# Modality in Comox-Sliammon*

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**Abstract:** Despite substantial documentation efforts in recent years (e.g., Blake 2000; Watanabe 2003), not much is known about the modal system of Comox-Sliammon. This paper aims to fill this gap in documentation. Drawing on data elicited from 12 fluent speakers, I will not only show how epistemic and circumstantial modality can be encoded, but also how speakers of this language express modal-temporal interactions.

**Keywords:** Comox-Sliammon, modality, evidentiality, variable force modals, modal-temporal interactions

## 1 Introduction

This paper is the first description of the modal system of Comox-Sliammon (also known as ʔayʔaǰuθəm), a critically endangered Central Salish language traditionally spoken by four communities along the Northern Strait of Georgia in British Columbia. Despite substantial documentation efforts in recent years (cf. Andreotti 2018; Blake 2000; Caldecott & Mellesmoen 2018; J. Davis 2005, 2012, 2015, 2016, 2018; H. Davis & Huijsmans 2017; Huijsmans, Mellesmoen, & Urbanczyk 2018; Huijsmans, Reisinger, Lo, & Xu 2018; Lo 2017; Kroeber 1999; Mellesmoen 2017a, 2017b, 2018; Mellesmoen & Andreotti 2017; Reisinger & Lo 2017; Watanabe 2003), not much is known about the modal system of this language. This survey aims to fill this gap in documentation. The following four research questions will be addressed in this paper:

(1) a. What are the dedicated modals of Comox-Sliammon?
b. How do these modals carve up the semantic space?
c. How are modal-temporal interactions expressed?
d. How can we formalize their semantics?

Drawing on data elicited from 12 fluent speakers, I will argue that the lexical inventory of Comox-Sliammon contains several modal markers. Epistemic readings emerge from the use of the inferential evidential *čˀa*, the reportative

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evidential *k̓ʷa*, and the complex clitic strings *səm=kʷa*, *sem=kʷi*, and *sem=kʷu*. The circumstantial domain contains the English borrowing *have to* and – potentially – also the auxiliary *jaqa?*. As will be shown, some of these markers act as variable force modals, while others appear to be lexically specified in terms of quantificational force and modal base. This non-uniform distribution suggests that Comox-Sliammon is best classified as a 'mixed system' in the emerging formal typology of modals (e.g., Nauze 2008).

In Section 2, I will provide a brief introduction to Kratzer (1977, 1981, 1991)'s theory of modality as well as Condoravdi (2002)'s theory of modal-temporal interactions. Drawing on the cross-Salish literature on modality, I will introduce the concept of variable force modals. With the theoretical background in place, Section 3 will describe the modal inventory of Comox-Sliammon and illustrate how the dedicated modal markers carve up the modal space. Subsequently, Section 4 turns to the issue of modal-temporal interactions. Section 5 will explore how the semantics of the modals can be formalized, before Section 6 concludes this paper with a short summary.

## 2 Background

### 2.1 The Kratzerian Theory of Modality

Before we take a closer look at the modal system of Comox-Sliammon, let us briefly revisit the framework of modality developed by Kratzer (1977, 1978, 1981, 1986, 1991), which has become the standard account of modality within formal semantics.[1] According to the Kratzerian framework, modals can be regarded as quantifiers over possible worlds. As noted by Kratzer (1981), we need three formal components to aptly capture the meaning of a modal expression: (i) a modal relation, (ii) a modal base, and (iii) an ordering source. The latter two are contextually determined by conversational backgrounds.

The modal relation (also known as modal force) describes the strength of a modal expression and can be conceptualized as quantification over possible worlds. Using this approach, we can easily explain the difference in force of the modals in example (2). While the necessity reading of *must* in (2a) emerges due to universal quantification (∀), the possibility reading of *can* in (2b) is the result of existential quantification (∃) (cf. Kratzer 1977, among others).

(2) a. You **must** bring crampons. [NECESSITY]
b. You **can** bring crampons. [POSSIBILITY]

The first conversational background is the modal base $B$. After it receives a value by the assignment function $c$, the modal base restricts the domain of quantification to a set of relevant worlds, i.e., the set of worlds in which all propositions of $B(w)$ are true. In general, the Kratzerian framework distinguishes between two types of modal base: epistemic and circumstantial. While epistemic modals are concerned

[1] An overview of alternative approaches – such as the force dynamics theory by Talmy (1988) – can be found in Portner (2009).

with the speaker's knowledge or evidence, circumstantial modals involve facts about the world. The examples in (3) illustrate this fundamental distinction.

(3) a. Saoirse **must** be home. Her car is in the driveway. [EPISTEMIC]
b. Saoirse **must** be home by midnight or she'll be grounded by her parents. [CIRCUMST.]

In addition to the modal base, Kratzer's framework also requires a second conversational background, namely an ordering source $g$. Using a set of propositions, the ordering source ranks the worlds in the modal base with regard to their relevance. Eventually, the best-ranked worlds in $\cap B(w)$ will be accessible by the modal. As illustrated by example (4), these rankings can be motivated by a variety of reasons, such as the law (deontic), desires (bouletic), goals (teleological), beliefs (doxastic), or the normal course of events (stereotypical).

(4) a. According to the law, cyclists **must** wear a helmet. [DEONTIC]
b. I **must** try this cake! It looks delicious! [BOULETIC]
c. To go to Bowen Island, you **must** take the ferry. [TELEOLOG.]
d. That guy at the gas station **must** have been Elvis. [DOXASTIC]
e. It **must** be cold outside. It's snowing like crazy! [STEREOTYP.]

## 2.2 Modal-Temporal Interactions

To capture modal-temporal interactions, we need to introduce two more concepts: temporal perspective and temporal orientation. Both of these terms emerge from Condoravdi (2002)'s seminal work on the temporal interpretation of English modals.

### 2.2.1 Temporal Perspective

The term *temporal perspective* refers to the time when the worlds a modal quantifies over are assessed. For epistemic modals, this is the time when the relevant evidence or knowledge holds. Example (5), for instance, exhibits a present temporal perspective since the evidence – i.e., the puddles – is visible at the utterance time.

(5) It **must** have rained. There are puddles on the ground.

Similarly, it is the time when certain facts are true that determines the temporal perspective for circumstantial modals. In example (6), which represents a teleological context, the facts two centuries ago were such that a ship journey was necessary if you planned to go to Vancouver Island. Nowadays, however, you could also take a plane to get there. In other words, the circumstances which necessitated a ship journey 200 years ago no longer hold at the present. Thus, the sentence in (6) expresses a past temporal perspective.

(6) 200 years ago, you **had to** take a ship to get to Vancouver Island.

Of course, it is also possible to think of contexts which require a future temporal perspective. That is, at some point in the future, the evidence or facts will be such that MODAL $(p)$. However, since such interpretations are very difficult to elicit, I will not explore future temporal perspectives in this investigation.

### 2.2.2 Temporal Orientation

The term *temporal orientation* describes the relation between the temporal perspective and the time of the event that is embedded under the modal. To illustrate this, let us take a look at the examples in (7). While all of these sentences indicate a present temporal perspective (i.e., the speaker obtains the evidence at the utterance time), they differ in their temporal orientation. The sentence in (7a) exhibits a past temporal orientation since the raining event precedes the observation of the puddles. In (7b), the raining event and the pattering on the roof coincide, giving rise to a present temporal orientation. Lastly, in (7c), the speaker sees the dark clouds before the raining event, which means that the modal takes on a future temporal orientation.

(7) a. There are puddles on the ground. I guess it **might** have rained.
b. What's that pattering on the roof? I guess it **might** be raining.
c. Just look at the dark clouds! I guess it **might** be raining soon.

