Justification and truth: Evidence from languages of the world

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This paper investigates whether and how languages encode the epistemological concepts of justification and truth. We argue that many, if not all, languages provide speakers with conventionalized ways to track their level of justification for the propositions they assert, and to emphasize their commitment to the truth of those assertions. With respect to justification, we argue that a subset of evidential elements track whether the speaker's evidence meets a certain threshold of reliability. We illustrate these justification-based evidentials in Cuzco Quechua, Nivacle, St'át'imcets, Nłeʔkepmxcín and English. We further show that the types of evidence which count as providing justification are very similar across all these languages. With respect to truth, we investigate verum emphasis in German, English, and Gitksan; we again find striking cross-linguistic similarities in the properties of the construction. Finally, we propose that the discourse conditions under which speakers encode truth are similar to those under which they encode justification. Both justification-based evidentials and verum emphasis appear when the speaker needs to defend their assertions against implied or explicit disagreement or skepticism.

1 Introduction

1.1 Overview

Our goal in this paper is to investigate some cross-linguistic data relating to epistemological concepts. We will not be directly addressing the word *know* or its translations, but instead will investigate two properties which have often been claimed to form *part* of the requirements for knowledge: justification, and truth.

Ever since Gettier (1963) it has been at the very least controversial that knowledge can be reduced to justified true belief. However, it is still commonly accepted that one cannot know something that is not true, and that knowledge requires some form of justification (see Hazlett 2015 for an overview). Consequently, it appears fruitful to investigate whether and how human languages encode the potentially more primitive notions of justification and truth.

We will argue that the tracking of justification is very widespread in languages of the world. In many languages, justification is tracked by (certain types of) evidentials. We will also argue that many languages explicitly encode truth – or at least, the speaker's certainty that the proposition

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presented is true – in the form of so-called verum focus, and moreover that they do so in very similar ways. While 'universality' is of course not yet proven, there are at the very least striking cross-linguistically recurrent patterns in both the areas we investigate. We will also argue that the discourse conditions under which speakers tend to encode truth are similar to the discourse conditions under which they encode justification. Both justification-based evidentials and verum focus arise in contexts in which the speaker feels the need to defend their assertions against implied or explicit disagreement or skepticism. To the best of our knowledge these parallelisms between justification- and truth-marking have not been commented on before.

The cross-linguistic similarities we will document suggest that linguistic evidence has the potential to reveal insights about what humans count as justification and what humans count as truth. If justification and truth are necessary conditions for knowledge, then our findings may in turn bear on what humans count as knowledge. The extent to which our results bear on the question of what justification, truth, and knowledge *are* (as opposed to what humans *believe* they are) is however an issue which goes beyond the bounds of this paper (and of our expertise). The divide between linguistic evidence and philosophical concepts in epistemology is highlighted by Hazlett (2010), who argues that there is a mismatch between the English word *know* (which he claims is non-factive) and knowledge itself (which is factive). However, we believe Hazlett is too hasty in drawing from this the conclusion that 'epistemologists may have reason to stop looking at linguistic phenomena altogether' (2010:499). English *know* is just one word in one language, and its properties may not be shared cross-linguistically, as pointed out by McCready et al. (2014). We therefore maintain that the first step in establishing whether linguistic phenomena can shed light on epistemological concepts is to look beyond English to cross-linguistic data, as we do here.

The paper is structured as follows. In the remainder of the introduction we provide background on the languages we discuss, and our methodology. In section 2 we introduce evidentials, elements which encode the speaker's source of belief. In section 3 we discuss a subset of evidentials, which we argue directly encode the speaker's assessment of their level of justification for the proposition they are advancing. We show that justification is tracked in remarkably parallel ways cross-linguistically, even in supposedly 'non-evidential' languages like English. Section 4 turns to verum operators, again showing striking cross-linguistic similarities. Section 5 discusses the partially similar discourse conditions under which verum emphasis and justification-based evidentials are used. Section 6 summarizes and outlines avenues for further investigation.

1.2 Languages discussed and methodology

We discuss data from seven languages in this paper: English, Cuzco Quechua, St'át'imcets, Gitksan, Nivacle and Nłeʔkepmxcín. In this section we provide background information on the lesser-known languages in our sample, and outline our data-collection methodologies for each language.

Our English data come from native-speaker introspection by both authors as well as from a corpus of witness interviews by police officers collected by the second author; see Glougie (2016) for details about the corpus.

Cuzco Quechua is a Quechuan language spoken in and around the city of Cuzco, Peru. Our Cuzco Quechua data come from secondary sources (Faller 2002).

St'át'imcets (a.k.a. Lillooet) is a Northern Interior Salish language spoken in the southwest interior of British Columbia, Canada. It currently has fewer than 100 first-language speakers. Our St'át'imcets data come from primary fieldwork by the first author. Fieldwork was with speakers of both the Upper St'át'imcets dialect (Carl Alexander, the late Beverley Frank, the late Gertrude Ned, and the late Rose Agnes Whitley) and the Lower St'át'imcets dialect (Laura Thevarge).

'Gitksan' is the term used to cover that part of the Nass-Gitksan dialect continuum which is spoken along the upper drainage of the Skeena River in northwestern interior British Columbia. Gitksan currently has fewer than 400 speakers (First Peoples' Cultural Council 2014). Our Gitksan data come from fieldwork by the first author with four speakers of three dialects: Barbara Sennott, from Ansbayaxw (Kispiox), Vincent Gogag, from Git-anyaaw (Kitwancool), Hector Hill, from Gijigyukwhla (Gitsegukla) and Ray Jones, from Prince Rupert and Gijigyukwhla.

The fieldwork methodologies utilized for St'át'imcets and Gitksan include translation tasks (in both directions), acceptability judgment tasks (in which the consultant evaluates a target language utterance in a particular discourse context), and storyboard tasks (in which targeted contexts are provided to the consultant by a series of pictures, in response to which the consultant tells a story). See Matthewson (2004), Burton and Matthewson (2015), and Tonhauser and Matthewson (2016) for further details.

Nivacle is a Matacoan-Mataguayan language spoken in the Argentinean and Paraguayan Chaco. Our Nivacle data were collected by Analía Gutiérrez and published in Gutiérrez and Matthewson (2012).

Nłeʔkepmxcín (a.k.a. Thompson River Salish) is a Northern Interior Salish language, closely related to St'át'imcets, spoken in the southern interior of British Columbia. Our Nłeʔkepmxcín data are taken from Mackie (2010), who conducted original fieldwork on the language, and supplemented his data with material from Thompson and Thompson (1996).

2 Evidentials as elements which encode source of evidence

We begin our cross-linguistic investigation of epistemological concepts with an introduction to evidentials. In the next section we will focus on a subset of evidentials which explicitly encode the speaker's assessment of their level of justification for the proposition being advanced.

An evidential is traditionally defined as an element which encodes information about the speaker's source of evidence for his/her statement (e.g., Aikhenvald 2004). Most European languages, including English, are usually assumed not to possess grammaticalized evidential systems. In many languages of the world, however, source of evidence is grammatically encoded in an obligatory or near-obligatory way. This means that in such languages, one cannot simply

assert a proposition such as 'It's raining in Vancouver.' Instead, one has to indicate grammatically whether the speaker, for example, witnessed the rain herself, was told about it by somebody else, or inferred it using indirect evidence (such as the fact that everyone coming in off the Vancouver streets is carrying wet umbrellas).

One example of an evidential language is St'át'imcets. As shown in (1), the absence of any overt evidential marking strongly implies that the speaker has direct personal evidence for the rain. If the speaker was told about the rain by a third person, she will use the reportative evidential *ku7,* as in (2), and if she used inference, she will tend to use the inferential evidential *k'a,* as in (3). See Matthewson et al. (2007) for in-depth discussion of the St'át'imcets evidential system.[2]

(1) Wa7 kwis.
IPFV rain
'It's raining.' [usually means I witnessed it]

(2) Wá7=**ku7** kwis.
IPFV=**REPORT** rain
'It's raining.' [somebody told me]

(3) Wá7=**k'a** kwis.
IPFV=**INFER** rain
'It's raining.' [I used inference]

Languages are not restricted to just these three types of evidential. On the contrary, they can encode a range of subtle and precise evidential distinctions. For example, St'át'imcets has an additional evidential *lákw7a* which requires sensory evidence, but disallows visual evidence of the event itself. Thus, *lákw7a* allows direct perception of the event (as long as it's non-visual), or indirect evidence about the event (as long as it's sensory). Some examples illustrating these properties of *lákw7a* are given in (4)-(11). First, (4)-(7) show that direct witness via each non-visual sense licenses *lákw7a.*

(4) Wa7 **lákw7a** k=wa ílal.
IPFV **SENS.NON.VIS** DET=IPFV cry
'Somebody is crying over there.' *(Context: You hear it)*

(5) Tsem-s=kán **lákw7a** ti=ts'í7=a.
burn-CAUS=1SG.SU **SENS.NON.VIS** DET=meat=EXIS
'I burnt the meat.' *(Context: You smell it)*

[2] St'át'imcets data are presented in the orthography designed by Jan van Eijk (see van Eijk 1997) and adopted by the Upper St'át'imc Language Authority. The symbol 7 stands for a glottal stop, c(w) is a (rounded) velar fricative, x(w) is a (rounded) uvular fricative, and t' is an ejective lateral affricate. Abbreviations used in the paper which are not covered by the Leipzig glossing conventions (https://www.eva.mpg.de/lingua/resources/glossing-rules.php) are listed in the Appendix.

