=water  
 ‘I am drinking water (I can feel it).’                      (Gutiérrez and Mathewson in press)

We thus see that the evidential contribution of these determiners involves both evidence type and evidence strength. The Nivacle best-sensory-evidence determiners are similar to St’át’imcets *łákwʔa* in requiring sensory evidence, but also similar to Quechua =*mi* in requiring the best possible evidence in the situation and for the predicate used. They encode ‘direct’ values on both dimensions.

An interesting point about the Nivacle evidential determiners is that (being determiners) they differ from typical evidentials in not requiring evidence of an *event*, but of an *individual*.<sup>9</sup> It is not obvious what the analogue of the evidence location dimension would be for a determiner evidential. Could there be an evidential determiner system which encoded the distinction between having evidence of the individual themselves, vs. only their ‘results’? While this must be left to future research, it seems that the Nivacle best-sensory-evidence determiners require the speaker to have the best type of sensory evidence of the individual themselves. We can therefore say that the Nivacle best-sensory-evidence determiners encode a ‘direct’ value on all three

<sup>9</sup> See also Imai (2003), Lecarme (2008) for discussion of evidentiality in nominals.

meaning dimensions.

#### 4.7 Cheyenne

Another potential case of an evidential which is direct on all three dimensions is the Cheyenne (Algonquian) direct evidential, as discussed by Murray (2010). The Cheyenne direct (which is not overtly marked) is characterized by Murray as requiring that the speaker has ‘direct evidence’ for his or her claim, where direct experience is ‘probably personal experience’ (2010:22-23). An example is given in (48). After having uttered (48a), the speaker cannot utter (48b) using the direct evidential, since in this context, the speaker does not have direct evidence that the snake crawled away; s/he is only inferring it based on the absence of the snake. (48b) would be felicitous if the speaker had seen the snake crawling away.

- (48) a. é-s-sáa-hoé-he-∅                      še'šenovo tse  
          3-PST-NEG-be.at-MOD<sub>A</sub>-DIR        snake  
          ‘The snake was gone.’

- b.# é-'eše-ase-vone hne '∅  
              3-PST-already-away-crawl-**DIR**  
              ‘It crawled away.’

(Murray 2010:32)

The requirement that the speaker have personal evidence for the described event makes it seem that the Cheyenne direct imposes both an evidence type requirement (something like sensory evidence), and an evidence location requirement (witnessing the event itself, rather than its results). Interestingly, however, Murray also claims that the direct evidential strengthens the assertion being made. It ‘commits the speaker to the truth of the scope proposition’ (2010:53), and it carries a certainty implication. Murray therefore translates the direct evidential into English using ‘I’m sure’, ‘I’m certain’, or ‘I find’. This looks like an evidence-strength directness requirement. The proposal that the Cheyenne direct imposes more than one requirement is reflected in Murray’s statement that this evidential indicates that the speaker is ‘*certain based on personal experience* that the proposition in the evidential’s scope is true’ (2010:95; emphasis added).

If the Cheyenne direct imposes evidence-type directness as well as evidence-strength directness, it should differ empirically from the Quechua best possible grounds evidential =*mi*, which I argued above encodes only an evidence strength requirement. In particular, we predict that unlike in Quechua, the Cheyenne direct evidential cannot be used for claims based on general knowledge or reliable reports. At least for general knowledge, this prediction seems to be upheld (Sarah Murray, p.c.).

#### 4.8 Korean

The Korean element *-te* has been, and continues to be, the subject of a great deal of discussion in the literature. It has many challenging properties, including its interaction with tense morphemes, restrictions on first-person subjects, and its status as a potential epistemic modal. *-te* is relevant here because its evidential contribution is interestingly complex. In this section I will summarize



ecey pi-ka o-Ø-te-la  
 yesterday rain-NOM fall-PRES-TE-DECL  
 ‘[I saw that] it was raining yesterday.’

b. *Context: Yesterday morning, the speaker saw that the ground was wet. Now, he says:*

kucekkey pi-ka o-ass-te-la  
 the.day.before.yesterday rain-NOM fall-PAST-TE-DECL  
 ‘[I inferred that] it rained the day before yesterday.’ (Lee 2011:287)