Since tense provides the temporal perspective for English modals, Condoravdi (2002) argues that the concept of temporal orientation can be regarded as aspectual – it essentially indicates the relation between the reference time and the event time. As will be shown in Section 4, this analysis also holds for most of the modals in Comox-Sliammon.

## 2.3 Modality in Salish

Over the last couple of years, several researchers have noted striking typological differences between Salish modals and their English counterparts (cf. Rullmann et al. 2008, Menzies 2013, among others).

While English modals tend to be lexically specified with regard to their quantificational force, their conversational backgrounds can vary.[2] The modal *must*, for instance, acts as universal quantifier and, consequently, always evokes a necessity reading. While the modal force of *must* is fixed, its conversational backgrounds are not, so that *must* is compatible with different modal bases. To illustrate this, the instantiation of *must* in (8a) represents an epistemic modal base, while its equivalent in (8b) involves a circumstantial modal base.

[2] As noted by Rullmann et al. (2008) as well as Peterson (2010), this classification holds for isolated modals, but is often difficult to maintain for entire modal systems.

(8) a. Peter's coat is wet. It **must** be raining outside.
[NECESSITY: EPISTEMIC]

b. It **must** rain or the crops will spoil.
[NECESSITY: CIRCUMSTANTIAL]

In several varieties of Salish, modals tend to pattern quite differently. Rullmann et al. (2008) note that all modals in St'át'imcets have variable quantificational force, but are lexically specified with regard to their conversational backgrounds. The modal marker *ka*, for instance, is restricted to deontic or irrealis readings, but allows universal as well as existential interpretations. Strikingly, the cross-Salish literature suggests that such variable force modals are not limited to St'át'imcets, but can also be observed in other members of this language family, such as Nsyilxcen (Menzies 2013) and Sḵwx̱wú7mesh (Gillon & Jacobs 2017). Example (9) presents some sentences that support this claim.[3]

(9) a. St'át'imcets (Rullmann et al. 2008):
lán-lhkacw **ka** áts'x-en ti kwtámts-sw-a
already-2SG.SBJ DEON see-DIR DET husband-2SG.POSS-DET
'You must / can / may see your husband now.'

b. Nsyilxcen (Menzies 2013):
**mat** ks-c-pix̌-aʔx
EPIS IRR-CUST-hunt-INCP
'He must / might be going hunting.'

c. Sḵwx̱wú7mesh (Gillon & Jacobs 2017):
Nilh=**ch'** tiwa
FOC=EPIS DEM
'It must / might be him.'

However, it should be noted that the modal system of Nsyilxcen is not as uniform as in St'át'imcets or Sḵwx̱wú7mesh. While all modals in the latter have a fixed conversational background and variable force, this is not the case for Nsyilxcen. As pointed out by Menzies (2013), the force of the modal *mat* may vary, while the modal *cmay* appears to be fixed with regard to both dimensions. In other

[3] Abbreviations used in this paper are: BOUL = bouletic; CAU = causative; CLF = cleft; CLT = clitic; CNJ = conjunctive; CONJ = conjunction; CTR = control transitivizer; CUST = customary; DEM = demonstrative; DEON = deontic; DET = determiner; DIR = directive transitivizer; EPIS = epistemic; ERG = ergative; EVD = evidential; EXCL = exclusive marker; FOC = focus; FUT = future; IMPF = imperfective; INCP = inceptive; INF = inferential; INT = intensifier; IRR = irrealis; LEX = lexical particle; MD = middle; NEG = negation; NMLZ = nominalizer; NTR = non-control transitivizer; OBJ = object; OBL = oblique; PASS = passive; PL = plural; POSS = possessive; PST = past; Q = question marker; REFL = reflexive; RPT = reportative; SBJ = subject; SG = singular; TELE = teleological; TR = transitivizer.

words, it is restricted to an epistemic modal base as well as to possibility readings, as shown in example (10). This suggests that the modal system of Nsyilxcen is best described as a 'mixed system'.

(10) Mary **cmay** ac-qíc-lx [POSSIBILITY: EPISTEMIC]
Mary EPIS CUST-run-LEX
'Mary might be running.'

Taking these cross-linguistic observations into consideration, the formal typology of modals shown in Table 1 emerges.[4] One of the goals of this paper is to determine where Comox-Sliammon should be placed in this model.

**Table 1:** A typology of modals

| | SPECIFIED CONVERSATIONAL BACKGROUND | VARIABLE CONVERSATIONAL BACKGROUND |
|---|---|---|
| SPECIFIED FORCE | English (*might*)<br>Nsyilxcen (*cmay*) | English (*must*) |
| VARIABLE FORCE | St'át'imcets<br>Sḵwx̱wú7mesh<br>Nsyilxcen (*mat*) | ? |

## 3 The Modal Inventory

With the theoretical background in place, we can now return to the four research questions presented at the beginning of this paper. In the following subsections, I will provide an overview of the modal markers of Comox-Sliammon and show how they carve up the modal space.

The data presented on the following pages were elicited from 12 fluent speakers of the language over a period of several months. The consultants (age range: 60–86 years) represent all three remaining speech communities of Comox-Sliammon, i.e., the Homalco, Klahoose, and Tla'amin. Of the Island dialect, traditionally spoken by the K'omoks, no native speakers remain.

As eliciting modals can be a challenging endeavour, a variety of elicitation methods were employed over the course of this investigation, including direct elicitation with contextual support, judgment tasks, storyboards, and other visual prompts (created with the web-service pixton.com).

[4] For a more comprehensive typology of modals, see Nauze (2008).

### 3.1 Epistemic Modals

First, let us take a look at the class of epistemic modals. As noted by Portner (2009), these modals require an epistemic modal base and usually involve a doxastic or a stereotypical ordering source. In English, the modals *must* and *might* are frequently used to encode this type of modality. Comox-Sliammon also seems to have dedicated markers that can be used to convey epistemic readings, namely the inferential evidential *c̓a*, the reportative evidential *kʷa*, and the complex clitic strings *səm=kʷa*, *sem=kʷi*, and *sem=kʷu*. [5] The following subsections will examine these epistemic markers more closely.

#### 3.1.1 The Inferential Evidential *c̓a*

The inferential evidential *c̓a* is the most common marker of epistemic modality in Comox-Sliammon.[6] Watanabe (2003:517) glosses it as a conjectural marker and states that speakers tend to use this second-position clitic with presumptions. This observation is supported by the example given in (12), where the speaker draws an inference about the weather based on the clothing choice of another person.[7]

(12) CONTEXT**:** You spent the night in a chalet. The next morning, you walk down to the foyer. You haven't looked outside yet, but someone walks by with winter clothes and a snow shovel. Therefore, you think it must have snowed last night.

| | | |
|---|---|---|
| ʔaxʷ-uɬ=**c̓a** | s | nat-uɬ |
| snow-PST=EVD.INF | NMLZ | night-PST |

'It must have snowed last night.'
Comment (by E.P.): "You have to see it." [i.e., the winter clothes and the snow shovel]

[5] In addition to these dedicated modals, speakers of Comox-Sliammon can also use periphrastic constructions to express epistemic modality. In particular, the attitude verb *qʷayigen* ('I think') is often used for this purpose, as illustrated by the example in (i).

(i) **qʷayigan** c̓ə~c̓ɬ ƛaʔamin
I think IMPF~rain Lund
Prompt: 'It must / might be raining in Lund.'
Literally: 'I think it is raining in Lund.'

[6] Although traditional analyses regard epistemic modals and evidentials as two distinct categories (e.g., de Haan 1999; Aikhenvald 2004), a growing body of research challenges this dichotomy. Among others, Kratzer (1991), Izvorski (1997), Matthewson et al. (2007), and Peterson (2010) have presented modal analyses for evidentials.