(6) Wa7 **lákw7a** ku=sq'áq'pa7 lts7a ti=ts'í7=a.
be **SENS.NON.VIS** DET=dirt here DET=meat=EXIS
'This meat tastes as if there's dirt in it.'

(7) *Context: You are blindfolded. I ask you to tell me which of three cups a stone is in. You feel around and touch the stone and you say:*
Nilh **lákw7a** lts7a.
FOC **SENS.NON.VIS** here
'It's in this one.'

(8) shows that visual evidence of the event itself is disallowed, and (9) and (10) show that sensory evidence of the results of the event is licit, even if that evidence is visual.

(8) Áolsem=lhkacw **lákw7a**.
sick=2SG.SU **SENS.NON.VIS**
'You must be sick.'
Rejected if the speaker sees someone is shivering and sweaty. Accepted if the speaker hears them coughing.

(9) Cw7áy=t'u7 **lákw7a** k=s=cin'=s kw=s=wá7
NEG=just **SENS.NON.VIS** DET=NMLZ=long.time=3POSS DET=NMLZ=be
l=ti=qú7=a – wá7=t'u7 wa7 k'ac!
in=DET=water=EXIS IPFV=just IPFV dry
'It couldn't have been under the water long – it's dry!'
(Speaker didn't witness how long it was under water, but feels the dryness.)

(10) *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 **SENS.NON.VIS** DET.PL=ts'wan=EXIS DET=John
'Looks like John might have eaten the ts'wan.'

Finally, (11) confirms that pure inference or reasoning is not allowed with *lákw7a.*

(11) *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 **SENS.NON.VIS** COMP=3SBJN hide
'It must be under that one.' (Volunteered with inferential *k'a.)*

Not only do some languages encode subtle and precise evidential distinctions, different

languages can encode evidential distinctions which are slightly different from each other. For example, in the closely related language Nłeʔkepmxcín, there is an evidential *nuk*^{w} which requires sensory evidence and disallows direct visual evidence (just like *lákw7a*), as shown in (12)-(13).

(12) qeʔ-nim-ne **nuk**$^{\mathbf{w}}$ xeʔ e Mr. Strang
hear-TR-1.SU **SENS.EV** DEM DET Mr. Strang
'I hear Mr. Strang.' (Mackie 2010)

(13) * wik-t-ne **nuk**$^{\mathbf{w}}$ xeʔ e s-ʔaaʔ
see-1.SU **SENS.EV** DEM DET NMLZ-crow
'I see a crow.' (Mackie 2010)

However, unlike *lákw7a, nuk*^{w} allows some visual perception of the event itself, as long as some other sense is involved in addition. This is shown in (14), where the speaker smells the rotten food as well as seeing it. A sentence parallel to this would be ruled out with St'át'imcets *lákw7a.*

(14) *Context: I return from a few weeks' vacation and open the fridge to a terrible odour. I see a bag of something in the back of the fridge, and it's clear that that's what smells.*

ʔes-naq' **nuk**$^{\mathbf{w}}$ xeʔe
STAT-rotten **SENS.EV** DEM
'Something's gone rotten.' (Mackie 2010)

Also unlike *lákw7a, nuk*^{w} allows 'gut feelings' or intuition, as shown in (15).

(15) puys-t-x^{w} **nuk**$^{\mathbf{w}}$ sex^{w}sux^{w}
kill-TR-2.SU **SENS.EV** grizzly.bear
'[Premonition tells me] you've killed a grizzly.'
(Mackie 2010, citing Thompson and Thompson 1996)

Other languages also have evidentials which largely but not completely overlap with *lákw7a*'s territory. For example, Gitksan has an evidential *'nakw* which requires sensory evidence and normally disallows visual evidence of the event itself, just like *lákw7a*. However, it can be uttered in a visual-evidence situation, and then gives rise to a mirative (surprise) interpretation (missing with St'át'imcets *lákw7a)* (Peterson 2010).

The moral of this section is that many languages provide their speakers with grammatical means to encode detailed information about how they acquired their evidence for the propositions they are advancing. Languages also display both similarities and differences in the precise evidential distinctions they encode. If we consider that the evidential basis for one's assertions has a close connection to the justification one has for those assertions, then already we have reason to believe that human languages are sensitive to the epistemological notion of justification. In the next section we will focus on a subset of evidential elements which reflect speaker justification in an even more direct way. We will also see that languages from unrelated language families deal with justification in similar ways. This suggests that the linguistic evidence may reveal core

ideas that humans share about what counts as 'justified' belief.

3 Evidentials which encode justification

Some evidentials encode, instead of primarily evidence source, evidence reliability or trustworthiness (Matthewson 2013). Here, we interpret this as meaning that these evidentials encode the speaker's view of how justified they are in advancing the proposition. In this section we present evidence that speaker's linguistic choices are sensitive to justification in three unrelated languages.

3.1 Justification-based evidentials in Cuzco Quechua, Nivacle and English

Our first example of justification-based evidentials comes from Cuzco Quechua; the discussion is based on the work of Martina Faller (Faller 2002, 2011). Faller argues that the Cuzco Quechua evidential *=mi* requires the speaker to have the 'best possible grounds' for advancing the proposition. The best possible grounds evidential *=mi* allows three sub-types of evidence, listed in (16).

(16) Cuzco Quechua *=mi* encodes:

(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
(iii) undisputed common and learnt knowledge

Data illustrating each of these sub-cases are given in (17)-(21). (17) is a prototypical direct evidence situation: the speaker personally witnessed the bread-eating by Pilar.

(17) *Direct evidence:*
Pilar-qa t'anta-ta-**n** mikhu-rqa-n
Pilar-TOP bread-ACC-**BPG** eat-PST1-3
'Pilar ate bread.' *(Context: Speaker saw it.)* (Faller 2002:18)

In (18), the speaker did not witness Inés going to Cuzco tomorrow, since it isn't possible to have already witnessed a future event. However, a report by Inés about her plans counts as the next best thing. (Faller observes (2011:664) that reports by others would not license the use of *=mi* in (18).) The same holds for (19); one cannot directly witness another's sadness, but a report by the person herself is the next best thing.

(18) *The next best thing:*
Paqarin Inés Qusuq-ta=**n** ri-nqa.
tomorrow Inés Cuzco-ACC=**BPG** go-3FUT
'Inés will go to Cuzco tomorrow.' *(Context: Inés told the speaker.)* (Faller 2011:664)

(19) *The next best thing:*
Inés llaki-ku-n=**mi**.

Inés be.sad-REFL-3=**BPG**
'Inés is sad.' *(Context: Inés told the speaker)* (Faller 2011:664)

Finally, undisputed common and learnt knowledge is shown in (20)-(21).

(20) *Undisputed common and learnt knowledge:*
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.' *(Context: Learnt in school.)* (Faller 2010)

(21) *Undisputed common and learnt knowledge:*
Yunka-pi=**n** k'usillu-kuna=qa ka-n.
rainforest-LOC=**BPG** monkey-PL=TOP be-3
'There are monkeys in the rainforest.' *(Context: Everyone knows that.)* (Faller 2010)

These data clearly show that *=mi* does not require direct witness by the speaker. What all three types of *=mi*-contexts have in common is that the evidence is considered reliable by the speaker – either due to personal witness, the next best thing, or being undisputed common knowledge. We interpret this as indicating that the speaker believes themselves to have a high level of justification for their assertions when they use *=mi*.

Our second case study comes from Nivacle, and involves evidential determiners. According to Gutiérrez (2010) and Gutiérrez and Matthewson (2011), determiners in Nivacle encode whether the speaker has had, at some point in the relevant individual's lifespan, the best possible sensory evidence for the existence of that individual. Three of the four determiners in the language require the best possible sensory evidence (*na, xa* and *ka:* these differ from each other in deictic properties), while the fourth, *pa,* is used when the speaker *lacks* the best possible sensory evidence. Gutiérrez and Matthewson analyze the distinction between *na/xa/ka* and *pa* as being one of evidence reliability.

In support of the claim that evidence reliability is what is at stake, Gutiérrez and Matthewson point out that what counts as 'good enough' evidence is context-dependent, rather than being determined strictly by the type of evidence source. For example, visual evidence usually, but not always, counts as the best possible evidence. This is illustrated in (22)-(29). First, the contrast between (22) and (23) shows that even the existence of presumably quite reliable reports does not license the use of a best-sensory-evidence determiner when referring to a sister one has not personally seen.

(22) *Speaker who has seen his sister before:*
kaʔax ɬ-**xa**=beʔɬa ʧĩtaʔ
have F-**BEST.SENS.DET**=one elder.sister
'I have one elder sister.'

(23) *Speaker who has never seen his sister before (she fled from the family or was kidnapped by the military before he was born):*
kaʔax ɬɑn ɬ-**pa**=beʔɬa ʧĩtaʔ

have REPORT F-**NOT.BEST.SENS.DET**=one elder.sister
'I have an elder sister.' (I have been told.)