This straddling of (one sense of) the direct-indirect divide has led some researchers to claim that *-te* is not an evidential. For example, Chung (2010:934) argues that ‘*-te* itself cannot be an evidential marker since an evidential system is intended to distinguish direct and indirect evidentiality, and thus it is unlikely that both direct and indirect evidential meanings would be expressed by the same morpheme.’ In light of the three-dimensional approach advocated here, we do not have to conclude that *-te* is not an evidential if it allows both direct and indirect witness on the evidence location dimension. As long as it encodes information about at least one of the three dimensions, it is an evidential.<sup>11</sup>

Lee’s (2011) analysis, while very different from that of Chung in some respects, shares with Chung’s the insight that it is the tense, not *-te* itself, which places the speaker in a position either to have witnessed the event itself, or not. Lee proposes that *-te* is a necessity modal, with a modal base based on sensory observation. In Lee (this volume), she argues that all sentences containing *-te* are weakened compared to plain assertions, just as we would typically expect from a modal (although see von Stechow and Gillies 2010 for the claim that necessity modal statements need not be weaker than plain assertions). I will return to this in section 5 below. In spite of *-te* encoding a direct value on the evidence type dimension, and in spite of it being felicitous in cases where the speaker witnessed the event itself (as for example in (51a), which would be bad in English with the modal *must*), it is at least possible to analyze *-te* as an epistemic modal.

As a final point about *-te*, it should be noted that even its evidence-type contribution is not so simple. For example, consider the data in (52-53). (52) seems to involve neither sensory observation, nor introspection (unless ‘introspection’ includes all kinds of inference, which does not appear to be what Park (this volume) intends by the term).

(52) *Context: The exam week was over, and many students left campus.*

Tosekwan-I coyongha-kyess-te-la  
 library-NOM quiet-FUT-TE-DECL  
 ‘[I inferred that] the library would be quiet.’ (Lee 2011:294)

<sup>11</sup> Chung (2005, 2007) actually gives a more sophisticated version of an evidence-location analysis of *-te*. She argues that *-te* requires that some evidence of the event was within the speaker’s perceptual field at some past time. The evidence of the event may consist of the event’s precursors, the event itself, or the event’s results, depending on the tense.

In (53), we have a generic statement with *-te*; this can be uttered after looking at one instance of mammals laying eggs, or merely after consulting an encyclopedia. No sensory witness of the event occurs in the latter (Chungmin Lee, p.c.).

- (53) ces-meki-tongmwul-to      al-ul      nah-te-ra  
 mill-sucking-animal-even    egg-ACC    lay-TE-DEC  
 ‘Even mammals lay eggs [I saw/read].’      (Chungmin Lee, p.c.)

Examples such as (52-53) cast doubt on the ‘sensory evidence/introspection’ analysis of *-te*’s evidence-type contribution, and (53) looks very much like a ‘trustworthiness’ cases, since encyclopedias are usually reliable. This might suggest that *-te* involves an evidence-strength component, but future research is required.

#### 4.9 Tibetan

Finally, we turn to Tibetan. Tibetan has a direct evidential ‘*dug*, which according to Garrett (2001) ‘indicates that an assertion is based on perceptual evidence: normally, direct is used when the origo has seen a situation, although other sensory modalities also qualify as direct’ (2001:5). Thus, ‘[t]o say *Tashi left* with direct is to say that you saw Tashi leave, you heard him leave, or that you have some other kind of direct perceptual evidence’ (Garrett 2001:52). This looks like an evidence-type directness requirement (sensory), plus an evidence-location directness requirement (witness of the event itself rather than its results).

There is further evidence that ‘*dug* is not a pure evidence-strength evidential. Recall that Quechua =*mi*, which I have argued encodes evidence-strength directness, allows report of other people’s internal states, as long as the speaker’s evidence comes from the most reliable source (the person experiencing the state). This is however not possible in Tibetan, as shown in (54). Garrett notes that since other people’s hunger is not observable, the predicate ‘to be hungry’ can only appear with the direct imperfective if the experiencer is first person.

- (54) nga/\*khyed.rang/\*kho      grod.khog      ltogs-gi-‘dug  
 I/\*you/\*he      stomach      hunger-[DIR IMP]  
 ‘I’m hungry.’      (Garrett 2001:20)

This confirms that unlike in Quechua, in Tibetan the direct evidential really does require sensory witness of the event itself, and therefore imposes both evidence-type and evidence-location directness.