[7] Cognates of *c̓a* can also be found in other Salish languages. While the modal *k'a* in St'át'imcets has been linked to indirect inferential evidence (Rullmann et al. 2008), the Sḵwx̱wú7mesh modal *ch'* has been classified as a marker for indirect sensory evidence (Gillon & Jacobs 2017).

The examples in (13) and (14) illustrate that this epistemic modal allows both necessity and possibility readings, suggesting that its quantificational force is variable. Considering that the cognates of *c̓a* in Sḵwx̱wú7mesh (Gillon and Jacobs 2017) and St'át'imcets (Rullmann et al. 2008) have also been described as variable force modals, this observation is not completely surprising.

(13) č̓ə~č̓ɬ=**c̓a** ƛaʔamin
IMPF~rain=EVD.INF Lund
'It must / might be raining in Lund.'

- ✓ CONTEXT 1 [NECESSITY]: You are in Sliammon. You look out of your window, and it is pouring outside. You start to think about Lund, the neighboring village just up the road, and you are absolutely convinced that it must be raining there, too.

- ✓ CONTEXT 2 [POSSIBILITY]: You are in Campbell River (on Vancouver Island). You look out of your window, and it is pouring outside. You start to think about Lund, a small village on the mainland, and you think it is possible that it might be raining there, too.

(14) niš=**c̓a** kʷ=qʷuwət tiʔi θaẏał
be.here=EVD.INF DET=beaver DEM lake
'There might / must be beavers in this lake.'

- ✓ CONTEXT 1 [POSSIBILITY]: You are hiking through the backcountry to take some wildlife photographs. Suddenly, you stumble upon a big lake in the forest. You think it is possible that beavers might live in this lake.

- ✓ CONTEXT 2 [NECESSITY]: As you continue your hike along the lake, you notice some bite marks on a pair of trees and, eventually, you even spot a beaver lodge in the lake. Now, you are absolutely convinced that there are beavers in the lake.

### 3.1.2 The Reportative Evidential *k̓ʷa*

Epistemic modality in Comox-Sliammon can also be expressed via the evidential marker *k̓ʷa*. Watanabe (2003:522) labels this second-position clitic as a quotative and explains that it indicates hearsay evidence. As expected, cognates of this evidential can also be found in other Salish languages. In Sechelt, hearsay evidence is marked by the clitic *k̓ʷa* (Beaumont 2011), while *ek̲a* acts as the quotative in Sḵwx̱wú7mesh (Gillon & Jacobs 2017). The epistemic-reportative evidential *ku7* in St'át'imcets as described by Rullmann et al. (2008) might also be related to these forms. The examples given in (15) and (16) illustrate the evidential nature of *k̓ʷa* in Comox-Sliammon.

(15) č̓ə~č̓ɬ=**k̓ʷa** Vancouver
IMPF~rain=EVD.RPT Vancouver
'It is raining in Vancouver.'
Comment (by E.P.): "Somebody had to tell you."

(16) niʔ=**k̓ʷa** ʔə~ʔimaš ʔə=tə=q̓ʷit
be.there=EVD.RPT IMPF~walk OBL=DET=beach
'She is walking on the beach.'
Comment (by E.P.): "You didn't see it, but somebody said [it occurred]."

Just like the inferential evidential *č̓a*, the reportative marker *k̓ʷa* allows both necessity and possibility readings, suggesting that we can classify it as a variable force modal as well. Evidence for its variable quantificational force is presented in the examples (17) and (18) below.

(17) ʔaxʷ-uɬ=**k̓ʷa** tawən
snow-PST=EVD.RPT town
'It must have snowed in the city.'

✓ CONTEXT [NECESSITY]: Your friend Peter, a weatherman who always seems to be correct, tells you that it snowed in Vancouver yesterday and you believe him. Now you want to tell me about it, and you say that you heard it must have snowed in Vancouver yesterday.

(18) č̓əɬ-uɬ=**k̓ʷa** Vancouver
rain-PST=EVD.RPT Vancouver
'It might have rained in Vancouver.'

✓ CONTEXT [POSSIBILITY]: Your other friend John, who is usually not very reliable, tells you that it rained in Vancouver yesterday. You are not sure whether you should believe him. But you want to tell me about it anyway, and you say that you heard it might have rained in Vancouver yesterday.

### 3.1.3 The Clitic Strings *səm=kʷa, sem=kʷi,* and *sem=kʷu*

In addition to the use of evidentials, epistemic modality can also be expressed by the clitic strings *səm=kʷi*, *səm=kʷa*, and *səm=kʷu*. While *səm* is generally analyzed as a plain future marker (e.g., Watanabe 2003:527; Davis in this volume), my data suggest that this clitic does not always convey real futurity. Under certain circumstances, namely when *səm* is directly followed by a clausal demonstrative, usually of the form *kʷi*, *kʷa*, or *kʷu*, the future interpretation seems to be

abandoned in lieu of an epistemic interpretation.[8] This contrast is exemplified by the sentences in (19) and (20).

(19) č̓əɬ=**səm** kʷəy̓səm
rain=FUT tomorrow
'It will rain tomorrow.'

(20) **səm=kʷu**=t č̓ə~č̓ɬ q̓ʷit ʔaǰu
FUT=DEM=CLT IMPF~rain beach too
'It must be raining in Campbell River [i.e., down by the beach], too.'

Cross-linguistically, it is not uncommon for future markers to exhibit this ambiguity. The English modal *will*, for instance, allows both of these readings as well, as exemplified by (21a) and (21b).

(21) a. Saoirse **will** be home in three hours. [ROOT]
b. Saoirse **will** be home by now. [EPISTEMIC]

As highlighted by Sweetser (1991:51), the use of *will* in the root scenario primarily marks actual futurity, i.e., the futurity of the event. In (21a), for instance, the modal conveys that Saoirse's arrival will take place in the future. In contrast, the use of *will* in (21b) is primarily epistemic and marks the futurity of knowledge. It is not the event itself, but its verification by the speaker that lies in the future. In other words, Saoirse may or may not already be home at the time of utterance, but the speaker cannot verify the occurrence of the event right now; the verification has to happen in the future. Thus, (21b) could also be paraphrased as "If we check, we will see whether Saoirse is home."

In contrast to English, Comox-Sliammon explicitly distinguishes both of these readings. The root interpretation only emerges when *səm* appears on its own, while the epistemic reading is only available when *səm* is followed by a clausal demonstrative. In addition, both readings also pattern differently from a syntactic perspective. While the plain future marker always has to follow the main predicate, the complex epistemic clitic strings are more flexible and can both

[8] While Watanabe (2003) treats some of these clitics as evidentials, Huijsmans and Reisinger (this volume) argue that these elements are best characterized as clausal demonstratives. According to their analysis, clausal demonstratives deictically link the event situation to the utterance situation. More specifically, the clausal *kʷ*-demonstratives (i.e., *kʷa, kʷi, kʷu*) indicate that the speaker is not directly observing the described proposition, while the *t*-demonstratives (i.e., *ta, ti*) indicate that the event is visible to the speaker. Considering this, it is not surprising that only the former set of clitics appears to combine with *səm* to express epistemic modality. Forms like **səm=ta* and **səm=ti*, on the other hand, remain unattested as they would violate the *known truth test* (cf. Peterson 2010:111, among others). That is, epistemic modals cannot be used if the speaker knows that the proposition is true.

precede or follow the main predicate, as shown in the examples given in (22) and (23).[9]

(22) a. č̓əɬ=**səm** kʷəy̓səm
rain=FUT tomorrow
'It will rain tomorrow.'

b. * **səm**=č̓əɬ kʷəy̓səm
FUT=rain tomorrow
'It will rain tomorrow.'