The primacy of visual evidence is also illustrated in (24) vs. (25). In both cases, the speaker currently has only auditory evidence for the crying baby. But in (24) the speaker has had visual evidence, at some point in the baby's lifetime, for its existence, so the best-sensory-determiner is licensed.

(24) *Context: The speaker has seen the baby at some point in the past (even though the current evidence is only auditory).*

xa=łoʔos ɬ-xa=Patricia jip-ʔin
BEST.SENS.DET=child F-BEST.SENS.DET=Patricia cry-IPFV
'Patricia's child is crying.'

(25) *Context: The speaker hears a crying baby, but has never seen the baby before.*

jip-ʔin **pa**=tɑklax
cry-IPFV **NOT.BEST.SENS.DET**=baby
'A baby is crying.'

However, the most reliable evidence is not *always* visual. In the context of determining what one is eating or drinking for example, taste is the best evidence one can have. This is shown in (26)-(27), where best-sensory determiners are felicitous.

(26) *Context: You are blindfolded. You need to guess what food/liquid you are being given.*

k'a-joxi **na**=jinoʔot
1SG-drink **BEST.SENS.DET**=water
'I am drinking water (I can feel it).'

(27) *Context: As in (26).*

nokeʃ xa-k'ałtana **ła**=łaʔ
now 1SG-try **F.BEST.SENS.DET**=fruit
'Now I am tasting a fruit.'

A final pair illustrating that non-visual evidence can count as sufficient justification to license the best-sensory determiners is given in (28)-(29). In (28), as we expect, feeling a tickling in the dark does not count as sufficient justification for best-sensory determiners when asserting the existence of a spider. But in (29), the speaker considers that feeling the shape of the spider's feet is sufficient to license the best-sensory determiner *na.*

(28) *Context: You wake up in the middle of the night because you feel that your leg tickles. It is dark and you cannot see what is going on.*

kaʔax t'ape ɬ-**pa**=siβo͡klok
there.is DUB F-**NOT.BEST.SENS.DET**=spider
'There is a spider.'

(29) *Context: The speaker feels the round feet that red spiders have.*

kaʔax t'e **na**=ʔojeqtsin
there.is DUB **BEST.SENS.DET**=red.spider
'There is a red spider.'

So far in this section we have seen that evidentials in some languages, such as Quechua and Nivacle, can encode whether the speaker has the best possible evidence for the propositions they advance. We interpret this as an encoding of the speaker's sense of their level of justification. In the remainder of the section, we discuss the overt encoding of justification level in supposedly 'non-evidential' languages, in particular English. We begin with the epistemic modal *must.*

In an important contribution to the literature on evidentiality in English, von Fintel and Gillies (2010:3) write that *'must* carries an *evidential signal,* in particular it signals that the speaker has reached her conclusion via an indirect inference.' They provide evidence such as in (30), where direct visual witness of the event precludes the use of *must.*

(30) *Context: Seeing the pouring rain.*

?? It must be raining. (von Fintel and Gillies 2010:3)

According to von Fintel and Gillies, *must* requires that the speaker's evidence for the prejacent proposition be indirect. In support of the claim that it is really indirectness of evidence, and not uncertainty about the truth of the prejacent, which counts, they observe that in (31), *must* is licensed even though the speaker is sure about the prejacent.

(31) *Context: 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)

In (31), the speaker is not uncertain about the truth of the prejacent; she knows the ball is in Box C. What *must* signals is that the speaker knows this by means of indirect evidence; in this case, reasoning.

Following Matthewson (2013, 2015), we propose that von Fintel and Gillies' findings should be re-interpreted as showing not that *must* requires indirect inference, but instead that it is infelicitous whenever the speaker has the most reliable, or justified, evidence for their assertion in the circumstances. In line with this, observe that what counts as 'good enough' evidence for the purposes of disallowing *must* includes a number of different types of evidence source. First, any direct sensory evidence of the event itself is disallowed, as shown in (32) (Matthewson 2013,

2015).

(32) a. *Context: The speaker sees the rain.*
It must be raining.

b. *Context: The speaker hears people playing Tchaikovsky.*
They must be playing Tchaikovksy.

c. *Context: The speaker smells a good smell.*
Something must smell good.

d. *Context: The speaker tastes something good.*
Something must taste good.

e. *Context: The speaker feels that a coat is wet.*
The coat must be wet.

In addition to being disallowed by direct sensory evidence, *must* is also disallowed when the speaker's source of information for their assertion is a trustworthy report with the content of the prejacent.

(33) *Context: Belinda, Bob's wife, tells the speaker that Bob is home.*

Bob must be home.

Finally, *must* is disallowed where the speaker proffers information that is common or general knowledge, as shown in (34).

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

World War II must have ended in 1945.

In summary, *must* seems to disallow the most trustworthy or reliable evidence, which, depending on the context, may be information obtained by direct observation in the utterance situation, trustworthy report, or general knowledge. *Must* is allowed when the speaker does not have trustworthy evidence for their assertion, even though they may know the prejacent assertion to be true.

Must, therefore, is the inverse of the Quechua *=mi*. *=Mi* requires reliable evidence, while *must* disallows it. In other words, *=mi* is felicitous where the speaker can justify the prejacent proposition on the basis of their evidence, while *must* is felicitous where the speaker cannot. This is interesting for our purposes because it shows that two unrelated languages display the same concern for the speaker's justification level for the proposition they advance. Moreover, as von Fintel and Gillies (2010) and Glougie (2016) show, even 'non-evidential' languages like English track this distinction.

English also has elements which encode a sufficient level of justification, more akin to Cuzco Quechua *=mi.* Glougie (2016) argues that discourse markers like *actually* mark that the speaker has reliable evidence for the assertions they make. Glougie's police interview corpus data show that speakers use *actually* where they have the best possible evidence for the assertion in the circumstances. Her findings are summarized in (35), with examples from the corpus data.

(35) English *actually* encodes:

a. *Speaker performance (events the speaker participates in):*
Finally I'd **actually** fallen asleep for a night where I could've gotten more than 2 or 3 hours together. (Glougie 2016:88)

b. *Sensory observation:*
…and then Casey **actually** had an obituary and believe it or not I remember seeing the obituary. (Glougie 2016:78)

c. *Trustworthy reports:*
He said there was a... big change in pattern. You guys will need to look at those phone records ... there was **actually** a change in Casey's pattern on the phone. (Glougie 2016:80)

d. *General knowledge:*
But submerged in water however deep I don't care if it's six inches or what the dog will show some reaction. Water or moisture **actually** magnifies the dogs' ability to smell even more. (Glougie 2016:85)

Actually is licensed in very much the same contexts as Quechua *=mi,* with one exception: *actually* is also allowed where the speaker's evidence for the assertion is that they performed the event described in the assertion (as in (35)a). This does not appear to be the case for *=mi.* However, as Faller points out, performing the act 'might in fact be the most direct evidence possible' (2002:46).

Like *=mi*, *actually* is not allowed where the speaker does not have the best possible evidence for the assertion. *Actually* is unattested in the police interview corpus where the speaker's evidence for their assertion is reasoning, inference, or a non-trustworthy report. In those cases, speakers use *must, supposedly*, or *apparently* to introduce their assertion.

(36) *Types of evidence disallowed by* actually:
- non-trustworthy reports
- inference or reasoning

Thus, 'the types of 'reliable information' that license *actually* largely parallel those that license ... Cuzco Quechua *–mi'* (Glougie 2016:77) and which disallow *must*. We see that unrelated languages rely on, and encode, the very same notions of justification.

3.2 Conclusions about justification

We have shown that three unrelated languages (Cuzco Quechua, Nivacle, and English) track justification in strikingly parallel ways. In all three languages, there are elements which encode a notion of 'best' or 'most reliable' evidence. In Quechua, the 'best possible grounds' evidential *=mi* marks that the speaker believes she has the best possible evidence for asserting the prejacent proposition. In Nivacle, the 'best sensory evidence' determiners are used when the speaker has had, at some point within the relevant individual's lifespan, the best possible sensory evidence for that individual's existence. And although English is not regarded as a language which obligatorily grammaticizes evidential notions, we showed that it possesses two elements which encode opposite ends of the justification spectrum. The epistemic modal *must* requires a lack of reliable evidence for the prejacent, and thus encodes the absence of sufficient justification (similar to the determiner *pa* in Nivacle). And the discourse particle *actually* requires the existence of reliable evidence for the prejacent, with licensing conditions which are almost exactly parallel to those of Cuzco Quechua *=mi.*

As with the more traditional 'evidence-type' evidentials discussed in section 2, justification-based evidentials vary in certain details cross-linguistically. As we have seen, the Nivacle best-sensory determiners encode not only a justification-based requirement, but also the requirement that the evidence be sensory. This is missing from, for example, Cuzco Quechua *=mi* or English *actually*. However, the conclusion we draw from the above discussion is that human languages are sensitive to, and often explicitly encode, the notion of justification for the speaker's assertions.

This is the linguistic conclusion. We will return to some speculative remarks about the epistemological consequences of the linguistic findings in section 6.