Garrett himself explicitly gives a multi-dimensional analysis of Tibetan ‘*dug*, along very much the lines proposed here. He argues that ‘*dug* is semantically complex, consisting of a demonstrative component Dem (which encodes that the origo was once, or is now, ‘in a position to demonstratively identify the relevant region’; Garrett 2001:59), plus a Know component, which means that the speaker presents himself as knowing that the proposition is true. The combination of Dem and Know in turn derives the sensory perception requirement, since if one knows that an event took place, and was in a position to demonstratively identify the event, then one personally witnessed that event. We can interpret Dem is an evidence location restriction,

and Know as an evidence strength restriction. Garrett analyzes the third directness component of *'dug*, evidence type, as being derived from the other two.

Garrett does observe that *'dug* can sometimes be used when the embedded proposition is *not* directly witnessed. Examples are given in (55-56).

(55) de.ring nyi.ma skyid.po ltas-pa-'dug  
 today sun pleasant appear-[DIR PRED]  
 'Today the weather will be good.' (Garrett 2001:90)

(56) khong dge.rgan red-'dug  
 he teacher [IND COP]-[DIR ELPA]  
 'I see he's a teacher.' (Garrett 2001:91)

Garrett points out that in cases like (55), 'what has been witnessed is not the event itself but some definite evidence that strongly suggests that the event will take place' (Garrett 2001:92, citing Denwood 1999:154). Cases like (55) and (56) raise interesting questions about the status of the Dem requirement, which Garrett does not discuss further.

## 5 The typology and predictions

The results from the nine languages we have looked at are summarized in (57). We see that there are evidentials which encode direct and indirect values on all three dimensions. We also see that evidential contributions may be complex, encoding information about more than one of the dimensions.

(57)

	DIRECT	INDIRECT
EVIDENCE TYPE	St'át'imcets <i>lákw7a</i> Gitksan <i>'nakw</i> Nuuchahnulth <i>k'uk, naʔaat</i> Nivacle <i>xa/na/ka</i> Cheyenne $\emptyset$ Korean <i>-te</i>	reportatives Nivacle <i>pa</i> Nsyilxcen <i>cmay</i>
EVIDENCE LOCATION	Cheyenne $\emptyset$ Tibetan <i>'dug</i>	St'át'imcets <i>lákw7a</i> Gitksan <i>'nakw</i> Nuuchahnulth <i>k'uk</i>
EVIDENCE STRENGTH	Quechua <i>=mi</i> Nivacle <i>xa/na/ka</i> Cheyenne $\emptyset$ Korean <i>-te?</i> Tibetan <i>'dug</i>	English <i>must</i> Nivacle <i>pa</i>

Questions for further research include firstly whether these are the only three dimensions of meaning (cf. the discussion of Nuuchahnulth in section 4.3). Secondly, we want to know what the range of possible evidential contributions is within each dimension, since more precise

specifications are made than merely ‘direct’ or ‘indirect’. The distinctions encoded can in fact be very subtle. For example, we have seen that St’át’imcets *lákw7a* requires sensory evidence, but disallows visual evidence of the event itself. Gitksan *'nakw* requires sensory evidence and *normally* disallows visual evidence of the event itself. However, it can be uttered in a visual-evidence situation, and then gives rise to a mirative interpretation (which is unavailable for St’át’imcets *lákw7a*) (Peterson 2010). Thompson Salish has an evidential *nukw* which requires sensory evidence and disallows direct visual evidence, just like *lákw7a* and *'nakw*, but also allows ‘gut feelings’ or intuition. Unlike *lákw7a*, *nukw* allows some visual perception of the event itself, as long as some other sense is involved in addition (Mackie 2010). Given these subtle distinctions within each dimension, the question naturally arises of whether there are limits on the kinds of meanings each dimension allows. For interesting proposals which aim to restrict the types of evidential contribution which are possible in natural language, see Speas (2004) and McCready (2010).