(23) a. ƛ̓aq̓ʷ-uq̓ʷ **səm=kʷi** qaya
tide.up-INCP FUT=DEM water
'I guess the tide would be up now.'

b. **səm=kʷi** ƛ̓aq̓ʷ-uq̓ʷ qaya
FUT=DEM tide.up-INCP water
'I guess the tide would be up now.'

Parallel to the evidentials *c̓a* and *kʷ̓a*, the epistemic clitic strings *səm=kʷa*, *səm=kʷi*, and *səm=kʷu* seem also to allow both necessity and possibility readings, as highlighted by the example in (24). Thus, all epistemic modals pattern uniformly in this regard.

(24) **səm=kʷu**=t č̓ə~č̓ɬ ƛaʔamin
FUT=DEM=CLT IMPF~rain Lund
'It must / might be raining in Lund.'

✓ CONTEXT 1 [NECESSITY]: You are in Sliammon. You look out of your window, and it is pouring outside. You start to think about Lund, the neighboring village just up the road, and you are absolutely convinced that it must be raining there, too.

✓ CONTEXT 2 [POSSIBILITY]: You are in Campbell River (on Vancouver Island). You look out of your window, and it is pouring outside. You start to think about Lund, a small village on the mainland, and you think it is possible that it might be raining there, too.

### 3.2 Circumstantial Modals

The following subsections will show that the inventory of circumstantial modals in Comox-Sliammon is not nearly as rich as its epistemic counterpart. More specifically, only one marker, namely the English borrowing *have to*, appears

[9] Although both orders presented in (23) are acceptable, the complex epistemic clitic strings usually precede the main predicate.

frequently in circumstantial contexts.[10] Section 3.2.1 will examine this (semi)-modal in more detail. Subsequently, Section 3.2.2 will take a look at circumstantial contexts that appear to lack dedicate modal markers altogether.

### 3.2.1 The English Borrowing *have to*

The (semi)-modal *have to*, which has been borrowed from English, exclusively encodes priority modality in Comox-Sliammon.[11] According to Portner (2009)'s classification of modality, priority modals are concerned with reasons that prioritize one situation over another. In general, they require a circumstantial modal base and are compatible with deontic, teleological, or bouletic ordering sources – i.e., the worlds in the modal base can be ranked according to their relevance with regard to laws, goals, or desires. As will be shown, the modal *have to* can be used for all of these contexts in Comox-Sliammon.

#### 3.2.1.1 Deontic Uses

Deontic modals encode obligations and permissions with regard to some kind of ethical, moral, or legal norm (Portner 2009). In English, the modals *must* (necessity), *should* (weak necessity), and *can* (possibility) are usually associated with this category.

In Comox-Sliammon, speakers have borrowed the English (semi)-modal *have to* to express deontic necessity and weak necessity readings, as illustrated by examples (25a) and (25b). For possibility readings, as in (25c), the use of this modal marker is infelicitous, suggesting that it does not act as a variable force modal in the language.

(25) CONTEXT: You are about to go through airport security and the officer in charge informs you of the regulations. According to the law...
   a. you *have to* take off your shoes [DEONTIC NECESSITY]
   b. you *should* take off your belt [DEONTIC WEAK NECESSITY]
   c. you *can* take of your coat [DEONTIC POSSIBILITY]

[10] The modal marker *ǰaqa*, which will be examined more closely in Section 3.4, might also belong to the class of circumstantial modals. However, since its semantic contribution is currently not well-understood, I refrain from attributing it to a specific modal category for now and, instead, leave a more detailed analysis for another time.

[11] In Comox-Sliammon, *have to* does not show the English verbal agreement, but instead marks number and person with a possessive marker that introduces the predicate. As shown in (ii), *have to* can also be embedded.

(ii) qʷayigan **have to** tθ=p̓ap̓i=m
   I think DEON 1SG.POSS=work=MD
   'I think I might have to work.'

a. **have to** Θ=xʷaʔa-t qʷəłaẏšən
DEON 2SG.POSS=take.off-CTR shoes
Prompt: 'You have to take off your shoes.'
Literally: 'You have to take off your shoes.'

b. **have to** Θ=xʷaʔa-t təm̓
DEON 2SG.POSS=take.off-CTR belt
Prompt: 'You should to take off your belt.'
Literally: 'You have to take off your belt.'

c. # **have to** Θ=xʷaʔa-t kapu
DEON 2SG.POSS=take.off-CTR coat
Prompt: 'You can take off your coat.'

While the use *have to* in deontic contexts is quite common among younger speakers of the language, older speakers resort to it less often or even completely reject it.[12] Those speakers who refrain from the use of *have to* often employ periphrastic constructions (such as imperatives) instead when prompted with deontic contexts. To illustrate this, the three example sentences given in (25) above can all be realized without the use of the English borrowing, as shown in (26).

(26) a. xʷaʔa-t=čxʷ tə=Θ=qʷəł~qʷəłaẏšən
take.off-CTR=2SG.SBJ DET=2SG.POSS=PL~shoe
Prompt: 'You have to take off your shoes.'
Literally: 'Take off your shoes!'

b. xʷaʔa-t=čxʷ tə=Θ=təm̓
take.off-CTR=2SG.SBJ DET=2SG.POSS=belt
Prompt: 'You should take off your belt.'
Literally: 'Take off your belt!'

c. ʔəẏ=ʔut xʷaʔa-t kapu
good=EXCL take.off-CTR coat
Prompt: 'You can take off your coat.'
Literally: 'It is okay to take off the coat.'

The use of such periphrastic constructions is also observed in contexts where imperatives are not available, for instance in interrogatives. This is illustrated by the sentences in (27).

[12] Watanabe (2003:533) mentions that even the most fluent speakers of Comox-Sliammon use English words like *have to* quite commonly in casual speech. However, in more formal contexts, the use of such borrowings is less common. This might explain why *have to* never showed up during my elicitations with older speakers.

(27) CONTEXT: You ask your friend whether...

| | | |
|---|---|---|
| a. | you *have to* stay | [DEONTIC NECESSITY] |
| b. | you *should* stay | [DEONTIC WEAK NECESSITY] |
| c. | you *can* stay | [DEONTIC POSSIBILITY] |

| | | | | |
|---|---|---|---|---|
| a. | xʷaʔ | χaƛ̓=as | kʷə=tᶿ | niš |
| | NEG | want=3.CNJ | DET=1SG.POSS | be.here |
| | Prompt: 'Do I have to stay?' | | | |
| | Literally: 'I don't want to stay.' | | | |

| | | | |
|---|---|---|---|
| b., c. | ʔəǰ-a | ga | niš=an |
| | good-Q | if | be.here=1SG.CNJ |
| | Prompt: 'Should / Can I stay?' | | |
| | Literally: 'Is it okay if I stay?' | | |

To conclude, the data suggest that Comox-Sliammon lacked a dedicated marker for deontic modality at an earlier point, leading to the use of periphrastic constructions. The younger generations of speakers, however, have found another way to deal with this gap in the modal system by borrowing the English (semi)-modal *have to* for necessity and weak necessity readings.