4 Linguistic encoding of truth: verum

We turn now to another notion required for knowledge: truth. In this section we investigate the linguistic encoding of the speaker's desire to place emphasis on the truth of their assertions.

4.1 Verum in German and English

According to Höhle (1992), who bases his discussion on German data, all declarative sentences contain a silent VERUM operator, defined in (37).

(37) [[VERUM (p)]] ≈ 'It is true that p'

In German, one can focus the verum operator by placing a H*L accent on an element in C position, usually the finite verb / auxiliary. This leads to emphasis on the expression of truth, and is illustrated in (38)-(39). Notice that we see the same effect in the English translations; English also emphasizes truth by accenting a finite verb or an auxiliary.

(38) A: Ich habe Hanna gefragt, was Karl grade macht, und sie hat die albeme Behauptung aufgestellt, daß er ein Drehbuch schreibt.
'I asked Hanna what Karl is doing at the moment, and she made the idiotic claim

that he is writing a screenplay.'

B: (Das stimmt.) Karl SCHREIBT ein Drehbuch.
(That's right.) Karl writes a screenplay
'(That's right.) Karl IS writing a screenplay.'
(Höhle 1992:112; glosses and translations added)

(39) A: Ich habe Hanna gefragt, was Karl letztes Jahr gemacht hat, und sie hat die albeme Behauptung aufgestellt, daß er ein Drehbuch geschrieben hat.
'I asked Hanna what Karl did last year, and she made the idiotic claim that he wrote a screenplay.'

B: (Das stimmt.) Karl HAT ein Drehbuch geschrieben.
(That's right.) Karl has a screenplay written
'(That's right.) Karl DID write a screenplay.' (adapted from Höhle 1992:112)

Some recent linguistic analyses derive the 'emphasis on truth' effect indirectly, rather than viewing it as the result of focusing a VERUM operator (Romero and Han 2004, Gutzmann 2012, Repp 2013, Lohnstein 2015, Romero 2015, among many others). But still, we see a functional effect which is relevant for current purposes: 'in emphasizing, the speaker wants to affirm the truth of his thought' (Lohnstein 2015:1). Or in the words of Hartmann (2013:110), the presence of verum emphasis[3] 'explicitly excludes the possibility that the opposite truth value of the proposition holds.'

Assuming, then, that the verum emphasis construction serves to emphasize the speaker's belief that their assertion is true, our goal in the remainder of this section is to show that verum effects show up in completely unrelated languages, with very similar properties. This again suggests that the linguistic evidence reveals some potentially important insights about how humans view truth. We will be comparing verum emphasis in German and English with its corresponding construction in Gitksan.

In (40) we list 10 properties of verum emphasis in German and English (environments where it either is or is not licensed to appear). This list is an expanded version of a set of diagnostics presented by Zimmermann and Hole (2008). We then proceed to show that verum emphasis in Gitksan shows up in almost an identical set of environments.

(40) **Properties of verum emphasis in English and German**

Contexts where verum emphasis is allowed:
i. Correcting a previous utterance
ii. Corrections of negative expectations
iii. Emphatic agreement

[3] From now on, we will refer to the phenomenon under discussion as 'verum emphasis', in order to remain neutral with respect to the precise analysis of the construction, and with respect to whether a focusing operation is involved.

iv. Confirmation of expected path of events
v. Answers to questions (with emphatic effect)
vi. Answers to indirect questions
vii. In the antecedent of conditionals ('stressing the conditionality')
viii. Inside yes-no questions (with an 'Is it really?' effect)

Contexts where verum emphasis is disallowed:
ix. Discourse-initially
x. Neutral answers to questions

4.2 Verum emphasis in Gitksan

In Gitksan, verum emphasis is not marked by focus accenting, but instead by an overt verum operator *k'ap*. This is not unheard of cross-linguistically; Hartmann (2013), for example, argues that various Chadic languages mark verum emphasis in ways which are unconnected to the ordinary focus strategies in the languages. For example, Bura, just like Gitksan, encodes verum emphasis via a dedicated morpheme, *kú.*

The Gitksan element *k'ap,* which we will argue encodes verum emphasis, has variant pronunciations based on dialect and speech rate: either *k'ap* or *ap*. Syntactically, it is a 'preverbal' (Rigsby 1986). These elements 'precede[] all other pre-predicate morphemes' (Tarpent 1987:376). Since the language is predicate-initial, *k'ap* almost always appears clause-initially. It can appear in declarative sentences and *yes-no* questions, but is marginal in *wh*-questions, and it is dispreferred for some speakers in imperatives.[4]

K'ap is glossed as 'certainly, indeed, for sure' by Rigsby (1986:381), and its counterpart in the closely related language Nisga'a is glossed as 'must, have to, absolutely, simply, really, no getting out of it, no two ways about it, no choice about it' by Tarpent (1987:383). An initial example of its usage, along with the speaker's volunteered translation into English, is given in (41).

(41) **Ap** xatxw 'nii'y.
VERUMcold 1SG.III
'I am really/actually/very cold.'

The first core context where verum emphasis arises in English and German is when a speaker is correcting the content of a previous utterance. *K'ap* is licensed and often volunteered in such contexts, as shown in (42)-(44).

(42) Lisa: Nee=dii-t hlis-in=s Aidan=hl an-hahla'alji-t.
NEG=FOC-3.II finish-TR=PN Aidan=CN NMLZ-work-3.II
'Aidan didn't finish his work.'

[4] In its marginality in *wh*-questions, *k'ap* differs from verum emphasis in German and English; we set this aside here as requiring future research. The restriction may be syntactic, because *k'ap* and the *wh*-word compete for the clause-initial position.

Michael: **Ap** hlis-in-d=ist!
VERUM finish-TR-3.II=QUDD
'He DID finish it!' (volunteered)

(43) Barbara: Dim 'witxw-t Aidan ji hlaa am=hl ga-'nagw-it.
PROSP arrive-3.II Aidan CL.CNJ INCEP good=CN PL-long-SX
'Aidan will come later.'

Lisa: Nee, **ap** nem=dii 'witxw-t. Yukw=hl siipxw-t.
NEG **VERUM** NEG.PROSP=FOC arrive-3.II IPFV=CN sick-3.II
'No, he won't come. He's sick. '

(44) *Context: You're complaining that I didn't go to visit you.*

A: Nee=dii 'witxw-in go'o=hl wilb-'y.
NEG=FOC arrive-2SG.II LOC=CN house-1SG.II
'You did not come to my house.'

B: **K'ap** 'witxw 'nii'y go'o=hl wilb-in gi.
VERUMarrive 1SG.III LOC=CN house-2SG.II PR.EVID
'I DID come to your house.' (volunteered)

K'ap is also used to correct negative expectations arising from a previous utterance. In (45)-(47) we see that *k'ap* is consistently volunteered when responding to utterances which strongly implicate the negation of *k'ap*'s prejacent. Speakers in fact prefer *k'ap* to be present in such cases, and sometimes even reject the *k'ap*-less versions.

(45) *Context: Adam and Betty are talking about their friend Charlie.*

A: Siipxw-good-i-s Charlie, hiis-siipxw-t.
sick-heart-TR-PN Charlie pretend-sick-3.II
'Charlie is pretending to be sick.'

B: **K'ap** siipxw 'nid=is.
VERUMsick 3SG.III-QUDD
'He IS sick.' (volunteered)

(46) A: Ha-'nii-good=s Peter ji amxsiiwaa-t.
INS-on-heart=PN Peter IRR white.person-3.II
'Peter thinks he's a white guy.'

B: **Ap** amxsiiwaa 'nid=ist.
VERUMwhite.person 3SG.III=QUDD
'He IS a white guy.' (volunteered)

(47) *Context: We're wondering about whether Aidan finished his work for the Gitksan Lab.*

Lisa: Nee-dii ha-'nii-good-'y ji-t hlis-in=hl hahla'alji-t.
NEG=FOC INS-on-heart-1SG.II IRR-3.II finish-TR=CN work-3.II
'I don't think he finished his work.'

Henry: **Ap** hlis-in-d=ist.
VERUMfinish-TR-3.II=QUDD
'He DID finish it.' (volunteered)

The use of verum emphasis to correct previous expectations extends to answers to 'leading questions', questions whose presuppositions the addressee/answerer does not share. This is illustrated in (48).

(48) Barbara: Nda=hl wi=s Aidan gan wi=hl nem=dii 'witxw-t?
WH=CN COMP=PN Aidan REAS COMP=CN NEG.PROSP=FOC arrive-3.II
'Why isn't Aidan coming today?'

Lisa: Dim **ap** 'witxw 'nid=ist.
PROSP **VERUM**arrive 3.III=QUDD
'He IS coming.'

The third verum emphasis environment is in contexts of emphatic agreement. Focal stress on the verb or auxiliary is licensed here in English and German, and similarly, *k'ap* appears in Gitksan, as shown in (49).

(49) *Context: Katie is pregnant and about to have her baby very soon.*

A: Am=hl wila jabi=s Katie k'yoots.
good=CN MANNER do=PN Katie yesterday
'Katie was looking good yesterday.'

B: Ee, **k'ap** lukw'il am.
yes **VERUM**very good
'Yes, she WAS looking good.' (volunteered)

K'ap is also used to confirm an expected path of events, as shown in (50).