Another question which arises is whether certain combinations of direct and indirect values are ruled out. At the very least we can say that some combinations will be unlikely because they don’t make sense, or are not useful categories. For example, it would be odd to have an evidential which required the speaker to have untrustworthy visual evidence (i.e., was direct for evidence type and indirect for evidence strength).<sup>12</sup>

Another way to look at the question of whether certain combinations are ruled out is to examine the implicational relations between the different dimensions. For example, sensory experience of the event itself (a direct value for evidence type and evidence location) will usually lead to speaker certainty (a direct value for evidence strength). Moreover, any evidential which encodes a direct value on the evidence location dimension (i.e., requires the speaker to have been in the same location as the event), is almost necessarily direct for evidence type (requiring sensory evidence of the event).<sup>13</sup> However, these implicational relations go only in one direction, and hence do not invalidate the separateness of the dimensions. Recall that there are evidentials (e.g., St’át’imcets *lákw7a*) which encode evidence-type directness but evidence location indirectness. And there are evidentials (e.g., Quechua =*mi*) which encode evidence strength directness, and contain no specification for evidence type or evidence location.

It is also possible that even the one-way relations noted above are only tendencies, based on what the world is usually like, rather than strict implications. For example, sensory evidence of an event usually leads to speaker certainty, but not always. As noted by McCready (2010), it is important to consider cases where the speaker realizes that their senses may be deceiving them. McCready reports that sequences of the following type are rejected by speakers with the Japanese inferential evidential *mitai*:

- (58) The street is wet. But perhaps there is no street—perhaps you are just dreaming.  
(Anyway,) It rained last night—Evid<sub>inf</sub>. (McCready 2010:123)

McCready uses data such as these to argue that what counts as evidence for an evidential must be

<sup>12</sup> Although perhaps this would be a mirative? Further research is required.

<sup>13</sup> See also de Haan (1999) on the connection between deixis and visual evidence.

knowledge, not merely belief, since these ‘skeptical’ scenarios destroy knowledge, but are still compatible with belief (that is, most people would still believe that the street they are witnessing actually exists). These cases also illustrate the possibility that an evidential could encode evidence-type directness (e.g., sensory witness), but not lead to evidence-strength directness (certainty). Further empirical research is required on these matters; the available resources on the evidentials discussed above do not usually give information about the kinds of situations illustrated in (58).

### 5.1 Which kinds of evidentials can be modals?

In this final part of the paper, I return to the question posed at the beginning, namely which kinds of evidentials could in principle be epistemic modals. Above, we framed the issue as follows: there is an apparent conflict between direct evidentials, which may result in an entailment that the embedded proposition is true, and epistemic modals, which according to standard analyses result in weaker propositions than plain assertions. In the intervening sections I have tried to show that there is no monolithic notion of a ‘direct’ evidential; the question must therefore be posed separately for each of the three dimensions.

The literature provides several modal analyses of evidentials which are direct on the evidence-type dimension. Matthewson (2011) analyzes St’át’imcets *lákʷ7a*, which is evidence-type direct, as a modal.<sup>14</sup> Lee (2011, this volume) analyzes Korean *-te* as an epistemic modal which encodes a requirement for sensory evidence, and is therefore also evidence-type direct (although see (52-53) above). Lee specifically argues that in spite of *-te*’s sensory-evidence requirement, it results in reduced assertive strength, just like modals do. This not only supports the multi-dimensional view (as under this analysis, *-te* would be direct on one dimension, and not on another), it also supports the idea that evidence-type direct evidentials can in principle be modals.<sup>15</sup> And Lecarme (2008) argues for a modal analysis of nominal direct evidentials in Somali. According to Lecarme, the present tense on a nominal indicates direct evidentiality, in the sense that the speaker visually perceives the relevant individual. Lecarme proposes a modal analysis whereby the perceptual requirement is encoded in the modal’s ordering source.

What about evidentials which encode a direct value on the evidence location dimension? Unfortunately, in the languages studied here I have not found an evidential which is direct purely on this dimension. Both Cheyenne  $\emptyset$  and Tibetan *’dug* encode evidence-strength directness as well, and therefore are not good test cases. The type of element needed would be an evidential which required the speaker to have been in the same location as the event, but still introduced modal semantics. Such an element intuitively seems to be not very useful, as usually if one is in the same location as the event, one is in a position to make a plain assertion about that event. However there does not seem to be any inherent contradiction in the semantics of such a

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<sup>14</sup> However, Peterson (2010) does not analyze the partially similar Gitksan *’nakw* as a modal.