### 3.2.1.2 Teleological Uses

Teleological modals are concerned with goals (Portner 2009). Speakers of English usually use the modals *must* (necessity), *should* (weak necessity), and *can* (possibility) to convey teleological readings. Once again, Comox-Sliammon lacks dedicated modals for this purpose and, consequently, has borrowed the English (semi)-modal *have to*. As illustrated by example (28), this modal is compatible with teleological necessity and weak necessity readings, but infelicitous in possibility contexts.

| | | | | | | |
|---|---|---|---|---|---|---|
| (28) | šəʔ-ət=səm | təyta | ṫaʔqṫ | **have to** | yaʔq̓a-stxʷ | χʷiƛ̓əm |
| | climb-CTR=FUT | DEM | mountain | TELE | use-CAU | rope |
| | 'When he climbs this mountain, he must/should use a rope.' | | | | | |

CONTEXT: You ask your friend, who is a renowned mountaineer, what you have to do to climb three particular mountains. Your friend tells you: To climb these mountains, you...

| | | | |
|---|---|---|---|
| ✓ | a. | *have to* use a rope | [TELEOLOGICAL NECESSITY] |
| ✓ | b. | *should* use a rope | [TELEOLOGICAL WEAK NECESSITY] |
| # | c. | *can* use a rope | [TELEOLOGICAL POSSIBILITY] |

Once again, older speakers refrain from the use of *have to* and instead employ other constructions to convey teleological readings, as illustrated by the examples given in (29) and (30).

(29) CONTEXT: The same contexts as in (28a, b).

ʔut=čxʷ θu šəʔ-ət t̓aʔqt̓ yaʔq̓a-stxʷ=čxʷ
if=2SG.SBJ go climb-CTR mountain use-CAU=2SG.SBJ
tə=χʷi̓ləm
DET=rope
Prompt: 'To climb this mountain, you have to / should use a rope.'
Literally: 'If you climb the mountain, you use a rope.'

(30) CONTEXT: The same context as in (28c).

ʔəy̓=ʔut yaʔq̓a-stxʷ χʷi̓ləm
good=EXCL use-CAU rope
Prompt: 'To climb this mountain, you can use a rope.'
Literally: 'It is okay to use a rope.'

To conclude, the teleological category seems to pattern exactly like the deontic one.

### 3.2.1.3 Bouletic Uses

Bouletic modals form the third and last class of priority modals. They are usually concerned with wishes or desires (Portner 2009). In English, speakers use the modals *must* (necessity), *should* (weak necessity), and *can* (possibility) to express this type of modality. Comox-Sliammon, on the other hand, again lacks dedicated modals for this purpose. Instead, periphrastic constructions – often involving the verb *χaλ̓* ('to want') – tend to be used to convey bouletic necessity readings, as illustrated by example (31). For weak necessity readings (i.e., recommendations), the use of imperatives – as in (32) – seems to be a common strategy.

(31) CONTEXT: You see a cake in a bakery and feel a strong desire to try it.

χaλ̓ kʷə=tᶿ t̓aʔaʔ-t tin kiks
want DET=1SG.POSS taste-CTR DEM cake
Prompt: 'I have to try this cake!'
Literally: 'I want to try this cake!'

(32) CONTEXT: Your grandmother baked a cake and tells you that you should try it.

t̓aʔaʔ-t ga
taste-CTR IMP
Prompt: 'You should try this cake.'
Literally: 'Taste it!'

However, analogous to the deontic and teleological categories, the English borrowing *have to* can also be used to express necessity and weak necessity readings. This is illustrated by the example in (33):

(33) **have to** Θ=qaǰi-t ǰanxʷ
BOUL 2SG.POSS=try-CTR fish
Prompt: 'You have to / should try the salmon!'
Literally: 'You have to try the salmon!'

CONTEXT: You are in a restaurant with your best friend. It's your first time at this restaurant and you don't know what you should order. Your friend...

✓ a. urges you to try the salmon [TELEOLOGICAL NECESSITY]
✓ b. recommends the salmon [TELEOLOGICAL WEAK NECESSITY]

Once again, *have to* is mostly found in utterances by younger speakers, whereas older speakers tend to avoid using this English borrowing. In addition, just like in the deontic and teleological cases, *have to* seems to be specified both in terms of its modal base and quantificational force.

### 3.2.2 The Absence of Dynamic Modals

For the sake of completeness, this section will outline how dynamic modality is expressed in Comox-Sliammon. As noted by Portner (2009), dynamic modals require a circumstantial modal base and an existential modal force. Traditionally, two types of dynamic modals can be distinguished: (i) volitional modals and (ii) quantificational modals.[13] While the former describe how the circumstances affect the actions available to a volitional subject, the latter force existential quantification over individuals. For this investigation, I will only focus on the concept of volitional modality, which encompasses the sub-flavours of ability and opportunity. As will be shown, Comox-Sliammon does not have any dedicated modals to express these readings.[14]

#### 3.2.2.1 Ability Modals

As emphasized by Portner (2009), ability modals describe intrinsic abilities and skills of an individual. While English uses the modal *can* to encode ability readings, Comox-Sliammon does not employ an overt modal marker for this purpose, as illustrated by the examples below.

[13] The out-of-control cases described by Davis et al. (2007) in St'át'imcets would form a third sub-category of dynamic modality.
[14] Portner (2009) also attributes dispositional modals to the category of volitional modality.

(34) CONTEXT: While you are out on a hike in the forest with your 5-year-old nephew, you spot a beaver sitting on the bank of a small lake. Your nephew asks you whether beavers can swim. You tell him that they do.

(taʔat) nəšəm tə=qʷuwət
(use to) swim DET=beaver
Prompt: 'Beavers can swim.'
Literally: 'Beavers do swim.'

(35) CONTEXT: There was a big event in the town hall. Your neighbor Drew sang a couple of traditional songs at this event. The next day, you tell your friend about Drew's remarkable singing skills.

hiw ʔəy̓=mut tə=wuwuwum=s Drew
INT good=INT DET=sing=3.POSS Drew
Prompt: 'Drew can sing very well.'
Literally: 'Drew's singing is really good.'

### 3.2.2.2 Opportunity Modals

Opportunity modals link the actions available to an individual to the situation they are in (Portner 2009). In English, this kind of modality is usually encoded by *can*. Comox-Sliammon, on the other hand, does not have a dedicated modal to express this kind of modality. Instead, speakers employ periphrastic constructions for this particular purpose, as illustrated by the examples in (36) and (37).

(36) CONTEXT: It is midnight and you are sitting in your living room. Suddenly, your friend Freddie comes in from outside and tells you that you can see the stars tonight.

k̓ʷən-əxʷ=čxʷəm tə=kʷusən tin nat
see-NTR=2SG.SBJ.FUT DET=stars DEM night
Prompt: 'You can see the stars tonight.'
Literally: 'You will see the stars tonight.'

(37) CONTEXT: You and your friend are in a nice hotel room in Victoria. While you unpack your suitcase, your friend walks over to the window and takes a look outside. Then he tells you that you can see the ocean from your room.

tačəm tə=qay̓aʔ
be.visible DET=water
Prompt: 'You can see the ocean (from here).'
Literally: 'The water is visible.'

## 3.3 Summary

Based on the data presented above, we can now start sketching the modal inventory for Comox-Sliammon. As highlighted in Table 2, the epistemic domain encompasses three modal markers, the evidential clitics *č̓a* and *k̓ʷa* as well as a set of complex clitic strings that consist of the future marker *səm* and a clausal demonstrative. The inventory of circumstantial modals, on the other hand, is considerably less populated. Apart from the English borrowing *have to* which is compatible with deontic, teleological, and bouletic readings, circumstantial modality does not seem to be explicitly marked in Comox-Sliammon.

In addition, Table 2 also illustrates that the three epistemic modals are all specified in terms of their modal base, but variable in terms of their quantificational force, i.e., they allow both necessity or possibility readings. In contrast, the circumstantial modal *have to* is specified with regard to its quantificational force as well, since it is only compatible with (weak) necessity readings. Considering that not all modal elements in Comox-Sliammon seem to encode force constraints, the modal system of the language can be described as a 'mixed system'.