(50) *Context: We are expecting Aidan and he hasn't shown up yet.*

Ee'eesxw 'nit dim 'witxw-t=ist, dim ii #**(ap)** 'witxw-t.
promise 3.III PROSP arrive-3.II=QUDD PROSP CL.CNJ #**(VERUM)** arrive-3.II
'He promised to come and he WILL come.' (adapted from Zimmermann and Hole 2008)

When answering a yes-no question, *k'ap* is possible, and has an emphatic effect, similarly to verum focus in German or English. This is illustrated in (51)-(52).

(51) A: Guu limx 'nii'n aa?
HABIT sing 2SG.III YNQ
'Can you sing?'

B: Ee'aa, **(k'ap)** guu limx 'nii'y.
yes **(VERUM)** HABIT sing 1SG.III
'Yes, I can sing.'

Consultant's comment on *k'ap*-version: *"*It's like saying 'Yeah, it's true, I *am* a singer.'"

(52) A: Oo, siipxw Charlie aa?
oh sick Charlie YNQ
'Is Charlie sick?'

B: Ee, **(k'ap)** siipxw 'nit.
yes **(VERUM)** sick 3SG.III
'Yeah, he is sick.'

Consultant's comment on *k'ap*-version: "This is where she's telling that it's bad. It's really sick. *K'ap* means it's really, actually, it's happening, it's not good."

K'ap can also be used in answer to a *wh*-question, but again only when there is an emphatic effect. This is shown for example by the consultant's comment in (53):

(53) Lisa: T naa sil-ga-hahla'alsd-n sa tun?
DM who COM-DISTR-work-2SG.II day DEM.PROX
'Who did you work with today?'

Barbara: (**Ap**) t Aidan sil-ga-hahla'alsd-'y.
(**VERUM**) DM Aidan COM-DISTR-work-2SG.II
'I worked with Aidan.'

Consultant's comment on Barbara's utterance: *"Ap* is usually used for emphasis. So you're just trying to get ahead of the guy. You're anticipating that he would question that and so instead of having to say it again, you say *Ap t Aidan.*"

The consultant's comment here appears to target the type of discourse context, or speaker mindset, which would license a stressed *DID* in English in (53).

The same emphatic effect arises when *k'ap* appears on answers to indirect questions, as shown in (54).

(54) A: Nee=dii-n wilaax ji dim 'witxw=s Henry.
NEG=FOC-1SG.I know IRR PROSP arrive=PN Henry
'I don't know if Henry is coming today.'

B: **K'ap** dim 'witxw=is.
VERUMPROSP arrive=QUDD
'He IS coming.' (adapted from Zimmermann and Hole 2008, Gutzmann 2012:5)

Consultant's comment: "Yes, 'cause you told him to be. And you know for sure."

Note that completely implicit questions are usually marginal with *k'ap,* as shown in (55); we return to this issue below.

(55) *Context: A and B walk in to see that their dog is badly injured. (Implicit question: Who punched the dog? / Did you punch the dog?) A says:*

(**K'ap**) nee=dii-n t'is=hl os=is.
(**VERUM**) NEG=FOC-1SG.I hit=CN dog=QUDD
'I didn't punch the dog.'

One consultant commented, about the *k'ap*-version of (55), "If she's accusing him, he could say that." This comment appears to parallel the situation in English, where uttering (55) in the given context is not entirely good with verum emphasis either; it works better if A has been explicitly accused.

Verum also appears in German and English inside the antecedent of a conditional, to 'stress the conditionality' (Zimmermann and Hole 2008). In Gitksan, adding *k'ap* to a conditional antecedent gives rise to the same effect:

(56) *Context: You think Aidan probably won't come.*

Ji daa **ap** 'witxw=s Aidan, dim ii ha'w-'y, ii ap
IRR SPT **VERUM** arrive=PN Aidan PROSP CL.CNJ go.home-1SG.II CL.CNJ VERUM
nee=dii ha'niigood-'y dim 'witxw-t.
NEG=FOC think-1SG.II PROSP arrive-3.II
'IF Aidan comes, I will leave (but I don't think he will come).'
(adapted from Zimmermann and Hole 2008)

Consultant's comment: "Yes, it's ok too [i.e., as well as the *k'ap*-less version]. But there's a little more emphasis on the 'if'."

The final environment where verum emphasis appears is inside yes-no questions, with an effect of asking whether the addressee is really sure that something is true. Examples are given in (57)-(58).

(57) B: Siipxw=t Tsaalii.
sick=DM Charlie
'Charlie is sick.'

A: Oo, **ap** siipxw=t Tsaalii aa?
oh **VERUM**sick=DM CharlieYNQ
'Is he really?'

(58) A: Mahl-di=s T.J. win Bellingham hla-miinimts'ep Washington.
say-TR=PN T.J. COMP Bellingham NMLZ-capital Washington
'T.J. said that Bellingham is the capital of Washington.'

B: **K'ap** Bellingham hla-miinimts'ep=hl Washington aa?
VERUMBellingham NMLZ-capital=CN Washington YNQ
'IS Bellingham the capital of Washington?' (volunteered)
(adapted from Gutzmann & Castroviejo-Miró 2011:162)

Finally, we turn to two environments where verum emphasis is predicted *not* to appear, namely discourse-initially, and in the answer to a neutral question. Discourse-initial contexts are illustrated in (59)-(60); we see that *k'ap* is infelicitous, just like it would be in the English translations.

(59) *Context: Adam and Betty are eating dinner quietly. Nobody has said anything yet. Betty suddenly says:*

(#**K'ap**) siipxw=t Charlie.
(#**VERUM**) sick=DM Charlie
'Charlie is sick.'

(60) *Context: We are sitting working and Michael is also in the room. Michael suddenly says out of the blue:*

(#**K'ap**) ban=hl t'imges-'y.
(#**VERUM**) hurt=CN head-1SG.II
'I have a headache.'

K'ap is also infelicitous in answers to neutral questions, whether yes-no or *wh*-questions. This was shown above for yes-no questions by the consultant's comments in (51) and (52); the comments indicate the non-neutral effect of *k'ap.* Similarly, the non-neutral effect of *k'ap* in answers to *wh*-questions was shown by the consultant's comment on (53). The infelicity of *k'ap* in answers to neutral *wh*-questions is further illustrated in (61)-(62).[5]

(61) *Context: Talking about what kind of pet Michael has. We know the pet is called Spot. Aidan recently was at Michael's house and saw the pet, so you ask him 'What is Spot?' Aidan replies:*

[5] The exception to this is where the speaker is answering a leading *wh*-question, not by providing new information, but by challenging the presupposition in the leading question itself. This was already illustrated in (48), and we discuss it further in Section 6.

(?**Ap**) os-t Spod=is.
(?**VERUM**) dog-3.II Spot=QUDD
'Spot is a dog.'

(62) *Context: Michael is telling Katie that he has a pet called Fluffy. Katie wonders what kind of animal Fluffy is, so she asks Michael what Fluffy is. Michael replies:*

(#K'ap) lelt/lalt=t Fluffy(=ist).
(#VERUM) snake=DM Fluffy(=QUDD)
'Fluffy is a snake.'

Consultants' comments on versions with *k'ap:*
"No. it would just be *Lalt Fluffy ist.* And then if she doubts it, he can say *Ap lalt Fluffy ist."*
"No. Not unless you start arguing and then you say *Oo, k'ap lelt."*

We have now checked all the 10 diagnostic environments where verum emphasis is or is not found in English and German, and found that the results for Gitksan *k'ap* are strikingly similar. In the next sub-section we discuss the potential consequences of these findings for the study of the representation of truth in human language.

4.3 On the relation between VERUM and truth

We started our investigation of verum emphasis by observing that according to Höhle's original analysis, a silent VERUM operator contributes semantics related to truth. When a speaker places focus on the VERUM operator, s/he emphasizes that the assertion is true (or, in questions or imperatives, asks the hearer to confirm that a proposition is true, or to make it true that an event happens). Subsequent researchers have derived the perceived effect of an emphasis on truth more indirectly than Höhle did. For example, Romero and Han (2004:627) argue that the VERUM operator 'is used not to assert that the speaker is entirely certain about the truth of *p*, but to assert that the speaker is certain that *p* should be added to the Common Ground.' Romero and Han nevertheless observe (2004:631) that the VERUM operator has the 'intuitive effect' of insisting on the truth of a proposition. Similarly, Gutzmann and Castroviejo-Miró (2011) argue that VERUM gives rise only indirectly to an emphasis on truth. They argue that VERUM is a use-conditional operator which 'takes as argument a proposition *p* and expresses the interpretational instruction to downdate the corresponding question ?*p* from the question under discussion.' The truth effect follows because a speaker who asserts that *p,* and also indicates that s/he wants to downdate ?*p,* 'must be sure that *p* should be added to the C[ommon] G[round]. This emphasizes that *p* is true, because we have the impression of a double assertion that *p*' (Gutzmann and Castroviejo-Miró 2011:162).