<sup>15</sup> Lee (this volume) aims to derive the non-equi subject constraint on *-te* (i.e., that the subject of a present-tense *-te*-sentence cannot be the speaker) from its status as a modal. She observes that English *must* is subject to a similar constraint, and argues that the constraint arises because of a conflict between one’s (usual) certainty about one’s own actions, and the reduced strength of a modal proposition as compared to a plain assertion.

potential element, and perhaps future research will uncover one.

Now to the most challenging case: evidence strength. This dimension is different from the others, in that evidentials which are direct on this dimension are frequently described as resulting in the embedded proposition being entailed. For example, Faller (2011) argues that Lecarme's modal analysis of Somali does not extend to Cuzco Quechua *=mi*, as Lecarme's analysis allows the embedded proposition not to be entailed.<sup>16</sup> Cuzco Quechua sentences with *=mi*, however, do entail their embedded propositions.

The most obvious proposal for evidentials which are purely evidence-strength direct – those which occupy the bottom left cell in (57) – would seem to be that they *cannot* be modals, since evidence-strength direct evidentials involve a high level of speaker certainty, and result in the entailment of the embedded proposition. However, we are not forced to this conclusion. Firstly, recall that von Stechow and Gillies (2010) have argued that necessity modals *are* compatible with complete speaker certainty. If modals are compatible with complete speaker certainty, there is no conceptual reason why an evidence-strength direct evidential could not be a modal.

Furthermore, Faller (2011) does in fact advance a modal analysis of Cuzco Quechua *=mi*. Although Faller herself would not characterize *=mi* as a *pure* evidence-strength evidential, I argued in section 4.4 above that analyzing it this way provides a simple and empirically accurate characterization of its evidential contribution. It is therefore relevant that Faller analyzes *=mi* as an epistemic modal, with a modal base which contains propositions describing the speaker's perceptions, and an empty ordering source.<sup>17</sup> I therefore conclude that there is no category of direct evidential which is in principle excluded from contributing modal semantics.<sup>18</sup>

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<sup>16</sup> This is so because the actual world might not be among those quantified over by the modal. See for example Lecarme (2008:219) on the fact that our perceptions can be mistaken.

<sup>17</sup> The differences between Lecarme's analysis and Faller's thus have to do with details about the respective contributions of the modal base and the ordering source; see the original papers for discussion.

<sup>18</sup> Cable (2008) argues against a modal analysis of an evidential which required 'direct witness of the truth of the proposition' (in our terms, Cable is probably thinking of an evidential which is direct on all three dimensions). He advances the following problematic case for a modal analysis of such an evidential:

Suppose that you directly witness your friend Dave returning a shirt to H&M (i.e., you accompany him on the trip). However, suppose also that you never directly witnessed Dave's original purchase of the shirt. In such a case, the putative modal base for the direct evidential will contain the proposition 'I directly witnessed Dave returning a shirt to H&M.' But: In every world *w* where one directly witnesses Dave returning a shirt to H&M, Dave (of course) purchases a shirt at H&M in *w* (at some earlier time). Thus: According to the modal analysis ... the following would be true in the imagined situation: DIRECT-EVIDENTIAL(Dave purchased a shirt at H&M) *despite the fact that you needn't have ever directly witnessed the original purchasing event* (Cable 2008:20; emphasis original).

## 6 Conclusion

In this paper I have argued that there is no monolithic direct vs. indirect split in evidential contributions. Instead, evidential contributions encode information on three separate dimensions, each of which has direct and indirect values. We have seen examples from nine languages of evidentials which are direct on at least one of the three dimensions: evidence type, evidence location, and evidence strength. Finally, I argued that there is no category of direct evidential which is in principle incompatible with modal semantics. The strong equivalency view according to which all evidentials are epistemic modals, and all epistemic modals are evidentials, is not in principle invalidated by the existence of direct evidentials. Whether or not the strong equivalency view is correct is of course a matter which will continue to be debated.

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Of course, this 'problem' is at present only a prediction; we need to test this context with an evidential of the right type. Interestingly, Faller (2011) observes that *minimal* reasoning is allowed with =mi, but I am not sure whether the reasoning involved in Cable's cases would count as too much.

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