**Table 2:** The modal inventory of ʔayʔaǰuθəm

| MODAL BASE | ORDERING SOURCE | NECESSITY | POSSIBILITY |
|---|---|---|---|
| EPISTEMIC | STEREOTYPICAL | *č̓a*<br>*k̓ʷa*<br>*səm*=DEM | *č̓a*<br>*k̓ʷa*<br>*səm*=DEM |
| CIRCUMSTANTIAL | DEONTIC | *have to* | * |
| | TELEOLOGICAL | *have to* | * |
| | BOULETIC | *have to* | * |
| | ABILITY | * | * |
| | OPPORTUNITY | * | * |

## 3.4 The Potential Modal *ǰaqaʔ*

In addition to the four modal markers presented above, Comox-Sliammon also contains another potential modal, namely the auxiliary *ǰaqaʔ*.[15] However, since the contribution of this modal marker is currently not well-understood, I refrain from classifying it as either epistemic or circumstantial at this point. Instead, I will only provide some examples that illustrate its use and leave a detailed analysis of this item for another time.

One of the biggest challenges in providing an analysis for *ǰaqaʔ* is its versatile nature, since this auxiliary appears in a perplexing pandemonium of

[15] Cognates of *ǰaqaʔ* can be found in other Central Salish languages as well. Beaumont (2011) translates the Sechelt auxiliary *yaḵa* as 'might (could), or (if not, otherwise)', while the modal *yeq* in SENĆOŦEN has been associated with counterfactual and bouletic interpretations. In addition, *ǰaqaʔ* also seems to have more distant cognates. The deontic/irrealis modal *ka* as well as the out-of-control modal *ka...a* in St'át'imcets (Davis et al. 2007; Rullmann et al. 2008) appear to be diachronically related to *ǰaqa*.

contexts. In particular, it has been encountered in (i) bouletic contexts, (ii) counterfactual contexts, and (iii) contexts where the event expressed by the proposition was not expected by the speaker.

The examples given in (38) to (40) represent bouletic contexts of use, since all of these sentences express some kind of wish, hope, or desire. More specifically, the first two sentences can be regarded as counterfactual wishes, while the proposition in (38) appears to be rather a direct statement of desire. Regardless, the data suggest that *ǰaqaʔ* could be a modal with a circumstantial modal base and a bouletic ordering source.

(38) **ǰaqaʔ**=č ʔə qəǰi čuẏ
ǰAQAʔ=1SG.SBJ CLF again young
'I wish I were a child again.'

(39) **ǰaqaʔ**=č ʔə xʷaʔ ʔaxʷ=as-uł
ǰAQAʔ=1SG.SBJ CLF NEG snow=3SG.CNJ-PST
'I wish it hadn't snowed.'

(40) **ǰaqaʔ**=č xʷaʔ čəɬ=as kʷəẏ
ǰAQAʔ=1SG.SBJ NEG rain=3SG.CNJ tomorrow
'I hope it doesn't rain tomorrow.'

Secondly, *ǰaqaʔ* can also be used to indicate hypothetical or counterfactual events, as exemplified by (41) to (43). Whether the auxiliary functions as a circumstantial or an epistemic modal in these cases remains to be tested.

(41) **ǰaqaʔ**=č niš taq̇us
ǰAQAʔ=1SG.SBJ be.here get.stranded
'I might get stranded here.'

(42) **ǰaqaʔ** łaχaẇ tə=mijiθ
ǰAQAʔ spoil DET=meat
'The meat might spoil.'

(43) kʷən-ət=čxʷ tə=θ=kʷukʷ. **ǰaqaʔ** q̇at̓xʷ
see-CTR=2SG.SBJ DET=2SG.POSS=cooking ǰAQAʔ burn
'Watch your cooking! It might burn.'

Lastly, *ǰaqaʔ* also appears frequently in contexts where the speaker is surprised by the proposition. In these cases, *ǰaqaʔ* is often translated as 'surprisingly',

'suddenly', 'unexpectedly', or 'accidentally'. Examples for this context of use are provided in (44) to (47).[16, 17]

(44) **ǰaqaʔ** hihiw titul ʔayaʔ
ǰAQAʔ INT small house
'The house was surprisingly small.'

(45) **ǰaqaʔ** q̇ə̈č̈-θaẏ-əm mimaẇ
ǰAQAʔ bite-1SG.OBJ-PASS cat
'All of a sudden, the cat bit me.'

(46) **ǰaqaʔ**=č pəč-əm-əx$^{w}$ Bruno
ǰAQAʔ =1SG.SBJ wake-MD-NTR Bruno
'I accidentally woke Bruno up.'

(47) **ǰaqaʔ** ʔi q$^{w}$əl̇ təs
ǰAQAʔ=1SG.SBJ CONJ come arrive
'What a surprise! He arrived.'

As highlighted by the data in this section, the auxiliary *ǰaqaʔ* can fulfill a variety of functions. Although providing a unified modal analysis for all of its uses is not within the scope of this paper, it will be worthwhile to undertake such an endeavour at some point in the future.

## 4 Modal-Temporal Interactions

Having explored the modal inventory of Comox-Sliammon, the following subsections take a closer look at the modal temporal-interactions for the three epistemic modals *c̓a*, *k̓$^{w}$a*, and *səm*=DEM, and for the circumstantial modal *have to*.

### 4.1 The Inferential Evidential *c̓a*

The inferential evidential *c̓a* is compatible with either present or past temporal perspectives. In example (48), the speaker hears the rain hitting the roof at the utterance time, which suggests that the evidence temporally coincides with the modal claim. Thus, this sentence is interpreted as having a present temporal perspective. In example (49), on the other hand, the evidence does no longer hold at the utterance time, but was only in effect at some point in the past. Consequently, this sentence unambiguously exhibits a past temporal perspective.

[16] It should be noted that the examples in (45) and (46) resemble the out-of-control contexts described by Davis et al. (2007) for the St'át'imcets modal *ka...a*.
[17] Davis (2012), Van Eijk (2013), as well as Davis and Matthewson (2016) describe a particle in St'át'imcets (namely *séna7*) which could be glossed as 'counter-to-expectation'. This label might be appropriate for some instantiations of *ǰaqa* as well.

(48) CONTEXT: You wake up and hear pattering on the roof.

ĉə̀~ĉɬ=**ĉ̰a**
IMPF~rain=EVD.INF
'It might / must be raining.'
[PRES. PERSPECTIVE | PRES. ORIENTATION]

(49) CONTEXT: This morning, you heard some pattering on the roof. It sounded like it might have been raining. Later you found out that your uncle was on the roof, fixing some holes.

ĉə̀~ĉɬ=**ĉ̰a**
IMPF~rain=EVD.INF
'(It sounded like) it might have been raining.'
[PAST PERSPECTIVE | PRES. ORIENTATION]

With this in mind, let us now consider the notion of temporal orientation. In sentences with a present temporal orientation, such as (48) and (49) above, my consultants often produced the predicate with imperfective marking to highlight that the described event is or was ongoing when the evidence was obtained. However, the imperfective marking is neither sufficient nor obligatory for a present temporal orientation, as it can also be omitted without affecting the temporal orientation. Likewise, sentences with a past temporal orientation, such as (50) and (51), often involve the past tense morpheme *-uɬ*. While my consultants generally preferred to include this marker, they also implied that it is not necessary to derive a past temporal orientation.

(50) CONTEXT: You see puddles on the ground and flowers looking fresh.

ĉə̀ɬ-uɬ=**ĉ̰a**
rain-PST=EVD.INF
'It might / must have rained.'
[PRES. PERSPECTIVE | PAST ORIENTATION]

(51) CONTEXT: This morning you looked out your window and saw that the ground was wet. It looked like it might have rained. Later you found out the water was actually from your neighbors sprinklers.