Even if the field is divided on whether verum emphasis constructions *directly* encode the speaker's belief about the truth of her assertions, we believe that verum effects have the potential to be relevant to epistemological questions. We propose that the cross-linguistic similarities in both justification encoding and VERUM behaviour suggest that these phenomena reveal something about how humans view the concepts of justification, truth, and ultimately perhaps knowledge.

In the next section we will further propose that the encoding of verum emphasis is similar in its discourse conditions and speaker motivation to the encoding of justification. Specifically, both verum emphasis constructions and justification-based evidentials like *actually* are used when speakers are compelled to explicitly express commitment to their assertion, usually because they are attempting to convince a skeptical interlocutor of their point of view.

5 Justification and truth as means to convince

In this section we discuss the discourse conditions under which justification-based evidentials (such as *actually*) and verum emphasis are licensed . We argue that both justification and verum emphasis are encoded in contexts in which the speaker is compelled to expressly commit to their assertion. We will also, however, uncover some differences in the precise contexts in which justification vs. truth are appealed to.

5.1 Discourse conditions for *actually*

When we discussed *actually* in section 3 above, we did not talk about its discourse properties. However, it is obviously the case that speakers don't use *actually* every time they have good evidence for their assertions. In particular, for example, *actually* is typically not good out of the blue. In fact, in our judgment, the (in)felicity of *actually* largely parallels the behaviour of verum emphasis constructions, as summarized in (40) above.

Normally, a bare assertion is sufficient to establish the speaker's commitment to the information they assert (Schiffrin 1987:18). The normal conditions on assertion will suffice in any neutral context to indicate the speaker's commitment to the propositions they advance. For economy reasons, speakers will rarely explicitly justify their discourse contributions unless there is a specific reason to do so.

We propose that speakers use *actually* only when they have a reason to justify their position; they use *actually* to support their claim by marking that they have reliable evidence for it. Glougie (2016) shows that speakers use *actually* to achieve the discourse goals of: correcting information previously given; responding to a challenge; or persuading their discourse partners to adopt their assertions. Illustrative data are given in (63).

(63) a. *Correction*
I went and picked up uhm, my sister's laptop. Well, it's **actually** my mom's laptop, but you know, my sister was, she's had it for the past month or so…
(Glougie 2016:163)

b. *Challenge*
A: …how many times did she drive, or did you drive her car, were you in her car? …
B: I never drove, I **actually** never drove her car.

(Glougie 2016:175)

c. *Persuasion*
A: …you wouldn't have known my [maiden] name until October…
B: No, you **actually** told me, you **actually** told me…
(Glougie 2016:184)

In the absence of some reason to emphasize the reliability of one's evidence/justification, *actually* will tend not to be used. When a speaker does use *actually* where the need to emphasize the reliability of their information is not obvious, it is generally understood as indicating that something about the claim will be surprising to the addressee.

5.2 Discourse conditions for VERUM

Like *actually*, verum emphasis marking is also infelicitous in neutral or out-of-the-blue contexts. This infelicity is captured by current analyses in various ways. Within Gutzmann and Castroviejo Miró's (2011) Question Under Discussion-based analysis, the infelicity of discourse-initial verum emphasis follows from the fact that prejacent of VERUM is not the QUD in a discourse-initial context.

However, something more appears to be needed to fully capture the discourse conditions of verum emphasis. Consider the example in (64). Here, B is answering the QUD, but verum emphasis is not licit. An important feature of this type of context is that B's answer provides information novel to the discourse, on which neither discourse participant has yet taken a position. In such neutral contexts, normal conditions of assertion are sufficient to convey that B is committed to the truth of the proposition advanced.

(64) A: Why didn't you go to school today?
B: # I DIDN'T want to.

The contexts in which verum emphasis *is* allowed (the contexts in **Error! Reference source not found.**i-viii above) seem to share the property that the information being conveyed is controversial. We contend that verum emphasis is used only when the speaker wishes to prevent the 'wrong' proposition from entering the Common Ground. This is summarized in (65).

(65) Discourse condition on VERUM:
?*p* is the maximal QUD, and the speaker wants to prevent ¬*p* from entering the Common Ground.

The proposal in (65) predicts that VERUM(*p*) is only felicitous when the speaker has reason to believe ¬*p* is threatening to enter the Common Ground, and s/he wishes to prevent this. In line with this, observe the contrast between a response to a leading question where the addressee does not accept the underlying presupposition, as in (66), and a response where the addressee does accept the underlying presupposition, as in (64) above. We see in (66) that verum emphasis is licit in response to leading questions where the speaker's answer takes the form of a challenge to the presupposition. Verum emphasis is felicitous here because the speaker is responding to (denying) the presupposition explicitly put into the discourse in the question.

(66) A: Why didn't you go to school today?
B: I DID go to school today.

In summary, the generalization is that verum emphasis constructions are used in discourse contexts where the content of the speaker's current contribution is controversial. In such contexts, the speaker may not want to rely on the normal conditions on assertion as a means to convey their commitment to the truth of the propositions they advance. By placing emphasis on the truth of the relevant proposition, the speaker aims to convince their addressee of their point of view.

5.3 Differences between VERUM and *actually*

Athough justification-based evidentials and verum emphasis differ in that only the former reference evidence (therefore only the former relate to justification level), they share the common property that they are both used to strengthen the normal commitments of speakers to their assertions. Speakers can choose to strengthen their commitments by referencing either of the core notions underlying knowledge: justification, or truth.[6]

Although speakers use both verum emphasis and *actually* to justify their discourse contributions and to strengthen the normal commitments of their utterances, their conditions of use are not identical. Where they differ is with respect to the types of information they are responding to and on what basis. Speakers use verum emphasis to accept or challenge information explicitly offered by their interlocutors. Verum emphasis requires the explicit assertion of information by the speaker's discourse partner and indicates that the speaker accepts or rejects that information on the basis of what the speaker believes to be true. *Actually*, on the other hand, is much more permissive; *actually* can be used to respond to implicit, anticipated or even imagined disagreements, as long as the speaker has reliable evidence for their claim. Therefore, *actually,* is licensed in a wider range of contexts than verum focus.

The difference between verum emphasis and *actually* shows up firstly with discourse-novel information such as in (67).

(67) *Context: You watch someone throw a rock through a store window and run into an alley. The police arrive and ask where the vandal went. You say:*

a. He ran into the alley.
b. He **actually** ran into the alley.
c. # He **DID** run into the alley.

A bare assertion (as in (67)a) is fine in response to the police officer's question. However, *actually* is also felicitous when the speaker can justify their answer on the basis of reliable evidence ((67)b). Verum emphasis, however, is not felicitous, regardless of whether the speaker

[6] Our discussion of the commitments of assertion needs to be extended to cover the use of verum emphasis and justification-based evidentials in questions and imperatives. We don't see any looming problems here, but for reasons of space we leave the task for future research.

believes their assertion to be true ((67)c).

In a similar vein, observe that unlike verum emphasis, *actually* is felicitous in response to neutral *wh*-questions, even where the information provided in the response is novel to the discourse. Consider the snake example given in Gitksan in (62) above. We see in (68) that verum emphasis is infelicitous in English, just as *k'ap* was in Gitskan. *Actually*, however, is perfectly fine.

(68) *Context: Michael is telling Katie that he has a pet called Fluffy. Katie wonders what kind of animal Fluffy is, so she asks Michael what Fluffy is*.

a. # Fluffy **IS** a snake.
b. Fluffy is **actually** a snake.

As we predict based on our analysis of *actually* given in section 3 above, *actually* is only felicitous in (68) if the speaker has reliable evidence that Fluffy is a snake. Consider a slightly different scenario in which Michael agreed to buy a pet named Fluffy from an animal shelter in order to avoid the pet being euthanized. Michael agreed to buy Fluffy without asking or caring about Fluffy's species. Michael arrives at the shelter to take possession of Fluffy and is told she's with the veterinarian but will be ready to leave shortly. While he waits, Michael sees an empty snake habitat with the name "Fluffy" in the corner. Katie, who has accompanied Michael to the shelter, asks what Fluffy is. It is infelicitous in that context for Michael to use *actually*. Instead, a marker of *lack* of justification must be used: either the epistemic modal *must* (cf. discussion in section 3), or *apparently* (which Glougie 2016 analyzes as a marker of less-than-reliable evidence).

(69) *Context: As described.*

a. # Fluffy is **actually** a snake.
b. Fluffy **must** be a snake.
c. Fluffy is **apparently** a snake.

The difference between verum emphasis and *actually*, then, is what they may respond to. Verum emphasis requires an explicit assertion by the speaker's discourse partner. However, *actually* is much more permissive; as long as the speaker has reliable evidence for their claim, *actually* can be used to respond to implicit, anticipated or even imagined disagreements. In (68), for example, Michael may expect Katie to disbelieve his answer to her question on the basis that it is unexpected for a snake to be named Fluffy. Using *actually*, Michael can anticipate Katie's resistance and ward it off at the pass by marking that he knows Fluffy is a snake on the basis of good evidence. The same is true in (67): verum emphasis would be acceptable here if someone had either explicitly denied that the vandal ran into the alley, or presupposed or strongly implicated that he didn't, or asked whether he did, or even simply stated that he did or didn't (either of which raises the question whether he did). But *actually* can be used merely because the speaker suspects that the information might be mildly surprising to the addressee.