ĉə̀ɬ-uɬ=**ĉ̰a**
rain-PST=EVD.INF
'I thought it might have rained earlier.'
[PAST PERSPECTIVE | PAST ORIENTATION]

While it is not necessary to mark present or past temporal orientations explicitly, sentences with a future orientation must be marked. In order to express that the temporal perspective precedes the described event, the future clitic *səm* is used. Two examples illustrating this requirement are given in (52) and (53) below.

(52) CONTEXT: You hear thunder and see some dark clouds approaching.

ċ̓əɬ=**č̓a=səm**
rain=EVD.INF=FUT
'It might / must be raining soon.'
[PRES. PERSPECTIVE | FUT. ORIENTATION]

(53) CONTEXT: This morning, you heard a loud noise that sounded like thunder. It seemed like it might have been going to rain soon. Later you found out that it was not the thunder you heard. It was your neighbor who had crashed his car into his mailbox.

ċ̓əɬ=**č̓a=səm**
rain=EVD.INF=FUT
'I thought it might have been about to rain.'
[PAST PERSPECTIVE | FUT. ORIENTATION]

## 4.2 The Reportative Evidential *k̓ʷa*

In terms of modal-temporal interactions, the reportative evidential *k̓ʷa* patterns exactly like the inferential evidential *č̓a* – with one exception. While *č̓a* is compatible with both present and past temporal perspectives, *k̓ʷa* is always interpreted as having a past temporal perspective. This restriction is due to an evidential constraint. Intuitively, the report that serves as evidence and the modal claim cannot take place simultaneously. Instead, the hearsay evidence has to precede the speaker's utterance, which explains why *k̓ʷa* only allows a past temporal perspective.

As far as temporal orientation is concerned, the reportative *k̓ʷa* patterns exactly like the inferential *č̓a*. That is, it allows both past and present temporal orientations in the absence of the future marker *səm*, as illustrated by (54) and (55). Marking the reportative with *səm*, however, forces a future temporal orientation. In other words, adding the clitic *səm* is necessary to ensure that the potential event follows the report that serves as evidence. An example for this is given in (56).

(54) CONTEXT: Your friend told you that it rained in Lund yesterday. Later on the same day, you tell me about it.

ċ̓əɬ-uɬ=**k̓ʷa** ƛaʔamin
rain-PST=EVD.RPT Lund
'It was raining in Lund yesterday (I heard).'
[PAST PERSPECTIVE | PAST ORIENTATION]

(55) CONTEXT: Your friend from Lund tells you over the phone that it is raining in Lund right now. Directly after the phone call is over, you tell me about it.

č̓ə~č̓ɬ=**k̓ʷa** ƛaʔamin
IMPF~rain=EVD.RPT Lund
'It is raining in Lund (I heard).'
[PAST PERSPECTIVE | PRESENT ORIENTATION]

(56) CONTEXT: Your friend (a weatherman) told you that it is going to rain in Lund tomorrow. Later on the same the day, you tell me about it.

č̓ə~č̓ɬ=**k̓ʷa=səm** ƛaʔamin
IMPF~rain=EVD.RPT=FUT Lund
'It's gonna be raining in Lund tomorrow (I heard).'
[PAST PERSPECTIVE | FUTURE ORIENTATION]

### 4.3 The Clitic Strings *səm=kʷa, sem=kʷi,* and *sem=kʷu*

In Section 3.1.3, I argued that the clitic *səm* is associated with two different interpretations. While *səm* on its own generally acts as a future marker, it seems to encode epistemic modality when it is directly followed by a clausal demonstrative, like *kʷa, kʷi,* or *kʷu*. In this section, I will focus primarily on these complex epistemic clitic strings and explore the modal-temporal interactions associated with them.

In terms of temporal perspective, *səm=kʷa*, *səm=kʷi*, and *səm=kʷu* are compatible with a present temporal perspective, i.e., the modal claim is based on the speaker's beliefs at the utterance time. Whether sentences involving these clitic strings also allow a past temporal perspective remains to be tested.

More intriguing, however, is the question of how the use of these clitic strings affects the temporal orientation of an utterance. As I have shown in the sections that dealt with the epistemic evidentials *č̓a* and *k̓ʷa*, the clitic *səm* on its own is necessary and sufficient to force a future temporal orientation. Strikingly, the opposite is true when *səm* is followed by a clausal demonstrative. As illustrated by the examples given in (57) to (59), these complex clitic strings are only compatible with past and present temporal orientations, and do not allow a future temporal orientation.

(57) CONTEXT: You are in Sliammon. You look out of your window, and it is pouring outside. Then you begin to wonder what the weather in Vancouver is like.

**səm=kʷa** č̓əɬ Vancouver
FUT=DEM rain Vancouver
'Maybe it's raining in Vancouver.'
[PRES. PERSPECTIVE | PRES. ORIENTATION]

(58) CONTEXT: You are thinking about some visitors that came to the cultural lodge earlier, and you're just guessing that they've already left again.

**səm=kʷi** θu ław-n-um-uɬ-as
FUT=DEM go leave-NTR-1PL.OBJ-PST-3ERG
'I guess they've already left us.'
[PRES. PERSPECTIVE | PAST ORIENTATION]

(59) # **səm=kʷi** θu ław-n-um-uɬ-as
FUT=DEM go leave-NTR-1PL.OBJ-PST-3ERG
'I guess they are going to leave us.'
[PRES. PERSPECTIVE | FUT. ORIENTATION]

Considering this, the clitic *səm* appears to be ambiguous indeed. While its root interpretation is purely aspectual, it adopts a modal interpretation in the company of a clausal demonstrative.

### 4.4 The English Borrowing *have to*

To complete the analysis of modal temporal-interactions, the following paragraphs will take a closer look at the circumstantial modal *have to*.

In terms of temporal perspective, the English borrowing *have to* is compatible with both past or present temporal orientations. In (60), the speaker makes a modal claim based on a rule that was valid in the past, but which no longer holds at the utterance time, thus unambiguously exhibiting a past temporal perspective. In (61), on the other hand, a present temporal perspective is expressed, since the rule is still valid at the time of utterance.

While *have to* is variable in temporal perspective, it is fairly restricted in temporal orientation, i.e., it only allows future temporal orientations. The examples in (60) and (61) illustrate this phenomenon. Since *have to* acts as a circumstantial modal, this limitation is expected (Condoravdi 2002; Copley 2006; Werner 2006; Kratzer 2010; Matthewson 2013).

Interestingly, the future marker *səm* is not necessary to force a future orientation for this modal. One may speculate that this idiosyncrasy is linked to the fact that *have to* has been borrowed and does not belong to the set of traditional Comox-Sliammon modals.

(60) CONTEXT: You tell a friend who visits you daily that the house rules have changed. Although they don't have to take their shoes off today, they had to do so yesterday.

**have to** ϴ=xʷaʔa-t-uɬ qʷəɬaẏšən sǰasuɬ
DEON 2SG.POSS=take.off-CTR-PST shoe yesterday
'Yesterday, you had to take off your shoes.'
[PAST PERSPECTIVE | FUT. ORIENTATION]

(61) CONTEXT: You tell a friend who is visiting you that they have to take their shoes off before they come in.

| | | |
|---|---|---|
| **have to** | Θ=xʷaʔa-t | qʷəɬaɣ̓šən |
| DEON | 2SG.POSS=take.off-CTR | shoes |

'You have to take off your shoes.'
[PRES. PERSPECTIVE | FUT. ORIENTATION]

### 4.5 Summary

To conclude, the modal-temporal interactions in Comox-Sliammon can be summarized as follows. In the epistemic domain, both the inferential evidential *čɂa* and the reportative *kʷɂa* tend to pattern the same. Most importantly, they both allow past temporal perspectives and require the addition of *səm* to force a future orientation. In contrast to *čɂa*, however, the reportative *kʷɂa* cannot express a present temporal perspective, as this would involve hearing the report that serves as evidence at the utterance time. With regard to the complex epistemic clitic strings *səm=kʷa*, *səm=kʷi*, and *səm=kʷu*, I showed that they can be oriented towards the past or the present, but not towards the future. This suggests that the clitic *səm* is ambiguous in nature and acts – depending on its environment –either as a modal marker or as an aspectual marker, but not both. A summary of the modal-temporal interactions in the epistemic domain is given in Table 3.