Related to this is the fact that *actually,* unlike verum emphasis, can respond to utterances which don't directly contain or ask about *actually*'s prejacent proposition. In (70), for example, we see

that *actually* can respond to an eyebrow-raise which implicitly asks a question, even though the speaker's assertion does not directly answer that implicit question.

(70) *Context: The window above my seat on the bus is open. Another person comes in and sits next to me. They stand up, point to the window and raise their eyebrows (as if to ask if they can close it). I say:*

a. It's **actually** really warm in here.[7]
b. # It **IS** really warm in here.[8]

Verum emphasis is infelicitous here, and the reason is not just that the previous 'utterance' was merely an eyebrow raise. In our judgment, verum emphasis *can* sometimes respond to mere facial gestures, but only if the proposition being asserted in the verum utterance directly responds to the implicit question raised by the facial expression. This is shown in (71).

(71) *Context: The last cookie is missing from the cookie jar. I ask if you ate the last cookie and you say no. I raise my eyebrow (as if to ask if you're telling the truth. You say:)*

a. I DIDN'T.
b. I actually didn't.

The problem for verum emphasis in (70), then, is parallel to the problem in (67) and (68): verum is only used when the proposition being advanced directly responds to a prior utterance. This requirement of verum emphasis has been discussed in the literature under the guise of 'givenness'; for example, Gutzmann and Castroviejo Miró write that verum emphasis 'is only felicitous if the lexical material that constitutes the propositional content of the sentence is already given in the discourse context'; see also Richter (1993), Egg and Zimmermann (2012), Littell (2016), among others. *Actually* is not subject to as strict a givenness requirement.

On the other hand, *actually* is in one respect more restricted than verum emphasis, because *actually* requires some expressed, implied or anticipated disagreement, whereas verum doesn't. The interaction of these two factors (direct vs. indirect response, agreement vs. disagreement) is illustrated in (72). Here, the immediately previous utterance contains an indirect embedded question (whether Charlie stole my purse). We see that verum emphasis is felicitous when the speaker is responding directly to the embedded question, whether to agree with the positive bias of the question ((72)a), or to disagree ((72)b). However, verum emphasis is completely incoherent in (72)c, where the response only indirectly answers the embedded question. *Actually,* on the other hand, has no problem answering indirectly ((72)f), but is dispreferred when the answer and the positive bias of the embedded question align ((72)d).

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[7] *Actually* has a certain amount of freedom with respect to its placement within the clause, and its different positions correlate to a certain extent with different semantic or pragmatic effects. We are abstracting away from these issues here; see for example, Greenbaum (1969), Taglicht (2001) and Glougie (2016) for discussion.

[8] (70)b should be read with ordinary falling intonation at the end of the sentence. It can be rescued with a special (fall-rise) intonation at the end, which adds extra discourse effects.

(72) *Context: I notice that my purse is missing, and Charlie is one of my suspects. I say 'I wonder whether Charlie stole my purse.' You reply:*

a. He DID steal it.
b. He DIDN'T steal it.
c. # He IS in the hospital.[9]
d. ?? He actually stole it.
e. He actually didn't steal it.
f. He is actually in the hospital.

In summary, speakers can use *actually* in the absence of any explicit relevant proposition in a way that verum does not permit, but on the other hand *actually* seems to require challenge or disagreement (explicit or anticipated) in a way that verum does not. It is unknown at this stage whether these differences in discourse licensing conditions between truth-markers and justification-evidentials are universal and, if so, why that would be. To our knowledge, no one has considered those issues before (or has even considered the partial parallels between the discourse conditions for verum emphasis vs. justification-evidentials), and we leave further investigation to future research.

5.4 Summary

We propose that justification marking and truth marking are common – perhaps universal – strategies that humans use when they are making an effort to be believed by their interlocutors. Humans like to get their assertions believed by others, and this is more important in some discourse contexts than others. In discourse contexts where extra emphasis is needed, we support our assertions by linguistically encoding either 'I have justification', or more directly simply 'What I'm saying is true'.

So, the study of things like justification-based evidentials and verum marking can help reveal what humans count as bolstering their claims – what will help them be believed. It seems that we frequently attempt to convince others either by indicating that we have reliable evidence for what we say, or by emphasizing that what we say is true. These are, of course, two of the sub-components of a traditional definition of knowledge.

6 Conclusion

We have shown that the linguistic strategies speakers use to justify their assertions look very similar in unrelated languages. We've seen that Quechua *=mi*, English *must* and English *actually* are all sensitive to justification. Does this mean that *all* languages encode justification? Of course, we don't know, and future research is necessary to attempt to empirically falsify that proposal. However, the fact that unrelated languages like Quechua, Nivacle, and English mark speaker justification is sufficient to allow us to hypothesize that all languages have some way to encode the speaker's sense of their justification for the propositions they make.

[9] Again, this example should be read with normal intonation at the end of the sentence.

Even if all languages have some way to encode speaker justification, it is clear that languages differ in the details of how they do so. We've seen that Quechua *=mi,* the Nivacle determiners, English *must* and English *actually* count very similar types of evidence as 'justified enough'. But there are also differences in the details: *actually* allows speaker performance, while Quechua *=mi* apparently does not; the Nivacle best-evidence determiners require sensory evidence, while the others do not. Even if languages all encode speaker justification, we don't know the extent to which languages can vary in accomplishing that goal.

Nonetheless, there are certain features of justification which we observe to hold in all of the languages we have surveyed so far. First, the cases we presented all count general knowledge as justified enough. In fact, the Tibeto-Burman language Yongning Na even has an evidential specifically dedicated to propositions which are common knowledge (Lidz 2010). Second, none of the languages surveyed count inference or reasoning as justified enough. Therefore, we hypothesize that languages will differ in how they lexically cut up the 'justification cline', but not in the order of elements in the cline.

We also query, for future research, whether evidentials can tell us anything about the famous Gettier cases, that is, cases involving justified true belief which nevertheless does not count as knowledge. McCready (2014) investigates how Japanese speakers use evidentials in Gettier cases such as that in (73) (containing the inferential evidential *mitai*), and concludes that '[u]nsurprisingly, the Gettiered individual can assert an evidential with respect to his putative knowledge' (2014:167).

(73) *Context: Johnny is traveling in the country when he sees what looks to him like a horse on top of a hill and hears a horse neigh. However, what he sees is a horse-shaped rock, and the neigh is just the wind whistling through that pipe over there. But there is – coincidentally – a horse standing behind the rock.*

ano	oka-no	ue-ni	uma-ga	iru	**mitai**	da
that	hill-GEN	TOP-DAT	horse-Nom	exists	**EVID**	Cop

'There appears to be a horse on top of that hill.' (McCready 2014:167)

McCready argues that (73) is only assertable by Johnny because, in his Gettiered state, he believes that he has sufficient evidence to make it true. A non-Gettiered observer cannot utter (73) sincerely. Moreover, McCready argues that the Gettiered speaker and a non-Gettiered observer will evaluate the truth of (73) differently; for Johnny, (73) will be true and for the non-Gettiered observer, it will be false.

It may be that evidentials won't tell us much about the core question of whether a Gettiered speaker *knows* a proposition like that in (73). As pointed out by McCready, all we seem to be able to find out is whether the speaker *believes* they know it. However, Gettier cases may still provide useful insights with respect to speaker justification. The point here is that Gettier cases crucially involve *justified* true belief, and it is often left up to the researcher's intuition what counts as 'justified'. Recent experimental studies (e.g., Nagel et al. 2013, Machery et al. 2015) instead ask participants directly about how justified the Gettiered individual was. In that vein, we

propose research projects that might consider the following.

First, we could present Gettier cases involving a range of different evidence types (visual, non-visual sensory, reliable report, unreliable report, inference/reasoning) to speakers of languages with evidence-source-based evidentials and to speakers of languages with justification-based evidentials, in order to determine how speakers use these evidentials in Gettier cases. Specifically, we want to determine which evidentials speakers use, which evidentials they accept, and whether there is a correlation between evidential use and Gettier judgments.

For example, consider the Gettier/Hospital case from Machery et al. (2015), in which Paul Jones is worried about his wife Mary, who has not come home from work. He calls University Hospital and they tell him that someone with her name has been admitted with major injuries following a car crash. As it turns out, the patient at University Hospital is not Paul's wife, but another woman with the same name. In fact, Paul's wife had a heart attack, and is at that moment receiving treatment in Metropolitan Hospital, a few miles away.

In our judgment, Paul can say in this context 'My wife is actually in the hospital', and he cannot say 'My wife must be in the hospital.' This is as we expect, because Paul is Gettiered and believes himself to have good justification. However, evidence-source-based languages might require Paul to use a reportative evidential when asserting that his wife is in the hospital. It is an open question whether such an evidential system could affect – or reflect – differing opinions about the extent to which Paul is justified in his assertion. Similarly, it remains to be seen whether speakers of different language types would react differently if the context is minimally changed so that Paul has only inferential evidence that his wife is in the hospital. These questions, which may reveal something about whether speakers make a connection between overtly encoded justification on one hand, and truth/knowledge on the other, remain to be empirically tested.

In addition to testing speaker reactions to Gettier cases, more empirical work would shed light on how speakers react to the Clear Knowledge Case discussed by Machery et al. (2015). They give the following as an example:

> Albert is in a furniture store with his wife. He is looking at a bright red table in a display. He believes the table is just the shade of red he was looking for. The showroom … [has] clear, natural lighting throughout the entire store, and plenty of space around each piece on display. ... He checks the dimensions and price of the table, and starts to consider buying it. Albert asks his wife, "Do you like this red table?" (Machery et al. 2015:5).

In this Clear Knowledge case, Albert's evidence for his assumption that the table is red is visual. For English, we predict speakers will treat this context the same as they do the Gettier case described above. Sure enough, in our judgment, Albert can say 'This table is actually red' and he cannot say 'This table must be red.' However, in some languages, the Hospital scenario and the Clear Knowledge scenario would obligatorily receive a different form of evidential marking. Does this result in a difference with respect to speaker judgments? This remains to be tested.

References

Aikhenvald, Alexandra 2004. *Evidentiality*. Oxford: Oxford University Press.

Burton, Strang and Lisa Matthewson 2015. Targeted Construction Storyboards in Semantic Fieldwork. In R. Bochnak and L. Matthewson (eds.), *Semantic Fieldwork Methodology,* Oxford University Press, 135-156.

Egg, Markus and Malte Zimmermann 2012. "Stressed out!" Accented discourse particles. The case of *doch*. *Proceedings of Sinn und Bedeutung* 16:225–238.

Faller, Martina 2002. *Semantics and Pragmatics of Evidentials in Cuzco Quechua*. Ph.D. dissertation, Stanford.

Faller, Martina 2011. A possible worlds semantics for Cuzco Quechua evidentials. *Proceedings of SALT* XX, 660-683. Cornell University: CLC Publications.

First Peoples' Cultural Council 2014. *Report on the status of B.C. First Nations languages 2014* (2nd ed.). Brentwood Bay, BC: FPCC.

von Fintel, Kai and Anthony Gillies 2010. Must ... stay ... strong! *Natural Language Semantics* 18:351–383.

Gettier, E. L. 1963. Is justified true belief knowledge? *Analysis* 23:121-123.

Glougie, Jennifer. 2016. The Semantics and Pragmatics of English Evidential Expressions. Ph.D. dissertation, University of British Columbia.

Greenbaum, S. 1969. *Studies in English Adverbial Usage*. London: Longmans.

Gutiérrez, Analía. 2010. Evidentiality distinctions in Nivacle determiners. Qualifying Paper, University of British Columbia.

Gutiérrez, Analía and Lisa Matthewson 2012. Evidential Determiners: Best (Sensory) Evidence. *The Proceedings of SULA 6: The Semantics of Under-Represented Languages in the Americas.* Amherst, MA: GLSA, 63-79.

Gutzmann, Daniel 2012. Verum – Fokus – Verum-Fokus? Fokus-basierte und lexikalische Ansätze. In Blühdorn, Hardarik and Horst Lohnstein (eds.), *Wahrheit – Fokus – Negation.* (Linguistische Berichte Sonderheft 18). Hamburg: Buske. 67-103.

Gutzmann, Daniel and Elena Castroviejo Miró, 2011. The Dimensions of Verum. . In Oliver Bonami and Patricia Cabredo Hofherr (eds.), *Empirical Issues in Syntax and Semantics 8*, 143-165. http://www.cssp.cnrs.fr/eiss8

Hartmann, Katharina 2013. Verum blocking effects in Chadic languages. *Lingua* 136:103-124.

Hazlett, Allan 2010. The myth of factive Verbs. *Philosophy and Phenomenological Research* LXXX(3):497-522.

Hazlett, Allan 2015. The maturation of the Gettier problem. *Philos Stud* 172:1-6.

Höhle, Tilman N. 1992. Über Verum-Fokus im Deutschen. In Joachim Jacobs (ed.), *Informationsstruktur und Grammatik*. Opladen: Westdeutscher Verlag, 112-141.

Kim 2006. Evidential Strategies in Korean Conversation: An Analysis of Interactional and Conversational Narrative Functions. PhD dissertation, UCLA.

Lidz, Liberty 2010. *A Descriptive Grammar of Yongning Na (Mosuo)*. Ph.D. dissertation, University of Texas at Austin.

Littell, Patrick 2016. Focus, Predication, and Polarity in Kwak'wala. Ph.D. dissertation, University of British Columbia.

Lohnstein, Horst 2015. Verum Focus. In Caroline Fery and Shinichiro Ishihara (eds.), *Handbook of Information Structure*. Oxford: Oxford University Press.

Machery, Edouard, Stephen Stich, David Rose, Amita Chatterjee, Kaori Karasawa, Noel Struchiner, Smita Sirker, Naoki Usui and Takaaki Hashimoto 2015. Gettier across cultures. *Noûs*. doi: 10.1111/nous.12110, 1-20.

Mackie, Scott 2010. Sensory evidence in Thompson River Salish. Qualifying Paper, University of British Columbia.

Matthewson, Lisa 2004. On the methodology of semantic Fieldwork. *International Journal of American Linguistics* 70:369-415.

Matthewson, Lisa 2013. Evidence type, evidence location, evidence strength. To appear in Chungmin Lee and Jinho Park (eds.), *Evidentials and Modals: Crosslinguistic Explorations.*

Matthewson, Lisa 2015. Evidential restrictions on epistemic modals. In Luis Alonso-Ovalle and Paula Menendez-Benito (eds.), *Epistemic Indefinites*. Oxford: Oxford University Press, 141-160.

Matthewson, Lisa, Henry Davis and Hotze Rullmann 2007. Evidentials as epistemic modals: Evidence from St'át'imcets. *The Linguistic Variation Yearbook* 7:201-254.

McCready, Eric 2014. What is evidence in natural language? In Eric McCready, Katsuhiko Yabushita and Kei Yoshimoto (eds.), *Formal Approaches to Semantics and Pragmatics: Japanese and Beyond.* Studies in Linguistics and Philosophy series, Dordrecht: Springer, 155-180.

McCready, Eric, Masaharu Mizumoto, Jason Stanley and Stephen Stich 2014. Epistemology for the Rest of the World: Linguistic and Cultural Diversity and Epistemology. Volume description for the current volume.

Nagel, Jennifer, Valerie San Juan and Raymond A. Mar 2013. Lay denial of knowledge for justified true beliefs. Cognition 129:652–661.

Peterson, Tyler 2010. *Epistemic Modality and Evidentiality in Gitksan at the Semantics-Pragmatics Interface.* PhD dissertation, University of British Columbia.

Repp, Sophie 2013. Common ground management: Modal particles, illocutionary negation and verum. In Danial Gutzmann and Hans-Martin Gärtner (eds.), *Beyond Expressives. Explorations in Use-Conditional Meaning*. Leiden: Brill, 231-274.

Richter, Frank 1993. Settling the truth. Verum focus in German. Ms., Amherst, MA.

Rigsby, Bruce 1986. Gitksan Grammar. Ms., University of Queensland, Australia.

Romero, Maribel and Chung-hye Han. 2004. On negative yes/no questions. *Linguistics and Philosophy* 27(5). 609–658.

Romero, Maribel 2015. High negation in subjunctive conditionals and polar questions. In Eva Csipak and Hedde Zeijlstra (eds.), *Proceedings of Sinn und Bedeutung* 19, 499-516.

Schiffrin, D. 1987. *Discourse Markers*. Cambridge: University of Cambridge Press.

Taglicht, J. 2001. *Actually*, there's more to it than meets the eye. *English Language and Linguistics 5.1*:1-16.

Tarpent, Marie-Lucie 1989. *A Grammar of the Nisgha Language.* PhD dissertation, University of Victoria.

Thompson, Laurence C. and M. Terry Thompson 1996. *Thompson River Salish Dictionary.* University of Montana Occasional Papers in Linguistics 12. Missoula: Linguistics Laboratory, University of Montana.

Tonhauser, Judith and Lisa Matthewson 2015. Empirical evidence in research on meaning. Ms., The Ohio State University and University of British Columbia.

van Eijk, Jan 1997. *The Lillooet Language: Phonology, Morphology, Syntax.* Vancouver: University of British Columbia Press.
Zimmermann, Malte and Daniel Hole 2008. Predicate Focus, Verum Focus, Verb Focus. Similarities and Difference". Paper presented at the Potsdam-London IS Meeting, December 2008.

Appendix: Abbreviations

BEST.SENS.DET = best sensory determiner, BPG = best possible grounds, CL.CNJ = clausal conjunction, CN = common noun connective, DIR = directive transitivizer, DM = determinate marker, DUB = dubitative, EXIS = assertion of existence, HAB = habitual, I/II/III = series I/I/III pronoun, INFER = inferential evidential, NOT.BEST.SENS.DET = not best sensory determiner, PN = proper name, PR.EVID = prior evidence, PROSP = prospective aspect, QUDD = Question Under Discussion downdate, REAS = reason clause, REPORT = reportative evidential, SENS.EV = sensory evidential, SENS.NON.VIS = sensory non-visual evidential, SPT = spatio-temporal, SX = subject extraction, YNQ = yes-no question.