**Table 3:** Modal-temporal interactions for the three epistemic modals

| | | PAST T. O. | PRES. T. O. | FUT. T. O. |
|---|---|---|---|---|
| *čɂa* | PAST T. P. | *čɂa* | *čɂa* | *čɂa=səm* |
| | PRES. T. P. | *čɂa* | *čɂa* | *čɂa=səm* |
| *kʷɂa* | PAST T. P. | *kʷɂa* | *kʷɂa* | *kʷɂa=səm* |
| | PRES. T. P. | * | * | * |
| *səm*=DEM | PAST T. P. | ? | ? | ? |
| | PRES. T. P. | *səm*=DEM | *səm*=DEM | * |

In the circumstantial domain, modal-temporal interactions appear to be much more restricted, as highlighted by Table 4. While the English borrowing *have to* allows both past and present temporal perspectives, it is exclusively limited to temporal future orientations. Past or present temporal orientations, on the other hand, are not available. In addition, we saw that this circumstantial modal cannot carry the prospective marker *səm*.

**Table 4:** Modal-temporal interactions for the circumstantial modal *have to*

| | | PAST T. O. | PRES. T. O. | FUT. T. O. |
|---|---|---|---|---|
| *have to* | PAST T. P. | * | * | *have to* |
| | PRES. T. P. | * | * | *have to* |

## 5 Variable Force Modals

As highlighted in Section 3, none of the epistemic modals are specified with regard to their quantificational force. Consequently, we need a formal analysis that can account for this variability. Over the years, several researchers have presented approaches to solve similar challenges in other languages. The following paragraphs will focus on two of these approaches in particular, the choice function account by Rullmann et al. (2008) and the strengthening account by Peterson (2010).[18]

Rullmann et al. (2008) employ modal choice functions to account for the variable force effects in St'át'imcets.[19] In this approach, the modal base $B$ – which is provided by the context of the utterance – determines a set of possible worlds that are accessible from $w$. The choice function $f$ then selects a subset of the worlds in $B$ and universally quantifies over them. Since the choice function can select a larger or smaller subset of accessible worlds, the notion of QUANTIFICATIONAL FORCE is best conceptualized as a continuum, i.e., the larger the subset of $B(w)$ selected by the choice function, the stronger the proposition will be. Accordingly, one particular scenario deserves to be mentioned: If the modal choice function matches the identity function, it will select the entire set of worlds provided by the modal base. As the subsequent universal quantification consequently applies to the entire set, a strong necessity reading will result. All things considered, the formalization presented in (62) emerges.

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

... where $\varphi$ is a proposition, $B$ the model base, $c$ a variable assignment function, $w$ a possible world, and $f$ the choice function.

While Rullmann et al. (2008) disregard ordering sources for the sake of simplicity, these conversational backgrounds play a major role in the strengthening analysis by Peterson (2010). To account for the distribution of modals in Gitksan, he relates variable force effects to the number of propositions in the ordering source. As noted earlier, the purpose of an ordering source is to restrict the domain of quantification over the set of worlds provided by the modal base *B*. An empty

[18] A third account that tackles the issue of variable force effects can be found in Deal (2011).
[19] Rullmann et al. (2008) note that the lexical restriction of modals in St'át'imcets is analyzed as a presupposition on the modal base and ordering source.

ordering source will not restrict the domain of quantification. However, as the number of propositions in the ordering source increases, the domain of quantification will be narrowed down, leading to a strengthening of the existential quantification. Eventually, it might even collapse with universal quantification over a singleton set. The formalization in (63) summarizes the strengthening account by Peterson (2010).

(63) If defined, ...
$[\![ \text{MODAL} ]\!]^{w,c} = \lambda g.\lambda\varphi.\exists w' \left[w' \in Og(w)\big(B(w)\big) \wedge [\![\varphi]\!](w') = 1\right]$

... where $\varphi$ is a proposition, $B$ the model base, $g$ an ordering source, $c$ a variable assignment function, $w$ a possible world, and $O$ a selection function comparable to $max$ by Fintel and Heim (2007).

For this investigation, I choose Peterson (2010)'s account to formalize the semantics of the modal expressions in ʔayʔaǰuθəm. Drawing from his analysis, I propose the following lexical entries for the evidentials *čˀa* and *kʷˀa*, the complex epistemic clitic strings *səm=kʷa*, *səm=kʷi*, and *səm=kʷu*, and the circumstantial modal *have to*:

(64) The lexical entry for *čˀa* (inferential):
$[\![ čˀa ]\!]^{w,c}$ is only defined if $c$ provides an epistemic modal base $B$ such that for all worlds $w' \in B(w)$, the inferential evidence in $w$ holds in $w'$.

$[\![ čˀa ]\!]^{w,c} = \lambda g.\lambda\varphi.\forall w' \left[w' \in Og(w)\big(B(w)\big) \rightarrow [\![\varphi]\!](w') = 1\right]$

(65) The lexical entry for *kʷˀa* (reportative):
$[\![ kʷˀa ]\!]^{w,c}$ is only defined if $c$ provides an epistemic modal base $B$ such that for all worlds $w' \in B(w)$, the relevant report made in $w$ is made in $w'$.

$[\![ kʷˀa ]\!]^{w,c} = \lambda g.\lambda\varphi.\forall w' \left[w' \in Og(w)\big(B(w)\big) \rightarrow [\![\varphi]\!](w') = 1\right]$

(66) The lexical entry for *səm*=DEM:
$[\![ səm=\text{DEM} ]\!]^{w,c}$ is only defined if $c$ provides an epistemic modal base $B$.

$[\![ səm=\text{DEM} ]\!]^{w,c} = \lambda g.\lambda\varphi.\forall w' \left[w' \in Og(w)\big(B(w)\big) \rightarrow [\![\varphi]\!](w') = 1\right]$

(67) The lexical entry for *have to*:
$[\![$ *have to* $]\!]^{w,c}$ is only defined if $c$ provides a circumstantial modal base $B$ and a bouletic, deontic, or teleological ordering source $g$.

$[\![ \textit{have to} ]\!]^{w,c} = \lambda g.\lambda\varphi.\forall w' \left[w' \in Og(w)\big(B(w)\big) \rightarrow [\![\varphi]\!](w') = 1\right]$

It should be noted that in the lexical entries presented above, all modals are treated as universal quantifiers by default. Whether this assumption is accurate – or

whether an existential quantifier would be a better choice for the default setting – has yet to be determined.

## 6 Conclusion

To conclude, this paper provides a first description of the modal inventory of Comox-Sliammon. Based on data from 12 fluent speakers of the language, I have identified several markers which encode modality. The evidentials clitics *čə* and *k̓ʷa* are compatible with epistemic modal bases and allow both necessity and possibility readings. Thus, these markers pattern like the variable force modals found in other Salish languages. In addition to these evidentials, epistemic modality can also be expressed by the clitic strings *səm=kʷa*, *səm=kʷi*, and *səm=kʷu*. The circumstantial domain currently only includes the modal marker *have to* which is borrowed from English and encodes deontic, teleological, or bouletic modality. Its quantificational force is restricted to strong and weak necessity readings, suggesting that Comox-Sliammon is best classified as a 'mixed system' in the formal typology of modals.

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